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The Limits of Behavioral Antitrust

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Why should it be possible to predict an eclipse, but not a revolution?[1]

So what happened post-merger? Did the merged hospital try to raise prices at one or both hospitals? If so, did the powerful health plans, as the defendants argued and as the health plan CEO and district court predicted, steer customers to the other Bay Area hospitals and defeat the exercise of market power? Often the antitrust agencies don't know the answer to these questions.[2]

I. INTRODUCTION

One of antitrust enforcement's shortcomings, as famously highlighted by Frank Easterbrook several decades ago,[3] was the practical issues judges faced when trying to resolve legal questions laced with information asymmetry and fundamental uncertainty.[4] Even if a judge was perfectly informed about the optimal level of competition in each market—and hence could decide whether, for example, an exclusive dealing arrangement should be permitted—they would still be braced with the futurity issue of predicting the effects of the conduct at issue. The concomitant risk of error under conditions of imperfect information constituted "the limits of antitrust."[5]

Recent commentary has introduced the antitrust community to an emerging form of demand-side foreclosure called "Cognitive Foreclosure,"[6] which targets consumers' cognitive shortcomings to induce less than perfect decision-making. Consequently, consumer switching incentives and abilities may become diluted, consumers fail to switch when they should switch, and rivals become foreclosed.[7] A potential solidification and prolonging of market power is the result.[8] This form of reasoning has been demonstrated

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1. *See* KARL R. POPPER, CONJECTURES AND REFUTATIONS 340 (1962).
2. Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527, 1573 (2011).
3. *See* Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 4 (1984).
4. *Id.* ("Antitrust is costly. The judges act with imperfect information about the effects of practices at stake. The costs of action and information are the limits of antitrust.").
5. *See id.*
6. *See* Peter O'Loughlin, *Cognitive Foreclosure*, 38 GA. ST. U. 1097, 1097 (2022).
7. *See id.* at 1157.
8. *See id.* at 1146.

most markedly in *Google Android*[9] and *Google Search (Shopping)*,[10] both of which can be conceived as being grounded upon behavioral economic (BE) theories of harm.[11]

Yet there are some who doubt the capacity of BE to meaningfully penetrate antitrust enforcement.[12] Their concerns are of a theoretical nature in line with Easterbrook's concerns about antitrust as an effective institution under conditions of imperfect information and fundamental uncertainty.[13] Specifically, BE's successful inroads into antitrust apparently reside in BE's ability to predict *ir*rationality on the part of market actors by reference to certain boundary conditions under which such decision-making will likely take place.[14] This theoretical hurdle supposedly needs surmounting because antitrust is a "predictive" enterprise whereby antitrust *analysis* requires the prediction of market outcomes[15] in response to a monopolist's

9. Case T-604/18, Google and Alphabet v. Commission (Google Android), EU:T:2022:541, para. 326 et. seq.
10. Case T-612/17, Google and Alphabet v. Commission, EU:T:2021:763; *see also* Commission Decision AT.39740, *Google Search (Shopping)* 27 June 2017.
11. *See* O'Loughlin, *supra* note 6, at 1122–23.
12. *See* Joshua D. Wright & Judd E. Stone II, *Misbehavioral Economics: The Case Against Behavioral Antitrust*, 33 CARDOZO L. REV. 1517, 1526 (2012).
13. *See id.* at 1517–18; *see also* Alan Devlin & Michael Jacobs, *The Empty Promise of Behavioral Antitrust*, 37 HARV. J.L. & PUB. POL'Y 1009, 1062–63 (2014) [hereinafter *The Empty Promise of Behavioral Antitrust*] (discussing theoretical concerns about behavioral economics and antitrust).
14. Wright & Stone II, *supra* note 12, at 1522 ("Behavioralist advocates marshal an impressive collection of laboratory and field evidence illustrating some deviations from expectations arising out of pure rational choice. What this evidence fails to provide, however, are either *necessary or sufficient conditions* for situations in which those biases may affect individual or firm decision-making and those situations in which they do not.") (emphasis added); *id.* at 1534 ("The absence of a meaningful basis on which to discern when specific individuals or firms behave subject to a cognitive bias, as opposed to rationally, renders behavioral law and economics impossible to implement in antitrust.").
15. *The Empty Promise of Behavioral Antitrust*, *supra* note 13, at 1051 ("What antitrust law requires . . . is not subjective post hoc descriptions, but ex ante predictions. Rational choice theory answers this call; behavioral economics does not."); *id.* at 1052 ("If [BE] deserves a meaningful role in antitrust, this claim is of inestimable importance because the ability to forecast market outcomes more precisely than neo-classical 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."); *id.* ("[T]he 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."); *see infra* Part II.

conduct. For example, higher prices will induce a substitution effect among consumers and new entry; "[t]ogether, [these principles] *predict* market self-correction independent of government intervention."[16]

This obscure proposition about antitrust analysis requiring a theory with predictive power raises descriptive and normative questions that have yet to be addressed in the Behavioral Antitrust debate ("Behavioral Antitrust").[17] First, in what sense *is* antitrust a predictive enterprise? Second, *should* antitrust be a predictive enterprise?[18] To the extent that antitrust enforcement decision-makers (e.g., regulators and courts) *do* and *should* engage in predictive analyses, then the Behavioral Antitrust detractors' theoretical criticisms hold some weight.[19] Additionally, to the extent that predictive analysis deserves some role in antitrust enforcement, there is still the question of BE's performance on this parameter of predictive power vis-à-vis rational choice theory (RCT).[20] Thus, a third and more practical question is *can* antitrust be a predictive enterprise given the predictive tools available?[21]

Relatedly, there is also a question of predictive content: what is it that we are trying to predict? That the future effects of specific conduct need to be analyzed to resolve antitrust cases has been well-recognized.[22] For our purposes, however, we will not focus on the effects of conduct but rather on predicting the capacity of the market to self-correct,[23] which is itself a predictive endeavor. More pertinently, we will be focusing on consumers' capacities to circumvent their cognitive failures and ameliorate the scope of antitrust intervention—that is, the capacity of the demand-side to discipline behavioral market failures and act as a substitute for agency intervention.[24] Indeed, if under certain boundary conditions *ir*rationality, rather than rationality, is more likely to govern decision-making, we may find ourselves believing *less* in a market's ability to self-correct and preferring *more* antitrust intervention.[25]

16. *The Empty Promise of Behavioral Antitrust*, *supra* note 13, at 1025 (emphasis added).
17. *See infra* Parts II–III.
18. *See infra* Sections II.A–B.
19. *See infra* Sections II.A–B.
20. *See infra* Part III.
21. *See infra* Part III.
22. *See infra* Part II.
23. *See* O'Loughlin, *supra* note 6, at 1103–04 n.16 (discussing the functional relationship between a market's self-correcting capacities and the scope of antitrust enforcement).
24. *See infra* Part III.
25. *See* O'Loughlin, *supra* note 6, at 1103 n.16.

In this respect, this article seeks to reinvigorate the debate about antitrust's limits at a time when technology and BE are at the forefront of enforcement actions.[26] Specifically, this article descriptively highlights the limits of BE as an "identification" theorem (as opposed to an "impossibility" theorem) for antitrust enforcement purposes, which is forward-looking and assesses the extent to which a business practice might generate foreclosure.[27] In other words, we are assessing BE's limits when "designing rules for assessing unilateral practices"[28] that may guide regulators and judges towards predicting when consumers *themselves* are likely to overcome their cognitive failures and short-circuit behaviorally manipulative conduct.

To be sure, the issue of identification—that is, administrable rules that will allow antitrust decision-makers to practicably discern anticompetitiveness in a given case—has usually been analyzed in the context of *behavior*, i.e., the conduct prong of a potentially anticompetitive infringement and whether such conduct's procompetitive welfare effects outweigh its anticompetitive effects.[29] Behavioral Antitrust detractors have pointed to the significance of this for BE also.[30] As Wright and Stone contend: "Any successful application of behavioral economics to antitrust law must . . . rise or fall on its ability to predictably and accurately discern anti-competitive *conduct* . . . in a manner that can be confidently and consistently applied by judges and regulators."[31] Even Behavioral

26. *See, e.g., id.* at 1172.

27. *See* David S. Evans & A. Jorge Padilla, *Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach*, 72 U. CHI. L. REV. 73, 98 (2005); *see infra* Part II.

28. Evans & Padilla, *supra* note 27, at 74.

29. *See, e.g.,* Paul L. Joskow & Alvin K. Klevorick, *A Framework for Analyzing Predatory Pricing Policy*, 89 YALE L.J. 213, 213–19 (1979) (proffering a framework for identifying anticompetitive price-cutting); *see also* William H. Page, *The Chicago School and the Evolution of Antitrust: Characterization, Antitrust Injury, and Evidentiary Sufficiency*, 75 VA. L. REV. 1221, 1232–33 (1989) (describing how Chicago School models sought to solve "puzzling" business practices and how "[i]n each instance, the analyst must determine in what circumstances the practice is a means of gaining monopoly profits, and in what circumstances it is a means of enhancing productive efficiency."); *infra* Part II.

30. *See* Wright & Stone II, *supra* note 12, at 1528; *cf.* Christopher R. Leslie, Response, *Can Antitrust Law Incorporate Insights from Behavioral Economics?*, 92 TEX. L. REV. 53, 60–61 (2014) (arguing that a predictive model is unnecessary for antitrust analysis).

31. *See* Wright & Stone II, *supra* note 12, at 1528 (emphasis added); *cf.* Leslie, *supra* note 30.

Antitrust proponents seem to acknowledge this point.[32] However, what we are interested in is not advancing an identification framework that separates pro- and anti-competitive conduct but rather one that illuminates when *the market* can be expected to self-correct. So, even if there is "bad" conduct, for example in the form of an exclusionary or exploitative abuse, such "baleful practices" may be "self-correcting."[33] Yet the inherent imperfection of markets concomitantly means that they do not always self-correct, in which case if antitrust *is* and *should* be a predictive enterprise it will be helpful to know from an enforcement standpoint when markets are more likely to self-correct than not.[34] Such an analysis is not helped, however, by the heterogeneity of markets.[35] Nor is it helped by the heterogeneity of *ir*rational decision-making.[36] It is to this task of delineating the limits of BE for judges and regulators when engaging in long-run assessments of consumers' capacities to exert a disciplining force on firms in the context of cognitive foreclosure.

Against this backdrop, this article unfolds as follows. Part II engages in descriptive and normative assessments about antitrust as a predictive enterprise.[37] It argues that not only *do* courts and regulators grapple with futurity issues in antitrust analysis, which is an inherently uncertain exercise,[38] but also that they *should*, given support for the proposition that sometimes markets do self-correct. Thus, this step in antitrust analysis—which is a speculative step—deserves at least some role (though certainly not a dominating role) in resolving antitrust cases.[39] Consequently, there would seem to be at least some height to the theoretical hurdle that BE supposedly needs surmounting to successfully infiltrate antitrust enforcement. Part III asks whether antitrust *can* be a predictive enterprise and looks to the predictive tools we have at our disposal: RCT and BE.[40] It concludes that due to heterogeneous distributions of *ir*rationality,

32. *See* Reeves & Stucke, *supra* note 2, at 1577 ("Nor will behavioral economics offer a rule at a broad level of generality that dictates when unilateral conduct crosses the debated lines from beneficial to benign to anticompetitive.").
33. Easterbrook, *supra* note 3, at 3.
34. *See id.*
35. *See infra* Part II.
36. *See infra* Part III.
37. *See infra* Part II.
38. Joskow & Klevorick, *supra* note 29, at 222 (discussing in the context of predatory pricing behavior "the difficult task of inferring unobservable long-run market outcomes from observable short-run market conditions. Such an enterprise, no matter how carefully it is done, is inherently uncertain . . . .").
39. *See infra* Part II.
40. *See infra* Part III.

boundary conditions would need to be known *ex-ante* for predicting when either rationality or *ir*rationality will likely govern individual decision-making. Having thus established that *sometimes* markets self-correct and *sometimes ir*rationality will govern decision-making, Part IV concludes with some brief reflections.[41]

II. *IS* AND *SHOULD* ANTITRUST BE A PREDICTIVE ENTERPRISE?

Clairvoyance has traditionally been reserved for the fictional realm and, even then, has been rationed only to specific characters.[42] In *The Matrix*, for example, futuristic capacities were within the sole domain of The Oracle, who was empowered with foresight about the faith of Zion, the last remaining human city.[43] In Greek mythology, Tiresias was said to have been endowed with prophetic abilities as a "gift" from Zeus.[44] In the 2007 thriller *Next*, the protagonist Cris Johnson (played by Nicolas Cage) can see into the future but only for the next two minutes.[45] And despite his vast array of psychic capacities—from reading others' minds to communicating with aliens to "editing" others' brains so as to render himself invisible—the *X-Men* character Charles Xavier was not rendered with prophetic powers.[46] This scarcity of clairvoyance can perhaps be seen as a signal of its value.

What might be the significance of futurity issues in antitrust analysis and, consequently, the value of clairvoyance? This question's answer will in part dictate the height of the theoretical

41. *See infra* Part IV.

42. *See infra* notes 40–43 and accompanying text.

43. *See Zion*, FANDOM, https://matrix.fandom.com/wiki/Zion [https://perma.cc/6AME-8N8U] (last visited Dec. 16, 2022); *The Oracle*, FANDOM, https://matrix.fandom.com/wiki/The_Oracle [https://perma.cc/AWT7-7DYK] (last visited Dec. 16, 2022) ("The Oracle gives predictions and insight to Zion operatives who choose to hear her. The One prediction she relays to the resistance of Zion is that of the Prophecy, where the war will end when The One returns to end the hold of the *Matrix*.").

44. *See* Mic Anderson, *Tiresias*, BRITANNICA, https://www.britannica.com/topic/Tiresias [https://perma.cc/8CAX-L8BN] (last visited Dec. 16, 2022).

45. *See Next*, IMDB, https://www.imdb.com/title/tt0435705/ [https://perma.cc/QY83-2RST] (last visited Dec. 16, 2022).

46. *See* Jake Horowitz, *12 Powers You Didn't Know Professor X Has*, SCREENRANT (May 31, 2016), https://screenrant.com/powers-you-did-not-know-professor-x-has/ [https://perma.cc/W9FQ-228G]; *see also Charles Xavier (Earth-616)*, FANDOM, https://marvel.fandom.com/wiki/Charles_Xavier_(Earth-616)#Powers [https://perma.cc/K4AZ-S3LE] (last visited Dec. 16, 2022).

hurdle that Behavioral Antitrust detractors point to when critiquing BE.

The relevance may be most overtly seen when antitrust accounts for long-run considerations in its analysis. Debates over dynamic models of competition, for instance, exemplify just one way in which antitrust may need to be conceived of as a predictive enterprise[47] because these are models that involve "the prediction of future competitive outcomes" which "include considerations of entry, investment, innovation, price, output, and quality."[48] Some consider this dynamic analysis to be particularly significant in high innovation industries[49] due to such industries being subjected to "rapid and disruptive technological change."[50] Technology industries have exhibited waves of "creative destruction" over several decades with market leaders continuously being overthrown by maverick new entrants.[51] As such, it is argued that market power assessments must account for this prospect because a proper antitrust analysis depends on "the vulnerability of leading firms to entry powered by drastic innovation."[52] Further, industrial organization literature demonstrates many models that seek to predict future competitive outcomes based on current output levels, like price predation models,[53] entry models,[54] and mergers.[55] And the most obvious way in which

47. *See* Douglas H. Ginsburg & Joshua D. Wright, *Dynamic Analysis and the Limits of Antitrust Institutions*, 78 ANTITRUST L.J. 1, 3 (2012) (evaluating the limits of agencies and courts in predicting future market conditions for antitrust purposes); *see also* J. Gregory Sidak & David J. Teece, *Dynamic Competition in Antitrust Law*, 5 J. COMPETITION L. & ECON. 581, 581 (2009) (describing how a Schumpterian "framework for antitrust analysis that favors dynamic competition over static competition would put less weight on market share and concentration in the assessment of market power and more weight on assessing potential competition.").

48. Ginsburg & Wright, *supra* note 47, at 3; *see also* David S. Evans & Keith N. Hylton, *The Lawful Acquisition and Exercise of Monopoly Power and Its Implications for the Objectives of Antitrust*, 4 COMPETITION POL'Y INT'L 203, 204 (2008).

49. *See* David S. Evans & Richard Schmalensee, *Some Economic Aspects of Antitrust Analysis in Dynamically Competitive Industries* 4 (Nat'l Bureau of Econ. Rsch., Working Paper No. 8268, 2001), https://www.nber.org/papers/w8268 [https://perma.cc/T9T3-H5VE].

50. *Id.* ("The top three firms [with largest market capitalizations] in 1970 (IBM, AT&T, and General Motors) were still in the top five in 1985 but had been substantially displaced by 2000.").

51. *See id.* at 4–5.

52. *See id.* at 47.

53. *See* Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 J. ECON. THEORY 280, 280 (1982).

54. *See* Dennis W. Carlton & Michael Waldman, *The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries*, 33 RAND J. ECON. 194, 194 (2022); *see also* Steven C. Salop, *Strategic Entry Deterrence*, 69 AM. ECON. REV. 335, 335

antitrust analysis is predictive is in the realm of *ex-ante* merger control, which is "typically an exercise in prediction."[56]

A more pertinent sense in which antitrust may be braced with futurity issues is the prospect of self-correcting market mechanisms. This perspective is largely associated with the Chicago School—perhaps the epitome of antitrust analysis that accounts for futurity.[57] As Reeves and Stucke note: "A key component in the Chicago School's thinking is not that rational decision making leads to perfect decision making, but that markets are self-correcting and *will* counteract faulty decision making."[58] Consequently, "government intervention is often seen as unnecessary and harmful."[59]

This section undertakes descriptive and normative analyses of predictive assessments in antitrust enforcement. The analysis is significant because such a dynamic conception of antitrust will have implications for market power durability. While a static view using market shares may paint a picture of substantial market power on

(1979); Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. 209, 211 (1986); Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267, 267 (1983).

55. *See* Jonathan B. Baker, *Merger Simulation in an Administrative Context*, 77 ANTITRUST L.J. 451, 451 (2011); *see also* Oliver Budzinski & Isabel Ruhmer, *Merger Simulation in Competition Policy: A Survey*, 6 J. COMPETITION L. & ECON. 277–78 (2010).

56. *See* John B. Kirkwood, *The Predictive Power of Merger Analysis*, 56 ANTITRUST BULL. 543, 544 (2011); *see also* RICHARD WHISH & DAVID BAILEY, COMPETITION LAW 817 (Oxford University Press, 9th ed. 2018) ("A complicated feature of merger control is that it is necessarily forward-looking: a competition authority is called upon to consider whether a merger will *lead to* harmful effects on competition in the future.") (emphasis added).

57. *See* Page, *supra* note 29, at 1233–34.

58. Reeves & Stucke, *supra* note 2, at 1548 (emphasis added).

59. *Id.; see also* Jonathan B. Baker, *Taking the Error Out of "Error Cost" Analysis: What's Wrong With Antitrust's Right*, 80 ANTITRUST L.J. 1, 8 (2015) ("Antitrust conservatives often presume that markets are self-correcting: that in the event firms exercise market power, entry by new firms or expansion by existing firms will generally restore competition quickly and automatically, even in the oligopoly settings characteristic of antitrust cases."). As Baker notes, Easterbrook popularized use of the term "self-correcting," but Bork arguably alluded to the notion beforehand. *See* ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF 133 (The Free Press 1993) (1978) (asserting that monopoly positions will "always be eroded" if not due to efficiency); *see also* Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257, 269–70 (2001) ("Building on an imposing foundation of neoclassical economics, Chicago School antitrust writers developed well-reasoned arguments that in the long run markets tend to correct their own imperfections . . . .").

behalf of a firm, a dynamic view may portray a different story, in which case the potential anticompetitive consequences of the conduct the firm engaged in may be nullified. Thus, we can see on this narrow point how the bounds of antitrust liability may expand or contract depending on the paradigm of market power adopted. The analysis is also significant for assessing the height of the theoretical hurdle Behavioral Antitrust detractors levy at BE, who point to the need for predicting market actors' propensities to act rationally or *ir*rationally, and hence, to identify when the market will self-correct.[60]

A. Is *Antitrust a Predictive Enterprise?*

To what extent is antitrust a predictive enterprise? In other words, to what extent do regulators and courts account for futurity in antitrust analysis? To be sure, antitrust may also be a retrospective enterprise.[61] For example, Evans and Padilla perhaps best illuminate this more global "time" dimension of antitrust by highlighting how, in the context of unilateral conduct, the legal concept of anticompetitiveness can depend on both possibility theorems ("future" antitrust) and impossibility theorems ("past" antitrust).[62] The latter stipulates, per Chicago School reasoning, that even if firms possessed the ability to engage in anticompetitive conduct, they would not have had the incentive to do so.[63]

This backward-looking mode of analysis is illustrated in the *Matsushita* case.[64] In *Matsushita*, American manufacturers argued that Japanese firms had engaged in predatory pricing, but the Japanese firms argued such a strategy was "economically irrational" and, therefore, their motivation to engage in such a practice in the first instance was vitiated.[65] The Court's reasoning, predicated on

60. *See infra* discussion Section II.B.

61. *See* Evans & Padilla, *supra* note 27, at 74.

62. *See id.*

63. *Id.* at 74, 77. An "impossibility" theorem as it relates to antitrust would assert that firms would have no incentives to engage in anticompetitive practices and, therefore, they must not have done so. An "identification" theorem, in contrast, as it relates to antitrust, looks to the future and assesses whether a particular practice might generate welfare losses. *See* Paul L. Joskow, *Transaction Cost Economics, Antitrust Rules, and Remedies*, 18 J.L. ECON. & ORG. 95, 104 (2002) ("[Post-Chicago] has shown that a variety of market imperfections can *theoretically* lead to the *possibility* that vertical integration and vertical contractual restraints can enhance market power upstream and/or downstream and, as a result, lead to higher prices, higher costs, and welfare losses.").

64. *See* Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 588–90 (1986).

65. *Id.* at 577–78, 584, 588.

Chicago analysis, exemplifies how narrow antitrust enforcement scope can be a function of believing in a markets' long-run self-correcting capacities.[66] Specifically, the Court held that predatory pricing is "speculative" and, consequently, for it "to be rational the conspirators must have a reasonable expectation of recovering, in the form of later monopoly profits, more than the losses suffered."[67] Citing Bork, McGee, and Easterbrook, the Court reasoned that such a strategy was unlikely because the short-run losses were "definite" while "the long-run gains depend[ed] on successfully neutralizing the competition."[68] Moreover, even if the Japanese firms did neutralize the competition, their subsequent monopoly pricing might "breed quick entry by new competitors."[69] Such a strategy was, therefore, unlikely because market forces cut strongly against the "assurance" required.[70] This "assurance" was all the more uncertain here because it involved alleged predation by numerous conspirators who would likely cheat.[71] The strategy's speculative nature, coupled with the difficulty of allocating *ex-post* gains (assuming they materialized), magnified a conspirator's incentive to cheat.[72] Thus, the Court ultimately vindicated these market mechanisms' capacities to deter predatory pricing by holding that the Japanese firms, "as presumably rational businesses . . . had every incentive *not* to engage in [predatory pricing], for its likely effect would be to generate losses . . . with no corresponding gains."[73] This made such a strategy "implausible,"[74] because no rational firm would undertake it in light of the market forces it would have to contend with.

The "single monopoly profit" theorem also exemplifies this backward-looking dimension of antitrust analysis by demonstrating the impossibility of firms to engage in monopoly pricing under certain conditions. Specifically, suppose a rival firm at t=1 alleges

66. *Id.*
67. *Id.* at 588–89.
68. *Id.* at 589.
69. *Id.*; *see also* BORK, *supra* note 59, at 90–106 (discussing business behavior under systems of competition, monopoly, and oligopoly); John S. McGee, *Predatory Pricing Revisited*, 23 J.L. & ECON. 289, 298–99 (1980); Frank H. Easterbrook, *Predatory Strategies and Counterstrategies*, 48 U. CHI. L. REV. 263, 268–69 (1981).
70. *Matsushita,* 475 U.S. at 589.
71. *Id.* at 590.
72. *Id.* at 590–92 ("Maintaining supracompetitive prices in turn depends on the continued cooperation of the conspirators [and] on the inability of other would-be competitors to enter the market . . . .").
73. *See id.* at 595.
74. *See id.* at 595–96.

anticompetitive tying against a monopolist whereby the latter has sought to leverage its market power in one market into another, related market. In that case, the analysis should conclude that no nefarious conduct at t=0 occurred because the monopolist would have had no incentive in this respect.[75] For instance, if a monopolist of bolts is already profit-maximizing—that is, deriving the most amount of profit possible given *both* cost conditions and demand conditions—then conditioning the purchase of bolts on the simultaneous mandatory purchase of nuts will not increase *total* profit because any increase in the latter's price will be offset by a decrease in *total* demand when the products are consumed in fixed proportions.[76] In fact, as the theorem posits, a monopolist would have an *incentive* for the nuts market to be as competitive as possible[77] so that *total* demand (and hence *total* profit) can increase.[78] Thus, there can be no antitrust liability in such a scenario because, in retrospect, a monopolist would not have engaged in such self-defeating conduct. As Elhauge appropriately puts it, "[t]his theory helped *talk* generations of students and judges out of the usual intuition that tying can be anticompetitive."[79]

Regulators and courts, however, seem to account for the future additionally and consistently in their guidance and decisions. Consider, for example, international antitrust regulators' incorporation of supply-side countervailing market forces when assessing potentially anticompetitive conduct. In the European Union (EU), the European Commission's *Article 102 TFEU Enforcement Guidance* explicitly accounts for the prospect of new entry or

75. *See* Einer Elhauge, *Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory*, 123 HARV. L. REV. 397, 403 (2009) ("The single monopoly profit theory holds that a firm [which has] a monopoly in one product cannot increase its monopoly profits by using tying to leverage itself into a second monopoly in another product.").

76. *See* Ward S. Bowman Jr., *Tying Arrangements and the Leverage Problem*, 67 YALE L.J. 19, 21 (1957) ("Every increase in the price of nuts, even if the monopolist could produce them as cheaply as competitors, *would require* reduction in the price of bolts by a compensating amount [because as total price increases, demand falls].") (emphasis added).

77. *Id.* at 21–22 n.9 ("If nuts are not competitive, the bolt monopolist has an interest in making them so . . . .").

78. For further illustrations, *see generally* BORK, *supra* note 59, at 365–66; RICHARD A. POSNER & FRANK H. EASTERBROOK, *Exclusionary Practices*, *in* ANTITRUST: CASES, ECONOMIC NOTES, AND OTHER MATERIALS 603, 603–902 (2d ed. 1981); *cf.* Elhauge, *supra* note 75, at 400 (detailing the conditions necessary for the theorem to hold and demonstrating how "relaxation of each assumption reveals a distinctive way in which tying can increase monopoly profits.").

79. Elhaughe, *supra* note 75, at 399 (emphasis added).

existing firm expansion in its analysis of alleged anticompetitive unilateral conduct.[80] The likelihood, timeliness, and sufficiency of entry, expansion, or both can all be factors that may deter a firm from increasing prices.[81] Of course, all of this is an exercise in prediction with a variety of factors affecting the likelihood that benefits of entry, expansion, or both sufficiently outweigh costs of such entry and/or expansion.[82] The European Commission's *Guidelines on the Assessment of Horizontal Mergers* demonstrates similar exercises in prediction with respect to the assessment of new entry.[83] Note also the requirement for predictive analysis identified in the European Commission's *Guidelines on the Application of Article 101(3)*, where restrictions of competition by effect in part depend on the probability of negative market outcomes.[84] And in the United States, the Department of Justice's *Horizontal Merger Guidelines* makes the same references to likelihood, timeliness, and sufficiency of new

80. European Commission, *Communication from the Commission–Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings*, at 9, COM (2009) 45 final (Feb. 24, 2009) ("Competition is a dynamic process and an assessment of the competitive constraints on an undertaking cannot be based solely on the existing market situation. The potential impact of expansion by actual competitors or entry by potential competitors, including the threat of such expansion or entry, is also relevant.").

81. *Id.*

82. *See id.* ("For the Commission to consider expansion or entry likely it must be sufficiently profitable for the competitor or entrant, taking into account factors such as the barriers to expansion or entry, the likely reactions of the allegedly dominant undertaking and other competitors, and the risks and costs of failure.").

83. *See* European Commission, *Guidelines on the Assessment of Horizontal Mergers Under the Council Regulation on the Control of Concentrations Between Undertakings*, at 11–13, COM (2004) 31 final (Feb. 5, 2004) ("For entry to be considered a sufficient competitive constraint on the merging parties, it must be shown to be *likely*, timely and sufficient to deter or defeat any *potential* anti-competitive effects of the merger.") (emphasis added).

84. European Commission, *Communication from the Commission–Guidelines on the Application of Article 101 of the Treaty on the Functioning of the European Union to Technology Transfer Agreements*, at 100, COM (2014) 89 final (Mar. 28, 2014) ("If an agreement is not restrictive of competition by object it must be examined whether it has restrictive effects on competition. Account must be taken of both actual and potential effects. In other words the agreement must have likely anti-competitive effects. In the case of restrictions of competition by effect there is no presumption of anti-competitive effects. For an agreement to be restrictive by effect it must affect actual or potential competition to such an extent that on the relevant market negative effects on prices, output, innovation or the variety or quality of goods and services can be expected with a reasonable degree of probability.").

entry.[85] Australia, along with other jurisdictions, provide for similar futurity analyses in their respective regulatory and policy documents.[86]

In *Asia Renal Care v. Orthe Group*, for instance, the Competition Commission of Singapore (CCS) held that firms supplying kidney dialysis services would not infringe Singaporean competition law via coordinated or non-coordinated effects if they merged.[87] Specifically, there existed a "strong competitive fringe" that would have been "capable of sustaining sufficient levels of post-merger rivalry, given the 2 to 6 months required to set up new dialysis centres" in Singapore.[88] Prospective entrants had also highlighted their intention to enter, and evidence of past rates of new entry and existing expansion further supported the prediction of a post-merger world "capable of sustaining sufficient levels of post-merger rivalry."[89] In contrast, in *Siemens Alstom*, the European Commission predicted that new entry from Chinese firms into the European rail transport market was *not* likely to occur in the near future, and a proposed ten-year horizon for assessing the prospect of this entry injected too much uncertainty into the analysis.[90]

85. U.S. DEP'T OF JUST. & FTC, HORIZONTAL MERGER GUIDELINES 27–29 (2010), https://www.justice.gov/atr/horizontal-merger-guidelines-08192010 [https://perma.cc/QS32-7AMF] (last visited Dec. 16, 2022).

86. *See* AUSTL. COMPETITION & CONSUMER COMM'N, MERGER GUIDELINES 10 (2008), https://www.accc.gov.au/publications/merger-guidelines [https://perma.cc/7XUK-CRQT] ("Section 50 requires a forward-looking analysis into the effects or likely effects of a merger, since analysis is generally conducted before the impact of a merger on competition can be observed."). Section 50 of the Australian Competition and Consumer Act 2010 requires the ACCC to account for "merger factors," among which is the potential for new entry. *Id.* at 9–10, 36 ("If there is a high likelihood of timely and sufficient entry in all relevant markets post-merger, the merged firm is unlikely to have market power either pre- or post-merger and therefore the merger is unlikely to result in a substantial lessening of competition."). *Compare id.*, *with* COMPETITION & CONSUMER COMM'N SING., THE COMPETITION AND CONSUMER COMMISSION OF SINGAPORE GUIDELINES 108–10 (2022), https://www.cccs.gov.sg/legislation/competition-act [https://perma.cc/2CK8-5V6N]. *See also id.* at 108 ("Entry by new competitors may be sufficient in likelihood, scope and time to deter or defeat any attempt by the merger parties or their competitors to exploit the reduction in rivalry flowing from the merger (whether through coordinated or noncoordinated strategies).").

87. Asia Renal Care Pte. Ltd. v. Orthe Group, Competition Commission of Singapore [CCS], at 3, 20, 26, 30–31 (2012).

88. *Id.* at 23.

89. *Id.* ("The entry and expansion of new private operators since 2010 further supports the observation of a strong competitive fringe . . . .").

90. Case M.8677 - Siemens/Alstom, Comm'n Decision, 2019 O.J. paras. 485–96 (June 2, 2019) ("It follows that the timeframe for the assessment of potential entry proposed

Some courts have been much more committal in predicting market self-correction in the face of no or low entry barriers.[91] In *Bailey v. Allgas, Inc*,[92] for example, the Court granted summary judgment for the defendant under the Robinson-Patman Act, reasoning that the failure to show difficult entry barriers or the "inability of existing firms to expand their output" rendered the existing evidence "insufficient to demonstrate Allgas could maintain supracompetitive prices long enough to recoup its losses."[93] Similarly, in *AD/SAT v. Associated Press*,[94] the United States Court of Appeals for the Second Circuit affirmed summary judgment for the defendant, reasoning that low entry barriers suggested the defendant would be subjected to "significant competition from new entrants."[95] The potential for future new entry or existing firm expansion has been a determinative factor in many other United States appeals courts' cases.[96]

The demand-side in the form of the substitution-effect similarly pervades regulators' analytic considerations and offers an additional illustration of antitrust as a predictive enterprise. The European Commission, for instance, accounts for this most explicitly in the

by the Parties can neither constitute the appropriate point of reference, nor allow foreseeing any potential entry.").

91. Bailey v. Allgas, Inc., 284 F.3d 1237, 1256 (11th Cir. 2002).

92. *Id.* at 1239.

93. *Id.* at 1256.

94. *See* AD/SAT v. Associated Press, 181 F.3d 216 (2d Cir. 1999).

95. *Id.* at 229–30.

96. Ball Mem'l Hosp., Inc v. Mut. Hosp. Ins., Inc., 784 F.2d 1325, 1335–37 (7th Cir. 1986) (upholding the district court's judgment for the defendants and holding that it was correct to consider ease of entry in its analysis of market power); Broadway Delivery Corp. v. UPS of Am., Inc., 651 F.2d 122, 131 (2d. Cir. 1981) ("Undisputed evidence showed that the defendants did not have the power to control prices. The defendants' rates were subject to ICC approval and could not realistically be raised substantially without the defendants losing business to their principal competitor, the Postal Service. Undisputed evidence further showed that the defendants lacked the power to exclude competition. The Postal Service could not be excluded by the defendants, and entry into the market was open to anyone willing to make the modest investment required to engage in a local delivery service."); Top Markets, Inc., v. Quality Markets, Inc., 142 F.3d 90, 99 (2d Cir. 1998) (noting that "consideration of other relevant factors does not support a conclusion that Quality did, in fact, possess monopoly power. We cannot be blinded by market share figures and ignore marketplace realities, such as the relative ease of competitive entry."); *id.* ("On this record we can draw no reasonable inference other than that Quality lacks monopoly power. Despite its high market share, no other evidence—such as barriers to entry, the elasticity of demand, or the nature of defendant's conduct—supports the conclusion that Quality can control prices or exclude competition.").

context of countervailing buyer power.[97] The United States Department of Justice (DOJ) exhibits similar predictive tendencies in assessing the likelihood of consumer substitution in the event of price rises.[98] Other jurisdictions demonstrate similar predictive analyses. The Australian Competition and Consumer Commission (ACCC) for instance states: "If new entrants are able to offer customers an appropriate alternative source of supply at the right time, any attempt by incumbents to exercise market power will be unsustainable since their customers will simply switch to the new entrants."[99]

Courts also rely on the substitution-effect in predicting potential exercises of market power. Note, for example, in the context of market definition analysis *FTC v. Tenet Health Care Corp*,[100] where the Court held:

> If patients use hospitals outside the service area, those hospitals can act as a check on the exercise of market power by the hospitals within the service area. The FTC's contention that the merged hospitals would have eighty-four percent of the market for inpatient primary and secondary services within a contrived market area that stops just short of including a regional hospital (Missouri Delta in Sikeston) that is closer to many patients than the Poplar Bluff hospitals, strikes us as absurd. The proximity of many patients to hospitals in other towns, coupled with the compelling and essentially unrefuted evidence that the switch to another provider by a small percentage of patients would constrain a price increase, shows that the FTC's proposed market is too narrow.[101]

Thus, in predicting the reactions of consumers to price increases, the court questioned the narrowness of the market and hence the bounds of antitrust liability.

97. European Commission, *supra* note 80 ("Competitive constraints may be exerted not only by actual or potential competitors but also by customers."); *id.* ("If countervailing power is of a sufficient magnitude, it may deter or defeat an attempt by the undertaking to profitably increase prices.").

98. U.S. DEP'T OF JUST. & FTC, *supra* note 85, at 27 ("The Agencies consider the possibility that powerful buyers may constrain the ability of the merging firm to raise prices.").

99. AUSTL. COMPETITION & CONSUMER COMM'N, *supra* note 86, at 36.

100. FTC v. Tenet Health Care Corp., 186 F.3d 1045, 1051 (8th Cir. 1999).

101. *Id.* at 1053–54.

Similarly (and more pointedly), in *United States v. Baker Hughes Inc.*,[102] the D.C. Circuit criticized the government agency for narrowly focusing on entry as a market constraint at the expense of other non-entry countervailing factors.[103] The D.C. Circuit held that the district court was correct to cite the sophistication of consumers as a potentially self-correcting market mechanism that "significantly affected the probability that the acquisition would have anticompetitive effects."[104] The D.C. Circuit upheld the district court on this point and that the presence of sophisticated consumers who "closely examine available options" was one factor that supplied "considerable support for the district court's conclusion that the defendants successfully rebutted the government's prima facie case."[105] Other United States federal court cases demonstrate similar reliance on the predictive power of the substitution effect in their antitrust analyses.[106]

What these examples serve to illustrate is that much of the *mode* of antitrust analysis can be predictive. It is a form of analysis that looks to the future to arrive at legal conclusions about alleged anticompetitiveness. They therefore would seem to add some height to the theoretical hurdle that BE allegedly needs to surmount to

102. *See* United States v. Baker Hughes Inc., 908 F.2d 981 (D.C. Cir. 1990).

103. *Id.* at 985–86 (describing how the Merger Guidelines identify multiple non-entry factors and therefore questioning the government's claim that to rebut its prima facie case, quick and effective entry must be demonstrated).

104. *Id.* at 986.

105. *Id.* at 986–87.

106. United States v. Syufy Enterprises, 903 F.2d 659, 661, 669–71 (9th Cir. 1990) (upholding the district court's judgment that Syufy lacked the power to control to prices because distributors had outside options). An illuminating example is the Citric Acid cartel, where the Court predicted the countervailing force of customers in response to price rises. *See* United States v. Archer-Daniels-Midland-Co., 781 F.Supp. 1400, 1416 (S.D. Iowa 1991) ("The existence of large, powerful buyers of a product mitigates against the ability of sellers to raise prices. Empirical studies have shown that the stronger and more concentrated the buyers' side of the market is, the less is any ability of sellers to elevate their prices. There is a significant concentration among buyers of HFCS."). Note however that the DOJ subsequently prosecuted the cartel, with the DOJ noting the irony that some members were the big buyers who had constituted a countervailing market mechanism. *See* Reeves & Stucke, *supra* note 2, at 1565; *cf. In re* High Fructose Corn Syrup Antitrust Litigation, 295 F.3d 651, 658 (7th Cir. 2002) ("[T]here are some very large buyers of HFCS, notably Coca-Cola and Pepsi-Cola, and, as theory predicts, they drove hard bargains and obtained large discounts from the list price of HFCS 55. But it does not follow that the defendants could not and did not fix the price of HFCS 55.").

successfully influence antitrust analysis. We now turn to examine why the future should be considered at all.

B. Should *Antitrust be a Predictive Enterprise?*

Antitrust at its core is a market-based area of law.[107] It differs from other areas of law—like criminal law or family law—in the sense that even if an infringement occurs, governmental intervention may still be questioned because the market itself can sometimes be a good substitute for state intervention.[108] This is in contrast to, say, a proved domestic violence infraction, whereby no legal decision-maker would seriously entertain a non-interventionist stance because it was predicted that the victim's injuries would heal in the long-run. In antitrust, however, this "wait and see" perspective has not only been adopted but has also been highly influential, as illustrated above and as most markedly seen with the Chicago School of antitrust.[109]

When we say that antitrust suffers from an "identification" problem—that is, problems in discerning "anticompetitiveness" for the purposes of ascribing liability[110]—we can see this on two levels, both of which may animate the normative question of whether

107. Though some scholars associated with the Law and Economics movement saw on some level all legal fields as potential markets. *See* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW (N.Y. Aspen Publishers 2007).

108. STEPHEN BREYER, REGULATION AND ITS REFORM 15 (Harvard Univ. Press 1982) (describing how the justification for regulatory intervention "arises out of an alleged inability of the marketplace [itself] to deal with particular structural problems").

109. *See* Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PENN. L. REV. 925, 948 (1979); *see also* Easterbrook, *supra* note 3, at 2–3 ("judicial errors that tolerate baleful practices are self-correcting" due to monopoly being "self-destructive"); Page, *supra* note 29, at 1233 ("Crucial to [the Chicago] inquiry is the recognition that other economic actors in the market will respond to the practice in ways that maximize their own well-being.").

110. Richard D. Cudahy & Alan Devlin, *Anticompetitive Effect*, 95 MINN. L. REV. 59, 59 (2010) (discussing the nebulousness of "anticompetitiveness" and stating, "The fundamental premise of competition law is straightforward, purporting as it does to condemn 'anticompetitive' behavior. Remarkably, despite the concept's definitive importance, the law has yet to give full definition to this amorphous term."); Evans & Padilla, *supra* note 27, at 73 ("[T]he welfare effects of unilateral practices are inherently difficult to assess."); Page, *supra* note 29, at 1232 (illustrating the potential variance in explanations for "puzzling" business conduct and describing how Chicago School models asked the question: "Is the practice monopolistic or is it something else?"). The most troubling "identification" problem suffered by antitrust is arguably with respect to exclusionary practices because competition is synonymous with exclusion. *See* Frank H. Easterbrook, *On Identifying Exclusionary Conduct*, 61 NOTRE DAME L. REV. 972, 972 (1986).

antitrust should be a predictive enterprise, although we will concern ourselves only with the second.

On the first level is the difficulty in differentiating between procompetitive and anticompetitive conduct.[111] Note for instance Hovenkamp's caution in the mergers context that "courts should be careful not to condemn mergers that create efficiencies that will benefit consumers."[112] Also note debates around the contours of "competition on the merits" and the difficulty acknowledged in defining this concept.[113] The effect of conduct is necessarily a complex welfare question that hinges on its *long-run* consequences.[114] As Cudahy and Devlin query, "[c]an conduct found objectionable under the relevant standard be revived by pointing to long-run, beneficial consequences of that behaviour [sic]?"[115] The opposite can also be true—conduct that generates benefits now but

111. Cudahy & Devlin, *supra* note 110, at 66 ("The history of U.S. antitrust enforcement is replete with instances of directional instability, for the concept of *improper conduct* has proven malleable, confused, and uncertain.") (emphasis added); *id.* at 104 ("It is all too easy to mistake pro-competitive or efficient conduct by the dominant firm for improper, exclusionary behavior, since both forms of behavior can disadvantage or injure rivals."); *see also* Alan Devlin & Michael Jacobs, *Antitrust Error*, 52 WM. & MARY L. REV. 75, 82 (2010) [hereinafter *Antitrust Error*] (describing "the definitive problem that has long plagued antitrust enforcement" as "the ever-present risk of erroneous condemnation"); *id.* at 88 ("Critically, the line between novel conduct that is beneficial, on the one hand, and its harmful counterpart, on the other, is so thin as to be invisible."); Thomas A. Lambert, *The Limits of Antitrust in the 21st Century*, 68 KAN. L. REV. 1097, 1100–01 (2020) (describing antitrust as a "mixed bag" because it must grapple with conduct that is sometimes good and sometimes bad).

112. Herbert Hovenkamp, *Merger Actions for Damages*, 35 HASTINGS L.J. 937, 956 (1984).

113. ORG. FOR ECON. COOP. & DEV., JUNE 2006 POLICY BRIEF: WHAT IS COMPETITION ON THE MERITS? 1 (2006), https://www.oecd.org/competition/mergers/37082099.pdf [https://perma.cc/9C5E-FNHC] ("[Competition on the merits] has never been satisfactorily defined. This has led to a discordant body of case law that uses an assortment of analytical methods. That, in turn, has produced unpredictable results and undermined the term's legitimacy along with policies that are supposedly based on it.").

114. Cudahy & Devlin, *supra* note 110, at 61 (describing the disagreement surrounding antitrust standards and goals but concluding that "[e]ven if one demarcates a single standard . . . intertemporal effects complicate the analysis."); Alan Devlin & Michael Jacobs, *Antitrust Divergence and the Limits of Economics*, 104 NW. U. L. REV. 253, 256 (2010) [hereinafter *Antitrust Divergence and the Limits of Economics*] (pointing to economics' "grave epistemological limitations" that "necessarily frustrate any attempts to resolve the tension between short- and long-run competitive effects, particularly when those effects are in seeming opposition to one another" and how "[t]his intertemporal tension pervades certain aspects of antitrust doctrine . . . .").

115. Cudahy & Devlin, *supra* note 110, at 78.

harm later. As the Supreme Court acknowledged in *Spectrum Sports*: "It is sometimes difficult to distinguish robust competition [in the present] from conduct with long-term anti-competitive effects."[116]

These intertemporal welfare considerations are, among other things, what render antitrust "uniquely vulnerable to error."[117] Specifically,

> The intertemporal impact of commercial conduct denies policy-makers crucial information about *future* effects, which, combined with the epistemological limitations of contemporary economic theory, necessitates decision making under uncertainty. This chronic degree of indeterminism that pervades this area of law makes mistaken conclusions understandable—even inevitable—but it does not render them any less costly. For these reasons, it is hardly surprising that competition law displays a unique fixation with error.[118]

Despite this indeterminacy, some regulators once proclaimed confidence in their ability to undertake this task of separating "the wheat from the chaff" by correctly sanctioning procompetitive conduct and condemning anticompetitive conduct[119] even in light of

116. Spectrum Sports, Inc. v. McQuillan, 506 U.S. 447, 458–59 (1993).

117. *Antitrust Error*, *supra* note 111, at 94; *id.* at 82 (describing "the definitive problem that has long plagued antitrust enforcement" as "the ever-present risk of erroneous condemnation"). *See generally* Herbert Hovenkamp, *Antitrust Error Costs*, 24 U. PENN. J. BUS. L. 293, 293 (2022) (describing how antitrust decision makers face the problem of imperfect information).

118. *Antitrust Error*, *supra* note 111, at 79. (emphasis added); *see also* Hovenkamp, *supra* note 117, at 293 (describing how antitrust decision makers face the problem of imperfect information); C. Scott Hemphill, *An Aggregate Approach to Antitrust: Using New Data and Rulemaking to Preserve Drug Competition*, 109 COLUM. L. REV. 629, 669 (2009) (applying error cost analysis to the pharmaceutical context); Andrew I. Gavil, *Antitrust Bookends: The 2006 Supreme Court Term in Historical Context*, ANTITRUST, Fall 2007, at 21 (describing how in fashioning "new antitrust" rules like "fewer per se rules," among others, "the Court has seemed preoccupied with the goal of reducing error costs, although it has been far more concerned with reducing the incidence of false positives than false negatives . . . .").

119. Christine A. Varney, Assistant Att'y Gen., Antitrust Div., U.S. Dep't. of Just., Vigorous Antitrust Enforcement in this Challenging Era, Remarks as Prepared for the United States Chamber of Commerce (May 12, 2009), https://www.justice.gov/atr/speech/vigorous-antitrust-enforcement-challenging-era [https://perma.cc/8GRK-7Q78].

the inherent difficulty in measuring trade-offs between short-run and long-run welfare.[120]

Take, for example, several kinds of conduct where the legality of each kind "can depend upon first identifying and then comparing current or past harms and benefits with those likely, but not certain, to arise in the future."[121] In the case of tying and bundled discounts, for instance, consumers can benefit now due to various efficiencies,[122] but there is "potential for consumer harm later" in the form of foreclosure effects.[123] In the case of predatory pricing, the consumer again benefits now in the form of lower prices. Still, there may be potential harm later in the form of higher prices as the price-cutting firm attempts to recoup its initial profit loss (the price the firm paid for ousting its rivals in the first instance).[124] There consequently

120. Cudahy & Devlin, *supra* note 110, at 107 ("The problem emanates from the fact that the beneficial long-run gains of controversial practices are at once both *uncertain* and *immeasurable*.") (emphasis added); *see also Antitrust Divergence and the Limits of Economics*, *supra* note 114, at 256 (highlighting the tension between short- and long-run effects and how "[a]ntitrust regulators often face the quandary of choosing between two opposing goals, namely whether to promote immediate gains against the possibility of future losses, or conversely to forego instant benefits in the hope of spurring even more desirous conduct in the future.").

121. *Antitrust Error*, *supra* note 111, at 86; Cudahy & Devlin, *supra* note 110, at 93 ("[W]e explore the paradoxical fact that anticompetitive conditions today may mask procompetitive results in the future.").

122. RICHARD WHISH & DAVID BAILEY, COMPETITION LAW 731 (8th ed. 2015) ("Another reason for tying may be to enable economies of scale or scope to be achieved: a manufacturer of a photocopying machine which also supplies ink, paper and spare parts will be able to reduce costs if all these items are delivered to customers at the same time; tying these products may lead to lower prices.").

123. *Antitrust Error*, *supra* note 111, at 90. The foreclosure effect is usually grounded on the "leveraging" theory. *See* Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 AM. ECON. REV. 837, 839 (1990) (arguing that "tying can indeed serve as a mechanism for leveraging market power" and how "the mechanism through which this exclusion occurs is foreclosure. . . ."); *cf*. Aaron Director & Edward H. Levi, *Law and the Future: Trade Regulation*, 51 NW. U. L. REV. 281, 281 (1956) (noting that harmful conduct does not always appear harmful in individual instances); Bowman Jr., *supra* note 76, at 20 (analyzing situations where tying is used for purposes other than establishing a monopoly); RICHARD A. POSNER, ANTITRUST LAW 200–01 (2nd ed. 2001) (arguing that exclusions from tying, if any, are not objectionable from an anti-trust perspective because they fail to raise prices beyond market level); BORK, *supra* note 59, at 372–73 (finding most common objections to tying "erroneous").

124. ERNEST GELLHORN ET AL., ANTITRUST LAW AND ECONOMICS IN A NUTSHELL 164 (5th ed. 2004) (describing the old approach to predatory pricing whereby "[c]ourts widely accepted the idea that a monopolist with 'deep pockets' could temporarily set prices

materialized several proposals to "identify," that is, to differentiate, between procompetitive price-cutting and anticompetitive price-cutting.[125] In contrast, refusal-to-deal or refusal-to-license cases deliver harm to the competitive process now but may preserve incentives to innovate over the long run, further exemplifying the intertemporal malleability of "anticompetitiveness."[126] This is exactly why antitrust is "uniquely" vulnerable to error; "[i]n every case requiring an intertemporal comparison, and there are many such cases, one of the points of comparison will be both unknown and unknowable."[127]

Aside from these asymmetrically distributed welfare consequences of certain conduct, and much more pertinently for our purposes, there is a second level upon which the bounds of antitrust liability may hinge: the prospect of market self-correction. Similar to the error cost concerns around evaluating conduct, an antitrust policymaker with a strong belief in self-correcting markets would "favor permissive antitrust rules."[128] This is because any risk of false negatives, erroneously sanctioning anticompetitive conduct,[129] "will be low as

below its own and its competitors' costs, wait for chastened or bankrupt rivals to leave the market, and then raise prices to supracompetitive levels.").

125. Phillip Areeda & Donald F. Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697, 697 (1975) (using a cost measurement—specifically, marginal cost—to delineate the line between permissible price cutting and anticompetitive predatory pricing); F.M. Scherer, *Predatory Pricing and the Sherman Act: A Comment,* 89 HARV. L. REV. 869, 885 (1976) (adopting a dynamic welfare model of "efficient resource allocation" to determine anticompetitive price-cutting because "[w]hen long-term welfare maximization is pursued the price-less-than-marginal-cost rule loses its force."). *But cf.* Oliver E. Williamson, *Predatory Pricing: A Strategic and Welfare Analysis*, 87 YALE L.J. 284, 285–86, 288 n.16 (1977) (expressing skepticism towards Areeda & Turner's model and finding Scherer's work "speculative").

126. Cudahy & Devlin, *supra* note 110, at 80 ("Although [the refusal] in the *present* may perhaps be characterized as 'anticompetitive,' in a more important respect it may be anything but. The right to refuse to deal is a hallmark of a property right, which gives incentives to research, invest, and commercialize that may yield vastly greater consumer benefits than mere low prices and higher output in the short-run.") (emphasis added). *See* POSNER, *supra* note 107, at 32 ("legal protection of property rights creates incentives to exploit resources efficiently."). Judge Learned Hand famously acknowledged this point in *Aluminum Company of America.* United States v. Aluminum Co. of Am., 148 F.2d 416, 430 (2d Cir. 1945) ("The successful competitor, having been urged to compete, must not be turned upon when he wins.").

127. *Antitrust Error*, *supra* note 111, at 91.

128. Baker, *supra* note 59, at 8.

129. Fred S. McChesney, *Talking 'Bout My Antitrust Generation,* CATO REV. BUS. & GOV. REG., Fall 2004, at 48, 50 (describing Type II errors as "failing to penalize anticompetitive contracts and practices").

long as entry barriers into markets plagued by suspected anti-competition are also low."[130] We also know that the latter is just one component of market self-correction;[131] switching costs would also need to be low to ameliorate the risk of false negatives.

At this article's outset, we saw how Behavioral Antitrust detractors conceive of antitrust as a predictive enterprise and how if BE cannot cohere as a theory with predictive power, it has little or no role in antitrust enforcement.[132] It is therefore apt to assess the extent to which predictive analyses *should* play a role in antitrust analysis for BE detractors' claims would seem to hinge in part on this question.

1. Self-Correcting Successes—*Some* Role for Predictive Analysis

If markets self-corrected perfectly, no antitrust enforcement would be needed at all. If a market failure did materialize, we could perfectly predict self-correction. However, reality is devoid of perfect competition, and so markets are imperfect. Indeed, that there exists variance in (dis)beliefs about self-correcting markets[133] is by itself a signal that the reality is not binary (self-correction or no self-correction) but rather somewhere in between. Furthermore, the familiar question of whether excessive prices are self-correcting has been the subject of both bifurcated debate[134] and international divergences in enforcement policy,[135] a further illustration that

130. *Id.; see also* Hovenkamp, *supra* note 117, at 294–95 (describing Easterbrook's preference for avoiding false positives more than false negatives and how such a preference is premised upon "the market mov[ing] unmolested to its more competitive equilibrium.").

131. Hovenkamp, *supra* note 117, at 330.

132. *See supra* text accompanying notes 29–36.

133. O'Loughlin, *supra* note 6, at 1103–04 n.16.

134. *See* Ariel Ezrachi & David Gilo, *Are Excessive Prices Really Self-Correcting?* 5 J. COMPETITION L. & ECON. 249, 249 (2008) (arguing that high prices will not induce new entry); *cf*. Easterbrook, *supra* note 3, at 2–3 (describing how "judicial errors that tolerate baleful practices are self-correcting" due to monopoly being "self-destructive"); Page, *supra* note 29, at 1233 (describing how "[c]rucial to the [Chicago] inquiry is the recognition that other economic actors in the market will respond to the practice in ways that maximize their own well-being.").

135. In the U.S., high prices by themselves are not an antitrust violation. *See* Verizon Communications Inc., v. L. Offices of Curtis Trinko, 540 U.S. 398, 407 (2004) ("The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system."). In contrast, in the E.U., excessive pricing can be an abuse contrary to Article 102 TFEU. Case 27/76, United Brands v. Comm'n, 1978 E.C.R. 207, ¶ 250 ("[C]harging a price which is excessive because it has no reasonable relation to the economic value of the product supplied [is] . . . an abuse."); *see also* Case 40/70,

should caution against black-and-white characterizations. Consequently, it seems that the appropriate question to ask for antitrust analysis purposes is not *do* markets self-correct but rather *when* will markets self-correct.

In the context of debates about once-dominant firms, we have been met with an amalgam of claims about self-correcting markets. On the one hand, leading market positions have sometimes succumbed to the power of the rivalrous process.[136] In short, we do have evidence of industries that would seem to attest to long-run market mechanisms providing good substitutes for antitrust intervention, in which case the futurity issue of whether the market will self-correct *should* perhaps form some part of antitrust analysis.[137]

In brick-and-mortar markets, for example, Great Atlantic and Pacific Tea Company (A&P)[138]—a vertically-integrated grocery retailer described by some as "the Amazon of its day"—was subject to the same insurmountable monopoly charges as tech giants today. Nonetheless, A&P met its match from "the big-box warehouse-like supermarkets" and changes in consumer tastes on shopping locations.[139] "Creative[ly] destruct[ive]" competition also arrived in the form of shopping malls, non-grocery products in supermarkets, and the digital economy's logistics improvements.[140] As Bourne concludes, "A&P simply failed to keep up with these changes and was disrupted in the same way it had disrupted the grocery retailers of the early 20th century."[141]

Furthermore, Evans and Padilla "support the self-correction claim with examples of near-monopolies that eroded over time."[142] Companies like General Motors, IBM, and Kodak all lost their dominant positions to "the forces of competition."[143] Harley-

Sirena v. Eda, 1971 E.C.R. 69; Case 26/75 General Motors v. Comm'n, 1975 E.C.R. 1367.

136. Ryan Bourne, *Is This Time Different? Schumpeter, the Tech Giants, and Monopoly Fatalism*, CATO INST. POL'Y ANALYSIS, June 17, 2019, at 1, 3–4, https://www.cato.org/sites/cato.org/files/2019-09/Is%20This%20Time%20Different%3F.pdf [https://perma.cc/9V3U-ZQEP].

137. *Id.* at 1.

138. Timothy Muris & Jonathan Nuechterlein, Antitrust in the Internet Era: The Legacy of *United States v. A&P* 1, 13 (May 29, 2018) (unpublished research paper), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3186569 [https://perma.cc/5T5B-Z4QX].

139. Bourne, *supra* note 136, at 6.

140. *Id.*

141. *Id.*

142. *See* Baker, *supra* note 59, at 10.

143. *See* Evans & Padilla, *supra* note 27, at 84.

Davidson, for instance, fell foul to Japanese manufacturers' production of "lightweight motorcycles."[144] Pre-1960 Harley-Davidson was the market leader in the United States motorcycle market.[145] However, Honda overtook them: between 1960 and 1966, Honda's sales ballooned from five hundred thousand to seventy-seven million.[146] Consider also the toppling of IBM's market position, which was a basis for some at the time to contend that it would be ignoring "recent history to presume that Microsoft is immune from being leapfrogged and displaced from its dominant market position."[147] IBM was once "the undisputed market leader in mainframe computers in the 1960s."[148] However, by 1982—when the United States government "dropped its antitrust case" against IBM—the personal computer had almost entirely replaced the mainframe.[149] "And in that market, despite its brand name and experience, IBM emerged as just one of several strong competitors."[150]

The market mechanism "has not always been so cowardly" in the mergers context. Some commentators once claimed that one "cannot help but come away with renewed or strengthened faith in the market mechanism."[151] Take, for example, the *Reynolds-Arrow* transaction, where soon after the acquisition, both domestic new entrants and foreign competition diluted any worrying market power that the post-acquisition entity may have had.[152] Similarly, in *Union Carbide*, Federal Trade Commission (FTC) lawyers changed their litigation strategy on the basis of a change in market conditions. It was thought that settling would have been a more prudent approach because markets were such that it was unlikely the FTC would win on appeal.[153] The FTC had initially predicted that the "combination" would be "effectively insulated from many of the factors which restrain its extruder competitors," affording the new entity the

144. Richard T. Pascale, *Perspectives on Strategy: The Real Story Behind Honda's Success*, 26 CAL. MGMT. REV. 47, 49–50 (1984).
145. *Id.* at 49.
146. *Id.* at 50.
147. Howard A. Shelanski & J. Gregory Sidak, *Antitrust Divestiture in Network Industries*, 68 U. CHI. L. REV. 1, 14 (2001).
148. *Id.*
149. *Id.*
150. *Id.*
151. Kenneth G. Elzinga, *The Antimerger Law: Pyrrhic Victories?*, 12 J.L. & ECON. 43, 75 (1969).
152. Reynolds Metals Co. v. FTC, 309 F.2d 223, 228–29 (D.C. Cir. 1962); *see also* Elzinga, *supra* note 151.
153. Elzinga, *supra* note 151, at 75.

"power to drive [competitors] to the wall."[154] As such, "the effect of respondent's acquisition of Visking may be to substantially lessen competition or tend to create a monopoly in the manufacture and sale of polyethylene film."[155] However as time passed, it was obvious that this was not going to be the case. Union Carbide lost ten percent market share in the market for film resin and thirteen percent in the market for film production.[156]

2. Self-Correction Failures—*Less* Role for Predictive Analysis

We have also been exposed to instances where the market has failed to nullify market power as envisaged by courts. Such outcomes would seem to dilute the role for predictive analyses in antitrust enforcement.

The *California Hospital Merger*[157] is demonstrative here. Summit and Alta Bates—two hospitals in Oakland and Berkeley respectively—proposed to merge, but the California antitrust authorities sought to enjoin the merger under section 7 of the Clayton Act.[158] The district court, however, permitted the merger, with the long-run consideration of false positive costs playing a key role.[159] Specifically, the defendants raised a "failing company defense," and the court was reluctant to intervene in what otherwise appeared to be "a competitive situation."[160] The court found the Eighth Circuit's allegiance to competitive forces "to be particularly apt in the present case."[161] The long-run considerations can also be seen in the court's reliance on big buyers as a disciplining effect on the post-merger entity's market power.[162] The state plaintiff argued that patients would not switch hospitals due to doctor loyalty and travel costs.[163] However, the court disagreed and held that data demonstrated almost 30,000 patients per year engaged in switching in the relevant product market even without being induced by price increases or "steering"

154. In the Matter of Union Carbide Corp., 59 FTC 614, 35 (1961).
155. *Id.*
156. Elzinga, *supra* note 151, at 75.
157. California v. Sutter Health Sys., 130 F. Supp. 2d 1109, 1119 (N.D. Cal. 2001).
158. *Id.* at 1117.
159. *Id.* at 1137.
160. *Id.* (quoting FTC v. Tenet Healthcare Corp., 186 F.3d 1045, 1055 (8th Cir. 1999)).
161. *Sutter Health Sys.*, 130 F. Supp. 2d at 1137.
162. *Id.* at 1129 ("In the second step of the critical loss test, plaintiff must show that the critical loss number of patients, between 4% and 10.5% of the patients that currently seek acute inpatient services at hospitals located within the proposed market, would not seek such care at hospitals located outside the proposed market if faced with a 5% increase.").
163. *Id.* at 1130.

by powerful health plan providers (although the latter could certainly help).[164] Evidence also seemed to counteract the "doctor loyalty" argument, because doctors could gain admission privileges in other hospitals, albeit sometimes only after several months.[165] The logistical transaction costs also seemed to be contradicted by patient flow data, which showed that "none of the factors upon which plaintiff relies in fact significantly constrain patients from seeking acute inpatient services at hospitals outside of plaintiff's proposed market."[166]

The post-merger situation exemplifies, however, that mistakes about predicting market self-correction can be made.[167] Prices increased between 23.2% and 50.4%.[168] The FTC concluded that the reason for such a dramatic increase was due to the fact that Alta Bates pre-merger constituted "a major constraint on Summit's price."[169] "Post-merger, the two hospitals internalized this constraint."[170]

Digital platform markets offer an emerging illustration about the vagaries of market self-correction. For example, the "this time is different" claim[171] in digital platform contexts illustrates that as industry structure and technology develops, market dominance can be expected to be more long-lasting and less transient.[172] Indeed, digital platform markets are adding more ambiguity about the self-correction question because a spectrum of opinion (and evidence) exists about their self-correcting capacities. The present concern here seems to be about the persistence[173] of these firms' market power and that we should be increasingly mindful about pernicious strategies that seek to solidify and maintain this power.[174]

164. *Id.* at 1129–32.
165. *Id.* at 1131.
166. *Id.*
167. Steven Tenn, *The Price Effects of Hospital Mergers: A Case Study of the Sutter-Summit Transaction* (FTC Bureau of Econ., Working Paper No. 293, 2008), https://www.ftc.gov/reports/price-effects-hospital-mergers-case-study-sutter-summit-transaction [https://perma.cc/CB9M-3CZR].
168. *Id.* at 20.
169. *Id.*
170. *Id.*
171. Bourne, *supra* note 136, at 4.
172. *Id.* at 1.
173. JASON FURMAN, UNLOCKING DIGITAL COMPETITION: REPORT OF THE DIGITAL COMPETITION EXPERT PANEL 39 (2019) (discussing the persistent market dominance of Google and Facebook).
174. *See* O'Loughlin, *supra* note 6, at 1097.

The contrast between the outcomes in the *IBM* and *Microsoft* cases vividly illuminates this increasingly recognized point about how, as technology develops, dominance-entrenching strategies can manifest in more nuanced ways.[175] Consequently, our expectations about self-correction should be updated. The chief economist for IBM in the *IBM* case[176] and the chief economist for the United States government in the *Microsoft* case[177] was the same person. His amenability to the different outcomes perhaps best exemplifies the context-dependent nature of markets' self-correcting capacities and, therefore, their imperfection. He acknowledges, for instance, the different conditions in play that empowered Microsoft to do what IBM "could not have done"—exclude competitors "by protecting an important barrier to entry in the market in which it held monopoly power."[178]

Specifically, although both were cases about bundling and monopoly leveraging, "the facts were different"[179] and serve to illustrate the difference in capacities for acting anticompetitively because of technological developments. In *IBM*, the United States government contended that IBM's bundling of "systems support and software with its computer systems" generated foreclosure because now other computer manufacturers would have to bundle, "thus raising barriers to entry into the supposedly monopolized computer systems market."[180] However, this claim was weakened by the fact that there existed "a large independent software industry, making it easy for hardware manufacturers to acquire the necessary software to produce a bundle."[181] Similar anticompetitive bundling claims were made about disk drives and computer memory but these too could be countered by pointing to independent manufacturers in both

175. *See* Konstantinos Stylianou, *Exclusion in Digital Markets*, 24 MICH. TELECOMM. & TECH. L. REV. 181, 184–85, 187 (2018); John M. Newman, *Antitrust in Digital Markets*, 72 VAND. L. REV. 1497, 1497 (2019) ("Far from being self-correcting, digital markets facilitate the creation and maintenance of uniquely durable market power.").

176. *See* Franklin M. Fisher, *The* IBM *and* Microsoft *Cases: What's the Difference?*, AM. ECON. REV., May 2000, at 180 (discussing the United States' case against IBM from the 1970s).

177. *Id.* (referencing U.S. v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001)).

178. Franklin M. Fisher, *The* IBM *and* Microsoft *Cases: What's the Difference?* (Jan. 19, 2001) (unpublished working paper) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=245619 [https://perma.cc/2D9T-G3EF].

179. *Id.* at 180.

180. *Id.*

181. *Id.*

markets.[182] As Fisher explains: "Most important, manufacturers of both disk drives and memory could sell to customers using non-IBM processors, and in case anyone has forgotten, there were a great many of these."[183] This was the nail in the coffin for the government's bundling claim: "IBM was . . . engaged in competition with many other firms . . . ."[184] And if consumers did not want the bundle, they would simply purchase from other manufacturers without the add-ons.[185]

In contrast, in *Microsoft*, the role of network effects—an economic phenomenon that drives technology platform industries because of same-side and cross-side inter-dependent demand—can explain why competing manufacturers simply could not offer an operating system without a browser. In particular, new entrants could not offer an operating system with no web browser because the value of the former would be reduced substantially.[186] More applications on an operating system increases its value, which leads to increased demand.[187] Thus, when "Microsoft bundled its browser, it did not risk the entry of competing operating systems that are attractive because they do not offer a bundled browser."[188] Such entry would be inconsequential from a competitive standpoint "because of the applications barrier to entry."[189]

We can therefore see how market disciplining effects may dissipate as technology develops, in which case it becomes increasingly significant to be mindful of the conditions under which *more* or *less* self-correction may be expected. As Newman contends: "[D]igital markets facilitate *uniquely* durable market power, in ways that reach far beyond what previous analyses have imagined."[190]

In sum, the fact that we have examples which cut in both directions—markets self-correcting and markets not self-correcting—

182. *Id.* at 181.
183. *Id.*
184. *Id.*
185. *Id.* ("Had consumers not found the bundled offering of the new products sufficiently attractive, there would have been an opportunity for (rather than a foreclosure of) IBM's competitors.").
186. *Id.* at 183.
187. *Id.* at 181–82 ("Users naturally wish to have an operating system that has a large number of applications written for it. As a result, the more users of a given operating system there are, the more applications will be written for it. The more applications are written for a given operating system, the more users there will be.").
188. *Id*. at 183.
189. *Id.*
190. Newman, *supra* note 175, at 1502 (emphasis added).

should not be too surprising given the imperfect nature of markets. It can be argued, however, that this very point means the prospect of self-correction warrants at least a partial (though not a predominant) consideration in antitrust analysis, in which case antitrust *should* be partly a predictive enterprise. The Behavioral Antitrust detractors' claims about BE's predictive shortcomings would therefore seem to deserve at least some attention.[191] Of course, analysis of a dynamic kind "may require difficult judgments about the likelihood of disruptive innovations in the future."[192] And this is compounded by measuring intertemporal welfare trade-offs. But to ignore these futurity considerations altogether would seem to render antitrust analysis "incomplete."[193]

More important, however, is that the illustrations above provide some basis for moving away from dichotomous debates about self-correction versus no self-correction and towards a more nuanced conversation about the *conditions*[194] under which one outcome is more likely than the other. This seems particularly true for digital platform markets because of these firms' unique business structures and emerging methods for solidifying market power in more pernicious ways.[195] Indeed, the very existence of these *kinds* of markets bolsters the claim that the assessment of the prospect of market self-correction is less binary and more nuanced. We now move to assess the extent to which antitrust is equipped to deal with this futurity by evaluating the predictive tools at its disposal.

III. CAN ANTITRUST BE A PREDICTIVE ENTERPRISE WITH IMPERFECT PREDICTIVE TOOLS?

Behavioral Antitrust detractors partially rest their critiques of BE on theoretical grounds. They see BE falling short on one of the parameters used for judging a theory's value, the parameter of predictive power.[196]

Yet early behavioral law and economic (hereinafter BLE) narratives displayed much optimism in the field's potential to penetrate legal policy and legal analysis, buoyed by the findings of

191. *See supra* Part I.

192. Evans & Schmalensee, *supra* note 49, at 47.

193. *Antitrust Error*, *supra* note 111, at 90–91; *see also* Thomas O. Barnett, *Maximizing Welfare Through Technological Innovation*, 15 GEO. MASON L. REV. 1191, 1199 (2008).

194. *See supra* Part I (referring to these conditions as "boundary conditions").

195. *See generally* O'Loughlin, *supra* note 6, at 1097.

196. *See infra* Section III.A.

multiple anomalous deviations from perfect rationality.[197] The ensuing waterfall of BLE scholarship exemplified this buoyancy[198]—

197. Thomas S. Ulen, *The Growing Pains of Behavioral Law and Economics*, 51 VAND. L. REV. 1747, 1763 (1998) ("Behavioral law and economics is exciting, and it is only beginning. A new theory of human decision making is in the offing, one that captures the best of rational choice theory and supplements it with a subtle view of how and why and when humans make mistakes in judgment."); Christine Jolls et al., *A Behavioral Approach to L&E*, 50 STAN. L. REV. 1471, 1474 (1998) ("The unifying idea in our analysis is that behavioral economics allows us to model and predict behavior relevant to law with the tools of traditional economic analysis, but with more accurate assumptions about human behavior, and more accurate predictions and prescriptions about law."); Robert A Prentice, *Chicago Man, K-T Man, and the Future of Behavioral Law and Economics*, 56 VAND. L. REV. 1663, 1671–77 (2003) (surveying traditional neoclassical law and economics analyses and concluding "[t]his survey could continue for many pages, but these examples should serve to indicate that it is at least arguable that K-T Man provides a more descriptive model of human behavior upon which to base legal policy prescriptions than does Chicago Man."); Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 634–35 (1999) ("Ultimately, any legal concept that relies in some sense on a notion of reasonableness or that is premised on the existence of a reasonable or rational decisionmaker will need to be reassessed in light of the mounting evidence that a human is 'a reasoning rather than a reasonable animal.'"); *id.* at 634 ("[O]ne might predict that the current behavioral movement eventually will have an influence on legal scholarship matched only by its predecessor, the law and economics movement."); Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption From Law and Economics*, 88 CALIF. L. REV. 1051, 1055 (2000) (describing how the law and economics movement "has reached intellectual maturity" and that "[t]here is simply too much credible experimental evidence that individuals frequently act in ways that are incompatible with the assumptions of rational choice theory. It follows that the analysis of the incentive effects of legal rules based on such implausible behavioral assumptions cannot possibly result in efficacious legal policy, at least not in all circumstances.") (footnote omitted).

198. The following are just a small sample of the BLE literature. *See generally* Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998); Jeffrey Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113 (1996); Jeffrey Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571 (1998); Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175 (1997); Jeffrey J. Rachlinksi, *Heuristics and Biases in the Courts: Ignorance or Adaptation*?, 79 OR. L. REV. 61 (2000); Christine Jolls, *Behavioral Economic Analysis of Redistributive Legal Rules*, 51 VAND. L. REV. 1653 (1998); Stephen M. Bainbridge, *Mandatory Disclosure: A Behavioral Analysis*, 68 U. CIN. L. REV. 1023 (2000); Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211 (1995); Russell Korobkin, *Policymaking and the Offer/Asking Price Gap: Toward a Theory of Efficient Entitlement Allocation*, 46 STAN. L. REV. 663 (1994); Edward J. McCaffery, *Cognitive Theory and Tax*, 41 UCLA L. REV. 1861 (1994). *See also* Cass R. Sunstein, *Behavioral Law and*

at the time the "result of [an] increasingly frequent mismatch between the popular theory of human behavior and the human behavior that is popular."[199] Some even exclaimed that BLE would "supplant" traditional law and economics as the dominant mode of legal analysis.[200] Perhaps unsurprisingly, given the fundamental influence of the rationality assumption on its own analysis,[201] similar levels of buoyancy were exhibited in antitrust discourse.[202] Competition regulators and policymakers across the globe also began taking heed of the attack on Chicago School rationality.[203]

Economics: A Progress Report, 1 AM. L. & ECON. REV. 115 (1999) (describing how the "outpouring" of BLE scholarship became a "flood").

199. Owen D. Jones, *Time-Shifted Rationality and the Law of Law's Leverage: Behavioral Economics Meets Behavioral Biology*, 95 NW. U. L. REV. 1141, 1141 (2001).

200. *Cf.* Jennifer Arlen, *Comment: The Future of Behavioral Economic Analysis of Law*, 51 VAND. L. REV. 1765, 1768 (1998) ("[A]lthough behavioral economic analysis of law presents a powerful challenge to conventional law and economics, this Comment argues that behavioral economic analysis of law is not yet—and may never be—in a position to supplant conventional law and economics.").

201. Christopher R. Leslie, *Rationality Analysis in Antitrust*, 158 U. PA. L. REV. 261, 265 (2010) ("As a result of the dominating influence of law and economics scholarship, antitrust law now worships at the shrine of rationality."); *see also* Luca Arnaudo, *The Quest for Behavioral Antitrust: Beyond the Label Battle, Towards a Cognitive Approach*, 2 DOVENSCHMIDT Q. 77, 79 (2013) ("Due to the long lasting love affair of L&E [rationality] with antitrust . . . its targeting by the new behavioural [sic] trend does not surprise.") (footnote omitted).

202. Maurice E. Stucke, *Behavioral Economics at the Gate: Antitrust in the Twenty-First Century*, 38 LOY. U. CHI. L.J. 513, 516 (2007) ("The behavioral economics literature will eventually carry antitrust into the twenty-first century."); Reeves & Stucke, *supra* note 2, at 1585–86 ("[R]eliance on these rational-choice theories will recede in the coming years as they fail to explain actual market behavior. Here, the behavioral economics literature and other interdisciplinary economic theories will advance competition policy in understanding such behavior."); Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482, 485 (2002) ("The profound role of boundedly rational action in markets. . . renders its understanding supremely important for the legal regulation of economic phenomena. A study of the competition for profitability and survival among new entrants into industry thus highlights the unique contribution a behaviorally informed approach stands to make to legal and economic scholarship writ large, while shedding new light on the important topic of entry competition specifically.").

203. European Commission Press Release IP/08/1836, Why Consumers Behave the Way They Do: Commissioner Kuneva Hosts High Level Conference on Behavioural Economics (Nov. 28, 2008); Steffen Huck et al., *Consumer Behavioural Biases in Competition: A Survey* 5–6 (Off. Fair Trading, Working Paper No. 31794, 2011), https://mpra.ub.uni-muenchen.de/31794/ [https://perma.cc/8MYS-EE6Q]; Matthew Bennett et al., *What Does Behavioral Economics Mean for Competition Policy?* 5–7 (Off. Fair Trading, Working Paper, Paper No. 1224 2010), https://webarchive.nationalarchives.gov.uk/20140402182927/http:/www.oft.gov.uk/shared_oft/economic_research/oft1224.pdf [https://perma.cc/RB2U-ML5Y]; Thomas J.

Scholarship gained traction producing a spectrum of views regarding the incorporation of BE into antitrust analysis.[204] And in similar vein to BLE proclamations, it was suggested that neoclassical conceptions of rationality would fall prey to more "realistic" human behavior models.[205]

One might have therefore predicted that BE would go on to assuage the epistemological concerns surrounding the intertemporal effects of evaluating business conduct.[206] This has not been the case, however. This is because in the aftermath of the above foray, one

Rosch, Comm'r, FTC, *Behavioral Economics: Observations Regarding Issues that Lie Ahead*, Remarks before the Vienna Competition Conference (June 9, 2010).

204. The most ardent proponent was arguably Professor Stucke. *See* Maurice E. Stucke, *New Antitrust Realism*, ONLINE MAG. FOR GLOB. COMPETITION POL'Y, Jan. 2009, at 2. Professor Tor took a moderate approach. *See* Avishalom Tor, *Understanding Behavioral Antitrust*, 92 TEX. L. REV. 573, 578 (2014) ("[A] closer analysis reveals that both extreme positions in the behavioral antitrust debate are mistaken."). Whatever side of the debate is taken, an impressive volume of literature emerged. *See, e.g.,* Leslie, *supra* note 31, at 53; Leslie, *supra* note 201, at 261; Reeves & Stucke *supra* note 2, at 1527; Maurice E. Stucke, *Money, Is That What I Want?: Competition Policy and the Role of Behavioral Economics*, 50 SANTA CLARA L. REV. 893, 893 (2010); Maurice E. Stucke, *Reconsidering Competition*, 81 MISS. L.J. 107, 108 (2011); Maurice E. Stucke, *Behavioral Antitrust and Monopolization*, 8 J. COMPETITION L. & ECON. 545, 545 (2012); Stucke, *supra* note 202, at 513; Maurice E. Stucke, *The Implications of Behavioral Antitrust* 1 (Univ. Tenn. Legal Stud. Rsch., Paper No. 192, 2012), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2109713 [https://perma.cc/RB2U-ML5Y]; Tor, *supra* note 202, at 485; Avishalom Tor, *The Market, The Firm, and Behavioral Antitrust*, *in* OXFORD HANDBOOK BEHAV. ECON. & L. 539, 539 (Eyal Zamir & Doron Teichman eds., 2014); Avishalom Tor, *Justifying Antitrust: Prediction, Efficiency, and Welfare* 1 (SSRN Paper, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2730670 [https://perma.cc/R4ZP-SL3B]; Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTITRUST L.J. 105, 105 (2012); James C. Cooper & William E. Kovacic, *Behavioral Economics and Its Meaning for Antitrust Agency Decision Making*, 8 J.L., ECON. & POL'Y 779, 779 (2012); 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, 469–71 (2011); Avishalom Tor & William J. Rinner, *Behavioral Antitrust: A New Approach to the Rule of Reason After Leegin*, 2011 U. ILL. L. REV. 805, 805 (2011).

205. Horton, *supra* note 204, at 475 ("[T]his article predicts that *Homo economicus* will become extinct. As *Homo sapiens* replaces *Homo economicus* in antitrust analysis, the Chicago School's antitrust dominance will come to a timely end.") (footnote omitted).

206. *Antitrust Error*, *supra* note 111, at 83 ("The epistemological limitations of economic theory are crucially important. Much of the business conduct that attracts regulatory attention is characterized by asymmetric intertemporal effects, which can be neither measured empirically nor satisfactorily approximated by theory."); *see supra* Section II.A (discussing whether antitrust is and should be a predictive enterprise).

may be left feeling at least a little anticlimactic. Jones appropriately captures this state of affairs by asking the question, "[w]hy [b]ehavioral [e]conomics isn't better, and how it could be"[207]—the implication being that BE is left wanting on some level. Indeed, despite BLE's initial momentum, the field has arguably yet to influence law or policy in a meaningful way (or at least not to the extent that neoclassical economics revolutionized legal thinking and United States Supreme Court doctrine).[208] And the "battle" has hardly "been won" just because BLE boasts impressive citation counts.[209] The criticism that BE/BLE lacks a theoretical foundation and is merely the "residual" of rational choice[210] has been conceded to by even BLE proponents themselves who acknowledge that much work is to be done.[211]

207. Owen D. Jones*, Why Behavioral Economics Isn't Better, and How It Could Be*, *in* RESEARCH HANDBOOK ON BEHAVIORAL LAW AND ECONOMICS 476 (Joshua C. Teitelbaum & Kathryn Zeiler eds., 2018).

208. *See, e.g.*, Posner, *supra* note 109, at 925–26; Page, *supra* note 29, at 1221–22.

209. Russell Korobkin, *What Comes After Victory for Behavioral Law and Economics?*, U. ILL. L. REV. 1653, 1655 (2011).

210. Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 STAN. L. REV. 1551, 1559 (1998); This critique has several variants. Some, for example, argue BLE lacks coherence. *See* Arlen, *supra* note 200, 1768 ("[E]ven when people are not rational, behavioral analysis of law cannot necessarily provide an alternative framework for developing normative policy prescriptions because it does not yet have a coherent, robust, tractable model of human behavior which can serve as a basis for such recommendations."). Others point to BLE's lack of generalizability. *See* Samuel Issacharoff, *Can There be a Behavioral Law and Economics?,* 51 VAND. L. REV. 1729, 1733–34 (1998) ("For a successful behavioral law and economics to emerge . . . at least the following four conditions must be met [which includes]: 1) [t]he effects identified must be generalizable and not limited to idiosyncratic situation-specific departures from rational model expectations."). BLE has been critiqued as disjointed and not unified. Grant M. Hayden & Stephen E. Ellis, *Law and Economics After Behavioral Economics,* 55 KAN. L. REV. 629, 630 (2007) ("[B]ehavioral economics and its legal incarnation are not without problems of their own. Chief among these is the fact that, unlike standard economics, behavioral economics has not coalesced into a unified theory of behavior."). BLE is just a set of RCT contradictions without proffering a holistic narrative. *See* Ulen, *supra* note 197, at 1747 ("We are like the independent scholars who examined the various parts of a very large animal and then tried to put together their reports to describe that animal; we each have bits and pieces of the elephant but no clear image of the entire beast."); Hayden & Ellis, *supra*, at 632 ("Behavioral economists resolutely focus on the trees with very little attention to the forest, and, as result, they have failed to develop a single, consistent account of economic behavior, one that allows them to fit the various behavioral heuristics and biases together . . . .").

211. CASS R. SUNSTEIN ET AL., BEHAVIORAL LAW & ECONOMICS 9 (2000) ("Behavioral law and economics is in its very early stages, and an enormous amount remains to be done. Some of the outstanding questions are foundational and involve the nature of

This section assesses BE's performance on the parameter of predictive power vis-à-vis RCT. We delve into this literature and narrative to supply a solid basis for understanding the practical limits of BE within antitrust analysis. The analysis concludes that neither BE nor RCT can predict perfectly. Rather, in the face of empirical evidence showcasing pervasive heterogeneity in individual propensities to act rationally, knowing whether a market actor will act more or less rationally wholly depends on context, which consequently necessitates knowledge of *ex-ante* boundary conditions for when one outcome is more likely than the other. Thus, just like the question of *when* (not do) markets self-correct is determinative for such a prediction, the question of *when* market actors will act rationally or *ir*rationally is similarly determinative given the imperfect nature of decision-making. In other words, BE is as "equal[ly] incompeten[t]" as RCT.[212]

A. The Value of Predictions

It is open to debate about what the most important parameter—explanatory or predictive—is for judging a theory's value. Explanatory power means the ability of a theory to give observed phenomena meaning by reference to some abstract benchmark.[213] The greater this benchmark's ability to "decrease the degree to which we find the explanandum surprising," then the stronger its explanatory power.[214] Law and Economics' explanation that common law rules are efficient is an illustrative example.[215] For Popper, this was the best judge of a theory's value.[216]

economics itself: Can behavioral economics generate a unitary theory of behavior, or is it an unruly collection of effects?"); s*ee also* Christine Jolls et al., *Theories and Tropes: A Reply to Posner and Kelman,* 50 STAN. L. REV. 1593, 1608 (1998) (in responding to Kelman's criticism that BE is an "incomplete" theory, the authors generally "agree" and acknowledge that "[t]here is a lot of work to do.").

212. *See* Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 GEO. L.J. 67, 67 (2002). Mitchell used the term "equal incompetence" to point BE/BLE proponents ascribing uniform incompetence to the decisions of all individuals, while here, the term is used to mean one theory is as equally *imperfect* as the other. *Id.*

213. Jonah N. Schupbach & Jan Sprenger, *The Logic of Explanatory Power*, 78 PHIL. SCI. 105, 105 (2011).

214. *Id*. at 108.

215. *See*, *e.g.*, Paul H. Rubin, *Why Is the Common Law Efficient?*, 6 J. LEGAL STUD. 51, 51 (1977).

216. *See* KARL R. POPPER, CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE 58 (5th ed., rev. 1989); *see also* Nicholas Aroney, *Explanatory Power,*

Predictive power, in contrast, does not confer a theory with the ability to give observed phenomena "meaning"[217] but rather supplies some abstract benchmark with the capacity to make futuristic statements about how phenomena *will* manifest in response to some change in circumstances. For Friedman,[218] this was the best judge of a theory's value: "[T]he only relevant test of the *validity* of a hypothesis is comparison of its predictions with experience."[219] Elster also opined that a theory is in "serious trouble if the event or state of affairs that actually materializes [*ex-post*] is among those excluded by the theory."[220]

The consequences for BE/BLE's potential penetration of legal policy, generally, are similar to those for antitrust enforcement in the sense that the parameter of predictive power is implicated. In legal policy, it would be useful to know how, why, and/or when behavioral anomalies appear, so that lawmakers may "anticipate in whom they will appear, in what contexts, and with what vigor."[221]

Theory Formation and Constitutional Interpretation: Some Preliminaries, 38 AUSTL. J. LEGAL PHIL. 1, 4 (2013).

217. Joseph Raz, *Two Views of the Nature of the Theory of Law: A Partial Comparison*, *in* HART'S POSTSCRIPT: ESSAYS ON THE POSTSCRIPT TO THE CONCEPT OF LAW 1, 1 (Jules Coleman ed., 2001).

218. Milton Friedman, *The Methodology of Positive Economics*, *in* ESSAYS IN POSITIVE ECONOMICS 3, 8 (1953) ("[T]heory is to be judged by its predictive power for the class of phenomena which it is intended to 'explain.'"); *cf.* George H. Blackford, *On the Pseudo-Scientific Nature of Friedman's as if Methodology*, REAL-WORLD ECON. (Jan. 11, 2017), https://www.rweconomics.com/BPA.htm [https://perma.cc/YV34-ANWQ].

219. Friedman, *supra* note 218, at 8–9.

220. Jon Elster, *When Rationality Fails*, *in* THE LIMITS OF RATIONALITY 19, 19 (Karen Schweers Cook & Margaret Levi eds., 1990).

221. Jones, *supra* note 199, at 1158; *see also* Arlen, *supra* note 200, at 1768–69 ("[A] number of the observed biases appear under certain circumstances, but not in others. It is difficult to predict how, when, or whether many of these biases will manifest themselves in the real world because scholars do not yet fully understand why many of them exist—they are empirical results awaiting a full theoretical explanation. Yet we cannot be confident that an observed bias really does affect actual decisions—as opposed to being simply an artifact of experimental design—until we can explain why the bias exists."); Thomas S. Ulen, *Cognitive Imperfections in the Economic Analysis of Law*, 12 HAMLINE L. REV. 385, 408 (1989) ("[A]lthough cognitive psychology tells us that cognitive imperfections are common, we do not yet have good empirical evidence on which to translate these observations into meaningful public policy. We do not know, for example, whether these cognitive imperfections affect all of us in the same sorts of situations . . . or only an identifiable subset of individuals in limited circumstances . . . ."); *id.* ("Because it is sometimes difficult to craft legal rules so that they distinguish between different types of transactions and transactors in an appropriate manner, it may be difficult for the law to take account of cognitive imperfections that affect only a subset of the population (assuming that subset can be

Similarly, in antitrust, we have just seen the potential significance of a theory with predictive power for antitrust *analysis* purposes. To be sure, some commentators maintain that a coherent theory with predictive power is unnecessary for antitrust analysis because theory "deals in aggregates; litigation deals with individual episodes of anticompetitive behavior."[222] Others implicitly argue this irrelevance by suggesting a switch to a mode of antitrust analysis where predictions would play a less significant role—like *ex-post* merger review for example.[223] Nonetheless, that predictive analysis has at least some role to play in resolving antitrust cases seems less contestable given the amalgam of findings about self-correction successes and failures demonstrated above.

B. Never Always; Only Sometimes—Recognizing "Boundary Conditions"

A frequent charge against BE/BLE is that it does not appropriately identify "boundary conditions"—that is, it does not proffer a set of *necessary and sufficient* conditions for when BE anomalies are more likely than not to arise.[224] Some maintain that BE/BLE scholars speak at "too general a level," which transforms their findings about BE phenomena into "tendencies" but obscures—through vague

identified) or certain kinds of circumstances."); Posner, *supra* note 210 ("[I]t is profoundly unclear what 'behavioral man' would do in any given situation.").

222. Leslie, *supra* note 30, at 61.

223. *See* Reeves & Stucke, *supra* note 2, at 1574.

224. Wright & Stone II, *supra* note 12, at 1534 (citing one theoretical limitation as the lack of "a theoretically sound set of necessary and sufficient conditions for predicting when a given bias will affect an individual"); Gregory Mitchell, *Libertarian Paternalism is an Oxymoron*, 99 NW. U. L. REV. 1245, 1253 (2005) ("What is missing from Sunstein and Thaler's argument, and from behavioral law and economics in general, is a theory of *when* choice frames will control choice and *when* they will not.") (emphasis added) (footnote omitted); Arlen, *supra* note 200, at 1768 (explaining how some biases "appear under certain circumstances, but not in others"); *id.* at 1777 ("[M]any biases exist in some circumstances but not in others, with the scope of these biases often being difficult to predict."). For some BLE proponents, this sensitivity to context is a positive. *See* Jeffrey J. Rachlinski, *The "New" Law and Psychology: A Reply to Critics, Skeptics, and Cautious Supporters*, 85 CORNELL L. REV. 739, 743–44 (2000) ("It is a core principle of psychological research that understanding a phenomenon requires understanding when the phenomenon will occur and when it will not."); *id.* at 744 ("Legal scholars applying BDT to law have, in fact, taken advantage of context to demonstrate important parameters of BDT phenomena."). BE proponents have also cited "contextuality" as a positive. *See* Daniel Kahneman & Amos Tversky, *On the Reality of Cognitive Illusions,* 103 PSYCH. REV. 582, 589 (1996).

ceteris paribus clauses—the array of elements that must be in play for a specific behavioral bias to arise.[225] For example, the omission bias would apparently require several factors to be held constant, like normality of circumstances,[226] measuring sticks,[227] the kinds of values in play,[228] and the subjective interpretation of an omission's outcome.[229] As Mitchell summarizes: "So we see that a behavioral tendency like the omission bias, when its *ceteris paribus* clause is unpacked, can be a rather *fragile contingency* likely to exert its influence only under very circumscribed conditions."[230]

This criticism of BE/BLE seems somewhat indulgent, however, because just as BE/BLE phenomena may be conditional upon the

225. Gregory Mitchell, *Tendencies Versus Boundaries: Levels of Generality in Behavioral Law and Economics*, 56 VAND. L. REV. 1781, 1783 (2003); *see also id.* at 1810; *id.* at 1802 ("Try to transport these behavioral tendencies outside the laboratory, however, and one quickly realizes that they carry tremendously heavy baggage in the form of *ceteris paribus* clauses into which *all of the complicating factors* have been shoved.") (emphasis added). On *ceteris paribus* clauses and their use in economics, see generally Daniel M. Hausman, *Ceteris Paribus Clauses and Causality in Economics*, PSA: PROC. BIENNIAL MEETING PHIL. SCI. ASS'N, 1998, at 308.

226. This is because the normality bias can apparently override the omission bias in decision-making. *See* Robert A. Prentice & Jonathan J. Koehler, *A Normality Bias in Legal Decision Making*, 88 CORNELL L. REV. 583, 643 (2003) ("In fact, the normality bias is so strong that it swamps the influence of another well-documented bias—the omission bias—when the two biases push in different directions.").

227. This is because the omission bias does apparently not arise with the strength or frequency across different methods. *See* Terry Connolly & Jochen Reb, *Omission Bias in Vaccination Decision: Where's the "Omission"? Where's the "Bias"?* 91 ORG. BEHAV. & HUM. DECISION PROCESSES 186, 199 (2003) ("These studies show that two features of the earlier measures—the truncation of probability response scales, and the asymmetry of open-response matching scales—could well have produced inadvertent bias in the earlier studies . . . . Measures that in one form show substantial vaccine aversion show exactly the reverse after apparently harmless modification, and intendedly convergent measures of the same construct fail even rudimentary tests of consistency.").

228. This is because omissions to act are more censurable if there exists some perceived moral obligation to act. *See* Carmen Tanner & Douglas L. Medin, *Protected Values: No Omission Bias and No Framing Effects*, 11 PSYCHONOMIC BULL. & REV. 185 (2004) (showcasing different outcomes due to framing effects).

229. This is because the omission bias seemingly becomes reduced *if* subjects are first told to try and adopt the perspective of a person who would be affected by the bias. *See* Jonathan Baron, *Value Analysis of Political Behavior—Self-Interested : Moralistic :: Altruistic : Moral*, 151 U. PA. L. REV. 1135, 1150–51 (2003) ("Omission bias is somewhat *labile*. It can be reduced by the instructions to take the point of view of those who are affected, e.g., 'If you were the child, and if you could understand the situation, you would certainly prefer the lower probability of death. It would not matter to you how the probability came about.'") (emphasis added).

230. Mitchell, *supra* note 225, at 1804 (emphasis added).

presence of certain boundary conditions, RCT and/or law and economics often make claims about phenomena *ceteris paribus* (indeed, Marshall even described it as a necessary "isolating" influence if complex real-world problems are to be dealt with at all).[231] As Hausman explains: "Explicit or implicit *ceteris paribus* clauses are pervasive in economics."[232] For instance, people do not *always* switch to good B if good C's price rises; they do so *ceteris paribus*. One might conclude, then, that just as BE/BLE seems to require a contextual "crutch" in the form of boundary conditions for predictions to be generated *ex-ante*, RCT is similarly handicapped in its predictive prowess because of *ceteris paribus* qualifications. As Fanto more appropriately acknowledges in a mergers decision-making context: "[P]eople act quasi-rationally, not rationally nor irrationally."[233]

Yet BE proponents routinely seem to promulgate the ubiquity and uniformity of *ir*rational behavior and, consequently, call or implicitly call for the perfect rationality assumption to be replaced with an unqualified assumption of imperfect rationality.[234] For some BE theorists, cognitive anomalies "affect us all with uncanny consistency

231. ALFRED MARSHALL, PRINCIPLES OF ECONOMICS 366 (8th ed. 1920) ("The element of time is a chief cause of those difficulties in economic investigations which make it necessary for man with his limited powers to go step by step; breaking up a complex question, studying one bit at a time, and at last combining his partial solutions into a more or less complete solution of the whole riddle. In breaking it up, he segregates those disturbing causes, whose wanderings happen to be inconvenient, for the time in a pound called *Ceteris Paribus*. The study of some group of tendencies is isolated by the assumption *other things being equal*: the existence of other tendencies is not denied, but their disturbing effect is neglected for a time. The more the issue is thus narrowed, the more exactly can it be handled: but also the less closely does it correspond to real life.").

232. Hausman, *supra* note 225, at 308.

233. James A. Fanto, *Quasi-Rationality in Action: A Study of Psychological Factors in Merger Decision-Making*, 62 OHIO ST. L.J. 1333, 1344 (2001).

234. Mitchell, *supra* note 212, at 84–85. *See, e.g.*, Hanson & Kysar, *supra* note 197, at 1425 ("We argue that, because a multitude of nonrational factors influence individual decisionmaking, consumers cannot be expected to engage in efficient product purchasing analyses—regardless whether manufacturers are required to supply product warnings."); Korobkin & Ulen, *supra* note 197, at 1143 ("In this Article, we have argued that thin versions of rational choice theory—for example, expected utility theory—are an inadequate basis on which to rest legal policy because they have little or no predictive value."); Cass R. Sunstein, *Human Behavior and the Law of Work*, 87 VA. L. REV. 205, 207 (2001) ("[W]orkers are like most people. They behave like *homo sapiens*, not like *homo economicus*."); *cf.* Prentice, *supra* note 197, at 1722 (disputing Mitchell's "equal incompetence" claim and contending that "legal decision theorists [do] recognize individual and situational variations").

and unflappable persistence."[235] The range of anomalies identified by BE are therefore said to manifest "systematically" (i.e., frequently)[236] and they apply to all individuals and situations equally.[237] In short, "whereas law and economics treats all legal actors in all situations as if they were perfectly rational, behavioral law and economics treats all legal actors in all situations as if they were equally predisposed to commit errors of judgment and choice."[238]

235. Hanson & Kysar, *supra* note 197, at 633.

236. Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, *in* JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 3, 20 (Daniel Kahneman et al. eds., 1982) ("[H]euristics are highly economical and usually effective, but they lead to systematic and predictable errors."); *see also* Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777, 778 (2001) ("Psychologists who study human judgment and choice have learned that people *frequently* fall prey to cognitive illusions that produce *systematic* errors in judgment.") (emphasis added); Eisenberg, *supra* note 198, at 218 ("[W]ithin the last thirty years cognitive psychology has established that real people use certain decisionmaking rules (heuristics) that yield systematic errors, and that other aspects of actors' cognitive capabilities are also systematically defective."); SUNSTEIN ET AL., *supra* note 211, at 3 ("It is now well established that people make decisions on the basis of heuristic devices, or rules of thumb, that may work well in many cases but that also lead to systematic errors.").

237. Mitchell, *supra* note 212, at 84 ("All individuals confronted with legally-relevant decisions—whether the individuals be judges, jurors, attorneys, law professors, law students, legislators, criminals, or law-abiding citizens—*presumptively* show systematic deviations from the predictions of rational choice theory *regardless* of their education, sex, age, and other personal background characteristics.") (emphasis added); *see, e.g.*, Larry T. Garvin, *Disproportionality and the Law of Consequential Damages: Default Theory and Cognitive Reality*, 59 OHIO ST. L.J. 339, 343 (1998) ("*[M]ost* people tend to undervalue remote risks; overvalue vivid data and undervalue drab data; take risks to avoid loss, but avoid them to protect gains . . . .") (emphasis added); Guthrie et al., *supra* note 236, at 778 ("Judges, it seems, are human. Like the rest of us, their judgment is affected by cognitive illusions that can produce systematic errors in judgment."); Hanson & Kysar, *supra* note 197, at 633 ("These cognitive illusions—sometimes referred to as biases—are not limited to the uneducated or unintelligent, and they are not readily capable of being unlearned.") (footnote omitted); Rachlinski, *supra* note 224, at 744 (2000) (describing how behavioral research "certainly suggests that *all* social institutions, including courts, legislatures, and administrative agencies, will be subject to cognitive biases") (emphasis added); Cass R. Sunstein, *Economics & Real People*, 3 GREEN BAG 397, 398 (2000) ("It is now well-established . . . that people make decisions on the basis of heuristic devices, or rules of thumb, that may work well in many cases but that also lead to systematic errors. It is also well established that people suffer from various biases and aversions that can lead to inaccurate perceptions.").

238. Mitchell, *supra* note 212, at 6; *see also id.* at 73–74 ("Whereas law and economics assumes too much rationality on the part of legal actors as an empirical matter, behavioral law and economics errs by assuming too much irrationality."); *id.* at 74

This "systematicity," therefore, apparently provides a strong basis for BE to supply better predictive power than RCT. As Prentice states: "[F]or K-T Man to have more descriptive, explanatory, *predictive*, and prescriptive power than Chicago Man, people need only be systematically (not universally and uniformly) subject to various heuristics and biases discussed in the literature. And they are."[239]

However, this presumption of homogeneity seems contradicted by rafts of evidence showcasing variance in *ir*rationality.[240] In particular, BE/BLE advocates who propound generalized and all-encompassing statements about *ir*rational behavior seem to "[ignore] . . . a growing body of empirical research demonstrating that individuals vary widely, and predictably, in their propensities to act rationally."[241] Both the *kinds* of individuals and the *kinds* of decision-making contexts can be determinative in illustrating the heterogeneity of rational decision-making. Such research can thus serve to establish "the contingent nature of a behavioral tendency."[242]

1. Individual Differences

Research shows, for instance, that more educated individuals may perform more rationally in judgment tasks as opposed to less educated individuals.[243] In deductive reasoning tasks, for example,

("[B]oth approaches assume uniformity in cognitive performance across persons and situations that is not supported by the empirical data . . . .").

239. Prentice, *supra* note 197, at 1771 (emphasis added).

240. *See* Mitchell, *supra* note 212, at 67 ("[S]ubstantial empirical evidence [demonstrates] that people are not equally irrational and that situational variables exert an important influence on the rationality of behavior."); *id.* at 75 ("[E]vidence of individual and situational differences in rationality counsels rejection of a simple dichotomous choice between universal rationality and universal irrationality and directs attention instead to comparisons of the relative predictive power of the two models in specific domains for specific groups of people.").

241. *Id.* at 86; *id.* at 86 n.46 ("[T]his argument arises from a fundamental misunderstanding of legal decision theory research: Despite legal decision theorists' portrayal of cognitive biases and errors as widespread and uniform, the great majority of behavioral decision research provides little or no evidence on the prevalence or uniformity of cognitive biases and errors.").

242. Mitchell, *supra* note 225, at 1804.

243. Geoffrey T. Fong & Richard E. Nisbett, *Immediate and Delayed Transfer of Training Effects in Statistical Reasoning*, 120 J. EXPERIMENTAL PSYCH.: GEN. 34, 44 (1991) ("The present findings . . . suggest strongly that people do possess abstract rules and that the rules can be improved by methods such as formal instruction."); Richard E. Nisbett et al., *Teaching Reasoning*, 238 SCI. 625, 630 (1987) ("Taken together, the results of our studies suggest that the effects of higher education on the rules

"education level had a large impact on reasoning performance."[244] Participants with a master's degree or higher solved the Wason four-card selection task—described as one of the "most difficult deductive reasoning" tasks[245]—"on their first attempt."[246] Further, master's students performed better than bachelor's students and bachelor's students performed better than high school students, thereby demonstrating the "significant main effects of education."[247] Studies also illustrate correlations between education level and superior performance in deductive reasoning tasks. Nisbett et al. found that "statistical training does indeed have profound effects on people's reasoning about everyday life effects."[248]

Heterogeneous rationality has also been showcased via differences in cognitive capacity.[249] Stanovich and West find significant correlation between cognitive processing power and superior performance on judgment and decision-making tasks.[250] High performers on standardized intelligence tests like the SAT, for example, are more likely to produce the normative rational response.[251] Stanovich and West document many other instances of individual differences in rationality with correlations between higher cognitive ability and more rational judgment and decision-making.[252]

underlying reasoning may be very marked. In fact, the effects may be marked enough to justify the teaching of some rule systems invoking precisely the principles of formal training and general transfer that have long been invoked for logic, grammar, and other formal systems.").

244. Stephen J. Hoch & Judith E. Tschirgi, *Logical Knowledge and Cue Redundancy in Deductive Reasoning*, 13 MEMORY & COGNITION 453, 457 (1985).

245. Mitchell, *supra* note 212, at 88.

246. Hoch, *supra* note 244, at 456.

247. *Id.*

248. Richard E. Nisbett et al., *The Use of Statistical Heuristics in Everyday Inductive Reasoning*, 90 PSYCH. REV. 339, 358 (1983).

249. *See* Keith E. Stanovich & Richard F. West, *Individual Differences in Reasoning: Implications for the Rationality Debate?* 23 BEHAV. & BRAIN SCI. 645, 648, 652, 654–55, 662 (2000) [hereinafter *Individual Differences in Reasoning*]; Keith E. Stanovich & Richard F. West, *Advancing the Rationality Debate*, 23 BEHAV. & BRAIN SCI. 701, 701, 707, 715 (2000).

250. *Individual Differences in Reasoning*, *supra* note 249, at 648.

251. *Id.*

252. *See* KEITH E. STANOVICH, WHO IS RATIONAL? STUDIES OF INDIVIDUAL DIFFERENCES IN REASONING (Psych. Press, 1999); Keith E. Stanovich & Richard F. West, *Individual Differences in Reasoning and the Heuristics and Biases Debate*, *in* LEARNING AND INDIVIDUAL DIFFERENCES: PROCESS, TRAIT, AND CONTENT DETERMINANTS 389 (Philip L. Ackerman et al., eds., 1999); Keith E. Stanovich & Richard F. West, *Discrepancies Between Normative and Descriptive Models of Decision Making and the Understanding/Acceptance Principle*, 38 COGNITIVE PSYCH. 349 (1999); Keith E. Stanovich & Richard F. West, *Who Uses Base Rates and P(D/-H)? An Analysis of*

As Mitchell summarizes: "[P]ersons who score higher on standard tests of cognitive capacity often, but not always, perform better on judgment and [decision-making] tasks employed within behavioral research."[253]

Not only can we observe heterogeneous rationality *across* individuals, we may also observe it *within* individuals. The affect heuristic is illustrative. Research has demonstrated how emotional fluctuations[254] can impact judgment and decision-making. Affect can change from situation to situation, remain unchanged even as situations change, and/or vary despite the situation remaining unchanged.[255] Study after study has demonstrated how even small affect changes may alter cognitive processes.[256] Further, the valence

Individual Differences, 26 MEMORY & COGNITION 161, 161 (1998) (finding that in a study of over 900 participants those who tested higher on cognitive ability tasks were better at probability assessments and better deductive and inductive reasoners); Keith E. Stanovich & Richard F. West, *Individual Differences in Framing and Conjunction Effects*, 4 THINKING & REASONING 289, 289 (1998); Keith E. Stanovich & Richard F. West, *Cognitive Ability and Variation in Selection Task Performance*, 4 THINKING & REASONING 193, 193 (1998) (finding that in a study of over 800 participants those with higher cognitive ability "solved disproportionately" nondeontic tasks); Keith E. Stanovich & Richard F. West, *Reasoning Independently of Prior Belief and Individual Differences in Actively Open-Minded Thinking*, 89 J. EDUC. PSYCH. 342, 342 (1997) (finding in a 349 college-student sample that "[i]ndividual differences in this index were reliably linked to individual differences in cognitive ability and actively open-minded thinking dispositions.").

253. Mitchell, *supra* note 212, at 96.

254. One issue for this literature is the definition of emotion. *See* Reid Hastie, *Problems for Judgment and Decision Making*, 52 ANN. REV. PSYCH. 653, 671 (2001) ("A major obstacle to the study of the role of emotions in decision making is that there is little consensus on a definition of emotion."); Joseph P. Forgas, *Mood and Judgment: The Affect Infusion Model (AIM)*, 117 PSYCH. BULL. 39, 41 (1995) ("There is little general agreement about how best to define terms such as affect, feelings, emotions, and mood.").

255. Robert B. Zajonc, *Emotions*, *in* THE HANDBOOK OF SOCIAL PSYCHOLOGY 591, 607 (Daniel T. Gilbert et al. eds., 4th ed., 1998) ("A totally different emotional reaction . . . can be elicited depending on what meaning is attached to the eliciting stimulus situation, to the internal states, to the way events are construed, and to the possible consequences of one's own actions.").

256. F. Gregory Ashby et al., *A Neuropsychological Theory of Positive Affect and its Influence on Cognition*, 106 PSYCH. REV. 529, 529 (1999) ("[A] large amount of research has shown convincingly that even moderate fluctuations in positive feelings can systematically affect cognitive processing."). *See, e.g.,* Carlos A. Estrada et al., *Positive Affect Influences Creative Problem Solving and Reported Source of Practice Satisfaction in Physicians*, 18 MOTIVATION & EMOTION 285, 285 (1994); Terry R. Greene & Helga Noice, *Influence on Positive Affect upon Creative Thinking and Problem Solving in Children*, 63 PSYCH. REP. 895, 895 (1988); Alice M. Isen et al.,

of the affect—positive or negative—has also been shown to significantly influence decision-making. At the time of decision-making, for example, positive mood may lead to more heuristic-orientated decisions, which contrasts with a negative mood that seems to induce more cerebral and data-orientated decision-making.[257]

2. Contextual Differences

Variance in decision-making contexts can also generate differences in propensities for rational thinking. BE/BLE theorists have, in essence, fallen somewhat foul to the "fundamental attribution error," which is the "experimentally observed tendency of humans to make the mistake of overestimating the importance of fundamental human character traits and underestimating the importance of situation and context."[258] For instance, it has been acknowledged that situations that provide opportunities for learning and calibration may produce more rationality overtime.[259]

A helpful way of viewing situational variability and its relationship towards *more* or *less* rationality is through the lens of dual process theory (DPT) or what has commonly become called System 1 and System 2.[260] DPT posits that two separate mental processes control our "human cognition"—one of which is deliberate, controlled, slow, analytical, conscious, and effortful while the other is automatic, unconscious, associative, and fast.[261] Heuristics and biases research

Positive Affect Facilitates Creative Problem Solving, 52 J. PERSONALITY & SOC. PSYCH. 1122, 1122 (1987); William Nasby and Regina Yando, *Selective Encoding and Retrieval of Affectively Valent Information: Two Cognitive Consequences of Children's Mood States*, 43 J. PERSONALITY & SOC. PSYCH. 1244, 1244 (1982); Alice M. Isen & Thomas E. Shalker, *The Effect of Feeling State on Evaluation of Positive, Neutral, and Negative Stimuli: When You "Accentuate the Positive", Do You "Eliminate the Negative?"* 45 SOC. PSYCH. Q. 58, 58 (1982).

257. Norbert Schwarz, *Emotion, Cognition, and Decision Making*, 14 COGNITION & EMOTION 433, 434 (2000) (pointing to the "large body of experimental research" that documents differences in decision-making strategies).

258. Robert E. Scott, *The Limits of Behavioral Theories of Law and Social Norms*, 86 VA. L. REV. 1603, 1643–44 (2000).

259. *See* William K. Balzer et al., *Effects of Cognitive Feedback on Performance*, 106 PSYCH. BULL. 410, 410 (1989).

260. *See* Stanovich, *supra* note 252; Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics,* 93 AM. ECON. REV. 1449, 1451 (2003); Daniel Kahneman, *A Perspective on Judgment and Choice: Mapping Bounded Rationality,* 58 AM. PSYCH. 697, 698 (2003) [hereinafter *Mapping Bounded Rationality*].

261. James D. Grayot, *Dual Process Theories in Behavioral Economics and Neuroeconomics: A Critical Review*, 11 REV. PHIL. & PSYCH. 105, 105 (2020); *see also* DANIEL KAHNEMAN, THINKING, FAST AND SLOW (Farrar et al. eds., 2011). Note

contains broad consensus on the existence of these two mental processes.[262] For example, in an effort to integrate "brain imaging results into cognitive theory," Kahneman and Frederick use the "dual-system framework" to explain the results.[263] DPT has shown its potential practical value as well as evidenced by its influence on the libertarian paternalism/nudge literature.[264]

Despite displaying promise, DPT is not without its critics and, for present purposes, a particular concern has been DPT's lack of predictive power in identifying *when* an individual will make judgments or decisions under *ir*rational (rather than rational) processes. As Grayot notes:

> [T]he standard view of DPT does not actually provide an account of how reasoning tasks are accomplished, and decisions made; what it provides is a generic theory about the potential origins of reasoning and decision errors. This, it would seem, is a major deficiency for the theory: if it cannot explain how the mind inhibits or overrides bad judgments that are generated by rapid or automatic mental processes, then what is the point of making the distinction to begin with? After all, we don't *always* submit to our biases—we are often able to restrain gut-reactions and to recognize hasty errors for what they are.[265]

Illustrating how System 1 thinking may vary with context is whether System 2 is sufficiently positioned to intervene. Demonstrative in this respect are Kahneman's propositions about accessibility and System 1, that "[h]ighly accessible impressions

that the attributes of System 1 and System 2 can be assessed along parameters of both content (e.g. percepts, stimuli) and process (e.g., fast and parallel versus slow and serial). *See Mapping Bounded Rationality*, *supra* note 260, at 698.

262. *See* Steven A. Sloman, *The Empirical Case for Two Systems of Reasoning*, 119 PSYCH. BULL. 3, 3 (1996); SHELLY CHAIKEN & YAACOV TROPE, DUAL-PROCESS THEORIES IN SOCIAL PSYCHOLOGY 3 (Guilford Press, 1999); Daniel Kahneman & Shane Frederick, *Representativeness Revisited: Attribute Substitution in Intuitive Judgment*, *in* HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 49 (Thomas Gilovich et al. eds., 2002); Daniel Kahneman & Shane Frederick, *Frames and Brains: Elicitation and Control of Response Tendencies*, 11 TRENDS COGNITIVE SCI. 45, 45 (2007) [hereinafter *Frames and Brains*].

263. *Frames and Brains*, *supra* note 262, at 45.

264. *See* RICHARD H. THALER & CASS R. SUNSTEIN, NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH AND HAPPINESS 5 (2008); Cass R. Sunstein, *People Prefer System 2 Nudges (Kind Of)*, 66 DUKE L.J. 121, 121 (2016).

265. Grayot, *supra* note 261, at 114 (emphasis added).

produced by System 1 control judgment and preferences, unless modified or overridden by the deliberate operations of System 2."[266] The basic point is that heuristics and biases—erroneous mental shortcuts that are substituted for more thoughtful and reflective cognitive processes—are easily accessible and, hence, may be more relied upon in judgment and decision-making.[267]

For example, changes and differences (another label for the BE phenomenon of losses and gains relative to a reference point) have shown to be of high cognitive accessibility.[268] Consequently, they may weigh more heavily than absolute states in judgment and decision-making, a factor that prospect theory accounts for but which Bernoullian models do not account for because they exclusively focus on "outcomes as states" rather than "changes."[269]

Similarly, framing effects—another BE phenomenon—can be squared with System 1 accessibility because rendering certain attributes of a problem more salient or formulating different representations of a problem can "make different aspects of it accessible."[270] Consequently, different preferences can manifest depending on whether, say, "emotions associated with . . . immediate outcomes" are evoked (and therefore are made more cognitively accessible) instead of final states of wealth.[271] And a final example of System 1 accessibility is attribute substitution, whereby a heuristic attribute (like representativeness or similarity) "that comes more *readily to mind*" is substituted for a statistical judgment.[272] The Tom

266. *Mapping Bounded Rationality*, *supra* note 260, at 716.

267. *Id.* at 699 ("A core property of many intuitive thoughts is that under appropriate circumstances, they come to mind spontaneously and effortlessly, like percepts.").

268. STEPHEN E. PALMER, VISION SCIENCE: PHOTONS TO PHENOMENOLOGY (1999).

269. *See* Daniel Bernoulli, *Exposition of a New Theory on the Measurement of Risk*, 22 ECONOMETRICA 23, 24 (1954); *Mapping Bounded Rationality*, *supra* note 260, at 704, 705 ("Bernoulli's (1738/1954) model of utility is flawed because it is *reference independent*: It assumes that the utility that is assigned to a given state of wealth does not vary with the decision maker's initial state of wealth. This assumption flies against a basic principle of perception, where the effective stimulus is not the new level of stimulation but the difference between it and the existing adaptation level."). This proposition—that changes in wealth are the "carriers of utility" instead of final outcomes—is the "cornerstone of prospect theory." *Id.* at 705; *see* Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263, 273 (1979).

270. *Mapping Bounded Rationality*, *supra* note 260, at 716 ("Framing effects were attributed to the fact that alternative formulations of the same situation make different aspects of it accessible.").

271. *See id.* at 706.

272. *Id.* at 707 (emphasis added).

W experiment is demonstrative,[273] which is similar to the Linda problem and illustrates how stereotypes are a "highly accessible natural assessment, whereas judgments of probability are difficult."[274]

One can see the potential for heterogeneous *ir*rationality and how it can be derived from the fact that accessibility may be situationally dependent. It can vary with object properties, physical salience, and "[m]otivationally relevant and emotionally arousing stimuli."[275] And since the most cognitively accessible features are not always the basis for a rational decision,[276] then *more* accessibility may lead to *less* rationality. But since accessibility varies with context, *ir*rationality may be similarly context-dependent (a point that Kahneman himself acknowledges).[277]

Furthermore, the fact that System 2's remedial capabilities also vary with context further highlights the heterogeneous (rather than homogenous) distribution of *ir*rationality. Kahneman and Frederick, for example, offer a framework for highlighting the conditions under which System 2 will not correct System 1 failures.[278] They also illustrate how some biases and heuristics can only arise when *both* systems fail.[279] In one way Kahneman himself bolsters this point by acknowledging: "In the context of an analysis of accessibility, the question *when* intuitive judgments will be corrected is naturally rephrased: *When* will corrective thoughts be sufficiently accessible to intervene in the judgment?"[280] Indeed, the great variety of conditions that can determine System 2 remedial efficacy only serves to further illuminate the variant nature of DPT in predicting *ir*rational conduct. Some conditions under which System 2 is less efficacious include time-pressured decisions,[281] multi-tasking, the time of day that best

273. Daniel Kahneman & Amos Tversky, *On the Psychology of Prediction*, 80 PSYCH. REV. 237, 238–41 (1973).
274. *Mapping Bounded Rationality*, *supra* note 260, at 708.
275. *Id.* at 700–01.
276. *Id.* at 703 ("Unfortunately, there is no reason to believe that the most accessible features are also the most relevant to a good decision.").
277. *Id.* at 699 ("[T]he different aspects and elements of a situation, the different objects in a scene, and the different attributes of an object—all can be more or less accessible.").
278. *Frames and Brains*, *supra* note 262, at 7.
279. *Id.* at 3–4.
280. *Mapping Bounded Rationality*, *supra* note 260, at 711 (emphasis added).
281. Melissa L. Finucane et al., *The Affect Heuristic in Judgments of Risks and Benefits*, 13 J. BEHAV. DECISION MAKING 1, 5–8 (2000).

correlates with a specific person's day-time preferences,[282] and an individual's mood (a highly variable determinant).[283] In contrast, a more robust System 2 is more often associated with intelligence and, unsurprisingly, training in statistical thinking.[284]

Thus, if the "comprehensive list" of the factors that could influence accessibility (and hence the likelihood of *ir*rationality) will be "long,"[285] then propositions about uniform and ubiquitous judgment and decision-making errors are "incomplete at best and empirically false and misleading at worst."[286]

In sum, empirical evidence would seem to cut against generalized propositions about rational or *ir*rational behavior. Both RCT and BE/BLE acolytes arguably should be striving for more nuanced conversations and statements about the likelihood of *ir*rational conduct rather than assuming constant uniformity. Indeed, such an endeavor has been highlighted as significant for future BE/BLE research. Mitchell proposes this move by advocating for the identification of "discrete situations" that are likely to manifest *ir*rationality instead of trying to build general models.[287] Indeed, "when we have empirical data establishing the contingent nature of a behavioral tendency, surely we should acknowledge these *limiting conditions* rather than bury them in (typically implicit rather than express) *ceteris paribus* clauses."[288]

IV. REFLECTIONS

The limits of antitrust were famously identified at a time of brick-and-mortar markets and when BE—both in theory and in practice—was in a nascent stage. This article has sought to reassess antitrust's modern limits at a time when technology and BE are dominating the

282. Galen V. Bodenhausen, *Stereotypes as Judgmental Heuristics: Evidence of Circadian Variations in Discrimination,* 1 PSYCH. SCI. 319, 321–22 (1990).

283. Herbert Bless et al., *Mood and the Use of Scripts: Does a Happy Mood Really Lead to Mindlessness?* 71 J. PERSONALITY & SOC. PSYCH. 665, 665–66 (1996).

284. Franca Agnoli, *Development of Judgmental Heuristics and Logical Reasoning: Training Counteracts the Representativeness Heuristic*, 6 COGNITIVE DEV. 195, 213–15 (1991).

285. *Mapping Bounded Rationality*, *supra* note 260, at 716.

286. Mitchell, *supra* note 212, at 123–24.

287. *Id.* at 130 ("Given the applied nature of legal decision theory, the primary goal should be to explain and predict behavior in *discrete situations* to the greatest extent possible rather than to seek to build an overarching theory of legal behavior . . . .") (emphasis added).

288. Mitchell, *supra* note 225, at 1804 (emphasis added).

enforcement landscape, regulatory investigations, and policy assessments.[289]

Reality is rarely so black and white. Binary conversations about self-correcting markets are arguably less useful for antitrust analysis compared to the nuanced recognition that sometimes markets work well and sometimes they do not. Similarly, sometimes individuals act rationally and at other times less so. Thus, "in deciding whether to tilt the liability rule in favor of permitting questionable conduct, courts should ask whether any resulting market power would be transitory . . . or durable."[290] The difficulty, of course, is "identifying" *when* one outcome is more likely than the other.

While the conduct prong of unilateral antitrust infringements has traditionally been the focus of antitrust's "identification" problem,[291] this article has highlighted how intertemporal considerations about markets' self-correction capacities raise similar identification issues.[292] Just as nobody can "specify precisely what behaviour [sic] competition ought to condemn in all cases,"[293] the heterogeneity of rational decision-making makes predicting market outcomes similarly uncertain.[294] Perhaps the best we can hope for is a set of boundary conditions for *when* rational behavior is more likely to manifest than not.[295] In applying this subtle learning about RCT's and BE's theoretical limitations, antitrust-relevant boundary conditions may be identified so as to advance BE's inroads into antitrust enforcement.[296]

289. O'Loughlin, *supra* note 6.

290. Lambert, *supra* note 111, at 1106; *see also Antitrust Error*, *supra* note 111, at 104–26 (arguing that Type I errors do not always weigh more heavily than Type II errors and that the resulting liability rule will depend on, among other things, the likely durability of the identified harms).

291. *See supra* p. 206.

292. *See supra* Part II.

293. Cudahy & Devlin, *supra* note 110, at 107.

294. *See supra* pp. 246–49.

295. Tor, *supra* note 204, at 608; *see also* Avishalom Tor, *The Methodology of the Behavioral Analysis of Law*, 4 HAIFA L. REV. 237, 295 (2008) ("[T]he behavioral analysis of law should examine the conditions that facilitate or inhibit system 2 operations, to determine where system 1's side-effects are likely to be of greater legal concern.").

296. *See supra* Section III.B.