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## Cognitive Foreclosure

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## COGNITIVE FORECLOSURE

Peter O'Loughlin\*

*You've been living in a dream world, Neo.*<sup>1</sup>  
The Matrix

*There are only two industries that call their customers "users":  
illegal drugs and software.*<sup>2</sup>  
Edward Tufte

*[Y]ou're manipulating the situation in a way that gives no one a  
way out.*<sup>3</sup>  
Gilmore Girls

### ABSTRACT

*Digital markets now fundamentally intertwine with our social and economic lives. International enforcement actions—the United States (U.S.) and European Union (E.U.) Google cases in particular—demonstrate from a behavioral economic perspective how digital platforms may be beginning to implicate antitrust's two most fundamental doctrinal components—conduct and market power—in nuanced ways. In short, the regulatory and policy landscape showcases that we may be moving closer towards an antitrust world whereby firms can manipulate consumers' psychological shortcomings to foreclose competition—a new form of nefarious conduct that might appropriately be termed “cognitive foreclosure.” Yet as a demand-side market failure, one should be cautious about categorizing behavioral market failures as antitrust issues. The*

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1. THE MATRIX (Warner Bros. 1999).

2. Kayla J. Heffernan, *Who Treats Their Users Better—Tech or Drug Dealers?*, MEDIUM (June 27, 2019), <https://medium.com/@kaylajheffernan/who-treats-their-users-better-tech-or-drug-dealers-211f220d8b11> [<https://perma.cc/TN5C-MW69>].

3. *Gilmore Girls: Kill Me Now* (The WB television broadcast Oct. 19, 2000).

*behavioral deviation from perfect competition, then, would need to be “substantial” and “sustainable” if such market failures are to justifiably attract antitrust scrutiny.*

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## INTRODUCTION

The behavioral economic (BE) attack on economics' rational actor model is now well-established and has voluminously showcased anomalous deviations from the assumption of *perfect* rationality.<sup>4</sup> In short, scholars had developed axioms of rationality—like preference transitivity<sup>5</sup> and preference invariance<sup>6</sup>—and subsequent work identified phenomena that seemed to contradict these axioms. These “deviations”—induced by the mental shortcuts (biases and heuristics) that actors had to take due to their bounded rationality<sup>7</sup>—have seen

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4. To call the BE literature “vast” is understating it, but some seminal work on deviations from the more unrealistic assumptions include: Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 Q.J. ECON. 99 (1955); Daniel Ellsberg, *Risk, Ambiguity, and the Savage Axioms*, 75 Q.J. ECON. 643 (1961); Jack L. Knetsch & J. A. Sinden, *Willingness to Pay and Compensation Demanded: Experimental Evidence of an Unexpected Disparity in Measures of Value*, 99 Q.J. ECON. 507 (1984); and Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCIENCE 1124 (1974) (providing a more coherent view of the “anomalies” identified in earlier work). For a more semantic account of these anomalies, Richard Thaler and colleagues ran an “Anomalies” column in the *Journal of Economic Perspectives*. See generally Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias*, 5 J. ECON. PERSPS. 193 (1995); George Loewenstein & Richard H. Thaler, *Anomalies: Intertemporal Choice*, 3 J. ECON. PERSPS. 181 (1989); Amos Tversky & Richard H. Thaler, *Anomalies: Preference Reversals*, 4 J. ECON. PERSPS. 201 (1990); Richard H. Thaler, *Anomalies: The Winner's Curse*, 2 J. ECON. PERSPS. 191 (1988).

5. This means that if an actor prefers A to B and B to C, then the actor will also prefer A to C.

6. This means that a choice should remain the same regardless of how the choice (with the same outcomes) is presented.

7. A key tenet that emerges from the BE literature is that because of individuals' bounded rationality, they rely on mental shortcuts that are sometimes prone to error. See Jeffrey J. Rachlinski, *Heuristics and Biases in the Courts: Ignorance or Adaptation?*, 79 OR. L. REV. 61, 61 (2000) (“The human brain is extremely efficient, but it is not a computer. The brain has a limited ability to process information but must manage a complex array of stimuli. In response to its natural constraints the brain uses shortcuts that allow it to perform well under most circumstances. Reliance on these shortcuts, however, leaves people susceptible to all manner of illusions: visual, mnemonic, and judgmental.” (footnote omitted)); see also Gregory Mitchell, *Why Law and Economics' Perfect Rationality Should Not Be Traded for Behavioral Law and Economics' Equal Incompetence*, 91 GEO. L.J. 67, 70–71 (2002) (“Research from psychology and behavioral economics studies reveals that human judgment and decision[-]making necessarily rely on imperfect psychological mechanisms that cause systematic departures from rationality.” (emphasis added)); Daniel Kahneman & Amos Tversky, *On the Reality of Cognitive Illusions*, 103 PSYCH. REV. 582, 582 (1996) (“These heuristics . . . are often useful but they sometimes lead to characteristic errors or biases . . .”); Tversky & Kahneman, *supra* note 4, at 1124 (“[P]eople rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations.”); Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1477 (1998) (“Bounded rationality . . . refers to the obvious fact that human cognitive abilities are not infinite. . . . [P]eople sometimes respond rationally to their own

empirical validation, along with important theoretical (and practical) implications across diverse fields such as health, environment, and education.<sup>8</sup> BE now even has its own card game.<sup>9</sup> In fact, this evolving concept of “irrationality,” which seems to continually encompass a never-ending list of biases and heuristics,<sup>10</sup> has expanded so much that the “dream world” which Morpheus described to Neo in *The Matrix* is perhaps becoming a pessimistically accurate description of human decision-making.<sup>11</sup>

Perhaps the most potent and obvious application for BE was the legal system given the significant impact of Law and Economics, which revolutionized legal thinking across an impressive array of legal topics.<sup>12</sup> Thus arrived the field of Behavioral Law and Economics (BLE), which leveraged the biases and heuristics identified by earlier work and challenged the Law and Economics’ assumption of “strict”<sup>13</sup> rationality.<sup>14</sup> It was only natural, then, that such behavioral phenomena

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cognitive limitations . . . [b]ut even with these remedies, and in some cases because of these remedies, human behavior differs in systematic ways from that predicted by the standard economic model of unbounded rationality. Even when the use of mental shortcuts is rational, it can produce predictable mistakes.”).

8. Jolls et al., *supra* note 7, at 1483 (“Careful empirical study . . . shows that the Coase theorem is not a tautology; indeed, it can lead to inaccurate predictions.” (citing Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325, 1329–42 (1990))). For some potential practical applications, see generally RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008), where the authors discuss how people make decisions regarding health, education, and investments.

9. DAN ARIELY’S IRRATIONAL GAME, <https://irrationalgame.com/> [<https://perma.cc/P29W-VF8G>].

10. See John Manoogian III & Buster Benson, *Cognitive Bias Codex*, VISUAL CAPITALIST, <https://www.visualcapitalist.com/wp-content/uploads/2017/09/cognitive-bias-infographic.html> [<https://perma.cc/2NS4-VEG5>] (offering an illuminating and helpful depiction of the apparently 188 “cognitive quirks” we suffer from).

11. THE MATRIX, *supra* note 1.

12. See Oliver E. Williamson, *Why Law, Economics, and Organization?*, 1 ANN. REV. L. & SOC. SCI. 369, 369 (2005) (“Occasional dissents notwithstanding, it is widely conceded that law and economics is a success story.”). See generally RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* (9th ed. 2014) (discussing law and economics across multiple legal disciplines).

13. Alan Devlin & Michael Jacobs, *The Empty Promise of Behavioral Antitrust*, 37 HARV. J.L. & PUB. POL’Y 1009, 1024 (2014) (“To explain observed departures from strict rationality, behavioral economists appeal to a wide variety of psychological biases . . .”).

14. See Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051, 1085 (2000). Note early BLE

would eventually breathe their way into antitrust debate and challenge, among other things, the insights of the Chicago School and its strong belief in efficient markets that self-correct.<sup>15</sup> Indeed, if efficient entry and efficient switching were now cast in doubt because of BE findings, we would find ourselves believing *less* in a market's self-correcting capacities and preferring *more* antitrust enforcement.<sup>16</sup>

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scholarship displayed much optimism in the field's potential to penetrate legal policy and legal analysis. Cass R. Sunstein, *Behavioral Law and Economics: A Progress Report*, 1 AM. L. & ECON. REV. 115, 115 (1999) (describing how the "outpouring" of BLE scholarship became a "flood"); see 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 just 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."); 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"). This optimism led to a waterfall of BLE scholarship. The following is 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) (discussing status quo bias in contract default rules); Jeffrey J. Rachlinski, *Gains, Losses, and the Psychology of Litigation*, 70 S. CAL. L. REV. 113 (1996) (noting that litigation can cause people to make different decisions depending on circumstances); Jeffrey J. Rachlinski, *A Positive Psychological Theory of Judging in Hindsight*, 65 U. CHI. L. REV. 571 (1998) (arguing that the law reflects a hindsight bias); Cass R. Sunstein, *Behavioral Analysis of Law*, 64 U. CHI. L. REV. 1175 (1997) (analyzing behavioral research and how it affects the law).

15. Andreas Heinemann, *Behavioural Antitrust*, in EUROPEAN PERSPECTIVES ON BEHAVIOURAL LAW AND ECONOMICS 211, 211–12 (Klaus Mathis ed., 2015) ("[Chicago's approach] is modelled on the basic assumption that market participants act *perfectly* rational and maximise their own profit or utility." (emphasis added)).

16. There is a functional relationship between a (dis)belief in a market's self-correcting capacities and the quantity of antitrust enforcement scope. *Less* belief reveals a preference for *more* antitrust enforcement and vice-versa. This variance in (dis)beliefs and concomitant preferences for *more* or *less* antitrust enforcement can be seen across several antitrust schools of thought. For instance, the Harvard School was *more* "intervention-minded." William E. Kovacic, *The Intellectual DNA of Modern U.S. Competition Law for Dominant Firm Conduct: The Chicago/Harvard Double Helix*, 2007 COLUM. BUS. L. REV. 1, 30. In contrast, Chicago preferred *less* intervention given its greater faith in the disciplining capacities of markets. See Richard A. Posner, *The Chicago School of Antitrust Analysis*, 127 U. PA. L. REV. 925, 932 (1979) (describing Chicago as rejecting an "expansive notion of 'barriers to entry'"). The latter also contrasts with *Post-Chicago*. See Herbert Hovenkamp, *Post-Chicago Antitrust: A Review and Critique*, 2001 COLUM. BUS. L. REV. 257, 278–79 ("The principal difference between Chicago and post-Chicago . . . is that under a more complex set of assumptions about how a market works, anticompetitive outcomes seem more plausible."). For BE constraints on *perfect* market self-correction, see Matthew Bennett, John Fingleton, Amelia Fletcher, Liz Hurley & David Ruck, *What Does Behavioral Economics Mean for Competition Policy?*, COMPETITION POL'Y INT'L, Spring 2010, at 111, noting:

Supply-side biases may also have implications for the way entry is assessed in antitrust cases. There is significant empirical evidence to show that firms are often



BE clearly has significance for antitrust, though we are only now beginning to see some inroads into enforcement as the *Google* cases demonstrate—where the theories of harm are premised on consumers’ behavioral shortcomings.<sup>17</sup> Indeed, at the time of writing, the United States Department of Justice (U.S. DOJ) has instigated a formal complaint against Google, part of which is grounded on a behavioral theory of “sticky” consumers—in other words, consumers who do not change default applications on their mobile devices.<sup>18</sup> As Devlin and Jacobs explain after emphasizing the importance of the “substitution effect” for antitrust<sup>19</sup>: “What does the behavioral literature say about this, perhaps the *most critical question* in antitrust law? It offers a litany of biases, some of which might add to, while others of which might detract from, the market’s tendency to self-correct through prompt consumer substitution.”<sup>20</sup>

Despite the significance of substitution for antitrust (and the potential BE consequences for this concept), much of the scholarly and regulatory literature has yet to systematically examine the BE

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overconfident when it comes to predicting their success on a market. A very large percentage of firms that enter into a new market fail within a short period of time. Does this mean that it is right to be more cautious than we would otherwise be when considering the possibility of entry as a countervailing force for the creation or abuse of market power?

*Id.* at 125 (footnote omitted). *Cf.* Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482, 486–87 (2002) (arguing that behavioral shortcomings like “overoptimism” may, in fact, spur successful “excess” entry because “[t]hese entrants, even when they fail and more so when they succeed, facilitate economic growth and expand the range of consumer choice. Equally important, they make a significant long-term contribution to the disciplining of incumbent firms.”).

17. *See infra* Part I.

18. Complaint at 3, *United States v. Google LLC*, No. 20-cv-03010 (D.D.C. filed Oct. 20, 2020) (“For a general search engine, by far the most effective means of distribution is to be the preset default general search engine for mobile and computer search access points. Even where users can change the default, they rarely do. This leaves the preset default general search engine with *de facto* exclusivity. As Google itself has recognized, this is particularly true on mobile devices, where defaults are *especially sticky*.” (emphasis added)).

19. Devlin & Jacobs, *supra* note 13, at 1025–26. Devlin and Jacobs describe it in this way:

The proposition that consumers will substitute away from more expensive products to lower-priced, substitute goods lies at the heart of antitrust policy. . . . The degree to which this proposition holds true in actual markets dictates the degree of appropriate intervention through the competition laws. . . . Substitution matters enormously to antitrust.

*Id.*

20. *Id.* at 1027 (emphasis added).

implications for antitrust enforcement's two most fundamental doctrinal components: conduct and market power.<sup>21</sup> This seems a strange omission not only because of the ascending inclination to categorize behavioral shortcomings as an emerging form of market failure<sup>22</sup> but also, more pertinently, because a unilateral antitrust infringement depends on a firm engaging in anticompetitive conduct<sup>23</sup>

21. Of course, this is not to say that scholars have not somewhat acknowledged BE's implications in these respects and have even provided some illustrations. Their discussions and analyses are limited, however. *See, e.g.*, Maurice E. Stucke, *The Implications of Behavioral Antitrust 2–7* (Univ. of Tenn. Knoxville Coll. of L., Legal Studies Research Paper Series, Research Paper No. 192, 2012) [hereinafter Stucke, *Implications of Behavioral Antitrust*], [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2109713](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2109713) [https://perma.cc/R86S-W9DH] (using *Microsoft Corp. v. Commission* as an example to demonstrate the power of defaults and, as such, the status quo bias); Maurice E. Stucke, *Behavioral Antitrust and Monopolization*, 8 J. COMPETITION L. & ECON. 545, 560–67 (2012) [hereinafter Stucke, *Behavioral Antitrust and Monopolization*] (using *Microsoft* as an example to illustrate the status quo bias implications for the foreclosure effect in tying analysis). The omission is more severe as it relates to the BE deviation from *perfection* and hence its capacity to generate antitrust market power. Thomas C. Arthur, *The Costly Quest for Perfect Competition: Kodak and Nonstructural Market Power*, 69 N.Y.U. L. REV. 1, 25–26 (1994). This point has not yet even been identified in the literature.

22. *See, e.g.*, Jason F. Shogren & Laura O. Taylor, *On Behavioral-Environmental Economics*, 2 REV. ENV'T ECON. & POL'Y 26, 27 (2008); Jason F. Shogren, *WAEA Keynote Address Behavioral Environmental Economics: Money Pumps & Nudges*, 37 J. AGRIC. & RES. ECON. 349, 350 (2012); Oren Bar-Gill, Exchange, *The Behavioral Economics of Consumer Contracts*, 92 MINN. L. REV. 749, 801 (2008) (using the term “behavioral market failure”); Cass R. Sunstein, *The Storrs Lectures: Behavioral Economics and Paternalism*, 122 YALE L.J. 1826, 1826 (2013) (referring to behavioral mistakes as “behavioral market failures”); Ryan Bubbs & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARV. L. REV. 1593, 1601 (2014) (using the term “behavioral market failures”).

23. In the EU, the conduct must be outside the scope of “competi[tion] on the merits.” Guidance on the Commission's Enforcement Priorities in Applying Article 82 of the EC Treaty to Abusive Exclusionary Conduct by Dominant Undertakings, 2009 O.J. (C 45) 7, ¶ 6 [hereinafter Exclusionary Conduct Enforcement Guidance] (“The emphasis of the Commission's enforcement activity in relation to exclusionary conduct is on safeguarding the competitive process in the internal market and ensuring that undertakings which hold a dominant position do not exclude their competitors by other means than *competing on the merits* of the products or services they provide.” (emphasis added)); Case T-201/04 *Microsoft Corp. v. Comm'n*, 2007 E.C.R. II-3601, ¶ 1070 (“It must be borne in mind . . . that [Article 102 TFEU] is intended to prohibit a dominant undertaking from strengthening its position by recourse to means other than those based on competition on the merits.” (citations omitted)); Case C-280/08 P *Deutsche Telekom AG v. Comm'n*, 2010 E.C.R. I-9555, ¶ 177 (holding that Article 102 TFEU prohibits a dominant firm from strengthening its dominant position “by using methods other than those which come within the scope of competition on the merits”); Case C-52/09 *Konkurrensverket v. TeliaSonera Sverige AB*, 2011 E.C.R. I-527, ¶ 43 (explaining that excluding competitors through distortive competitive practices would not be competition “solely on the respective merits of the undertakings concerned”); Case C-457/10 P *AstraZeneca AB v. Comm'n*, ECLI:EU:C:2012:770, ¶ 75 (Dec. 6, 2012) (“[Article 102 TFEU] prohibits a dominant undertaking from eliminating a competitor and thereby strengthening its position by using methods other than those which come within the scope of competition on the merits.”

and possessing “antitrust” market power (which, as we will see, means “substantial” and “sustainable” market power). Consequently, there is a need to comprehensively assess (1) the extent to which firms can generate demand-side foreclosure through manipulation of consumer biases and (2) whether behavioral shortcomings as a deviation from *perfection* are “substantial” and “sustainable” enough to constitute “antitrust” market power. To the extent that the latter deviation satisfies these criteria, it will serve to illuminate when BE may transform from a consumer protection issue—an area of law regulating more *de minimis* market failures—into an antitrust issue.<sup>24</sup>

These two parameters—manipulative conduct and irrationally-generated market power—are both emerging as significant antitrust concerns in the digital sphere and relevant considerations of competition appraisal. The recent and long-awaited *Google LLC & Alphabet, Inc. v. Commission (Google Shopping)*<sup>25</sup> judgment vindicates these concerns in significant respects—particularly the emerging phenomenon of manipulative self-preferencing and the pernicious foreclosure of rivals. Indeed, recent digital market regulatory and policy investigations and reports are now starting to acknowledge the potential power of digital platforms to manipulate consumers’ behavioral biases and foreclose competition.<sup>26</sup>

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(citations omitted)); Case C-413/14 P *Intel Corp. v. Comm’n*, ECLI:EU:C:2017:632, ¶ 136 (Sept. 19 & Oct. 24, 2017) (“Article 102 TFEU prohibits . . . methods other than those that are part of competition on the merits.”). For the U.S., see *Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 407 (2004) (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 570–71 (1966)), where the Supreme Court describes “willful” conduct as necessary in addition to monopoly power to find liability under section two of the Sherman Act; and *id.*, where the Court finds that “[t]o safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct.”

24. See *infra* Part IV.

25. See generally Case T-612/17 *Google LLC & Alphabet, Inc. v. Comm’n (Google Shopping)*, ECLI:EU:T:2021:763 (Nov. 10, 2021), *appeal filed*, Case C-48/22 P (Jan. 20, 2022).

26. George J. Stigler Ctr. for the Study of the Econ. & the State, Univ. of Chi. Booth Sch. of Bus., *Market Structure and Antitrust Subcommittee: Report*, in STIGLER COMMITTEE ON DIGITAL PLATFORMS: FINAL REPORT 23, 87 (2019) [hereinafter *Stigler Antitrust Subcommittee Report*], <https://www.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms—committee-report—stigler-center.pdf> [https://perma.cc/2NZZ-V4LJ] (describing how foreclosure can manifest when platforms exploit consumers’ behavioral biases “to keep consumers *attached* to their platforms and make

Additionally, consumers can (unknowingly) contribute to creating market power themselves by failing to take actions “that may look like poor decisions if those consumers like to choose among options and experience competition” in digital markets.<sup>27</sup> In any case, the revelation that digital platforms possess continuous and ubiquitous insight into our daily lives and may shape our opinions and decision-making processes through Big Data analytics<sup>28</sup> highlights on

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switching to alternatives more difficult.” These tactics generally make consumers less receptive to competitive alternatives—they lower contestability—and thus raise entry barriers.” (emphasis added)); SUBCOMM. ON ANTITRUST, COM. & ADMIN. L. OF THE COMM. ON THE JUDICIARY, INVESTIGATION OF COMPETITION IN DIGITAL MARKETS: MAJORITY STAFF REPORT AND RECOMMENDATIONS 53 (2020) [hereinafter INVESTIGATION OF COMPETITION IN DIGITAL MARKETS], [https://judiciary.house.gov/uploadedfiles/competition\\_in\\_digital\\_markets.pdf](https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf) [<https://perma.cc/R9Y2-ZQWJ>] (describing how, at the start of the COVID-19 pandemic, “Google attempted to manipulate users into using its Google Meet videoconferencing tool instead of upstart competitor Zoom.”); *see also* DIGIT. COMPETITION EXPERT PANEL, UNLOCKING DIGITAL COMPETITION: REPORT OF THE DIGITAL COMPETITION EXPERT PANEL 32 (2019) (U.K.), [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/785547/unlocking\\_digital\\_competition\\_furman\\_review\\_web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/785547/unlocking_digital_competition_furman_review_web.pdf) [<https://perma.cc/H962-RSL5>] (“Digital markets also have features that heighten concentration, including . . . limitations to switching and multi-homing including behavioural factors . . .”).

27. *Stigler Antitrust Subcommittee Report*, *supra* note 26, at 41 (“Market power is, ironically, generated by the very consumers who are harmed by it. Consumers do not replace the default apps on their phones, do not scroll down to see more results, agree to settings chosen by the service. . . . Consumers make these ‘mistakes’ because of inherent behavioral biases such as discounting the future too much and being too optimistic.”); *see also* JACQUES CRÉMER, YVES-ALEXANDRE DE MONTJOYE, & HEIKE SCHWEITZER, EUR. COMM’N, COMPETITION POLICY FOR THE DIGITAL ERA: FINAL REPORT 4 (2019), <https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf> [<https://perma.cc/7G9H-7JQR>] (“The assessment of market power has to be case-specific, and it must take into account insights drawn from behavioural economics about the *strength of consumers’* biases towards default options and short-term gratification.” (emphasis added)); AUSTRALIAN COMPETITION & CONSUMER COMM’N, DIGITAL PLATFORMS INQUIRY: FINAL REPORT 110 (2019), <https://www.accc.gov.au/system/files/Digital%20platforms%20inquiry%20-%20final%20report.pdf> [<https://perma.cc/57AP-DLXQ>] (“One of the ACCC’s key findings [in its Market Power chapter] is that Google has *substantial market power* in the supply of search services and in the supply of search advertising. The ACCC identified customer inertia as a barrier to expansion and considered that customer inertia is reinforced by a default bias that exists with Google Search being the default search engine on a number of internet browsers, and Google Chrome being the default internet browser on a number of operating systems.” (emphasis added)); AUTORITEIT CONSUMENT & MARKT [NETH. AUTH. FOR CONSUMERS & MKTS.], BEHAVIOURAL ECONOMICS AND COMPETITION POLICY 12 (2013), [https://www.acm.nl/sites/default/files/old\\_publication/publicaties/11586\\_acm-behavioural-economics-competition-policy.pdf](https://www.acm.nl/sites/default/files/old_publication/publicaties/11586_acm-behavioural-economics-competition-policy.pdf) [<https://perma.cc/4GQV-H7MC>] (describing how the *imperfect* rationality of a consumer with respect to a product’s entire cost (including add-ons) may confer on suppliers “pockets of market power”).

28. For an illuminating Netflix documentary, see Devika Girish, *The Social Dilemma*’ Review:

its own accord that, at least in the context of digital platform markets, we may be moving closer towards a new, more pernicious form of antitrust foreclosure that might appropriately be termed “cognitive foreclosure.”

Against this backdrop, this Article unfolds as follows. Part I examines the development of foreclosure cases and illustrates how the advent of technology has led to a new wave of more pernicious foreclosure capacities—that is, the two-pronged attack of BE and technology in cognitively foreclosing competition. Part II illuminates a consumer’s heightened propensity to be manipulated in the digital platform world due to heuristic responses “predominat[ing]”<sup>29</sup> in this environment coupled with amplified abilities and incentives of digital platforms to manipulate consumers’ cognitive shortcomings. Part II thus advances existing literature, which acknowledged, for the most part, only the potential for manipulation but refrained from assessing the potential’s seriousness for competition law purposes. Part III demonstrates specific ways a dominant digital platform could cognitively foreclose competition and thereby strengthen its market power by “shap[ing] demand”<sup>30</sup> through behaviorally manipulative

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*Unplug and Run*, N.Y. TIMES (Sept. 9, 2020), <https://www.nytimes.com/2020/09/09/movies/the-social-dilemma-review.html> [<https://perma.cc/9RWK-JYB9>], where the article notes that “conscientious defectors from [social media companies] explain that the perniciousness of [these companies] is a feature, not a bug.”

29. Eldar Shafir & Robyn A. LeBoeuf, *Rationality*, 53 ANN. REV. PSYCH. 491, 500 (2002) (describing literature that differentiates between the “dual-process” theory of thinking “all of which posit at least two basic modes of processing—one in which heuristic responses predominate and another in which more deliberate strategies take over”); see also Paul Slovic, Melissa Finucane, Ellen Peters & Donald G. MacGregor, *Rational Actors or Rational Fools: Implications of the Affect Heuristic for Behavioral Economics*, 31 J. SOCIO-ECON. 329, 329 (2002) (describing “two fundamental modes of thinking”—one is “[t]he experiential mode, [which] is intuitive, automatic, natural, and based upon images to which positive and affective feelings have been attached through learning and experience. The other mode is analytical, deliberative, and reason based.”).

30. Margherita Colangelo & Mariateresa Maggiolino, *Manipulation of Information as Antitrust Infringement*, 26 COLUM. J. EUR. L. 63, 64 (2019); see also *id.* at 90 (“[T]here is room to believe that what renders . . . information unduly persuasive is the supposed ability of enterprises to recognize the cognitive limits of each and every individual and thereby exploit it.”); *id.* at 89 (contending that “unduly persuasive information . . . seems to be at the crux of the data economy” and that this “category of information” derives its persuasiveness from the “ability of firms to profile consumers such that their preferences are known and their *cognitive limits* exploited” (emphasis added)). Additionally, when the demand-side—the

conduct. Part IV positions BE as a demand-side market failure that potentially blurs the line between antitrust law and consumer protection law. Indeed, even though powerfully pernicious ways to cognitively foreclose competition exist, a prerequisite for antitrust enforcement is “antitrust” market power. The BE deviation from *perfect* competition, then, will need to be “substantial” and “sustainable” to warrant antitrust scrutiny. Digital platform markets are proffered as contexts in which BE could satisfy these criteria and, hence, present as environments where the demand-side market failure of cognitive foreclosure deserves to be taken seriously by antitrust enforcement policy.

#### I. “ANTITRUST FORECLOSURE” RETROSPECTIVE—A PERNICIOUS EVOLUTION

That exclusionary practices generate controversy in antitrust enforcement is not new; indeed, “antitrust foreclosure” has always been considered an amorphous concept because of the difficulty in distinguishing practices that exclude rivals due to genuine efficiency from practices that artificially exclude.<sup>31</sup> The question has even been

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source of behavioral market failures—has been raised as an antitrust issue, antitrust analysis has usually been limited to scenarios of an already-dominant firm that is seeking to solidify its market power. *See, e.g.,* Max Huffman, *Bridging the Divide? Theories for Integrating Competition Law and Consumer Protection*, 6 EUR. COMPETITION J. 7, 12–13 (2010) (describing how “monopoly maintenance through deception is realistic” and should “therefore offer a basis for an abuse of dominance liability” (emphasis added)); Michael A. Carrier & Rebecca Tushnet, *An Antitrust Framework for False Advertising*, 106 IOWA L. REV. 1841, 1851 (2021) (“By engaging in deception that resembles exclusionary conduct, a company—in particular, a monopolist—could *entrench* its position in the market.” (emphasis added)); Maurice E. Stucke, *How Do (and Should) Competition Authorities Treat a Dominant Firm’s Deception?*, 63 SMU L. REV. 1069 (2010) (limiting the analysis to a monopolist’s use of deception to significantly maintain its market power).

31. Richard A. Posner, *Exclusionary Practices and the Antitrust Laws*, 41 U. CHI. L. REV. 506, 534 (1974) (“The most difficult question raised by the exclusionary practices is not whether such practices exist, which is the focus of the debate between the Chicago School and its opponents, but whether they are sufficiently dangerous to justify extremely costly enforcement efforts, costly because of the difficulty of distinguishing between exclusionary practices and practices that promote efficiency.”); ROBERT H. BORK, *THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF* 137 (The Free Press 1993) (1978) (“The problem is to know what exclusion is improper.”); Frank H. Easterbrook, *The Chicago School and Exclusionary Conduct*, 31 HARV. J.L. & PUB. POL’Y 439, 442 (2008) (“The big problem with the law of

asked whether “exclusionary” antitrust exists at all.<sup>32</sup> For instance, the lack of a clear dividing line that differentiates exclusion with redeeming value from exclusion with little or no redeeming value, as evidenced by case law and regulatory guidance, reflects this elusiveness.<sup>33</sup> For example, different criteria and conditions apply to different forms of foreclosure—like price-based exclusionary conduct<sup>34</sup> and exclusive dealing (which can include rebates)<sup>35</sup>—and firms can raise different kinds of objective necessity and efficiency defenses.<sup>36</sup>

Thus, if antitrust foreclosure has always been an elusive concept, this malleability will perhaps not be helped by two parallel but now-converging exclusionary phenomena: digital technologies and online platforms that are equipped to add only more obscurity given the potential for more subtle exclusionary capabilities<sup>37</sup> and behavioral biases and heuristics that can be manipulated<sup>38</sup> to ensure “sticky” consumers and induce a more nuanced form of demand-side foreclosure.<sup>39</sup> As Stylianou acknowledges, “As technology changes[] and enables additional and different designs, so does the competitive

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exclusionary practices is that all competitors [necessarily] seek to undercut and exclude rivals.”); *see also* RICHARD A. POSNER, *ANTITRUST LAW* 193 (2d ed. 2001) [hereinafter POSNER, *ANTITRUST LAW*] (introducing the law of “exclusionary practices” and commenting that “[a] serious problem” generated by these practices “is that a practice may be at once exclusionary and efficient”); Frank H. Easterbrook, *On Identifying Exclusionary Conduct*, 61 NOTRE DAME L. REV. 972, 972 (1986) (“Competitive and exclusionary conduct look alike.”).

32. Eleanor M. Fox, *What Is Harm to Competition? Exclusionary Practices and Anticompetitive Effect*, 70 ANTITRUST L.J. 371, 371–72 (2002) (asking whether antitrust addresses “more” than straightforward exploitative practices—in other words, “is there an exclusionary-practices violation . . . ?”).

33. *See* Exclusionary Conduct Enforcement Guidance, *supra* note 23, ¶¶ 19–23.

34. *Id.* ¶¶ 23–27.

35. *Id.* ¶¶ 32–46.

36. *Id.* ¶¶ 28–31.

37. Gregory Day & Abbey Stemler, *Are Dark Patterns Anticompetitive?*, 72 ALA. L. REV. 1, 15 (2020) (“Problems arise when technology—rather than catering to a user’s stated or unstated preferences—causes users to engage in behaviors against their best interests. The manipulation is indeed *subtle*.” (emphasis added)); *see also infra* Part IV.

38. Max Huffman, *Marrying Neo-Chicago with Behavioral Antitrust*, 78 ANTITRUST L.J. 105, 129–30 (2012).

39. Complaint at 3, *United States v. Google LLC*, No. 20-cv-03010 (D.D.C. filed Oct. 20, 2020).

fabric of the industry. . . . [T]echnology may [therefore] create new *methods* of exclusion in digital markets . . . .”<sup>40</sup>

As the following Sections delineate, “[these] phenomenon[a] reflect[] an evolution of exclusion cases from straightforward exclusion, through unilateral refusals to deal . . . to less transparent techniques.”<sup>41</sup> The following Section thus seeks to trace the development of antitrust foreclosure as one evolving from transparent, to less transparent, to obscure. As we will see, technology, fused with BE, may be providing a powerful combination for an emerging, more pernicious antitrust foreclosure.

#### A. *Transparent Exclusion*

Some of the early refusal-to-deal and -license cases (refusal cases) demonstrated straightforward forms of foreclosure, where evidence adduced to allege foreclosure was readily available and illuminating. In *Istituto Chemoterapico Italiano v. Commission*, for instance, Commercial Solvents ceased to supply an upstream input, aminobutanol, to a downstream drugs manufacturer, *Laboratorio Chemico [sic] Farmaceutico Giorgio Zoja SpA* [Pharmaceutical Chemical Laboratory Giorgio Zoja S.p.A] (Zoja), in the latter’s production of a tuberculosis drug, ethambutol.<sup>42</sup> The European Commission held this to be abusively anticompetitive.<sup>43</sup> This was a clear-cut case of exclusion because if the aminobutanol supplies stopped—and documentary evidence revealed that Commercial Solvents had indeed ceased providing the supplies<sup>44</sup>—Zoja would be forced to exit the downstream market.<sup>45</sup> Zoja’s exit—that is, the

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40. Konstantinos Stylianou, *Exclusion in Digital Markets*, 24 MICH. TELECOMMS. & TECH. L. REV. 181, 184, 187 (2018). Ezrachi and Stucke have also made similar comments in the context of collusive behavior. See generally Ariel Ezrachi & Maurice E. Stucke, *Artificial Intelligence & Collusion: When Computers Inhibit Competition*, 2017 U. ILL. L. REV. 1775.

41. Mark R. Patterson, *Algorithmic Opacity and Exclusion in Antitrust Law*, 5 RIVISTA ITALIANA DI ANTITRUST [ITALIAN ANTITRUST REV.], no. 1, 2018, at 23, 23.

42. Joined Cases 6 & 7/73, *Istituto Chemioterapico Italiano SpA v. Comm’n*, 1974 E.C.R. 223, 226.

43. *Id.* at 233 (“The Commission states that in the present case the buyer (Zoja) depends on the availability of . . . aminobutanol . . . [and cutting off its supply] would inevitably result in Zoja’s disappearing from the market.” (emphasis omitted)).

44. *Id.* ¶ 24, at 250.

45. *Id.* ¶ 25, at 250–51.



foreclosure effect of the conduct—was also certain because of Commercial Solvents’ dominance in the raw material market (Zoja had nowhere else to go).<sup>46</sup>

*Radio Telefis Eireann v. Commission* is another refusal case and further illustrates the transparent nature of such an abuse.<sup>47</sup> Television stations possessed television program information that Magill TV Guide Ltd. (Magill) wanted access to, so it could produce a fully comprehensive weekly television guide.<sup>48</sup> The television stations refused to license the information to Magill.<sup>49</sup> The court held this was anticompetitively harming consumers because such conduct was preventing “the appearance of a new product—a comprehensive weekly guide to television programs, which the appellants did not offer and for which there was a potential consumer demand.”<sup>50</sup> Both the anticompetitive conduct and the foreclosure effect were easily identifiable. For instance, the television stations had actively obtained an injunction to prevent the publication of such a guide<sup>51</sup> and grounded their refusal on intellectual property arguments.<sup>52</sup> Further, Magill was demonstrably foreclosed from the market due to the television program information being clearly indispensable and unobtainable anywhere else.<sup>53</sup> As the Court of Justice of the European Union explained, “[T]he appellants . . . were, by force of circumstance, the *only* sources of the basic information on programme scheduling which is the indispensable raw material for compiling a weekly television guide . . . .”<sup>54</sup>

Both seminal refusal cases exemplify the ease with which such an abuse can be identified. Indeed, the demonstrable nature of the conduct and the foreclosure effect seem to be a theme running across

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46. *Id.* ¶ 18, at 249 (“[T]hat CSC had a dominant position on the world market in the production and sale of the raw material in question has been sufficiently established in law.”).

47. Joined Cases C-241/91 P & C-242/91 P, *Radio Telefis Eireann (RTE) v. Comm’n*, 1995 E.C.R. I-743.

48. *Id.* ¶ 10.

49. *Id.* ¶ 11.

50. *Id.* ¶ 54.

51. *Id.* ¶ 10.

52. *Id.* ¶ 51.

53. *See RTE*, 1995 E.C.R. I-743, ¶ 53.

54. *Id.* (emphasis added).

brick-and-mortar refusal cases—the more recent *Baltic Rail* case<sup>55</sup> perhaps being the most pointed example where cutting away nineteen kilometers of railroad track was described as “the most straightforward abuse case ever.”<sup>56</sup> *Otter Tail Power Co. v. United States*<sup>57</sup> and *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*<sup>58</sup> are equally illuminating: respectively, the refusal to transmit electricity through power lines to potential rivals and a ski slope operator’s refusal to continue to make a ski slope available with a rival ski slope operator on favorable terms both showcase obvious forms of foreclosure.<sup>59</sup> As Patterson notes: “[When] a dominant firm refused to deal with a competitor . . . there was no difficulty in presenting evidence of the conduct at issue.”<sup>60</sup>

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55. Commission Decision C(2017) 6544 Case AT.39813 – Baltic Rail (Oct. 2, 2017), [https://ec.europa.eu/competition/antitrust/cases/dec\\_docs/39813/39813\\_1554\\_3.pdf](https://ec.europa.eu/competition/antitrust/cases/dec_docs/39813/39813_1554_3.pdf) [<https://perma.cc/ZC6R-WBUF>], *aff’d sub nom.* Case T-814/17 Lietuvos geležinkeliai AB v. Comm’n, ECLI:EU:T:2020:545 (Nov. 18, 2020), *appeal filed*, Case C-42/21 P (Jan. 27, 2021).

56. Pablo Ibáñez Colomo & Alfonso Lamadrid, Lithuanian Railways: *The Most Straightforward Abuse Case Ever?*, CHILLIN’COMPETITION (Oct. 5, 2017, 5:10 PM), <https://chillingcompetition.com/2017/10/05/lithuanian-railways-the-most-straightforward-abuse-case-ever/> [<https://perma.cc/2X7S-XD6G>]; *see also* Pablo Ibáñez Colomo & Alfonso Lamadrid, *GC Judgment in Case T-814/17, Lithuanian Railways – Part I: Object and Indispensability*, CHILLIN’COMPETITION (Dec. 1, 2020, 12:34 PM), <https://chillingcompetition.com/2020/12/01/gc-judgment-in-case-t%E2%80%91814-17-lithuanian-railways-part-i-object-and-indispensability/> [<https://perma.cc/M7WZ-SYY3>] (“[I]t is perhaps the most blatant abuse that the European Commission has ever considered.”).

57. 410 U.S. 366 (1973).

58. 472 U.S. 585 (1985).

59. In *Aspen Skiing* for instance, evidence that was particularly illustrative was Aspen Skiing Company’s (Ski Co.) national advertising campaign that implied only three (not four) mountains were available at the ski resort coupled with the fact that the four-mountain ski ticket was replaced with a three-mountain ticket. *Id.* at 593. Further, the evidence demonstrated that consumers were being adversely affected by the removal of the four-mountain ticket because the record showed they preferred four mountains to three. *Id.* at 606. The foreclosure effect on Aspen Highlands Skiing Corporation (Highlands) was also readily apparent. *Id.* at 607–08 (“The adverse impact of Ski Co.’s pattern of conduct on Highlands is not disputed in this Court. Expert testimony described the extent of its pecuniary injury. The evidence concerning its attempt to develop a substitute product either by buying Ski Co.’s daily tickets in bulk, or by marketing its own Adventure Pack, demonstrates that it tried to protect itself from the loss of its share of the patrons of the all-Aspen ticket. The development of a new distribution system for providing the experience that skiers had learned to expect in Aspen proved to be prohibitively expensive. As a result, Highlands’ share of the relevant market steadily declined after the [four]-area ticket was terminated.”) In *Otter Tail*, prospective municipal electricity suppliers were foreclosed from entering various municipal markets because they needed access to electricity transmission lines. 410 U.S. at 370–71. Otter Tail owned the only transmission lines available and refused to grant access. *Id.*

60. Patterson, *supra* note 41.

### B. *Less Transparent Exclusion*

The “means of exclusion [arguably] became subtler . . . with rebate structures.”<sup>61</sup> One reason foreclosure through rebates may be viewed as less transparent than the refusal cases is that the foreclosure effect manifests from the demand side—that is, consumers may feel induced by the rebate to continue to purchase their supplies from the discounting firm and therefore become locked in.<sup>62</sup> Note the extra dependent step involved (consumers falling foul to, rather than countenancing, the conduct’s intended effect) in demand-side foreclosure as compared to orthodox supply-side output restrictions.<sup>63</sup> The anticompetitive harm, therefore, can happen “only after an intervening step.”<sup>64</sup> The aforementioned degree of pressure from rebates on the consumer is largest for exclusivity rebates because the consumer must purchase from the discounting firm to receive the discount. What will become clear, however, is that firms have engaged more structurally subtle techniques for inducing the consumer to continually purchase and artificially restrict its supplier choice.

*NV Nederlandsche Banden-Industrie Michelin v. Commission*<sup>65</sup> is a prime example of a more covert rebate scheme. The Commission held that Michelin abused its dominant position in the market for heavy-duty vehicle replacement tires because it offered rebates to tire dealers if the dealers reached specific sales targets.<sup>66</sup> More obscurely, the discount system involved an annual variable discount:

[A] proportion of which was paid initially every month and then every four months in the form of an advance of the annual discount. The percentage of this variable annual discount was determined according to the dealer’s turnover

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61. *Id.*

62. Gianluca Faella, *The Antitrust Assessment of Loyalty Discounts and Rebates*, 4 J. COMPETITION L. & ECON. 375, 377 (2008) (“When applied retroactively to the entire amount of purchases realized by a customer during a certain reference period (so-called all-units discounts), loyalty discounts may determine a kind of lock-in effect, in that they generate switching costs for buyers.”).

63. *See id.*

64. Note, *Deception as an Antitrust Violation*, 125 HARV. L. REV. 1235, 1255 (2012).

65. Case 322/81, *NV Nederlandsche Banden-Industrie Michelin v. Comm’n*, 1983 E.C.R. 3461.

66. *Id.* ¶ 67.

in Michelin heavy-vehicle, van and car t[i]res in the previous year, with no distinction of category, on the basis of a progressive discount scale [but which was ultimately abandoned]. The advance on the annual discount was less, generally by 4% but sometimes by more, than the percentage laid down by the scale.<sup>67</sup>

As if the substance of this scheme could not be any less transparent, the scheme could only be successfully triggered if “the dealer achieved during the year in question a sales target which was expressed as a number of heavy-vehicle tires sold and was fixed or agreed at the beginning of the year.”<sup>68</sup> Schemes remaining unpublished by Michelin added to this obscurity.<sup>69</sup> There was “no written confirmation” after the discussions about targets at each year’s beginning, and documentary evidence apparently amounted to written notes “taken or exchanged during [the discussions].”<sup>70</sup>

The court’s reasoning about the foreclosure effect, which manifested from the demand-side, is also telling with respect to exactly how the exclusion of rivals was being induced in an obscure fashion. Specifically, the court held that discount systems which grant discounts “according to the quantities sold during a relatively long reference period [have] the inherent effect, at the end of that period, of *increasing pressure* on the buyer to reach the purchase figure needed to obtain the discount or to avoid suffering the expected loss for the entire period.”<sup>71</sup> The court held that in this case, even small variations in the discount rate had the capacity to affect the entire year’s profit which could potentially “put dealers under appreciable pressure.”<sup>72</sup> Indeed, it is perhaps also telling that some scholars have relied on BE—a much more complex account of human behavior—to explain this pressure of reaching a future goal and deriving benefits for a

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67. *Id.* ¶ 66.

68. *Id.* ¶ 67.

69. *Id.* ¶ 69.

70. *Id.*

71. *Michelin*, 1983 E.C.R. 3641, ¶ 81.

72. *Id.*

preceding reference period to just illuminate why it is that a foreclosure effect may result.<sup>73</sup> In particular, “goals shift reference points upwards so that foregoing the rebate is perceived as a loss,” making consumers “more reluctant to switch to a different supplier due to loss aversion.”<sup>74</sup> The European Commission referred to this as the suction effect—a further attestation of the nuanced and more covert way rebates may generate foreclosure.<sup>75</sup>

*Michelin* is not a stand-alone example of complicated rebate schemes with subtle but powerful foreclosure tendencies. Other cases illustrate the sophisticated and intricate nature of these kinds of exclusionary behaviors and the delicate way in which foreclosure manifests, particularly in the context of bundled discounts where the discount is aggregated across the conditional purchase of various products<sup>76</sup> and contestable and incontestable demand become intermingled. Hovenkamp has described such practices and their competitive assessments as “complex,”<sup>77</sup> particularly because as both bundled goods and bundled quantities change, “then the bundle’s

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73. Alexander Morell, Andreas Glöckner & Emanuel V. Towfigh, *Sticky Rebates: Loyalty Rebates Impede Rational Switching of Consumers*, 11 J. COMPETITION L. & ECON. 431, 431 (2015) (“[Cumulative Prospect Theory] predicts that loyalty rebates could harm consumers by impeding rational switching from an incumbent to an outside option (for example, a market entrant).”).

74. *Id.* at 432. On the concept of loss aversion, see *infra* Part III.A.1.a.

75. *DG Competition Discussion Paper on the Application of Article 82 of the Treaty to Exclusionary Abuses*, ¶ 153 (2005), <https://ec.europa.eu/competition/antitrust/art82/discpaper2005.pdf> [<https://perma.cc/D8M5-D489>] (“The strength of the inducement to purchase more from the dominant supplier, i.e., the loyalty enhancing effect, will depend on amongst other things . . . on the level of the threshold. The higher the rebate percentage and the higher the amount that needs to be purchased before the rebate kicks in, the stronger the inducement just below the threshold. The fact that exceeding the threshold will not only reduce the price for all purchases above the threshold, but also for all previous purchases during the reference period, will create a so-called ‘suction’ effect.” (footnote omitted)). Seminal cases have highlighted this “suction” effect. Case T-219/99 *Brit. Airways plc v. Comm’n*, 2003 E.C.R. II-5917, ¶¶ 272-273 (discussing the “fidelity-building” nature of the rebate schemes because of their “disproportionate” financial penalties that would have been suffered for failure to purchase “at the margin”), *appeal dismissed*, Case C-95/04 P, 2007 E.C.R. I-2331; Case T-203/01 *Manufacture française des pneumatiques Michelin v. Comm’n*, 2003 E.C.R. II-4071, ¶¶ 87-88 (illustrating how additional marginal sales can generate “greater” incentives to purchase “where the discounts are calculated on total turnover achieved during a certain period than where they are calculated only tranche by tranche. The longer the reference period, the more loyalty-inducing the quantity rebate system.”).

76. See Herbert Hovenkamp & Erik Hovenkamp, *Complex Bundled Discounts and Antitrust Policy*, 57 BUFF. L. REV. 1227, 1229 (2009) (providing an illustration of the potential foreclosure effect from bundled discounting).

77. *Id.* at 1237–38 (“The competitive effects of bundled discounts are more difficult to assess when we consider bundles that are more complex than simply 1 unit of product A and 1 unit of product B.”).

impact on rivals may change . . . [and so] the competitive effects of similar-appearing bundles can, in fact, be strikingly different.”<sup>78</sup>

In *LePage's, Inc. v. 3M*, for example, retailers could earn discounts on their 3M transparent tape purchases if they successfully met certain purchase targets across a variety of 3M product lines.<sup>79</sup> This fusion of contestable and incontestable demand had the perniciously powerful effect of foreclosing LePage's from the tape market because it “created a substantial incentive for each customer to meet the targets across *all* [3M] product lines to maximize [3M's] rebates.”<sup>80</sup> The decision has been subjected to academic criticism with the exclusionary effect being described as “unclear”—a signal, perhaps, of the less than obvious nature of such foreclosure.<sup>81</sup>

Similarly, and perhaps more pointedly, in *Eisai, Inc. v. Sanofi-Aventis U.S., LLC*,<sup>82</sup> the foreclosure arguments advanced demonstrate the abstruse but powerful nature of rebate foreclosure.<sup>83</sup> Sanofi had initiated a loyalty scheme whereby hospitals would gain discounts on Sanofi's deep-vein thrombosis anticoagulant drug, Lovenox, based on the amount purchased.<sup>84</sup> Below 75% of a hospital's total anticoagulant purchases resulted in a 1% discount; above 75% the discount was much larger (anywhere between 9% and 30%),<sup>85</sup> so at the margin, there were substantial gains to be made. No contractual obligation existed to purchase from Sanofi nor was there an indication that supply would be cut off if customers did not purchase from

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78. *Id.* at 1238.

79. *LePage's, Inc. v. 3M*, 324 F.3d 141, 145 (3d Cir. 2003) (en banc) (describing 3M's “multi-tiered ‘bundled rebate’ structure, which offered higher rebates when customers purchased products in a number of 3M's different product lines”).

80. *Id.* at 154 (emphasis added) (“The size of the rebate was linked to the number of product lines in which targets were met, and the number of targets met by the buyer determined the rebate it would receive on *all* of its purchases.” (emphasis added)).

81. Joanna Warren, Comment, *LePage's v. 3M: An Antitrust Analysis of Loyalty Rebates*, 79 N.Y.U. L. REV. 1605, 1619, 1632 (2004) (“[T]he antitrust implications of loyalty rebates remain unclear. While the recent *LePage's* decision took an aggressive stance against what it found to be exclusionary conduct in violation of section 2 of the Sherman Act, the subsequent response by the legal and business communities highlights the uncertainty facing market leaders over when their pricing decisions will be subject to antitrust scrutiny.”).

82. 821 F.3d 394 (3d Cir. 2016).

83. *See id.* at 404.

84. *Id.* at 399, 400.

85. *Id.* at 400.

Sanofi.<sup>86</sup> Rather, Eisai sought to highlight the foreclosure effect in a more subtle way—specifically, it maintained that there existed a bundling of both contestable and incontestable demand.<sup>87</sup> Lovenox had idiosyncratic uses in heart failure treatment, so hospitals always needed *some* Lovenox—the incontestable portion of their demand.<sup>88</sup> But the discounts on this portion were *dependent upon* contestable demand purchases of Lovenox, meaning hospitals would have had magnified incentives to purchase Lovenox.<sup>89</sup> In effect, Eisai argued that in contrast to *LePage’s*, Sanofi was bundling different kinds of demand on the same product rather than different products,<sup>90</sup> thus illustrating an even higher level of obscurity. Although the court rejected this claim, it did so based on a lack of factual evidence and seemed to accept that such a nuanced theory of harm was demonstrable in the abstract.<sup>91</sup> Therefore, it narrowed its reasoning to the facts before it and seemed to abstain from any general conclusions about such a subtle form of foreclosure.<sup>92</sup> Indeed, *SmithKline Corp. v. Eli Lilly & Co.*, which concededly came well before both of the foregoing cases, did condemn bundled discounting as an anticompetitive practice.<sup>93</sup>

### C. *Obscure Exclusion*

The move from brick-and-mortar markets to digital technology markets could expand the opportunities for exclusion and generate much more pernicious forms of antitrust foreclosure. This expansion should be apparent given consumers’ exacerbated susceptibility to manipulation in the online world—particularly the fact that a digital firm retains continuous and ubiquitous control over the product and a consumer’s interaction with it.<sup>94</sup> Indeed, the U.S. Congress recently

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86. *Id.*

87. *Id.* at 401.

88. *Eisai*, 821 F.3d at 401.

89. *Id.* at 404, 406.

90. *Id.* at 405 (“Significantly, Eisai does not claim that Sanofi conditioned discounts on purchases across various product lines, but on different types of demand for the same product.”).

91. *Id.* at 406.

92. *See id.*

93. *SmithKline Corp. v. Eli Lilly & Co.*, 427 F. Supp. 1089, 1128–29 (E.D. Pa. 1976), *aff’d*, 575 F.2d 1056 (3d Cir. 1978).

94. *See infra* Part II; *see also* Stylianou, *supra* note 40, at 251–52.

noted subtle but powerful attempts by Google to foreclose rival Zoom in online videoconferencing markets through methods designed to “manipulate users into using . . . Google Meet.”<sup>95</sup> Relatedly, and as stated at this Article’s outset, antitrust circles increasingly recognize consumer biases as particularly ripe for manipulation in digital platform markets.<sup>96</sup>

Some of the seminal digital antitrust cases to date, like *Microsoft Corp. v. Commission* and *Google Search (Shopping)*, seem to attest to this notion that as technology has advanced alongside parallel advancements in BE insights, foreclosure can be generated in much more obscure ways. In *Microsoft*,<sup>97</sup> for example, the Commission found that Microsoft abused its dominant position in the market for operating systems by tying its media streaming application, Windows Media Player (WMP), to the operating system.<sup>98</sup> Both BE and technology played key roles in the foreclosure analysis. As to BE, although Microsoft argued that other competing media players could be installed on the Windows operating system,<sup>99</sup> the Court of First Instance was swayed by the power of pre-installation—that is, WMP being the default media player—to foreclose competition.<sup>100</sup> Specifically, although “downloading is in itself a technically inexpensive way of distributing media players, vendors must deploy major resources to ‘overcome end-users’ *inertia* and persuade them to

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95. INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26 (“As Zoom emerged as the market leader during the early stages of the [COVID-19] pandemic, Google introduced a new widget for Meet inside Gmail. A similar message could be found inside Google Calendar, which prompted users to ‘Add Google Meet video conferencing’ to their appointments.”).

96. *Stigler Antitrust Subcommittee Report*, *supra* note 26 (describing how foreclosure can manifest “when platforms exploit [consumers’] behavioral biases to keep consumers *attached* to their platforms and make switching to alternatives more difficult. These tactics generally make consumers less receptive to competitive alternatives—they lower contestability—and thus raise entry barriers.” (emphasis added)); see also Cecilia (Yixi) Cheng, Competition for Defaults: The Fight for Virtual Shelf Space 36 (unpublished manuscript), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3220267](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3220267) [https://perma.cc/M97C-YTX9] (Aug. 23, 2018) (calling for antitrust authorities to recognize that consumers do not behave rationally).

97. Case T-201/04 *Microsoft Corp. v. Comm’n*, 2007 E.C.R. II-3601.

98. *Id.* ¶¶ 21, 43-44.

99. *Id.* ¶ 993 (“[T]he inclusion of media functionality does not interfere with the functioning of third-party media players. It is thus technically possible—and indeed common practice—for a Windows-based client PC to run one or more third-party media players in addition to the media functionality in Windows.”).

100. *Id.* ¶ 1049.



ignore the pre-installation of [Windows Media Player].”<sup>101</sup> This disincentive to *perfectly* realize media player substitutes arose partly because of transaction costs associated with downloading [I]nternet applications.<sup>102</sup> As the Commission highlighted in its decision, “the inconvenience of downloading a media player is in Microsoft’s own view a real issue, at least in Europe” due to download complexity, incomplete download efforts, and lack of broadband ubiquity.<sup>103</sup>

This concern about default power is markedly reflected in the recent U.S. Congress Report on the *Investigation of Competition in Digital Markets*.<sup>104</sup> In the context of online search, for instance, the Subcommittee identified “[a] third barrier to competition” whereby Google “established extensive default positions across both browsers and mobile devices.”<sup>105</sup> In desktop markets, Google is the default on Chrome (which has 51% of the U.S. market share), Safari (31% of U.S. market share), and Firefox (5% of U.S. market share); in total, it is the default search engine for 87% of the U.S. Internet browser market.<sup>106</sup> Although Google has attempted to publicly “downplay[]” the power of defaults, Google’s internal documents, coupled with the vast sums Google pays device manufacturers to be the default, would seem to evince its “competitive significance.”<sup>107</sup>

101. *Id.* ¶ 1052 (alteration in original) (emphasis added).

102. See Stucke, *Implications of Behavioral Antitrust*, *supra* note 21, at 5 & n.17.

103. Commission Decision C(2004) 900 of Mar. 24, 2004, Case COMP/C-3/37.792 Microsoft, ¶ 867, [https://ec.europa.eu/competition/antitrust/cases/dec\\_docs/37792/37792\\_4177\\_1.pdf](https://ec.europa.eu/competition/antitrust/cases/dec_docs/37792/37792_4177_1.pdf) [<https://perma.cc/TR69-KBTJ>], *aff’d in part, dismissed in part*, Case T-201/04, 2007 E.C.R. II-3601; see also Stucke, *Implications of Behavioral Antitrust*, *supra* note 21, at 4 (“Given this disincentive [of users to use third-party media players], the [antitrust] concern was that Microsoft’s tying would weaken competition among media players . . . .”); Heinemann, *supra* note 15, at 224–25 (“The European Commission . . . did not rely on rational, but on actual behaviour of consumers. Its line of argumentation *can best be explained by behavioural economics*, for example by the influence of default settings on human behaviour.” (emphasis added)).

104. INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 6.

105. *Id.* at 81.

106. *Id.*

107. *Id.* at 82 (“[I]nternal documents show that when Google was still jostling for search market share, Google executives closely tracked search defaults on Microsoft’s Internet Explorer and expressed concern that non-Google defaults could impede Google Search. In an internal presentation about Internet Explorer’s default search selection, Google recommended that users be given an initial opportunity to select a search engine and that browsers minimize the steps required to change the default search engine.”

Regarding technology, although rival media players could be installed in addition to Microsoft's WMP, the latter was not capable of being uninstalled entirely, which in the court's view, contributed to the coercive effect.<sup>108</sup> Perhaps more perniciously, however, was that whenever consumers would try to stream a media file on Internet Explorer—Microsoft's web browser—WMP would override a third-party default media player (if one was set).<sup>109</sup>

In *Google Search (Shopping)*,<sup>110</sup> the Commission held that Google abused its dominant position on the market for general search services by giving more favorable search result positions to its own comparison-shopping service and less visible and vivid search result positions to rival comparison-shopping services.<sup>111</sup> The EU General Court recently upheld the Commission decision.<sup>112</sup> Again, technology and BE contributed to the opaque nature of the exclusion.<sup>113</sup>

Regarding technology, Google's choice of algorithms—which are confidential as demonstrated by the Commission decision's redactions<sup>114</sup>—was the source of the abusive conduct because it subjected rival comparison-shopping services to demotion in search

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(footnote omitted)). Illustrative also in this respect is Google's reportedly paying Apple \$12 billion for Google Search to be Safari's default search engine, which is now being investigated by the U.S. DOJ. *Id.* at 177–78, 345; Daisuke Wakabayashi & Jack Nicas, *Apple, Google and a Deal that Controls the Internet*, N.Y. TIMES (Oct. 25, 2020), <https://www.nytimes.com/2020/10/25/technology/apple-google-search-antitrust.html> [<https://perma.cc/G5RL-GPH9>]; see also *infra* Part III.

108. Case T-201/04 Microsoft Corp. v. Comm'n, 2007 E.C.R. II-3601, ¶ 963 (“The coercion thus applied to OEMs [Original Equipment Manufacturers] is not just contractual in nature, but also technical. In effect, it is common ground that it was not technically possible to uninstall Windows Media Player.”).

109. *Id.* ¶ 974 (“Microsoft devised the mechanism in such a way that Windows Media Player could override the default setting and reappear when the user used Internet Explorer to access media files streamed over the Internet.”).

110. Commission Decision C(2017) 4444 of June 27, 2017, Case AT.39740 Google Search (Shopping) [hereinafter *Google Search (Shopping)*], [https://ec.europa.eu/competition/antitrust/cases/dec\\_docs/39740/39740\\_14996\\_3.pdf](https://ec.europa.eu/competition/antitrust/cases/dec_docs/39740/39740_14996_3.pdf) [<https://perma.cc/9UL2-9KZ6>], *aff'd sub nom.* Case T-612/17 Google LLC & Alphabet, Inc. v. Comm'n (Google Shopping), ECLI:EU:T:2021:763 (Nov. 10, 2021), *appeal filed*, Case C-48/22 P (Jan. 20, 2022).

111. *Id.* ¶¶ 341–342, 344 (“The Commission concludes that notwithstanding Google's arguments to the contrary, Google positions and displays, in its general search results pages, its own comparison shopping service more favourably compared to competing comparison shopping services.” (citations omitted)).

112. Case T-612/17 Google LLC & Alphabet, Inc. v. Comm'n (Google Shopping), ECLI:EU:T:2021:763, ¶¶ 703–704 (Nov. 10, 2021), *appeal filed*, Case C-48/22 P (Jan. 20, 2022).

113. See Patterson, *supra* note 41, at 28–29.

114. *Google Search (Shopping)*, *supra* note 110, ¶ 349.

results.<sup>115</sup> Note that rivals were subjected to specific “demot[ing]” algorithms but Google was not, despite Google’s comparison-shopping services having some of the same characteristics as its rivals that led to the latter’s demotion.<sup>116</sup> The inability to examine both the “demot[ing]” characteristics and the workings of these algorithms illustrates the pernicious nature of the exclusion (both are largely redacted in the Commission decision).<sup>117</sup>

BE explanations of why “prominence” was so fundamental to the Commission’s theory of harm also demonstrate this more obscure form of exclusion. Even though consumers could switch within a few seconds from Google’s comparison-shopping service to a rival’s comparison-shopping service, consumer inertia and the magnetism of default choices may have cut against this ability.<sup>118</sup> Again, the power of the default has been more recently reflected in independent competitor responses to recent investigations—like DuckDuckGo, a search engine apparently forced to “invest in [its own] browser technology” because if it is not set as the default search engine, it faces “significant business challenges.”<sup>119</sup> But even producing a browser comes with its own default challenges, “just one level up—with the device makers requiring millions or billions of dollars to become a default browser on a device.”<sup>120</sup>

In sum, foreclosure cases used to be more transparent in terms of both the exclusionary effect and the excluding firm’s intent and

115. *Id.* ¶¶ 344-352 (“While competing comparison shopping services can appear only as generic search results and are prone to the ranking of their web pages in generic search results on Google’s general search results pages being reduced (‘demoted’) by certain algorithms, Google’s own comparison shopping service is prominently positioned, displayed in rich format and is never demoted by those algorithms.”).

116. *Id.* ¶ 380 (“Google’s own comparison shopping service is not subject to the same ranking mechanisms as competing comparison shopping services, including *adjustment algorithms* such as [ . . . ] and Panda. This is despite the fact that Google’s own comparison shopping service exhibits several of the characteristics that make competing comparison shopping services prone to being demoted by the [ . . . ] and Panda algorithms.” (alterations in original) (emphasis added)).

117. *See id.* ¶¶ 349-358.

118. *See* Andreas Heinemann, *Facts over Theory: The Contribution of Behavioral Economics to Competition Law*, COMPETITION POL’Y INT’L, Jan. 2019, at 1, 5; Stucke, *Behavioral Antitrust and Monopolization*, *supra* note 21.

119. INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 83.

120. *Id.* (quoting *Online Platforms and Market Power, Part 2: Innovation and Entrepreneurship: Hearing Before the Subcomm. on Antitrust, Com. & Admin. L. of the H. Comm. on the Judiciary*, 116th Cong. 5 (2019) (statement of Megan Gray, General Counsel and Policy Advocate, DuckDuckGo)).

motive.<sup>121</sup> But technological developments seem to have rendered exclusion much more subtle, especially when viewed in light of BE and its deleterious effect on a market's demand-side disciplining capacities. In one broad sense, foreclosure might always be viewed as manifesting from the demand-side. For instance, when a firm lowers price to predatorily oust a rival, consumers switch away from the rival and towards the price-lowering firm. When a firm refuses to supply an essential input to another firm, the latter cannot then produce the product that consumers desire. These paradigmatic foreclosure cases can thus be conceptualized as a form of indirect demand-side foreclosure. Yet in more ways than one, we seem to be moving towards more direct but pernicious forms of demand-side antitrust foreclosure—that is, the capacity of digital platform firms to manipulatively leverage consumers' cognitive anomalies in the online world and generate more nuanced forms of demand-side foreclosure.<sup>122</sup> It is conduct targeting behavior rather than processes. These phenomena would thus seem to confirm early predictions about this powerful combination—that firms of the future would be much more “empowered” to “surface and exploit how consumers tend to deviate from rational decision[-]making on a previously unimaginable scale.”<sup>123</sup> Part II showcases that this emerging phenomenon is one that perhaps deserves to be taken seriously.

## II. CONSUMER SUSCEPTIBILITY TO MANIPULATION IN THE DIGITAL WORLD

As digital platforms have grown more powerful and as BE is beginning to make inroads into antitrust enforcement, regulators and policymakers are becoming increasingly mindful of the potential for “more subtle methods of influence that should cause concern—specifically, actors may engage with market participants on an emotional and cognitive level in order to influence their reasoning

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121. Patterson, *supra* note 41, at 29–30.

122. See Stucke, *Behavioral Antitrust and Monopolization*, *supra* note 21, at 560 (“[M]onopolists can devise . . . ways to exploit consumers' biases and heuristics . . . to maintain their monopoly.”).

123. Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995, 1018 (2014).

and decisions regarding how to act.”<sup>124</sup> Antitrust scholars have to some extent already acknowledged these implications for antitrust enforcement—that consumer biases may be manipulated to shape demand.<sup>125</sup> But just how vulnerable consumers really are to manipulation in the online world has been underdeveloped in antitrust conversations.<sup>126</sup>

This Part seeks to showcase the exacerbated manipulability of consumers in the digital platform world, thereby proffering it as one potential context in which cognitive foreclosure deserves to be taken seriously for antitrust enforcement purposes. Indeed, the online world is perhaps bringing us closer to the scientist’s laboratory, where

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124. Colangelo & Maggiolino, *supra* note 30, at 63–64; see COMPETITION & MKTS. AUTH., ONLINE SEARCH: CONSUMER AND FIRM BEHAVIOUR: A REVIEW OF THE EXISTING LITERATURE 4 (Apr. 7, 2017) (U.K.),

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/60707/7/online-search-literature-review-7-april-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/60707/7/online-search-literature-review-7-april-2017.pdf) [<https://perma.cc/8YHL-9T54>] (noting that online retailers has employed strategies to lure consumers to purchasing their products); *Stigler Antitrust Subcommittee Report*, *supra* note 26, at 59 (“Because individuals are subject to behavioral biases, consumers are vulnerable to a platform’s exploitative behavior.”); DIGIT. COMPETITION EXPERT PANEL, *supra* note 26, at 4 (describing how digital markets are prone to tipping and can be exacerbated by “behavioural limitations on the part of consumers for whom defaults and prominence are very important”); INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26 (describing the use of “manipulative design interfaces” as “pervasive” and that these “behavioral nudges” are being used to entrench market power and extract user revenue).

125. Stucke, *Implications of Behavioral Antitrust*, *supra* note 21, at 26–28 (providing examples on how firms can manipulate consumers); Stucke, *Behavioral Antitrust and Monopolization*, *supra* note 21, at 573 (“We can see how monopolists can use heuristics and biases (such as the status quo bias) to maintain their monopoly.”); Bennett et al., *supra* note 16, at 122 (“[T]he fact that firms can make greater profits from more confused consumers may provide firms with an incentive to exacerbate the impact of consumer biases.”); Huffman, *supra* note 38, at 128–29.

126. Privacy and Surveillance scholars, for instance, have highlighted this manipulability to some extent. See generally, e.g., Tal Z. Zarsky, *Online Privacy, Tailoring, and Persuasion*, in PRIVACY AND TECHNOLOGIES OF IDENTITY: A CROSS-DISCIPLINARY CONVERSATION 209 (Katherine J. Strandburg & Daniela Stan Raicu eds., 2006) (arguing that collecting personal information online is more effective than other media to manipulate consumers’ decisions); FRANK PASQUALE, *THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION* (2015) (exploring practices of internet firms and how they use search algorithms and data to influence consumers’ decisions); SHOSHANA ZUBOFF, *THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER* (2019) (coining the term “surveillance capitalism” to argue how tech companies profit by manipulating people’s behavior); Calo, *supra* note 123 (discussing how digital markets change how firms can influence consumers and how BE is the best vehicle for analyzing digital markets’ influence on consumers).

platforms have complete control over decision-making contexts,<sup>127</sup> along with more insightful and personalized consumer information that can be voluminously, but covertly, collected. This enhanced ability to manipulate, coupled with enhanced incentives,<sup>128</sup> presents a powerful combination in a context where cognitive heuristics and biases may “predominate.”<sup>129</sup>

### A. *Amplified Heuristics and Biases*

#### 1. *Information Overload, Information Complexity, and Attention Scarcity*

The rise of the Internet and particularly digital platforms—which now mediate almost every aspect of our lives, pummeling us with notifications, advertisements, news updates, among a plethora of other information—has increased demand for our attention and therefore limited our cognitive resources.<sup>130</sup> More acutely, digital platform firms

127. Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 747 (1999) (“The behaviorist literature reviewed here makes clear the potential for a new sort of market failure, *market manipulation*: [b]ecause individuals are subject to a host of nonrational yet systematic cognitive phenomena, any party who has *control over a decision[-]making context* can influence the perceptions of the decisionmaker.” (second emphasis added)); see also Daniel Susser, Beate Roessler & Helen Nissenbaum, *Technology, Autonomy, and Manipulation*, INTERNET POL’Y REV., June 30, 2019, at 1, 6 [hereinafter Susser et al., *Technology, Autonomy, and Manipulation*] (“[I]t is not difficult to see why information technology is uniquely suited to facilitating manipulative influences. . . . [P]ervasive digital surveillance puts our decision-making vulnerabilities on permanent display.”); Daniel Susser, Beate Roessler & Helen Nissenbaum, *Online Manipulation: Hidden Influences in a Digital World*, 4 GEO. L. TECH. REV. 1, 29 (2019) [hereinafter Susser et al., *Online Manipulation*] (“[A]s digital technologies are incorporated into all aspects of people’s everyday lives, they become increasingly susceptible to [online] manipulation. Widespread digital surveillance means it takes little effort to identify people’s vulnerabilities.”).

128. See *infra* Part II.B.

129. Shafir & LeBoeuf, *supra* note 29.

130. Maria Sicilia & Salvador Ruiz, *The Effects of the Amount of Information on Cognitive Responses in Online Purchasing Tasks*, 9 ELEC. COM. RSCH. & APPLICATIONS 183, 183 (2010) (“Anyone who has spent some time on the Internet has likely felt overwhelmed with the enormous amount of information available.” (citations omitted)); Ming-Hui Huang, *Information Load: Its Relationship to Online Exploratory and Shopping Behavior*, 20 INT’L J. INFO. MGMT. 337, 337 (2000); Byung-Kwan Lee & Wei-Na Lee, *The Effect of Information Overload on Consumer Choice Quality in an On-Line Environment*, 21 PSYCH. & MKTG. 159, 160 (2004) (“The information-rich nature of the on-line environment can easily become a trap for information overload to occur . . . .”); Nicholas H. Lurie,

now constantly compete for our limited attention to sell it to third parties who value that attention.<sup>131</sup>

For example, the massive increase in creative content—like Spotify’s seventy-million song library (with an additional 60,000 songs “ingested” every day)<sup>132</sup> or the more than one billion hours of YouTube content consumed per day (with 500 hours of content uploaded to YouTube *every minute*)<sup>133</sup>—illustrates the “magnitude of the increase” in information and, consequently, the significant taxing effect this may have on our cognitive capacities. Thus, it is no wonder that “faced with all this complexity, people try to keep things simple—an effort that in itself turns out to be quite complex.”<sup>134</sup> More specifically, consumers may “deal with scale and complexity using cognitive biases encoded deep in our pre-digital history.”<sup>135</sup>

Indeed, Stucke and Ezrachi recently noted that too much choice can generate choice overload, which results in an overdose.<sup>136</sup> This results in confusion and suboptimal decision-making, rendering users ripe for

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*Decision Making in Information-Rich Environments: The Role of Information Structure*, 30 J. CONSUMER RSCH. 473, 473 (2004); see also John M. Newman, *Antitrust in Attention Markets: Objections and Responses*, 59 SANTA CLARA L. REV. 743, 746 (2020) (“[A] shift to an information-rich society tends to cause a corresponding shift to an attention-scarce society.”); Ellen P. Goodman, *Media Policy out of the Box: Content Abundance, Attention Scarcity, and the Failures of Digital Markets*, 19 BERKELEY TECH. L.J. 1389, 1392 (2004) (“Today, the scarce resource is attention . . . [t]he spread of digital innovations, in the form of networks, production techniques, and consumer products, has *multiplied content* and freed audiences from network schedules. Consumers now sit in the eye of a storm of bits surging through cable and satellite channels, DVDs, video games, and websites.” (emphasis added)).

131. David S. Evans, *Attention Rivalry Among Online Platforms*, 9 J. COMPETITION L. & ECON. 313, 313 (2013) (“Many online businesses seek and provide attention. These online attention rivals provide products and features to obtain the attention of consumers and sell some of that attention, through other products and services, to merchants, developers, and others who value it.”).

132. Tim Ingham, *Over 60,000 Tracks Are Now Uploaded to Spotify Every Day. That’s Nearly One per Second*, MUSIC BUS. WORLDWIDE (Feb. 24, 2021), <https://www.musicbusinessworldwide.com/over-60000-tracks-are-now-uploaded-to-spotify-daily-thats-nearly-one-per-second/> [<https://perma.cc/4M6T-4UFA>].

133. Kit Smith, *57 Fascinating and Incredible YouTube Statistics*, BRANDWATCH (Feb. 21, 2020), <https://www.brandwatch.com/blog/youtube-stats/> [<https://perma.cc/G87R-3YGC>].

134. ALISTAIR RENNIE, JONNY PROTHEROE, CLAIRE CHARRON & GERALD BREATNACH, THINK WITH GOOGLE, *DECODING DECISIONS: MAKING SENSE OF THE MESSY MIDDLE* 8 (2020), [https://www.thinkwithgoogle.com/\\_qs/documents/9998/Decoding\\_Decisions\\_The\\_Messy\\_Middle\\_of\\_Purchase\\_Behavior.pdf](https://www.thinkwithgoogle.com/_qs/documents/9998/Decoding_Decisions_The_Messy_Middle_of_Purchase_Behavior.pdf) [<https://perma.cc/TS5U-DRES>].

135. *Id.* at 6.

136. MAURICE E. STUCKE & ARIEL EZRACHI, *COMPETITION OVERDOSE: HOW FREE MARKET MYTHOLOGY TRANSFORMED US FROM CITIZEN KINGS TO MARKET SERVANTS* 93–120 (2020).

exploitation.<sup>137</sup> In some instances, the overload is so great that choice is foregone altogether. Iyengar and Lepper, for example, found that contrary to “the popular notion that the more choice, the better,” less optionality actually results in more uptake.<sup>138</sup> In one field experiment, jam-tasting booths that contained just six jams as opposed to twenty-four led to 30% of consumers actually purchasing jam in the former context and just 3% in the latter context.<sup>139</sup>

Much of the foregoing should perhaps not be surprising because the *source* of mental biases and heuristics, as noted at this Article’s outset, is the bounded cognitive capacity that all humans face. Indeed, the cognitive cost of a “click” has been quantitatively determined to range from \$39 to \$44 when moving from one webpage to another webpage and around \$6.24 when moving position on the “exact *same* webpage,”<sup>140</sup> which would seem to support earlier arguments in the antitrust debate about “cognitive[ly] cost[ly]” switching.<sup>141</sup> Thus, if simply clicking to another web page—an action that can take just

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137. *Id.* at 117.

138. Sheena S. Iyengar & Mark R. Lepper, *When Choice Is Demotivating: Can One Desire Too Much of a Good Thing?*, 79 J. PERSONALITY & SOC. PSYCH. 995, 995 (2000).

139. *Id.* at 997 (“Thus, consumers initially exposed to limited choices proved considerably more likely to purchase the product than consumers who had initially encountered a much larger set of options.”).

140. Cheng, *supra* note 96, at 7–8. For quantitative determinations of how “cognitively costly” Internet searching is, see Anindya Ghose, Panagiotis G. Ipeirotis & Beibei Li, *Search Less, Find More? Examining Limited Consumer Search with Social Media and Product Search Engines*, in THIRTY-THIRD INTERNATIONAL CONFERENCE ON INFORMATION SYSTEMS 1, 3 (2012), [https://www.researchgate.net/profile/Panos-Ipeirotis/publication/237044875\\_Search\\_Less\\_Find\\_More\\_Examining\\_Limited\\_Consumer\\_Search\\_with\\_Social\\_Media\\_and\\_Product\\_Search\\_Engines/links/00b7d530b37d3c3ac9000000/Search-Less-Find-More-Examining-Limited-Consumer-Search-with-Social-Media-and-Product-Search-Engines.pdf](https://www.researchgate.net/profile/Panos-Ipeirotis/publication/237044875_Search_Less_Find_More_Examining_Limited_Consumer_Search_with_Social_Media_and_Product_Search_Engines/links/00b7d530b37d3c3ac9000000/Search-Less-Find-More-Examining-Limited-Consumer-Search-with-Social-Media-and-Product-Search-Engines.pdf) [<https://perma.cc/6Z3Y-CUGG>], where the authors found that “[o]n average, the effort of continuing to search an extra page on search engines costs \$39.15, while the effort of continuing to search an additional screen position on the same page costs \$6.24.”; Sergei Koulayev, *Estimating Demand in Online Search Markets, with Application to Hotel Bookings* 24 (Mar. 10, 2010) (unpublished manuscript), [https://www.researchgate.net/profile/Sergei-Koulayev/publication/265453163\\_Estimating\\_demand\\_in\\_online\\_search\\_markets\\_with\\_application\\_to\\_hotel\\_bookings/links/5614873308aed47facee607b/Estimating-demand-in-online-search-markets-with-application-to-hotel-bookings.pdf](https://www.researchgate.net/profile/Sergei-Koulayev/publication/265453163_Estimating_demand_in_online_search_markets_with_application_to_hotel_bookings/links/5614873308aed47facee607b/Estimating-demand-in-online-search-markets-with-application-to-hotel-bookings.pdf) [<https://perma.cc/WJ3D-4JU7>], where the author estimated the dollar cost of searching an extra page to be around \$43.80 in the context of hotel bookings; and Erik Brynjolfsson, Astrid A. Dick & Michael D. Smith, *A Nearly Perfect Market?: Differentiation vs. Price in Consumer Choice*, 8 QUANTITATIVE MKTG. & ECON. 1, 27 (2010), where the authors estimate the dollar value to the consumer of scrolling down the *same* web page to a lower location to be around \$6.55.

141. Adam Candeub, *Behavioral Economics, Internet Search, and Antitrust*, 9 I/S: J.L. & POL’Y FOR INFO. SOC’Y 407, 410 (2014) (“[C]ontrary to many assumptions in this debate, *the cognitive cost of the click that initiates a switch to a competing service can be quite high.*”).



seconds—may “cognitive[ly] cost” anywhere between \$39 and \$44, then we should expect to see more reliance on mental shortcuts to ameliorate the cognitively taxing effect of searching the Internet.<sup>142</sup> As Behavioural Insights Team Managing Director Elisabeth Costa and Chief Executive David Halpern note, “Many of the failures and distortions in digital markets are behavioural in nature. To govern and regulate better, we must first understand how our behavioural biases manifest and are *amplified* in online environments . . . .”<sup>143</sup>

An illuminating example of how biases may become magnified in the online world (and thereby render consumers more susceptible to manipulation) is the default bias, which is a product of consumer inertia and bounded willpower.<sup>144</sup> Specifically, default positions may apply “*especially forcefully* in the online world” and have an amplified impact on consumer choice as compared to their influence in brick-and-mortar contexts.<sup>145</sup> For instance, in defining defaults as the option that is “least [costly] . . . to discover,” Cheng compares attention percentage distribution across several option positions in (1) brick-and-mortar shelf spaces and (2) virtual shelf spaces.<sup>146</sup> In the former context, if a product moves from worst to best shelf space, sales on average could increase by 39%.<sup>147</sup> Moreover, a notable result from another study is that no brick-and-mortar shelf—regardless of level—could command more than 30% of consumer attention.<sup>148</sup> In stark contrast, in the digital context, an option positioned on the top of

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142. *Id.*; Cheng, *supra* note 96, at 8.

143. ELISABETH COSTA & DAVID HALPERN, THE BEHAVIOURAL INSIGHTS TEAM, THE BEHAVIOURAL SCIENCE OF ONLINE HARM AND MANIPULATION AND WHAT TO DO ABOUT IT: AN EXPLORATORY PAPER TO SPARK IDEAS AND DEBATE 12 (Apr. 15, 2019) (U.K.) (emphasis added), [https://www.bi.team/wp-content/uploads/2019/04/BIT\\_The-behavioural-science-of-online-harm-and-manipulation-and-what-to-do-about-it\\_Single.pdf](https://www.bi.team/wp-content/uploads/2019/04/BIT_The-behavioural-science-of-online-harm-and-manipulation-and-what-to-do-about-it_Single.pdf) [<https://perma.cc/C7X4-3PT2>].

144. This is also called the status quo bias. *See* discussion *infra* Part III.

145. Cheng, *supra* note 96, at 12 (emphasis added).

146. *Id.* at 9–11, 23.

147. *Id.* at 23; *see* Xavier Drèze, Stephen J. Hoch & Mary E. Purk, *Shelf Management and Space Elasticity*, 70 J. RETAILING 301, 318 (1994). *But see* Pierre Chandon, J. Wesley Hutchinson, Eric T. Bradlow & Scott H. Young, *Does In-Store Marketing Work? Effects of the Number and Position of Shelf Facings on Brand Attention and Evaluation at the Point of Purchase*, J. MKTG., Nov. 2009, at 1, 1–2, 13 (concluding that the impacts of product position on attention and evaluation are “mixed”).

148. Denis Drexler & Martin Souček, *The Level of Shelves and Space Solution as One of the Key Factors for Consumer Attention*, 65 ACTA UNIVERSITATIS AGRICULTURAE ET SILVICULTURAE MENDELIANAE BRUNENSIS 1679, 1683 fig.2 (2017) (Czech).

page two of Google's search page, for example, receives just over 1% of "all traffic," while the highest ranked position can command almost an average of 35% of all clicks.<sup>149</sup> More pointedly, if Google moves an option from rank one to three on page one of its search results, traffic to that option can decrease by 50%.<sup>150</sup> Additionally, traffic can fall by as much as 85% if the option is moved from rank one to rank ten—even if the option still remains on page one of Google's search results.<sup>151</sup> This demonstrates the disproportionate impact defaults can have on consumer choice in digital markets vis-à-vis their power in brick-and-mortar markets.

The foregoing analyses would seem to signal that in digital markets, consumer decision-making can take a dramatic shift from System 2 to System 1—that is, from conscious, analytic thinking to automatic, unconscious, and associative thinking<sup>152</sup>—thereby rendering consumers ripe for manipulation<sup>153</sup> and distracting them from making optimal purchasing decisions. This proposition has seen empirical validation,<sup>154</sup> with Sicilia and Ruiz notably finding that "too much information causes *more selectivity* and *prejudices* [cognitive] processing."<sup>155</sup>

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149. Cheng, *supra* note 96, at 25.

150. *Id.*; Google Search (Shopping), *supra* note 110, ¶ 460.

151. Cheng, *supra* note 96, at 25; Google Search (Shopping), *supra* note 110, ¶ 460.

152. See generally DANIEL KAHNEMAN, THINKING, FAST AND SLOW 19–105 (paperback ed. 2013).

153. Such manipulation can include priming and persuasion. See generally Erin J. Strahan, Steven J. Spencer & Mark P. Zanna, *Subliminal Priming and Persuasion: Striking While the Iron Is Hot*, 38 J. EXPERIMENTAL SOC. PSYCH. 556 (2002) (conducting three studies to show how certain techniques, including priming, can persuade people to perform certain tasks).

154. Lee & Lee, *supra* note 130; Lurie, *supra* note 130; Hume Winzar & Preben Savik, *Measuring Information Overload on the World Wide Web*, AM. MKTG. ASS'N CONF. PROC., Winter 2002, at 439, 439 ("An on-line experiment supports previous research on Information Overload. As volume of information, measured by number of brands and range of brand features of an on-line store, increases then *confusion and uncertainty* increase and less information is accessed." (emphasis added)); Sicilia & Ruiz, *supra* note 130, at 189 ("When the amount of information offered through a website is high, content elaboration clearly diminishes and irrelevant thoughts increase . . .").

155. Sicilia & Ruiz, *supra* note 130, at 189 (emphasis added) (citations omitted).

## B. Amplified Abilities to Manipulate

### 1. Control

Digital platforms' ability to continuously and ubiquitously control the consumer's interaction with its service offers another reason why consumers can be rendered increasingly susceptible to manipulation in the online world. Not unlike the scientific researcher,<sup>156</sup> digital platforms are uniquely positioned to totally control digital platform "gestalt"<sup>157</sup> and manipulate platform context and interface,<sup>158</sup> product positions, and information in competitively malicious ways that may lock in consumers.

This increased ability to manipulate overshadows that same ability in brick-and-mortar markets. Once a consumer purchases a bicycle, for example, the seller's control over the consumer becomes extinguished, along with their ability to dictate the consumer's interaction with the product. *Ex ante* the purchase, the seller had the ability to perhaps control the consumer's perception of the product along price-quality parameters; *ex post*, this control over the consumer vanishes. This contrasts significantly with the online world, where platforms continuously and ubiquitously control a user's interaction with the product, their perception of it, and perhaps most significantly for competition purposes, their interactions with same-side and other-side users.<sup>159</sup>

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156. Hanson & Kysar, *supra* note 127, at 724. Similar to the platform, "[i]t is this researcher who is in control of the substance, form, and *frame* of the survey." *Id.*

157. Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420, 1446 (1999) [hereinafter Hanson & Kysar, *Some Evidence of Market Manipulation*].

158. This phenomenon is called "atmospherics"—"the conscious designing of space to create certain effects in buyers." Philip Kotler, *Atmospherics as a Marketing Tool*, 49 J. RETAILING, no. 4, Winter 1973–1974, at 48, 50 (emphasis omitted); see also GORDON FOXALL, RONALD GOLDSMITH & STEPHEN BROWN, *CONSUMER PSYCHOLOGY FOR MARKETING 201* (Int'l Thomson Bus. Press 2d ed. 1998) (1994) ("'Atmospherics' refers to factors that may be designed into or manipulated within retail spaces in order to produce emotional and, in turn, behavioral effects in consumers." (citation omitted)).

159. For an explanation of the competitive significance of same-side and cross-side network effects in platform markets, see MAURICE E. STUCKE & ALLEN P. GRUNES, *BIG DATA AND COMPETITION POLICY* 162–69 (2016). See also John M. Newman, *Antitrust in Digital Markets*, 72 VAND. L. REV. 1497, 1514–15

To some extent, this concern has already been expressed in brick-and-mortar markets in the context of anxieties over private-labeling and their potential to generate welfare-reducing effects for markets.<sup>160</sup> This is because when a distributor creates a private-label brand to compete with the upstream manufacturer's brand, the former may not only possess incentives to self-preference<sup>161</sup> but also has an enhanced ability given that they now control the "arena" in which competition takes place.<sup>162</sup> Yet this concern arguably becomes amplified in digital platform markets because of the ability of a platform to manipulatively "steer[] [and] control[]" users by nefariously compromising their capacity to make decisions autonomously.<sup>163</sup> As the Stigler Committee explains, "What is noteworthy . . . is the platform's detailed, . . . minute-by-minute control over their interface. This . . . enables platforms to create a façade of competition, choice, and autonomy when in fact users are being directed with behavioral techniques."<sup>164</sup>

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(2019); Amit Goldenberg & James J. Gross, *Digital Emotion Contagion*, 24 TRENDS COGNITIVE SCIS. 316, 318 (2020) (differentiating between digital and non-digital interactions and how the latter "are almost always mediated by companies who control and manipulate both the content that users see and how they respond to each other").

160. See generally Ariel Ezrachi, *Unchallenged Market Power? The Tale of Supermarkets, Private Labels, and Competition Law*, 33 WORLD COMPETITION 257 (2010) (discussing how private labels affect consumer welfare).

161. This is not entirely true because a distributor can be competitively constrained by other retailers such that if a retailer does not treat a manufacturer's brand equitably, the manufacturer can shift their distribution to another retailer. See A. Fernandez Nogales & M. Gomez Suarez, *Shelf Space Management of Private Labels: A Case Study in Spanish Retailing*, 12 J. RETAILING & CONSUMER SERVS. 205, 214 (2005) ("[Retailers] . . . realize that they may lose sales if they do not assign the necessary space to national brands, which also help to enhance store image.").

162. Ariel Ezrachi & Ketan Ahuja, *Private Labels, Brands and Competition Law Enforcement*, in BRANDS, COMPETITION LAW AND IP 179, 182 (Deven R. Desai, Ioannis Lianos & Spencer Weber Waller eds., 2015); Ezrachi, *supra* note 160, at 262 ("Control of the distribution channel, shelf space, promotion, and pricing . . . empower the retailer in its relationship with the brand manufacturer. . . . [S]uch control provides the retailer with a decisive advantage over brand suppliers.").

163. Susser et al., *Technology, Autonomy, and Manipulation*, *supra* note 127, at 3.

164. *Stigler Antitrust Subcommittee Report*, *supra* note 26, at 60; see also ARIEL EZRACHI & MAURICE E. STUCKE, *VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY* 27 (2016) (referring to the example of *The Truman Show* to describe how "[n]ew technologies are changing the dynamics of competition as we know it and are giving rise to a new environment," and how "[w]e . . . may think that we're ordinary consumers with ordinary lives with unremarkable purchases[, but w]e have no idea about how, and the extent to which, we are being exploited").

a. *Big Data*

Antitrust is already familiar with Big Data's capacity to foreclose new entry.<sup>165</sup> Now, we highlight Big Data's ability to empower platforms to manipulate consumers and impair their decision-making autonomy, thereby potentially foreclosing competition from the demand-side. Big Data thus offers an additional factor contributing to the increased manipulability of consumers in digital platform contexts. Indeed, if "supermarket manipulation" was not already a concern for consumer decision-making autonomy because of the ability to "bias consumer decisions" with "a battery of behavioral studies and psychological analyses,"<sup>166</sup> then the online world would certainly seem to exacerbate this potential through Big Data analytics. As Colangelo and Maggiolino note, "In the current data economy, some scholars allude to the possibility that companies are able to *shape demand* by offering false and misleading information, and by distributing unduly persuasive information which exploits cognitive vulnerabilities of individual consumers learned by such companies through past interactions."<sup>167</sup> This capacity of Big Data to supercharge behavioral manipulation, which some industry executives have likened to possessing "a spy camera on the production floor,"<sup>168</sup> is being recognized not only by scholars<sup>169</sup> but also by international regulators and policymakers.<sup>170</sup>

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165. See INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 42 ("The accumulation of data can serve as another powerful barrier to entry for firms in the digital economy."); see also Luigi Zingales & Filippo Maria Lancieri, *Stigler Committee on Digital Platforms: Policy Brief*, in STIGLER COMMITTEE ON DIGITAL PLATFORMS: FINAL REPORT, *supra* note 26, at 6, 8.

166. Hanson & Kysar, *Some Evidence of Market Manipulation*, *supra* note 157, at 1450.

167. Colangelo & Maggiolino, *supra* note 30 (emphasis added) (footnote omitted).

168. INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 43.

169. See generally Susser et al., *Online Manipulation*, *supra* note 127; Zarsky, *supra* note 126, at 219–20; Calo, *supra* note 123; Karen Yeung, 'Hypernudge': *Big Data as a Mode of Regulation by Design*, 20 INFO. COMM'N & SOC'Y 118, 118 (2017) ("Big Data analytic nudges are extremely powerful and potent due to their networked, continuously updated, dynamic and pervasive nature . . .").

170. *Stigler Antitrust Subcommittee Report*, *supra* note 26, at 60 ("With big data and machine learning, firms are able to understand and manipulate individual preferences at a scale that goes far beyond what is possible in traditional markets. This capability is qualitatively new. The environment is characterized by extreme asymmetries of information and analytical capacity between the platform and the user. This enables firms to charge higher prices . . . and engage in behavioral discrimination, allowing firms to extract more value from users where they are weak.").

Consider in this regard the subtle but powerful nudging of users towards outcomes that are in the nudger's interests, which some have labeled "hypernudging."<sup>171</sup> This conduct seeks to mold and guide user behavior in algorithmically driven ways "by offering 'suggestions' intended to prompt the user to make decisions preferred by [the nudger]."<sup>172</sup> In this respect, Big Data may empower digital platform firms to personalize users' choice contexts and "channel user choices in directions preferred by the choice architect through processes that are subtle, unobtrusive, yet extraordinarily powerful."<sup>173</sup>

Examples of user profiling demonstrate how sophisticated Big Data has become and how much digital platforms know about its users.<sup>174</sup> Uber, for instance, has developed technology to discern when a user may be intoxicated by comparing a host of data points against that particular user's average data outputs, which may include the way the user is walking (staggered or straight line) or the angle at which the user is holding their phone.<sup>175</sup> The dating platform Tinder can assign each user a secret internal rating of "desirability" and rank users from most to least desirable to facilitate more optimal matching—all of which stems from a complex algorithm.<sup>176</sup> The couch surfing platform Airbnb can identify a user's trustworthiness and psychopathic proclivities derived from multiple data points, such as the user's social

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171. Yeung, *supra* note 169 at 118, 119, 122.

172. *Id.* at 121 (citation omitted); *see also* Evan Selinger & Thomas P. Seager, *Digital Jimmy Crackets*, SLATE (July 13, 2012, 6:33 AM), <https://slate.com/technology/2012/07/ethical-decision-making-apps-damage-our-ability-to-make-moral-choices.html> [<https://perma.cc/F2VQ-3FSF>].

173. Yeung, *supra* note 169, at 119; *see also* Susser et al., *Online Manipulation*, *supra* note 127 ("Digital platforms are the perfect medium through which to leverage [insights into users' vulnerabilities]. And because information technology mediates so much of so many people's lives, there is virtually limitless opportunity to *invisibly influence*." (emphasis added)).

174. *See* Day & Stemler, *supra* note 37, at 16–22 (discussing examples of companies using tactics to manipulate online consumers).

175. *Id.* at 17–18; Jordan Crook, *Uber Applies for Patent That Would Detect Drunk Passengers*, TECHCRUNCH (June 11, 2018, 8:45 AM), <https://techcrunch.com/2018/06/11/uber-applies-for-patent-that-would-detect-drunk-passengers/> [<https://perma.cc/KHY2-APDT>].

176. Day & Stemler, *supra* note 37, at 18; Austin Carr, *I Found Out My Secret Internal Tinder Rating and Now I Wish I Hadn't*, FAST CO. (Jan. 11, 2016), <https://www.fastcompany.com/3054871/whats-your-tinder-score-inside-the-apps-internal-ranking-system> [<https://perma.cc/EGV6-Y96K>].

media and lifestyle choices.<sup>177</sup> And the well-known case of Max Schrems, who brought a case against Facebook for disclosure of his personal data based on European law, found that his own Facebook file was 1,200 pages in length.<sup>178</sup> This was at a time when data was tracked “singular[ly]”<sup>179</sup> on Facebook, compared to its current pluralistic tracking across “millions of independently owned websites and mobile applications”<sup>180</sup> that use any of Facebook’s plug-ins like the “Like” button. Even “thinking” certain things, like typing words and sentences into a status update field, for instance, but then deleting it, is still tracked and recorded.<sup>181</sup>

These powerful insights into our psychological make-up showcase the extent to which a platform could calibrate the user experience in tailored ways and leverage such insights to manipulate us into decisions that are in the platform’s potentially anticompetitive interests.

#### *b. Addiction-Induced Cognitive Impairment*

Platforms possess enhanced incentives to catch and retain users’ attention for as long as possible,<sup>182</sup> which may generate addiction and,

177. Day & Stemler, *supra* note 37, at 18; Whitney Kimball, *Airbnb’s Software Patent Rates Your Psychopathy Based on Your Social Media Activity*, GIZMODO (Jan. 7, 2020, 2:10 PM), <https://gizmodo.com/airbnbs-software-patent-rates-your-psychopathy-based-on-1840855354> [<https://perma.cc/JZ5D-Y68Y>].

178. Olivia Solon, *How Much Data Did Facebook Have on One Man? 1,200 Pages of Data in 57 Categories*, WIRED (Dec. 28, 2012, 5:11 PM) (U.K.), <https://www.wired.co.uk/article/privacy-versus-facebook> [<https://perma.cc/P4AQ-3JLS>].

179. Dina Srinivasan, *The Antitrust Case Against Facebook: A Monopolist’s Journey Towards Pervasive Surveillance in Spite of Consumers’ Preference for Privacy*, 16 BERKELEY BUS. L.J. 39, 41 (2019).

180. *Id.* The “Like” button appears on over 1 million websites. *Websites Using Facebook Like Button*, BUILTWITH, <https://trends.builtwith.com/websitelist/Facebook-Like-Button> [<https://perma.cc/YL25-PV4C>].

181. Sauvik Das & Adam Kramer, *Self-Censorship on Facebook*, 7 PROC. SEVENTH INT’L AAAI CONF. ON WEBLOGS & SOC. MEDIA, no. 1, 2013, at 120, 120, 122, <https://ojs.aaai.org/index.php/ICWSM/article/view/14412/14261> [<https://perma.cc/AGD4-MX5B>]; Jennifer Golbeck, *On Second Thought . . .*, SLATE, <https://slate.com/technology/2013/12/facebook-self-censorship-what-happens-to-the-posts-you-dont-publish.html> [<https://perma.cc/EZE3-7ZJX>] (Dec. 16, 2013, 11:20 AM) (“Unfortunately, the code in your browser that powers Facebook still knows what you typed—even if you decide not to publish it. It turns out that the things you explicitly choose *not* to share aren’t entirely private.” (footnote omitted)).

182. See *infra* Part II.B.2.

consequently, a significant impairment of cognitive processing capacity. This reduced user cognition constitutes an additional element that may render consumers increasingly ripe for behavioral manipulation in digital platform contexts.

Neuroscience research reveals, for example, that heightened Internet use can lead to reductions in gray matter in users' brains,<sup>183</sup> abnormal sensitivity to reward-like structures which implicates the "dopaminergic neural system,"<sup>184</sup> and increased impulsivity due to concomitant decreases in self-control.<sup>185</sup> Consider that a study of WeChat users, for instance, found that gray matter reduction can lead to users experiencing reward sensitivity,<sup>186</sup> "suggesting that digital addiction begets more addiction,"<sup>187</sup> which, in turn, may subsume users into a perpetual "dream-like" state and subject them to a potential host of manipulative strategies.

That online users in the aggregate spend around 950 million hours per day on Facebook platforms may mean that the user's dream has already begun.<sup>188</sup> Prolonged use of Google platforms may also tend to

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183. See Kai Yuan, Ping Cheng, Tao Dong, Yanzhi Bi, Lihong Xing, Dahua Yu, Limei Zhao, Minghao Dong et al., *Cortical Thickness Abnormalities in Late Adolescence with Online Gaming Addiction*, PLOS ONE, Jan. 2013, at 1, 1–2, <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0053055&type=printable> [<https://perma.cc/QM5V-TWL5>].

184. Sang Hee Kim, Sang-Hyun Baik, Chang Soo Park, Su Jin Kim, Sung Won Choi & Sang Eun Kim, *Reduced Striatal Dopamine D2 Receptors in People with Internet Addiction*, 22 NEUROREP. 407, 407 (2011); see also Soon-Beom Hong, Andrew Zalesky, Luca Cocchi, Alex Fornito, Eun-Jung Choi, Ho-Hyun Kim, Jeong-Eun Suh, Chang-Dai Kim et al., *Decreased Functional Brain Connectivity in Adolescents with Internet Addiction*, PLOS ONE, Feb. 2013, at 1, 1, <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0057831&type=printable> [<https://perma.cc/BV3A-GWAP>].

185. See Sergey Tereshchenko & Edward Kasparov, *Neurobiological Risk Factors for the Development of Internet Addiction in Adolescents*, BEHAV. SCIS., June 14, 2019, at 1, 3.

186. Christian Montag, Zhiying Zhao, Cornelia Sindermann, Lei Xu, Meina Fu, Jialin Li, Xiaoxiao Zheng, Keshuang Li et al., *Internet Communication Disorder and the Structure of the Human Brain: Initial Insights on WeChat Addiction*, SCI. REPS., Feb. 1, 2018, at 1, 1, <https://www.nature.com/articles/s41598-018-19904-y.pdf> [<https://perma.cc/9FWY-XESH>].

187. Day & Stemler, *supra* note 37, at 20.

188. Adam Levy, *People Still Spend an Absurd Amount of Time on Facebook*, MOTLEY FOOL (Feb. 6, 2018, 9:32 AM), <https://www.fool.com/investing/2018/02/06/people-still-spend-an-absurd-amount-of-time-on-fac.aspx> [<https://perma.cc/RJ6A-33PQ>]. *The New York Times* also noted that we spend more time on Facebook, Instagram, and Messenger—fifty times more, in fact—than on other activities except watching television. James B. Stewart, *Facebook Has 50 Minutes of Your Time Each Day. It Wants More.*, N.Y. TIMES (May 5, 2016), <https://www.nytimes.com/2016/05/06/business/facebook-bends-the-rules-of-audience-engagement-to-its-advantage.html> [<https://perma.cc/JZP2-VAGW>].



show this (more than one billion hours of YouTube content are consumed per day).<sup>189</sup> Additionally, consider that we spend on average somewhere between 3.5 and 4.5 hours per day on our mobile phones.<sup>190</sup> Indeed, one study administering a self-assessment questionnaire about Internet addiction revealed almost half of those sampled agreed or strongly agreed with the statement “I am addicted to the [I]nternet.”<sup>191</sup> It is therefore perhaps unsurprising that psychologists have coined the term “nomophobia” (fear of no mobile phone), with some campaigning for the phobia to be added to the American Psychiatric Association’s *Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition): DSM-5™*, the manual for diagnosing and taxonomizing mental health disorders.<sup>192</sup> Behavioral manifestations of the above addictions further evidence the notion that the dream may have already begun for online consumers. Systematic usage, anxiety, “‘ringxiety’ (i.e., repeatedly checking one’s phone for messages, sometimes leading to phantom ring tones), constant availability, preference for mobile communication over face[-]to[-]face communication, and financial problems” are all symptomatic of addiction.<sup>193</sup> Given that attention capture and retention is a digital platform’s primordial concern,<sup>194</sup> digital platform users may very well be moving towards the world of cognitive foreclosure hinted to at this Article’s outset.

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189. Cristos Goodrow, *You Know What’s Cool? A Billion Hours*, YOUTUBE OFF. BLOG (Feb. 27, 2017), <https://blog.youtube/news-and-events/you-know-whats-cool-billion-hours/> [https://perma.cc/9FH5-ZVT9] (“If you were to sit and watch a billion hours of YouTube, it would take you over 100,000 years.”).

190. Rani Molla, *Tech Companies Tried to Help Us Spend Less Time on Our Phones. It Didn’t Work.*, VOX: RECODE (Jan. 6, 2020, 12:30 PM), <https://www.vox.com/recode/2020/1/6/21048116/tech-companies-time-well-spent-mobile-phone-usage-data> [https://perma.cc/89A4-W6FE].

191. Xavier Carbonell, Andrés Chamarro, Ursula Oberst, Beatriz Rodrigo & Mariona Prades, *Problematic Use of the Internet and Smartphones in University Students: 2006–2017*, INT’L J. ENV’T RSCH. & PUB. HEALTH, Mar. 8, 2018, at 1, 5, <https://www.mdpi.com/1660-4601/15/3/475/htm> [https://perma.cc/GL2V-MB8E].

192. Daria J. Kuss & Mark D. Griffiths, *Social Networking Sites and Addiction: Ten Lessons Learned*, INT’L J. ENV’T RSCH. & PUB. HEALTH, Mar. 17, 2017, at 1, 9, <https://www.mdpi.com/1660-4601/14/3/311/htm> [https://perma.cc/HD2B-Y3X7]; AM. PSYCHIATRIC ASS’N, *DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS 5TH EDITION (DSM-5)* (5th ed. 2013).

193. Kuss & Griffiths, *supra* note 192.

194. See STUCKE & EZRACHI, *supra* note 136, at 197–98 (“Many app developers compete so hard to addict us, because the longer we spend on their apps—the more ‘eyeball time’ we put in—the more personal data they can extract from us and the more money they can make by selling access to that data to advertisers.”).

## 2. *Amplified Incentives to Manipulate*

Along with amplified manipulation abilities, digital platform firms also possess intensified incentives to engage in user manipulation due to competitive pressures, the potential ease of user switching, and inclinations to engage in more pernicious forms of self-preferencing.

### a. *Competitive Pressures*

One reason why firms may possess magnified incentives to manipulate consumers' behavioral shortcomings is that cognitive biases can "present profit-maximizing opportunities that [digital firms] must take advantage of in order to stay apace with competition."<sup>195</sup> This incentive seems all the more real and amplified in digital platform markets where, as illustrated above, cognitive biases become magnified<sup>196</sup> and, therefore, become riper for manipulation. We may thus encounter instances of "races to the bottom"; as one firm begins engaging in these manipulative tactics, others may have to as well.

Studies demonstrate that it is, at the very least, unclear whether competition will eradicate manipulation of consumer biases and in several instances show that more rivalry may even exacerbate incentives to manipulate.<sup>197</sup> Perhaps most importantly, some studies reveal that, when faced with a decision to compete or manipulate, firms will choose to manipulate.<sup>198</sup> As the Office of Fair Trading concludes after a review of various studies across a variety of industries:

The broad picture in the class of models reviewed in this part

195. Hanson & Kysar, *supra* note 127, at 726 (emphasis omitted).

196. *See supra* Part II.A.

197. STEFFEN HUCK, JIDONG ZHOU & CHARLOTTE DUKE, OFF. OF FAIR TRADING, OFT1324, CONSUMER BEHAVIOURAL BIASES IN COMPETITION: A SURVEY 68 (2011) (U.K.), <https://londonconomics.co.uk/wp-content/uploads/2012/06/Consumer-behavioural-biases-in-competition-OFT1.pdf> [<https://perma.cc/WF28-E97T>] ("The most striking result of the literature so far is that increasing competition through fostering entry of more firms may not on its own always improve outcomes for consumers. . . . In the presence of [cognitively biased consumers] it is no longer clear that firms necessarily have an incentive to compete by offering better deals. Rather, they can focus on exploiting biased consumers who are very likely to purchase from them regardless of price and quality.")

198. *See, e.g.*, Ioana Chioveanu & Jidong Zhou, *Price Competition with Consumer Confusion*, 59 MGMT. SCI. 2450, 2450 (2013); Bruce I. Carlin, *Strategic Price Complexity in Retail Financial Markets*, 91 J. FIN. ECON. 278, 278 (2009).

is that firms will employ strategies that are carefully tailored to the consumers' biases. They will exploit imperfect recall of prices and will tailor their price framing such that in equilibrium consumers' problems in making accurate judgements about price differences will come into play.<sup>199</sup>

We could expect to see similar outcomes in digital platform markets because of the ease with which technology giants like Google, Amazon, Facebook, and Apple possess total control over consumers' interactions with, and perceptions of, their products and services.

*b. Almost "Perfect" Switching*

The notion that competition is "just a click away" in the online world may further amplify digital platforms' incentives to manipulate consumers and generate lock-in.<sup>200</sup> To be sure, although this strand of argument has been disputed—that competition is almost *perfect* due to consumers' almost instantaneous ability to switch between rivals<sup>201</sup>—its prospect is still very real. In the search engine context, for example, Edlin and Harris contend that "[a]cross search engines, there are virtually zero transactions switching costs. . . . [U]sers not only frequently switch search engines *between* search sessions, they often switch *during* a search session."<sup>202</sup> Moreover, users can switch

199. HUCK ET AL., OFF. OF FAIR TRADING, *supra* note 197, at 43.

200. Geoffrey A. Manne & Joshua D. Wright, *Google and the Limits of Antitrust: The Case Against the Case Against Google*, 34 HARV. J.L. & PUB. POL'Y 171, 195 (2011); Rory Van Loo, *Helping Buyers Beware: The Need for Supervision of Big Retail*, 163 U. PA. L. REV. 1311, 1319 (2015).

201. This mantra has been recited many times. See, e.g., Manne & Wright, *supra* note 200 (quoting statistics from a website and concluding that "as Google so often asserts . . . competition really is 'just a click away' for a significant number of users."); Van Loo, *supra* note 200 (describing online shopping as "consumer-friendly" where "comparison information is just a click away . . ."); Robert H. Bork & J. Gregory Sidak, *What Does the Chicago School Teach About Internet Search and the Antitrust Treatment of Google?*, 8 J. COMPETITION L. & ECON. 663, 665 (2012) (describing competition as just a click away); Aaron S. Edlin & Robert G. Harris, *The Role of Switching Costs in Antitrust Analysis: A Comparison of Microsoft and Google*, 15 YALE J.L. & TECH. 169, 176 (2013) ("Because of low switching costs, Google search is vulnerable to existing competitors and new entrants to the market . . ."); Robert H. Bork, Opinion, *Antitrust and Google*, CHI. TRIB. (Apr. 6, 2012, 12:00 AM), <https://www.chicagotribune.com/opinion/ct-xpm-2012-04-06-ct-perspec-0405-bork-20120406-story.html> [<https://perma.cc/QJV4-EF2Z>] ("Consumers can switch search engines without cost instantaneously.").

202. Edlin & Harris, *supra* note 201, at 196.

back and forth between different search engines “costless[ly],” or in other words, ““switch-back costs’ are low.”<sup>203</sup>

Some studies do reveal high rates of switching at low cost between search engines. Empirical evidence seems to bolster these claims. One study, for example, found that users switch between search engines “often”—both “within” and “between” search sessions.<sup>204</sup> Specifically,

of the 14.2 million users in [one study’s] log sample, 10.3 million (72.6%) used more than one engine in the six-month duration of the logs, 7.1 million (50.0%) switched engines within a search session at least once, and 9.6 million (67.6%) used different search engines for different sessions (i.e., engaged in between-session switching).<sup>205</sup>

Further, 4.4% of the log sample left a search engine for another and never returned to the former.<sup>206</sup> Other studies found similar evidence of easy and frequent switching.<sup>207</sup>

Moreover, the fact that switching is “free” is yet another reason why digital platforms should take the spectre of user switching very

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203. *Id.*

204. Ryen W. White & Susan T. Dumais, *Characterizing and Predicting Search Engine Switching Behavior*, in THE 18TH ACM CONFERENCE ON INFORMATION AND KNOWLEDGE MANAGEMENT 87, 87 (David Cheung, Il-Yeol Song, Wesley Chu, Xiaohua Hu, Jimmy Lin, Jiexun Li & Zhiyong Peng eds., 2009).

205. *Id.* at 89.

206. *Id.*

207. Doug Downey, Susan Dumais & Eric Horvitz, *Models of Searching and Browsing: Languages, Studies, and Applications*, in PROCEEDINGS OF THE TWENTIETH INTERNATIONAL JOINT CONFERENCE ON ARTIFICIAL INTELLIGENCE 2740, 2747 (2007); Qi Guo, Ryen W. White, Yunqiao Zhang, Blake Anderson & Susan T. Dumais, *Why Searchers Switch: Understanding and Predicting Engine Switching Rationales*, in 1 SIGIR’11: PROCEEDINGS OF THE 34TH INTERNATIONAL ACM SIGIR CONFERENCE ON RESEARCH AND DEVELOPMENT IN INFORMATION RETRIEVAL 335, 335 (2011); Allison P. Heath & Ryen W. White, *Defection Detection: Predicting Search Engine Switching*, in WWW’08: PROCEEDINGS OF THE 17TH INTERNATIONAL CONFERENCE ON WORLD WIDE WEB 1173, 1174 (2008) (“In the duration of the study, approximately half of the users switched search engines at least once per month. Around 8% of search sessions contained a search engine switch, a proportion which could have profound financial implications given the large number of users involved.”).

seriously,<sup>208</sup> which may amplify their incentives to subtly manipulate and cognitively lock in consumers.

*c. Pernicious Self-Preferencing*

A more nuanced reason as to why digital platforms may gravitate towards more subtle forms of exclusion in the form of cognitive foreclosure is that a more overt form of exclusion—that is, excluding rivals on the *intra*-platform level—would not seem to be in a platform’s interests. This is because platforms need to maintain their perceived quality in the first instance and not act in ways that would cause consumers to switch away. Otherwise put, platform markets are two-sided markets and the demand by one side (say, advertisers) is dependent upon the demand of the other (consumers). Examples include shopping malls (an increase in shops increases consumer demand) and computer hardware (a decrease in consumer demand would lead software developers to produce less applications for that hardware).<sup>209</sup> In short, a platform is not incentivized to foreclose rival applications from its platform because doing so will lower the platform’s overall value; “[t]o the contrary . . . a platform monopolist has an incentive to innovate and push for improvements in its system—including better applications—in order to profit from a more valuable platform.”<sup>210</sup> A platform may even choose not to enter (or exit if it is already present) downstream as a way of signaling its desire for

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208. David S. Evans, *Multisided Platforms, Dynamic Competition, and the Assessment of Market Power for Internet-Based Firms* 21–22 (Coase-Sandor Inst. for L. & Econ., Univ. of Chi. L. Sch., Working Paper No. 753, 2016), [https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=2468&context=law\\_and\\_economics](https://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=2468&context=law_and_economics) [https://perma.cc/8Q9P-E7SL] (“Since the platforms are free [consumers] can use as many as they want and switch their attention depending upon the relative attractiveness to spending time on one or the other.”).

209. Oz Shy, *A Short Survey of Network Economics*, 38 REV. INDUS. ORG. 119, 135–36 (2011) (illustrating two-sided market theory through examples).

210. Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 103 (2003).

efficient applications competition to downstream application developers.<sup>211</sup>

*Google Android* exemplifies this latter point and somewhat discredits interventionists' arguments that Google's agreements with original equipment manufacturers (OEMs) for the latter to pre-install Google Search constitutes a tying violation.<sup>212</sup> "Tying occurs when a seller conditions the sale of [one] product with market power on the purchase of another product."<sup>213</sup> Market power in the tying product is essential because, "[o]therwise, the buyer can simply purchase a substitute for the tying product without the tied product."<sup>214</sup> Thus, Google Android is allegedly the tying product with market power and Google Search is the tied product, which Google supposedly forces OEMs to pre-install.

But the two-sided nature of Google Android illuminates the fallacy of this tying theory because Google has an incentive not to exclude complementary applications.<sup>215</sup> Google is not incentivized to exclude competing search applications because the value of its Google Android mobile operating system would decrease for consumers—who "have demand for unlimited applications"<sup>216</sup>—which in turn would decrease their demand. Application developers, who "want the most consumers to use their applications,"<sup>217</sup> would consequently reduce their supply of apps for Android (because they would not produce apps for a mobile operating system that few consumers demand).<sup>218</sup> OEMs, in turn, would switch away from Android towards operating systems that app

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211. *Id.* at 103–04 ("Platform providers may . . . stay out of (or exit from) [downstream] applications market[s] . . . as a means of ensuring efficient competition in that market . . . [and] be a good steward of the applications sector for its platform . . .").

212. Bork & Sidak, *supra* note 201, at 698.

213. *Id.* at 698–99.

214. *Id.* at 699.

215. See Farrell & Weiser, *supra* note 210, at 100 ("[P]latform providers who integrate into applications development often take pains 'not to compete with customers' so as to minimize any ill effects of integration on independent applications.").

216. Bork & Sidak, *supra* note 201, at 699.

217. *Id.*

218. *Id.* ("If Google were to exclude applications from Android . . . , it would reduce consumer choice and degrade the quality of Android. Consumers would lose demand for Android. As a result, developers of new applications would begin to supply their applications on a different platform.").

developers switch to.<sup>219</sup> “OEMs would . . . produce fewer Android devices[,] . . . [which] would reduce Google’s firm value.”<sup>220</sup>

From a more nuanced perspective, however, it may be argued that this “complementary demand” between consumers and app developers does not so much as disincentivize Google from foreclosing applications on Android, as some scholars maintain;<sup>221</sup> rather, it simply reduces the total amount of ways a platform *should* foreclose competition. Otherwise put, in a scenario where a platform is also a rival on its own platform, the incentive to self-preference still remains, but the *methods* a platform chooses in this regard would have to be much more subtle than simply not allowing rivals onto its platform because, as the above analysis has shown, a platform has incentives to make its platform as open as possible so as to maximize consumer demand. Thus, a platform will have incentives to exclude in much more subtle ways—one of which may be to take advantage of consumers’ cognitive shortcomings and generate foreclosure from the demand-side.

Indeed, the Commission’s reasoning in *Google Android*<sup>222</sup> and the more recent U.S. DOJ *Google* case<sup>223</sup> would seem to attest to this narrative given that the theories adopted in these cases are grounded on BE. Comments about the “abnormal[.]” nature of such self-preferencing conduct in *Google Search (Shopping)* are also vindicating in this respect because they highlight the court’s confusion about Google—a platform subject to network effects—engaging in

219. *Id.*

220. *Id.*

221. *Id.* at 699–700; *see also* Farrell & Weiser, *supra* note 210, at 101 (“[I]n choosing how to . . . deal with developers, [a monopoly] firm has a clear incentive to choose the pattern that will best provide it or its customers with applications.”).

222. Commission Decision C(2018) 4761 of July 18, 2018, Case AT.40099 Google Android ¶¶ 2-3 [hereinafter *Google Android*], [https://ec.europa.eu/competition/antitrust/cases/dec\\_docs/40099/40099\\_9993\\_3.pdf](https://ec.europa.eu/competition/antitrust/cases/dec_docs/40099/40099_9993_3.pdf) [https://perma.cc/W2Q4-BQZ5], *appeal filed sub nom.* Case T-604/18, *Google & Alphabet v. Comm’n (Google Android)* (Nov. 23, 2018).

223. Press Release, Off. of Pub. Affs., U.S. Dep’t of Just., Justice Department Sues Monopolist Google for Violating Antitrust Laws, <https://www.justice.gov/opa/pr/justice-department-sues-monopolist-google-violating-antitrust-laws> [https://perma.cc/55KH-4S69] (Oct. 20, 2020).

ostensibly self-defeating behavior.<sup>224</sup> The traditional strand of debate about a platform's interrelated demand and how this cuts against exclusionary incentives, therefore, may need to be reconceived: it is not that the platform does not have incentives to exclude (these still exist) but rather the method through which the platform excludes will need to be more subtle and manipulative—perhaps in the pernicious form of self-preferencing—given that its total value as a platform correlates with the number of options that platform provides to users (in other words, in the form of applications like different search engines or in the form of sellers in an online marketplace).

In sum, digital platform markets seem to be manifesting as structurally unique business models that can empower platforms to manipulate consumers on a scale that is simultaneously powerful and pernicious. The “digital firehose of information”<sup>225</sup>—which may induce greater consumer reliance on heuristics and biases due to information overload—coupled with amplified abilities and incentives to manipulate presents a newly emerging phenomenon whereby firms are uniquely positioned to cognitively foreclose competition. The basic takeaway is that, rather than competing on the merits or via “superior skill, foresight and industry,”<sup>226</sup> digital platform firms seem uniquely positioned to leverage their market power<sup>227</sup> in behaviorally manipulative ways and “keep competition at bay.”<sup>228</sup> What these behaviorally manipulative methods could look like is now examined.

### III. BEHAVIORAL FRUSTRATION OF CONSUMER SWITCHING AT

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224. See Case T-612/17 Google LLC & Alphabet, Inc. v. Comm'n (Google Shopping), ECLI:EU:T:2021:763, ¶¶ 176, 178-179 (Nov. 10, 2021), *appeal filed*, Case C-48/22 P (Jan. 20, 2022).

225. Newman, *supra* note 130, at 748.

226. United States v. Aluminum Co. of Am., 148 F.2d 416, 430 (2d Cir. 1945).

227. Note that the leverage in this regard is different from traditional leverage theories where, for example, in the case of tying, a firm may use its high market share in one market to gain a competitive advantage in another complementary product market. For cognitive foreclosure purposes, the leverage would be with respect to dominant digital platforms' access to voluminous personal data, which may be relied upon to manipulate.

228. Cheng, *supra* note 96, at 3–4.



*INTER- AND INTRA-PLATFORM LEVELS*

Hanson and Kysar described manipulation susceptibility due to cognitive biases as “the single most significant implication to be drawn from behavioral research.”<sup>229</sup> As noted at the previous Section’s outset, the potential for digital platform firms to manipulate consumer behavioral biases and “shape demand” is starting to be recognized across scholarship and regulation, and the foregoing Section demonstrated this emerging phenomenon as a more pernicious form of foreclosure that deserves to be taken seriously.<sup>230</sup> Indeed, controlled experimental studies have already documented instances where, for example, manipulative partitioned or price-dripping strategies, which take advantage of a consumer’s bounded rationality, may have induced a consumer to purchase in erroneous or welfare-reducing ways.<sup>231</sup>

This emerging form of potentially anticompetitive conduct—one with powerful capacities in the online world, as shown above—clearly has implications for antitrust enforcement if, for example, the position

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229. Hanson & Kysar, *supra* note 127, at 722. Note, however, that Hanson and Kysar’s analysis was in the context of products liability law. *Id.*

230. *See supra* Parts II.A, II.B, II.B.2.c.

231. COMPETITION & MKTS. AUTH., *supra* note 124. For experimental work, see CHARLOTTE DUKE, MIRIAM SINN, STEFFEN HUCK & BRIAN WALLACE, OFF. OF FAIR TRADING, OFT1501A, PARTITIONED PRICING RESEARCH: A BEHAVIOURAL EXPERIMENT (2013) (U.K.), [https://webarchive.nationalarchives.gov.uk/ukgwa/20140402142426/http://www.offt.gov.uk/shared\\_offt/economic\\_research/OFT1501A.pdf](https://webarchive.nationalarchives.gov.uk/ukgwa/20140402142426/http://www.offt.gov.uk/shared_offt/economic_research/OFT1501A.pdf), where the study found:

[T]he way prices are framed does matter for consumer decision making and welfare. In particular, we find evidence that consumers reduce search effort under most price frames we investigate and that under some of the price frames they also make more mistakes in search and purchasing behaviour as compared to straight unit pricing . . . .

*Id.* at 9; Shelle Santana, Steven K. Dallas & Vicki G. Morwitz, *Consumer Reactions to Drip Pricing*, 39 MKTG. SCI. 188, 188 (2020) (“Across six studies, . . . when optional surcharges are dripped (versus revealed up front) consumers are more likely to initially select a lower base priced option which, after surcharges are included, is often more expensive than the alternative.”); and Steffen Huck & Brian Wallace, *The Impact of Price Frames on Consumer Decision Making: Experimental Evidence 1* (Oct. 15, 2015) (unpublished manuscript) (U.K.), <https://www.ucl.ac.uk/~uctpbwa/papers/price-framing.pdf> [<https://perma.cc/RZ6V-GQLH>], where the authors found that “all frames deviating from the [linear] benchmark have some negative impact on consumer decision making. The most striking result concerns drip pricing . . . [which extinguished] 22% of consumer surplus.” For more evaluative accounts, see Gorkan Ahmetoglu, Adrian Furnham & Patrick Fagan, *Pricing Practices: A Critical Review of Their Effects on Consumer Perceptions and Behaviour*, 21 J. RETAILING & CONSUMER SERVS. 696, 696 (2014), where “[o]verall, the current review indicates that sellers are able to influence perceptions and purchase decisions of consumers based on the manner in which prices are displayed.”

of a search result; the framing of price, quality, and website attributes; the introduction of irrelevant third options; or misrepresenting the previous demand for a product (that is, taking advantage of the “bandwagon” effect)<sup>232</sup> can induce a consumer to purchase when they otherwise would not. The realization of alternative substitutes becomes foreclosed, and competition intensity becomes softened, with the result being a potential solidifying of market power. These latter phenomena, coupled with significantly increased abilities to manipulate a consumer’s willingness to pay, may be moving us closer to not only a world where competition no longer can just be anticompetitively foreclosed through more explicit means, like refusals to deal or license, but also through a much subtler, much more pernicious method that cognitively forecloses competition.

This new form of potentially “bad conduct”—a prerequisite for showing a unilateral antitrust infringement<sup>233</sup>—may be the most potent form of nefarious exclusion in a world that is “increasingly structured by information technology . . . [and] removed from view—a world of screens people look through.”<sup>234</sup> Indeed, “[a] determined manipulator could not dream up a better infrastructure through which to carry out his plans.”<sup>235</sup> This Section thus demonstrates the various ways digital platform firms could manipulate cognitive biases to maintain market power by frustrating a consumer’s *incentive* and *ability* to switch. The Section therefore seeks to reveal the methods through which this can be achieved—that is, the specific bias being manipulated and how it may be leveraged to “prolong[]” monopoly power.<sup>236</sup>

The analysis is undertaken at two distinct levels—on the *inter*-platform level and *intra*-platform level. The reasons for

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232. Colangelo & Maggiolino, *supra* note 30, at 89–90 (“[A]n advertiser, knowing that a consumer is very keen to buy skis and prone to being influenced by someone else’s choices (bandwagon bias), might market that consumer a brand of skis by stressing that the vast majority of clients favored it over others in order to persuade him/her to purchase it.”).

233. HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE § 6.3, at 356 (LEG, Inc. d/b/a West Academic 6th ed. 2020) (“[I]llegal monopolization still requires monopoly power *plus* some form of anticompetitive conduct.”).

234. Susser et al., *Online Manipulation*, *supra* note 127, at 34.

235. *Id.*

236. HOVENKAMP, *supra* note 233, § 6.4a, at 358. This concept of foreclosure is widely shared. *See, e.g., id.* at 358–59.

demarcating the analysis like this are twofold: the first is that, as noted previously, digital platform markets are replicating the aforementioned concerns about private-label brands and the conflicts of interest that such dynamics can generate, which provides a justification for the intra-platform demarcation where a platform may be incentivized to self-preference. Indeed, platforms can “create private-label brands”<sup>237</sup> for downstream applications, which contrasts with pre-2005 market realities where search engines, for instance, did not create their own content or services outside of a search functionality.<sup>238</sup> But today’s market realities look very different where platforms generate their *own brand* content like “Maps” or “comparison-shopping services,” which then get baked into general search results but displayed more saliently. Enforcement actions to date have largely percolated around these concerns of self-preferencing and own-content bias—several of which are underpinned with BE-orientated theories of harm—rather than the upstream inter-platform effects.

Indeed, the recent *Google Search (Shopping)*<sup>239</sup> judgment held self-preferencing to be abusively anticompetitive because Google positioned its own comparison-shopping service over competitors more favorably and vividly, which through the lens of BE takes advantage of consumer inertia and salience effects. The long-awaited judgment therefore exemplifies on its own accord the potential significance of self-preferencing as an important behavioral theory of harm for antitrust agencies and courts moving forward.

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237. Cheng, *supra* note 96, at 22.

238. Marina Lao, “Neutral” Search as a Basis for Antitrust Action?, HARV. J.L. & TECH. OCCASIONAL PAPER SERIES 1, 10 (2013) (“Prior to 2005, the lines between search and web content were clear. The role of general search engines, which then did not create web content or provide other services, was simply to generate a list of the most useful websites—the ‘ten blue links’—in response to search queries.”); *see also* INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 282 (discussing Amazon and how “[b]y virtue of its role as an intermediary in the marketplace, Amazon can give itself favorable treatment relative to competing sellers”).

239. *See* Case T-612/17 Google LLC & Alphabet, Inc. v. Comm’n (Google Shopping), ECLI:EU:T:2021:763, ¶¶ 182-185 (Nov. 10, 2021), *appeal filed*, Case C-48/22 P (Jan. 20, 2022); *see also* General Court of the European Union Press Release No. 197/21, The General Court Largely Dismisses Google’s Action Against the Decision of the Commission Finding that Google Abused Its Dominant Position by Favoursing Its Own Comparison Shopping Service over Competing Comparison Shopping Services (Nov. 10, 2021), <https://curia.europa.eu/jcms/upload/docs/application/pdf/2021-11/cp210197en.pdf> [<https://perma.cc/K32U-BWW6>] (discussing the General Court’s decision).

The second reason that supplies a justification for inter-platform foreclosure analysis is that inter-platform competition is still a significant issue in a market that is dominated by just a few large tech companies who hold very large shares of their respective markets and where the prospect of new entry has been cast in doubt by various regulatory and policy reports in 2019 in particular.<sup>240</sup> Indeed, if cognitive foreclosure is a real spectre, then the intensity of inter-platform competition is just as in doubt as intra-platform competition given the necessity of prospective platform entrants to gain a critical mass of users by prompting them to switch *en masse*. This is because of the now well-established proposition that competition in platform contexts is “for” the market.<sup>241</sup>

The suggestion, of course, is not that behavioral manipulation is the only source of foreclosure. Rather, it may serve to solidify and entrench market power that is already present due to other environmental factors like network effects and data access issues.<sup>242</sup>

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240. See *Stigler Antitrust Subcommittee Report*, *supra* note 26, at 81; DIGIT. COMPETITION EXPERT PANEL, *supra* note 26, at 17; CRÉMER ET AL., EUR. COMM’N, *supra* note 27, at 8; *see also* INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 40.

241. CRÉMER ET AL., EUR. COMM’N, *supra* note 27, at 23. A platform’s value to any given user and advertiser increases as *total* users increase (in other words, direct and indirect network effects). Thus, the fact that users will migrate to (and stay on) a platform with the *majority* of users demonstrates why in these kinds of markets there will ever only be a “place for [just] a limited number of platforms.” *Id.* at 55.

242. For network effects, see AUSTRALIAN COMPETITION & CONSUMER COMM’N, *supra* note 27, at 73; and *Stigler Antitrust Subcommittee Report*, *supra* note 26, at 38–39. *See also* Joseph Farrell & Paul Klemperer, *Coordination and Lock-in: Competition with Switching Costs and Network Effects*, in 3 HANDBOOK OF INDUSTRIAL ORGANIZATION 1967, 2007 (Mark Armstrong & Robert Porter eds., 2007), where the authors describe how network effects exist when “one agent’s adoption of a good (a) benefits other adopters of the good . . . and (b) increases others’ incentives to adopt it.”; and *id.* at 2022 (emphasis added), where “the fact that adoption *encourages* others to adopt the same network . . . [means a] user’s adoption of *A* instead of *B* not only directly makes *A* more attractive to others but also makes the alternative, *B*, less so.” For data access, see Daniel L. Rubinfeld & Michal S. Gal, *Access Barriers to Big Data*, 59 ARIZ. L. REV. 339, 342 (2017), where “[t]hose who enjoy more portholes from which to gather data, who have a substantial database to which they can compare new data, or who possess unique data synthesis and analysis tools, may enjoy a competitive comparative advantage.”

## A. Scrambling Switching Incentives

### 1. Framing Effects

Framing effects in BE have come to be known for the proposition that “context matters in decision[-]making.”<sup>243</sup> In contrast to rational choice theory, which says that the *way* a choice is framed should not affect the choice outcome, experimental studies have showcased anomalous deviations illustrating that, in fact, the way a choice is framed can affect choice outcomes.<sup>244</sup> In short, an actor’s preferences between, say, *A* and *B* should be “invariant” to the way in which *A* and *B* are presented<sup>245</sup> (provided the actual outcome of *A* and the actual outcome of *B* remain the same).

This proposition—that consumer preferences can be shaped and manipulated<sup>246</sup>—may have potential implications for antitrust foreclosure analysis in the context of digital platforms where the platform has continuous and ubiquitous control over user interfaces and the information therein. The implications may be twofold: (1) a platform may be endowed with the capacity to frustrate switching incentives to a rival platform and retain user attention, which is the

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243. Korobkin & Ulen, *supra* note 14, at 1103.

244. Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 *SCIENCE* 453, 453 (1981); Christine Jolls, *Behavioral Economic Analysis of Redistributive Legal Rules*, 51 *VAND. L. REV.* 1653, 1669 (1998) (noting that “[s]tandard economic theory predicts no difference between” the outcomes in Kahneman and Tversky’s theatre ticket example). In the theater ticket example, Tversky and Kahneman asked respondents to consider two scenarios: (1) They are traveling to a play where tickets cost \$10 and, on the way, realize that they have lost \$10 from their wallet. Would they still purchase the ticket? (2) They are traveling to a play and realize they have lost the ticket, which costs \$10. Would they purchase another ticket? *Id.* Standard economic theory predicts respondents will answer both scenarios identically—comparing the marginal benefit of attending with the marginal cost. Kahneman and Tversky find that in contradiction to rational choice theory—which “requires that the preference between options should not reverse with changes of frame”—in this demonstration and several others “seemingly inconsequential changes in the formulation of choice problems caused significant shifts of preference.” Tversky & Kahneman, *supra*, at 453, 457.

245. Korobkin & Ulen, *supra* note 14, at 1103.

246. See, e.g., Derek E. Bambauer, *Shopping Badly: Cognitive Biases, Communications, and the Fallacy of the Marketplace of Ideas*, 77 *U. COLO. L. REV.* 649, 698 (2006) (“The point is not merely that we evaluate the same purchase, or its monetary equivalent, differently depending on context. It is also that we’re vulnerable to strategic behavior by those with influence over our information environment.”).

scarce commodity that all the fighting is about in the online world<sup>247</sup> (inter-platform competition); and (2) a platform may be able to frustrate switching to a rival that competes on the platform when the platform is vertically integrated (intra-platform competition).

*a. Emotional Losses*

*Inter-platform:* One framing method through which a platform could render consumers “sticky” and thus degrade the intensity of rivalry between platforms is to frame the “platform exit” as a loss that cannot be recovered by switching to a new platform.<sup>248</sup> This takes advantage of one of the most established behavioral biases: loss aversion. This bias proposes that humans tend towards feeling the pain of a loss much more than they feel the pleasure of a gain.<sup>249</sup> For instance, +\$100 may be accorded less value than −\$100.<sup>250</sup>

Consider, for example, a social networking platform like Facebook. Such a platform could highlight the friends whom a user will lose contact with if they exit the platform<sup>251</sup> or the secret chat groups they were part of, with one user describing such tactics as “a pure masterclass in emotional manipulation.”<sup>252</sup> Additional losses might include friends’ birthday reminders (thus, the emotional pleasure of wishing a friend “happy birthday”), music concerts that a user will not

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247. TIM WU, *THE ATTENTION MERCHANTS: THE EPIC SCRAMBLE TO GET INSIDE OUR HEADS* 6 (2016); see also Newman, *supra* note 130, at 762; Evans, *supra* note 131; Day & Stemler, *supra* note 37, at 8 (“[A] platform’s success depends on its ability to draw and maintain attention.”).

248. Complaint at 3, United States v. Google LLC, No. 20-cv-03010 (D.D.C. filed Oct. 10, 2020).

249. Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *ECONOMETRICA* 263, 263 (1979) (“The value function [of prospect theory] is normally concave for gains, commonly convex for losses, and is generally steeper for losses than for gains.”); Kahneman et al., *supra* note 4, at 199 (describing how a “central result [of the risky choice studies] is that changes that make things worse (losses) loom larger than improvements or gains.”).

250. Nicholas C. Barberis, *Thirty Years of Prospect Theory in Economics: A Review and Assessment*, 27 *J. ECON. PERSPS.* 173, 175 (2013) (“[T]he horizontal axis represents the dollar gain or loss  $x$ , and the vertical axis [represents] the value  $v(x)$  assigned to that gain or loss. Notice that the value placed on a \$100 gain,  $v(100)$ , is smaller in absolute magnitude than  $v(-100)$ , the value placed on a \$100 loss. . . . [T]he pain of losing \$100 far outweighs the pleasure of winning \$110.”).

251. One user reported that she was met by the message: “Not so fast”[!] . . . Look who you will miss out on keeping in touch with . . .” Tanya Sweeney, *Thinking of Leaving Facebook? Not So Fast . . .*, *IRISH TIMES*, <https://www.irishtimes.com/life-and-style/people/thinking-of-leaving-facebook-not-so-fast-1.3433938> [https://perma.cc/9CMC-3UNK] (Mar. 20, 2018, 4:58 PM).

252. *Id.*

be reminded of (thus, the user may miss out on), the uploaded photos of nights out with friends—along with the ensuing thread of comments full of jokes, laugh emojis, and heart emojis that signal everybody’s enjoyment with those nights out.

In short, a social networking site like Facebook “and its ilk [may be] as close to a community as many of us are likely to get.”<sup>253</sup> Nefariously highlighting all of this on the “exit” page could thread on a user’s incentive to leave the platform and manipulate them into staying at the *exact point in time* that they are about to exert their competitive constraint. The emotional sting of having to incur all of the above “losses” may prove too overwhelming and render the user “sticky.”<sup>254</sup> Indeed, recent research has highlighted the primordial role of FOMO (Fear Of Missing Out) in perpetuating social media use,<sup>255</sup> defined as “a pervasive apprehension that others might be having rewarding experiences from which one is absent.”<sup>256</sup> FOMO is therefore “the desire to stay *continually connected* with what others are doing.”<sup>257</sup> Some research links FOMO to social media addiction.<sup>258</sup>

As a consequence, Facebook becoming so culturally embedded into our lives may mean that recent #DeleteFacebook campaigns arguably fail “to take into account both Facebook’s position in modern society and the *stakes involved* for anyone who chooses to leave a network that has spent more than a decade trying to make leaving it impossible.”<sup>259</sup>

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253. *Id.*

254. Complaint at 3, United States v. Google LLC, No. 20-cv-03010 (D.D.C. filed Oct. 10, 2020).

255. Kuss & Griffiths, *supra* note 192, at 8 (“Recent research has suggested that high engagement in social networking is partially due to what has been named the ‘fear of missing out’ (FOMO).” (footnote omitted)); *see generally* Ursula Oberst, Elisa Wegmann, Benjamin Stodt, Matthias Brand & Andrés Chamarro, *Negative Consequences from Heavy Social Networking in Adolescents: The Mediating Role of Fear of Missing Out*, 55 J. ADOLESCENCE 51 (2017) (discussing FOMO and social media sites); Sarah L. Buglass, Jens F. Binder, Lucy R. Betts & Jean D.M. Underwood, *Motivators of Online Vulnerability: The Impact of Social Network Site Use and FOMO*, 66 COMPUTS. HUM. BEHAV. 248 (2017) (discussing how FOMO affects people’s wellbeing while performing online activities).

256. Andrew K. Przybylski, Kou Murayama, Cody R. DeHaan & Valerie Gladwell, *Motivational, Emotional, and Behavioral Correlates of Fear of Missing Out*, 29 COMPUTS. HUM. BEHAV. 1841, 1841 (2013).

257. *Id.* (emphasis added).

258. *See, e.g.*, Jamal Al-Menayes, *The Fear of Missing Out Scale: Validation of the Arabic Version and Correlation with Social Media Addiction*, 6 INT’L J. APPLIED PSYCH. 41, 45 (2016).

259. Aja Romano, *How Facebook Made It Impossible to Delete Facebook*, VOX (emphasis added), <https://www.vox.com/culture/2018/3/22/17146776/delete-facebook-how-to-quit-difficult> [<https://perma.cc/5BJR-5AGZ>] (Dec. 20, 2018, 12:36 PM).

For instance, many third-party apps and websites actually require you to have a Facebook account, meaning that in deleting Facebook “you could immediately lose access to some parts of the [I]nternet.”<sup>260</sup> One of the most emotional aspects of our lives—dating and mating—is noteworthy because many online dating apps (including Tinder until recently) actually required a Facebook account for their use.<sup>261</sup> Google is similar given that it “arguably shares much of the [I]nternet’s infrastructure with Facebook.”<sup>262</sup> As such, a platform could highlight a potential plethora of emotional losses to take advantage of loss aversion and deter switching away from its service.

*b. Willingness to Pay as a Function of Switching Incentives*

A consumer’s willingness to purchase is the maximum amount a consumer would be willing to pay for a good or service and can be manipulated through framing effects. Consider two goods, Product *X* and Product *Y*. Both are perfectly substitutable, but the former costs \$5 and the latter costs \$4. Assume also that the most the consumer is willing to pay for this particular product is \$5, at which point (or rather, slightly above this point) the consumer is no longer willing to purchase Product *X* and will seek out cheaper alternatives like Product *Y*. Otherwise put, the consumer’s incentive to switch—that is, the substitution effect—becomes triggered exactly at the point the consumer sees a product they desire but which is priced at more than their willingness to pay, thus rendering the former a result of the latter. The fact that this willingness to pay can be shaped, distorted, and manipulated—that is, a firm may be able to “elevate consumer willingness to pay by manipulating the view that consumers have of a product’s benefits”<sup>263</sup> and price—will now be illuminated.

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260. *Id.*

261. *Id.* (“[M]any . . . dating apps still require you to have Facebook in order to create accounts. If you don’t realize that before you delete Facebook, you could be totally cut off from anyone you may have met through these apps.”).

262. *Id.*

263. Hanson & Kysar, *supra* note 127, at 725 (positing that manufacturers may be able to mold a consumer’s willingness to pay and, consequently, induce “undesirable levels of consumption”).



*Intra-platform*: An incumbent firm like Amazon is illustrative. Amazon is both a marketplace and a competitor in that marketplace. “Amazon owns over 100 private[-]label brands that operate in dozens of markets on its site, including food and beverage, automotive, clothing, and electronics.”<sup>264</sup> In light of the pernicious self-preference incentives highlighted above,<sup>265</sup> Amazon may possess inclinations to frame their prices and terms in ways that, “to a rational actor, would correspond with a monopoly price, but that appear competitive to consumers whose supply of relevant information is constrained by bounded rationality.”<sup>266</sup> As such, a consumer’s incentive to switch may remain dormant as they become cognitively manipulated towards potentially “undesirable levels of consumption”<sup>267</sup> of one brand at the expense of rivals.

Indeed, the phenomena of partition or drip pricing—where price is framed fragmentarily and porously rather than collectively and solidly—are classic examples of tactics that can render switching incentives dormant because they can cause us “to behave *as if* [a product’s] price is lower than it is.”<sup>268</sup> Likewise, the phenomenon of anchoring<sup>269</sup> can similarly influence a consumer’s willingness to pay (or more worryingly a judge’s willingness to sentence, leading them to “unintentionally play dice with criminal sentences”).<sup>270</sup> A

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264. Kevin Lamb, *The Complete Guide to Amazon’s Private Label Brands*, PATTERN, <https://pattern.com/blog/all-you-need-to-know-about-amazons-private-label-brands/> [<https://perma.cc/6BDG-5K6F>] (July 2, 2021).

265. See *supra* Part II.B.2.c.

266. Devlin & Jacobs, *supra* note 13, at 1028.

267. Hanson & Kysar, *supra* note 127, at 725.

268. MARY W. SULLIVAN, FTC, ECONOMIC ISSUES: ECONOMIC ANALYSIS OF HOTEL RESORT FEES 20 (2017) (emphasis added), [https://www.ftc.gov/system/files/documents/reports/economic-analysis-hotel-resort-fees/p115503\\_hotel\\_resort\\_fees\\_economic\\_issues\\_paper.pdf](https://www.ftc.gov/system/files/documents/reports/economic-analysis-hotel-resort-fees/p115503_hotel_resort_fees_economic_issues_paper.pdf) [<https://perma.cc/TN6T-J25H>].

269. Daniel Kahneman, *Reference Points, Anchors, Norms, and Mixed Feelings*, 51 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 296, 308 (1992) (explaining anchoring effects as “cases in which a stimulus or a message that is clearly designated as irrelevant and uninformative nevertheless increases the normality of a possible outcome”).

270. Birte Englich, Thomas Mussweiler & Fritz Strack, *Playing Dice with Criminal Sentences: The Influence of Irrelevant Anchors on Experts’ Judicial Decision Making*, 32 PERSONALITY & SOC. PSYCH. BULL. 188, 199 (2006). In this experiment, forty-two experienced judges and prosecutors were asked whether in a hypothetical rape case the sentence would be lower than one year or lower than three years (low and high anchors, respectively). *Id.* at 190–91. Subjects who had been exposed to the high anchor “gave considerably higher sentences” (mean = 33.38 months) than subjects exposed to the low anchor (mean = 25.43 months). *Id.* at 191.

demonstrative example of how incentives to switch may remain dormant because prices “[seem] lower than [they] actually [are]” can be found in Las Vegas casino resorts.<sup>271</sup> For example, the Federal Trade Commission (FTC) found that when booking the Luxe Resort & Casino through an Online Travel Agent (OTA), resort fee disclosures were excluded from the first page that consumers see (the hotel comparison page), and the FTC described this as “a significant omission because consumers use this page to comparison shop.”<sup>272</sup> When the resort fee is disclosed for the first time, it is partitioned “separately” from the hotel room rate and is “in a smaller, paler font than the room rate.”<sup>273</sup> The FTC also identified several other instances of framing, dripping, and partitioning resort fees, like stating “Hotel Fee Not Included” beside the room rate and positioning it much further down the screen, or requiring clicking on a hyperlink before revealing the resort fee, which even then was listed at the bottom of “a day-by-day itemization of room charges.”<sup>274</sup> Although some models suggest no consumer harm would result from framing prices in “dripped” or “partitioned” ways, they are based on the assumption of rationality and several models suggest the opposite.<sup>275</sup>

Two pernicious methods of price framing—price ordering and product-line pricing—could be used to capitalize on a consumer’s bounded rationality, distort their perceptions of product value, and,

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271. Mary Sullivan, *Economist*, Fed. Trade Comm’n, Remarks at a Conference on the Economics of Drip Pricing 120 (May 21, 2012), [https://www.ftc.gov/sites/default/files/documents/public\\_events/economics-drip-pricing/transcript.pdf](https://www.ftc.gov/sites/default/files/documents/public_events/economics-drip-pricing/transcript.pdf) [<https://perma.cc/UY7K-CK8G>]; see also Stucke & Ezrachi, *supra* note 136, at 78–87 (discussing tactics that Las Vegas casinos use in their pricing models).

272. SULLIVAN, FTC, *supra* note 268, at 6–7.

273. *Id.* at 7.

274. *Id.* at 7–8.

275. Sullivan, *supra* note 271, at 8, 9; see Glenn Ellison & Sara Fisher Ellison, *Search, Obfuscation, and Price Elasticities on the Internet*, 77 *ECONOMETRICA* 427, 438 (2009); Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 *Q.J. ECON.* 505, 510 (2006) (finding that in some instances firms will “shroud” price information to take advantage of myopic consumers); cf. Paul R. Milgrom, *Good News and Bad News: Representation Theorems and Applications*, 12 *BELL J. ECON.* 380 (1981) (finding similar reasoning for favorable news in different contexts); Sanford J. Grossman, *The Informational Role of Warranties and Private Disclosure About Product Quality*, 24 *J.L. & ECON.* 461 (1981) (using a similar model for disclosures of sellers in warranty contracts).

consequently, manipulate their willingness to pay.<sup>276</sup> As to price ordering, a platform interested in self-preference may present their prices and terms in descending order (from highest to lowest), which, according to one study, will elevate the consumer's willingness to pay.<sup>277</sup> For example, the aforementioned study demonstrated that when pen prices were shown in descending order (highest to lowest), subjects exhibited higher reservation prices and purchased more pens compared to the subjects who were exposed to the prices in ascending order.<sup>278</sup> The former subjects were also more likely to have perceived their "final purchase price [as] good value."<sup>279</sup> Regarding product-line pricing, it has been shown that the introduction of a higher-priced product amongst two other products can increase a consumer's willingness to pay because it makes "the remaining products in the line appear less expensive."<sup>280</sup> For example, one study of microwave brands comprising Emerson and Panasonic found that when the product-line pricing was changed from "Emerson and Panasonic I" to "Emerson, Panasonic I, and Panasonic II" (a premium-priced microwave), this "had a significant effect on choices."<sup>281</sup> Specifically, Panasonic's share increased from 43% to 73%.<sup>282</sup> More notably, the introduction of the premium-priced model significantly increased sales of Panasonic I and, moreover, Emerson lost 30% market share.<sup>283</sup>

Such manipulative strategies could empower a self-preferencing firm to enhance "buyers' perceptions of lower-priced products" and, more significantly, influence "low-end buyers to trade up to higher-priced models."<sup>284</sup> As such, willingness to pay becomes manipulated, inducing a consumer to purchase a higher-priced product

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276. Gerald E. Smith & Thomas T. Nagle, *Frames of Reference and Buyers' Perception of Price and Value*, CAL. MGMT. REV., Fall 1995, at 98, 98 (describing how "framing" research has illuminated the potential to influence consumer perceptions of what they "perceive" they will pay and what they "perceive" they will get in return).

277. *Id.* at 106.

278. *Id.* at 105 tbl.1, 106.

279. *Id.* at 106.

280. *Id.*

281. *Id.* at 106–07.

282. Smith & Nagle, *supra* note 276, at 107.

283. *Id.*

284. *Id.*

when they otherwise would have purchased a cheaper alternative.<sup>285</sup> Consumer choice can therefore be a product of behavioral manipulation where incentives to switch become distorted; consumers purchase when they otherwise would have switched, and real competition becomes diluted. This may be particularly true in intra-platform online contexts where platforms possess magnified abilities to “increase the likelihood of purchase by *carefully controlling* the context in which the purchase [price] is presented,”<sup>286</sup> with the result being a vertically-integrated retailer like Amazon “tilt[ing] the online marketplace in its own favor.”<sup>287</sup>

## B. Stifling Switching Abilities

### 1. Willpower and Rationality as a Function of Switching Abilities

The fact that economic actors are bounded in their willpower is a cornerstone of BE.<sup>288</sup> For instance, smokers may prefer not to smoke but struggle to quit despite such an action being in their long-term interests. Unsafe sex also exemplifies our weaknesses as human beings—one may realize *ex ante* that protected sex will be safer but in the “heat of the moment” fall prey to visceral urges.<sup>289</sup> We also suffer from inertia and may fail to make optimal decisions and stick with defaults when changing the default would improve our welfare.<sup>290</sup>

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285. *Id.* (“[L]ow-end sellers should be just as concerned with competitive entry at premium-price positions as they are with threats from potential discount competitors. Why? Because the addition of new premium products raises buyers’ reference prices, making mid-price positions more acceptable. Indeed, buyers may now become suspicious of the quality of low-end products. They may reason that they cannot afford premium-priced models, but are not willing to risk getting poor quality at the low end. They . . . thus opt for mid-priced products instead.”).

286. Hanson & Kysar, *supra* note 127, at 734 (emphasis added); *see also supra* Part II.B.1.

287. Mary Hanbury, *Elizabeth Warren Doubles Down on Amazon for ‘Crushing’ Small Businesses*, INSIDER (Apr. 24, 2019, 6:29 AM), <https://www.businessinsider.com/elizabeth-warren-slams-amazon-for-crushing-small-businesses-2019-4?r=US&IR=T> [<https://perma.cc/8VDW-BB25>].

288. *See* Jolls et al., *supra* note 7, at 1479 (“[Bounded willpower] refers to the fact that human beings often take actions that they know to be in conflict with their own long-term interests.”).

289. George Loewenstein, *Out of Control: Visceral Influences on Behavior*, 65 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 272, 286 (1996).

290. Christopher J. Anderson, *The Psychology of Doing Nothing: Forms of Decision Avoidance Result*

Bounded willpower, then, can be conceived of in two distinct ways: addiction and lethargy. This bifurcated conception is pertinent for illuminating how platforms can leverage these insights to foreclose competition at both the inter-platform level (addiction) and intra-platform level (inertia).

Although addiction-induced behavior has not made inroads into antitrust analysis to date, we are about to see how it can amount to a perniciously powerful mode of foreclosure at the *inter*-platform level—the power of inertia has been demonstrated in *Google Search (Shopping)*<sup>291</sup> and *Google (Android)*<sup>292</sup> as well as the seminal *Microsoft* case.<sup>293</sup> In these cases, the intra-platform foreclosure effect can be said to have manifested because of consumer inertia. For example, in *Google Search (Shopping)*, the Commission essentially held that positioning a search result on page four of Google Search will disadvantage that result vis-à-vis other results because, as per the evidence, “consumers click far more often on results that are more visible, [that is,] the results appearing higher up in Google’s search results.”<sup>294</sup> References to lethargic consumers were even more explicit in the theories of harm in *Google Android*<sup>295</sup> and *Microsoft*.<sup>296</sup> The main takeaway from these cases is that consumer willpower is finite and, consequently, capacities to switch can be products of this willpower. Thus, “[t]he online market setting . . . highlights important

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from *Reason and Emotion*, 129 PSYCH. BULL. 139, 140 (2003) (“[H]umans generally prefer no change . . . , no action . . . , and delay . . . .” (citations omitted)). See generally William Samuelson & Richard Zeckhauser, *Status Quo Bias in Decision Making*, 1 J. RISK & UNCERTAINTY 7 (1988) (status quo bias); Orit E. Tykocinski, Thane S. Pittman & Erin E. Tuttle, *Inaction Inertia: Foregoing Future Benefits as a Result of an Initial Failure to Act*, 68 J. PERSONALITY & SOC. PSYCH. 793 (1995) (inertia).

291. See generally *Google Search (Shopping)*, *supra* note 110.

292. See generally *Google Android*, *supra* note 222.

293. See generally Case T-201/04 *Microsoft Corp. v. Comm’n*, 2007 E.C.R. II-3601.

294. European Commission Press Release IP/17/1784, Antitrust: Commission Fines Google €2.42 Billion for Abusing Dominance as Search Engine by Giving Illegal Advantage to Own Comparison Shopping Service (June 27, 2017), [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_17\\_1784](https://ec.europa.eu/commission/presscorner/detail/en/IP_17_1784) [<https://perma.cc/62XZ-W7DY>].

295. *Google Android*, *supra* note 222, ¶¶ 781-782 (“Users are unlikely to look for, download, and use alternative apps, at least when the app that is pre-installed, premium placed and/or set as default already delivers the required functionality to a satisfactory level.”); see also *id.* ¶¶ 900-909 (demonstrating through evidence the significance of the default option on diluting consumers’ capacities to switch for browser pre-installation).

296. *Microsoft*, 2007 E.C.R. II-3601, ¶ 1052.

questions about when firms are no[t] competing on the basis of their 'superior skill, foresight and industry,' but instead [are] using their market power to leverage consumer inertia and foreclose their competitors."<sup>297</sup>

Bounded rationality, of course, is another key tenet of BE with its contradictions of rational choice theory. There is familiarity with how (*im*)perfect rationality can influence switching analysis and, therefore, inferences about market power in both *Eastman Kodak Co. v. Image Technical Services, Inc.* and *Jefferson Parish Hospital District No. 2 v. Hyde*.<sup>298</sup> That consumer rationality is, therefore, bounded—that is, (*im*)perfect—raises the spectre of such cognitive limitations being manipulated, as regulators are more and more acknowledging.<sup>299</sup>

## 2. *Perpetuating Addiction-Induced Attention*

*Inter-platform:* As noted above, attention is a platform's lifeblood.<sup>300</sup> Advertisers pay more for attention the more users provide attention—that is, "[t]he value of advertising increases in concert with the number of users engaged on the platform as well as time spent on it."<sup>301</sup> We thus concluded that platforms possess very strong incentives to catch, maintain, and retain a user's attention.

Let us now examine some of the pernicious methods that platforms use to achieve attention-retention that may leave users trapped in a self-perpetuating cycle of addiction, which could prevent their attention from wandering to other platform rivals. As Day and Stemler note: "[K]ey to attracting and maintaining attention is the

297. Cheng, *supra* note 96.

298. *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 469–78 (1992); *Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 9, 11–15 (1984), *superseded by statute on other grounds*, Act of Nov. 19, 1988, Pub. L. No. 100-703, 102 Stat. 4674, *as recognized in Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006), *and abrogated by Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006).

299. See *supra* Part II; see also HUCK ET AL., OFF. OF FAIR TRADING, *supra* note 197, at 7 ("[C]onsumers that have difficulties judging quality can mistake inferior goods for superior goods. In these situations firms can focus on exploiting biased consumers who are likely to purchase from them regardless of price and quality."); *Id.* at 8 (describing how consumers' "cognitive limitations" can "create[] incentives for firms to present information, for example, about prices, in convoluted ways").

300. See *supra* Part II.

301. Day & Stemler, *supra* note 37, at 8; see also Max Eddy, *How Companies Turn Your Data into Money*, PCMAG (Oct. 10, 2018, 2:00 PM) (U.K.), <https://uk.pcmag.com/privacy/117876/how-companies-turn-your-data-into-money> [<https://perma.cc/B9B2-FZD9>].

self-sustaining ‘Attention Cycle,’ designed to increase the amount of time spent on the platform.”<sup>302</sup> Although platforms may initially grab a user’s attention through benign (or even procompetitive) means like offering services for free,<sup>303</sup> the ensuing behavioral strategies that manipulate our bounded willpower and rationality and induce addiction may be viewed as subtle forms of foreclosure designed to lock in users and prevent rivals from access.<sup>304</sup> Indeed, platforms are perfectly poised through their continuous and ubiquitous control over platform interfaces and platform users to “best stimulate the release of neurochemicals essential to addiction.”<sup>305</sup> Some have described this as an “upregulat[ing]” of user emotions, resulting in increased “frequency and intensity of user exposure to emotions,” which in turn leads to increased engagement—a kind of emotional contagion that in online contexts becomes amplified.<sup>306</sup>

Gamification is one such method. This entails offering prizes to keep users engaged and induce “compulsive game-playing.”<sup>307</sup> A case in point is Uber, where drivers are told about the number of trips, money received, and their ratings.<sup>308</sup> The dopamine release can induce drivers to keep “playing.”<sup>309</sup> Another example is Spotify Wrapped, which at the end of the year compares users to other users and gives “top 1%” status awards to top listeners.<sup>310</sup> Spotify also motivates users to compete with themselves with messages like “You listened to 94%

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302. Day & Stemler, *supra* note 37, at 10; see also David S. Evans, *Attention Platforms, the Value of Content, and Public Policy*, 54 REV. INDUS. ORG. 775 (2019) (discussing attention platforms).

303. Cf. John M. Newman, *The Myth of Free*, 86 GEO. WASH. L. REV. 513 (2018) (taking issue with the word “free” in economics).

304. See Day & Stemler, *supra* note 37, at 11 (“The issue here is that strategies to [keep and] increase attention may violate a user’s expectations of privacy, as platforms may . . . manipulate physiological reactions to create addiction.”).

305. *Id.* at 12; see also Claudia Dreifus, *Why We Can’t Look Away from Our Screens*, N.Y. TIMES, <https://www.nytimes.com/2017/03/06/science/technology-addiction-irresistible-by-adam-alter.html> [<https://perma.cc/NH72-5F9P>] (Mar. 8, 2017).

306. Goldenberg & Gross, *supra* note 159.

307. Noam Scheiber, *How Uber Uses Psychological Tricks to Push Its Drivers’ Buttons*, N.Y. TIMES (Apr. 5, 2017), <https://www.nytimes.com/interactive/2017/04/02/technology/uber-drivers-psychological-tricks.html> [<https://perma.cc/9B6W-K5B9>].

308. *Id.*

309. *Id.*

310. Maria Fomina, Triumph Kerins, Katie MacIntosh & Kaylee Somerville, *The Behavioral Science Behind Spotify Wrapped’s Viral Success*, DECISION LAB, <https://thedecisionlab.com/insights/consumer-insights/the-behavioral-science-behind-spotify-wrappeds-viral-success/> [<https://perma.cc/TJ3M-8QWC>].

more minutes than last year—talk about overachieving,” which induces users to continue using the app in the future.<sup>311</sup> Other platforms use similar dopamine-oriented methods for keeping users “hooked” and siloing their attention.<sup>312</sup> For instance, Twitter’s opening blue screen that looks like it is loading is in fact “building anticipation” for tweets.<sup>313</sup> Likewise, Instagram’s push notifications tell you when a Facebook friend has joined Instagram, when a friend’s story has been uploaded, or if a friend is filming live video.<sup>314</sup> These are Instagram’s default settings and turning them off will involve much willpower as a user must search through the maze of Instagram settings.<sup>315</sup> Perhaps tellingly, some state attorneys general have just recently announced an investigation into Instagram regarding techniques allegedly used to increase both the frequency and duration young users spend online.<sup>316</sup> Additionally, Facebook’s “Like” feature and “pull-to-refresh” News Feed can generate cognitive merry-go-rounds similar to a gambling addiction.<sup>317</sup> More pointedly, neuroscience research, for example, demonstrates the powerful effect push notifications can have on our attention, leaving users wanting more.<sup>318</sup> Other addiction-inducing

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311. *Id.* (“[Spotify] Wrapped motivates users to engage with the platform even more in the future, to set new ‘personal bests.’”).

312. Avery Hartmans, *These Are the Sneaky Ways Apps Like Instagram, Facebook, Tinder Lure You in and Get You ‘Addicted’*, INSIDER (Feb. 17, 2018, 8:00 AM), <https://www.businessinsider.com/how-app-developers-keep-us-addicted-to-our-smartphones-2018-1> [<https://perma.cc/V527-JXB8>].

313. Day & Stemler, *supra* note 37, at 12; Hartmans, *supra* note 312.

314. Hartmans, *supra* note 312.

315. *Id.*

316. Cecilia Kang & Mike Isaac, *State Attorneys General Open an Inquiry into Instagram’s Impact on Teens.*, N.Y. TIMES (Nov. 18, 2021), <https://www.nytimes.com/2021/11/18/technology/meta-instagram-investigation-teens.html> [<https://perma.cc/6TTW-R8XQ>].

317. Catherine Price, *Trapped—The Secret Ways Social Media Is Built to Be Addictive (And What You Can Do to Fight Back)*, SCI. FOCUS (Oct. 29, 2018, 8:00 AM) (U.K.), <https://www.sciencefocus.com/future-technology/trapped-the-secret-ways-social-media-is-built-to-be-addictive-and-what-you-can-do-to-fight-back/> [<https://perma.cc/KLS2-SS3X>] (“[Social media companies] build features into their apps that manipulate our brain chemistry. These tricks are borrowed straight from casinos and slot machines, which are widely considered to be some of the most addictive machines ever invented.”).

318. See Mijung Kim, *The Effects of External Cues on Media Habit and Use: Push Notification Alerts and Mobile Application Usage Habits* (2014) (Ph.D. dissertation, Michigan State University), <https://d.lib.msu.edu/etd/3263/datastream/OBJ/View/> [<https://perma.cc/G9RE-38V8>] (discussing how push notifications can induce people to use social media more); see also Seul-Kee Kim, So-Yeong Kim



methods include the recurring ellipses on an iPhone that signal a user is typing, scrolling newsfeeds that never end,<sup>319</sup> autoplay (Netflix and YouTube automatically transitioning users to the next video), and Snapchat's streak.<sup>320</sup>

In short, “[b]y facilitating a feedback loop, the release of dopamine causes users to return to the app more frequently.”<sup>321</sup> One report, leveraging insights from a former Google product manager and a co-founder of the company Dopamine Labs, actually attested to Instagram's systematic withholding of “Like” notifications so as to generate more elongated “hits” of dopamine.<sup>322</sup> Further, Instagram is empowered through Big Data analytics to actually tailor reward schedules to individual users and notify each user at the point the “algorithms predict the greatest influence on that user's attention.”<sup>323</sup>

Structuring platforms in this way—both its architecture and content release—through subtle use of “dopamine-like” reward systems has in many ways “tapped into a bottomless font of social feedback”<sup>324</sup>—with the result being users' attentions becoming monopolized (perhaps perpetually so) by a few large digital platform firms and platform competition becoming cognitively foreclosed. As one viral blogger commented:

[I]t's easy to get into a dopamine[-]induced loop. Dopamine

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& Hang-Bong Kang, *An Analysis of the Effects of Smartphone Push Notifications on Task Performance with Regard to Smartphone Overuse Using ERP*, COMPUTATIONAL INTEL. & NEUROSCIENCE, June 5, 2016, at 1, <https://downloads.hindawi.com/journals/cin/2016/5718580.pdf> [<https://perma.cc/9WYA-W5X6>] (discussing how push notifications can have a negative effect on performing daily tasks).

319. Nitasha Tiku, *The WIRED Guide to Internet Addiction*, WIRED (Apr. 18, 2018, 4:00 PM), <https://www.wired.com/story/wired-guide-to-internet-addiction/> [<https://perma.cc/6KLP-VRS6>].

320. Day & Stemler, *supra* note 37, at 13.

321. *Id.* at 12–13.

322. Anderson Cooper, *What Is “Brain Hacking”? Tech Insiders on Why You Should Care*, CBS NEWS (Apr. 9, 2017, 7:05 PM), <https://www.cbsnews.com/news/brain-hacking-tech-insiders-60-minutes/> [<https://perma.cc/PV2N-5YER>] (detailing Ramsay Brown—co-founder of Dopamine Labs—description on how “[t]hey're holding some of them back for you to let you know later in a big burst. Like, hey, here's the 30 likes we didn't mention from a little while ago.”).

323. Day & Stemler, *supra* note 37, at 13; *see also* Cooper, *supra* note 322.

324. Julian Morgans, *Your Addiction to Social Media Is No Accident*, VICE (May 17, 2017, 11:09 PM) (quoting Adam Alter, author of IRRESISTIBLE: THE RISE OF ADDICTIVE TECHNOLOGY AND THE BUSINESS OF KEEPING US HOOKED (2017)), <https://www.vice.com/en/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction> [<https://perma.cc/9FJJ-SPWZ>].

starts you seeking, then you get rewarded for the seeking which makes you seek more. It becomes harder and harder to stop looking at email, stop texting or stop checking your phone to see if you have a new notification.

You can see how the scroll wheel was so pinnacle to Facebook's success. This too is how social media has millions hooked.<sup>325</sup>

Former high-level tech-company employees have also recently explicitly attested to this culture of trying to achieve addiction-based usage.<sup>326</sup>

*a. Defaults and Inertia*

*Intra-platform:* We have already seen the amplified power of defaults in digital markets and their disproportionate impact on consumer choice vis-à-vis brick-and-mortar markets.<sup>327</sup> Besides the *Google* and *Microsoft* cases discussed above, we are now seeing a more global influence of defaults on enforcement actions. The U.S. DOJ and eleven state attorneys general recently initiated a complaint against Google for abusing its monopoly power in the markets for online search and search advertising.<sup>328</sup> One component of the complaint is that Google paid computer and mobile device manufacturers to be the default search engine on their devices and, perhaps more malevolently, forbade the pre-installation of competing search services.<sup>329</sup> As the DOJ argues in its complaint, even when consumers can change the default, “they rarely do.”<sup>330</sup>

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325. Reece Robertson, *Why You're Addicted to Social Media—Dopamine, Technology, and Inequality*, MEDIUM (Dec. 19, 2017), [https://medium.com/@Reece\\_Robertson/why-youre-addicted-to-social-media-dopamine-technology-inequality-c2cca07ed3ee](https://medium.com/@Reece_Robertson/why-youre-addicted-to-social-media-dopamine-technology-inequality-c2cca07ed3ee) [<https://perma.cc/6GKX-8DXS>]; see also Day & Stemler, *supra* note 37, at 13–14 (“So by randomizing pleasure in a manner causing the release of dopamine, a platform can create dependency and, thus, *boost the amount of attention spent on it.*” (emphasis added)).

326. Girish, *supra* note 28.

327. See *supra* Part II.B.1.

328. Press Release, Off. of Pub. Affs., U.S. Dep't of Just., *supra* note 223.

329. *Id.*

330. Complaint at 3, *United States v. Google LLC*, No. 20-cv-03010 (D.D.C. filed Oct. 20, 2020).

The powerfully magnetizing effect of defaults is further reflected in the huge sums of platforms that are apparently willing to pay to become the default. For instance, some estimates show that Google paid Apple somewhere between \$8 billion and \$12 billion per year just to be the default search engine on Apple devices.<sup>331</sup> As Cheng asserts:

[Platforms] are willing to pay to become the default . . . suggests there is considerable value to becoming the default provider. Firms recognize that in the same way users may not necessarily choose the most relevant links on a results webpage, users may not immediately switch to the search engine that most suits their preferences.<sup>332</sup>

Besides platforms coercing or buying their way into “default monopolies,” a potent context in which defaults may be implemented particularly perniciously is a platform that is a vertically-integrated marketplace with private-label brands within that marketplace. Such a platform can exhibit self-preferencing and own-content bias by setting its own products and content as the default at the expense of rivals. For example, a third-party seller of “Pillow Pets” (stuffed animals resembling NFL football mascots) soon had to contend with Amazon selling a private-label version.<sup>333</sup> Amazon afforded preferential treatment to its own pillow pets by giving them featured placement on its website.<sup>334</sup> Subsequently, sales of the third-party’s pillow pets dropped from 100 per day to 20 per day.<sup>335</sup> Another example is Amazon’s apparent efforts to restrict rival access to sponsored ad placement and favor its own products in this respect.<sup>336</sup> Some rivals

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331. Chris Smith, *Search on iPhone Costs Google \$8–12 Billion a Year*, BGR (Oct. 26, 2020, 7:31 AM), <https://bgr.com/2020/10/26/google-apple-iphone-search-deal-doj-antitrust-case/> [https://perma.cc/CZ7L-BH2R]; INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 345.

332. Cheng, *supra* note 96, at 28.

333. Greg Bensinger, *Competing with Amazon on Amazon*, WALL ST. J., <https://www.wsj.com/articles/SB10001424052702304441404577482902055882264> [https://perma.cc/LSS3-C5R3] (June 27, 2012, 6:15 PM).

334. *Id.*

335. *Id.*

336. INVESTIGATION OF COMPETITION IN DIGITAL MARKETS, *supra* note 26, at 285.

were apparently disallowed from purchasing “Amazon.com search advertising—ads that present products *at the top of* the search results when consumers enter specific search terms or a product name.”<sup>337</sup> Indeed, one competitor of voice-enabled devices vividly captured the foreclosure concerns one might have with such conduct by pointing to the confusion and deception this may instill in consumers who are met with “ads promoting Amazon products even when they *specifically search* for a competitor’s product on Amazon.com.”<sup>338</sup> These examples thus serve to illustrate how a platform may take advantage of default effects and cognitively foreclose competition at the intra-platform level.

*b. Dark Patterns*

Dark patterns offer another potentially pernicious method for technology platforms to exploit consumer biases and induce them into decisions that they otherwise would not have made under conditions of perfect rationality.<sup>339</sup> For example, Apple’s iOS 6 included an Identifier for Advertisers (IDFA) where each device’s “unique identifier” was used to “track browsing activity,” which we now know is valuable to advertisers who can utilize these data sets to be more nimble and tailored in their advertising efforts.<sup>340</sup> Disabling this feature, however, is a classic example of how “System 1” thinking can be hijacked to induce users into suboptimal decisions.<sup>341</sup> The disable setting was not located in “Privacy” settings (as one might intuitively think) but rather was located under “General,” then the sub-setting

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337. *Id.* (emphasis added).

338. *Id.* (emphasis added).

339. Harry Brignull, *Dark Patterns: Inside the Interfaces Designed to Trick You*, VERGE (Aug. 29, 2013, 11:15 AM), <https://www.theverge.com/2013/8/29/4640308/dark-patterns-inside-the-interfaces-designed-to-trick-you> [<https://perma.cc/M9BS-AKWJ>] (describing dark patterns as user interfaces “carefully crafted to trick users into doing things they might not otherwise do” and how dark patterns are “carefully crafted with a solid understanding of human psychology”); *see also* Ram Sagar, Opinion, *Confirm-Shaming, Privacy Zuckering & Sneak Adding: E-Tailers Are Using These Dark Patterns to Make You Buy Junk*, ANALYTICS INDIA MAG. (Oct. 16, 2019), <https://analyticsindiamag.com/confirm-shaming-privacy-zuckering-sneak-adding-e-tailers-dark-patterns-machine-learning/> [<https://perma.cc/DNU8-XJ3D>] (“Dark [p]atterns are tricks used in websites and apps that make you do things that you didn’t mean to, like buying or signing up for something.”).

340. Brignull, *supra* note 339.

341. KAHNEMAN, *supra* note 152, at 21 (describing “System 1” decisions that require little effort).

labeled “About,” and then a further sub-setting labeled “Advertising.”<sup>342</sup> Even when one reached the setting, the wording was “framed”<sup>343</sup> in a manner that again sought to take advantage of users’ cognitive shortcomings, or in other words, “Limit Ad Tracking—Off.”<sup>344</sup> This is a double negative that may lead users to believe ad-tracking is “off” when in fact it is “on.”<sup>345</sup> That dark patterns take advantage of cognitive biases is being increasingly recognized.<sup>346</sup> Princeton Postdoctoral Research Fellow Arunesh Mathur and others, for instance, “draw an explicit connection between each type of dark pattern . . . and the cognitive bias it exploits.”<sup>347</sup> Sneaking extra purchases into an online shopping basket, for example, can take advantage of consumers’ bias towards default options—“with the website behind it hoping that users will stick with the products it adds to cart.”<sup>348</sup> The sunk cost fallacy is also a prime target for manipulation: by revealing extra fees and charges only at the end of the purchase process, “users are likely to feel so invested in the process that they justify the additional charges by completing the purchase to not waste their effort.”<sup>349</sup> Further, a more nuanced form of perniciously inducing a consumer decision is “[c]onfirmshaming” by taking advantage of our bounded self-interest and framing options in ways that “shame” the user into the framer’s desired choice.<sup>350</sup> Particularly demonstrative is Amazon trying to steer customers towards Kindle editions of books (which is an Amazon product) by framing the rejection of the Kindle edition as, “No, [t]hanks. I don’t want to save £10.30.”<sup>351</sup>

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342. Brignull, *supra* note 339.

343. For an overview of the “framing” effect, see Korobkin & Ulen, *supra* note 14, at 1104–07. See also Tversky & Kahneman, *supra* note 244.

344. Brignull, *supra* note 339.

345. *Id.*

346. Arunesh Mathur, Gunes Acar, Michael J. Friedman, Elena Lucherini, Jonathan Mayer, Marshini Chetty & Arvind Narayanan, *Dark Patterns at Scale: Findings from a Crawl of 11K Shopping Websites*, 3 PROC. ACM ON HUM.-COMPUT. INTERACTION, no. 81, 2019, at 1, 6 (“Many types of dark patterns operate by exploiting cognitive biases in users.”).

347. *Id.*

348. *Id.* at 13.

349. *Id.*

350. *Id.* at 16.

351. Sagar, *supra* note 339.

Such insidious methods of inducing purchases are very much nascent phenomena in antitrust circles but, nonetheless, their capacity to frustrate switching, deplete consumer decision-making abilities and, therefore, generate foreclosure is starting to be recognized. Day and Stemler, for instance, argue that such manipulation can be so powerful that it essentially crosses the line from persuasion to coercion.<sup>352</sup> Consequently, it may generate antitrust scrutiny. As the authors conclude: “[C]oncentrated markets in which firms design interfaces to *addict, subtly influence*, or manipulate users are qualitatively inferior than those preserving free will.”<sup>353</sup> In this sense, manipulation of cognitive vulnerabilities may generate antitrust scrutiny where it “force[s] [the] purchaser to do something that he would not do in a competitive market.”<sup>354</sup> Others have very recently made similar acknowledgments towards dark patterns’ capacities for generating “cognitive market failures” by pushing consumers “to do things they might not otherwise do.”<sup>355</sup>

*c. Summary*

This Section has highlighted a myriad of ways digital platform firms could take (and have taken) advantage of consumers’ cognitive anomalies that frustrate switching incentives and abilities to maintain, strengthen, and solidify market power. Through a concoction of methods, digital platforms have powerful capacities to dilute the disciplining effect of the market mechanism through rational consumer choice.

Of particular note are the methods generating addiction. From the perspective of BE, one might say that digital platforms have geared themselves towards reversing the traditional rational choice conception of behavior—that the relationship between past and present behavior is negative and, therefore, as consumption increases, utility

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352. Day & Stemler, *supra* note 37, at 31–34.

353. *Id.* at 37 (emphasis added).

354. *Id.* (first alteration in original) (quoting *Tucker v. Apple Comput., Inc.*, 493 F. Supp. 2d 1090, 1097 (N.D. Cal. 2006)).

355. Jamie Luguri & Lior Jacob Strahilevitz, *Shining a Light on Dark Patterns*, 13 J. LEGAL ANALYSIS 43, 103 (2021).

gradually decreases.<sup>356</sup> Platforms, however, seem to exhibit the reverse relationship: “by making platforms addictive, platforms can boost the time spent on their interfaces, thereby increasing surveillance and amounts of data collected.”<sup>357</sup> More data mean greater abilities to optimize experiences and dopamine releases so that users find themselves in a perpetual “[a]ttention [c]ycle”<sup>358</sup> that may be viscerally difficult to break out of.

#### IV. BEHAVIORAL MARKET POWER—A “SUBSTANTIAL” AND “SUSTAINABLE” DEVIATION FROM PERFECTION IN DIGITAL PLATFORM MARKETS?

Thus far, this Article has extended the conversation about BE’s implications for anticompetitive conduct by providing a more comprehensive and systematic exposition of cognitive foreclosure methods and illustrating the particular seriousness of such methods in digital platform contexts. We now turn to examine the implications for market power.<sup>359</sup>

Although consumers may only be subjected to manipulative conduct because they suffer from cognitive anomalies, this simultaneously means they may negate the potential need for antitrust intervention if they can surmount their behavioral shortcomings themselves. In other words, consumers are both the *source of* and (may be) the potential *antidote to* behaviorally manipulative conduct that seeks to solidify market power. The demand-side is therefore the source of behavioral market failure. Yet when dealing with demand-side market failures, one should be cautious for at least two reasons about such market failures’ capacities for justifiably triggering antitrust scrutiny.

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356. Korobkin & Ulen, *supra* note 14, at 1114.

357. Day & Stemler, *supra* note 37, at 16.

358. *Id.* at 10.

359. We noted at the outset that academic commentary, as it relates to *conduct*, has been limited and that the omission is even more identifiable as it relates to *market power*. See *supra* note 21 and accompanying text.

First, anxieties about the market power concept expanding too broadly for antitrust enforcement purposes have usually been triggered whenever the demand-side has been in issue,<sup>360</sup> which should therefore provide us with some motivation for assessing whether BE—a demand-side deviation from *perfect* competition—is sufficiently indented from *perfection* to raise antitrust issues. Second, a related reason motivating an understanding of the limits of BE for antitrust enforcement is that BE has sometimes been conceived of as giving rise to potential consumer protection (not antitrust) problems<sup>361</sup>—the area

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360. *Kodak* is a case in point. *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451 (1992). Several commentators took issue with *Kodak*—the crux of which concerned consumers' capacities to exercise their competitive constraints—because they viewed it as a case concerning a *kind* of market power that did not deserve to come within the circumference of antitrust market power. *See, e.g.*, Arthur, *supra* note 21, at 6 (“The market power which results from . . . non[-]structural, market imperfections, such as those identified in *Kodak*, is fundamentally different in both degree and kind, and thus *not sufficiently substantial* to justify antitrust regulation.” (emphasis added)); Benjamin Klein, *Market Power in Antitrust: Economic Analysis After Kodak*, 3 SUP. CT. ECON. REV. 43, 87 (1993) (“Asking transactors what they thought their contract terms meant and what risks they believed they assumed seems clearly to be a question for contract law rather than for antitrust.”). Another scholar characterized *Kodak* in the following way:

*Kodak* is arguably the most important antitrust decision of the past twenty years. Unfortunately, it is a disaster. By changing the traditional approach to market power analysis and discarding the market share proxy in cases involving markets with significant information gaps, the Supreme Court has effectively decided that every firm may possess market power, regardless of its market share.

Michael S. Jacobs, *Market Power Through Imperfect Information: The Staggering Implications of Eastman Kodak Co. v. Image Technical Services and a Modest Proposal for Limiting Them*, 52 MD. L. REV. 336, 373 (1993) (emphasis added). Another demand-side imperfection contributing to scholarly anxiety about antitrust market power expanding too broadly has been consumers' lack of omniscience. These kinds of market imperfections, scholars contend, are matters for contract law (not antitrust) and thus should be outside the bounds of what might constitute antitrust market power. Klein, *supra*, at 90 (“[I]t is important to remember that the perfectly competitive model is merely an abstract economic construct, not a criterion for governmental intervention in the marketplace. In particular, it makes no sense to assume that any deviations from the unrealistic assumptions of the perfectly competitive model represent ‘imperfections’ that should be eliminated as a way to increase competition and reduce market power.” (emphasis added)); Hovenkamp, *supra* note 16, at 306 (discussing franchisor-franchisee relationships and arguing that “[t]he wrong, if there is one, lies in the franchisees' failure to study contracts carefully before they enter into them, or perhaps in the franchisor's improper use of form franchise agreements that take advantage of less experienced business persons. . . . [I]n that case any remedy should lie in contract law, not in the law of monopolies.” (emphasis added)); cf. Mark R. Patterson, *Coercion, Deception, and Other Demand-Increasing Practices in Antitrust Law*, 66 ANTITRUST L.J. 1, 5–6 (1997) (arguing how certain demand-side market failures can sometimes be antitrust issues).

361. Huffman, *supra* note 30, at 14 (“Behavioural economics has a natural place in consumer protection regulation.”); Joshua D. Wright, *The Antitrust/Consumer Protection Paradox: Two Policies at War with Each Other*, 121 YALE L.J. 2216, 2259 (2012) (arguing that BE has infiltrated consumer protection law whilst antitrust law still relies on a rational choice theory paradigm).



of law that regulates market failures more *de minimis* in nature.<sup>362</sup> Or, at the very least, the former rather than the latter offers a more appropriate remedy for behavioral market failures in the form of mandated disclosure requirements, for instance.<sup>363</sup> Additionally, Averitt and Lande demarcate the consumer protection boundary from the antitrust boundary by labeling the former as encompassing issues residing “inside the consumer’s head” (where, of course, BE anomalies originate) and the latter as those stemming from market failures “external to consumers.”<sup>364</sup>

The behavioral biases that consumers suffer from—a demand-side market failure—will only be of concern to antitrust rather than consumer protection *if* they can satisfy two criteria. The deviation must first constitute a “substantial” (a non-*de minimis*) deviation from *perfection*—that is, it must afford firms the power to significantly

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362. See Neil W. Averitt & Robert H. Lande, *Consumer Sovereignty: A Unified Theory of Antitrust and Consumer Protection Law*, 65 ANTITRUST L.J. 713, 728 (1997); Huffman, *supra* note 30, at 9 (“The failures with which consumer law is concerned undermine the *consumer’s ability* to optimize his or her own welfare.” (emphasis added)); 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION ¶ 782b, at 351 (4th ed. 2015) (“[T]he courts would be wise to regard misrepresentation as presumptively *de minimis* for § 2 purposes.”); HOVENKAMP, *supra* note 233, § 7.13, at 439 (“[M]ost business torts have only a *de minimis* effect or no effect at all on competition.”). Posner has also acknowledged that these kinds of market failures are sufficiently dealt with by other areas of law. POSNER, ANTITRUST LAW, *supra* note 31, at 195 (describing how fraudulent attainment of a patent or falsely disparaging rivals’ products are “adequately punished under other laws”). Courts have also exhibited skepticism about demand-side market failures to generate the kind of market power antitrust should concern itself with. See, e.g., *Jefferson Par. Hosp. Dist. No. 2 v. Hyde*, 466 U.S. 2, 27 (1984) (stating how consumer information failures “may generate ‘market power’ in some abstract sense, [but] they do not generate the kind of market power that justifies condemnation of tying” (footnote omitted)), *superseded by statute on other grounds*, Act of Nov. 19, 1988, Pub. L. No. 100-703, 102 Stat. 4674, *as recognized in* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006), *and abrogated by* *Ill. Tool Works Inc. v. Indep. Ink, Inc.*, 547 U.S. 28 (2006).

363. Oren Bar-Gill, *Competition and Consumer Protection: A Behavioral Economics Account*, in THE PROS AND CONS OF CONSUMER PROTECTION 12, 33 (Swedish Competition Auth. ed., 2012), [https://www.konkurrensverket.se/globalassets/dokument/informationsmaterial/rapporter-och-broschyer/pros-and-cons/rapport\\_pros-and-cons\\_2012\\_consumer\\_protection.pdf](https://www.konkurrensverket.se/globalassets/dokument/informationsmaterial/rapporter-och-broschyer/pros-and-cons/rapport_pros-and-cons_2012_consumer_protection.pdf) [<https://perma.cc/97TC-9SBY>] (proffering mandated disclosure as an appropriate remedy because it is usually the “least intrusive form of regulation” and also because it “directly target[s] the mistakes and misperceptions at the core of the behavioral market failure”).

364. Averitt & Lande, *supra* note 362, at 714 (describing how consumer protection is intended to deal with market failures “inside the consumer’s head”).

damage the entire market.<sup>365</sup> The deviation must also be “sustainable”: the need for antitrust intervention might be reduced if consumers themselves can overcome their behavioral shortcomings and impose their demand-side self-correcting constraints when appropriate.<sup>366</sup> Indeed, all firms possess *some* market power,<sup>367</sup> and extending antitrust enforcement to all firms would result in an unjustifiably wide enforcement scope. Thus, the scope of intervention needs to be restricted only to substantial and sustainable deviations from *perfect* competition.

The ensuing analysis presents a special focus on digital platform markets and proffers these as environments where behavioral market failures in the form of cognitive foreclosure arguably deserve to be taken seriously. Consequently, they are one context, contrary to some views, in which a demand-side market failure may have a more justifiable role to play in antitrust enforcement policy. As Lande notes

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365. Colangelo & Maggolino, *supra* note 30, at 70. Scholars contend that it is a firm’s capacity to control *market* conditions—that is, aggregate demand—rather than its own price that justifies a charge of “monopoly power.” *Id.*; Klein, *supra* note 360, at 76 (“Instead of using the perfectly competitive model to define the degree of antitrust market power possessed by a firm in terms of the effects of changes in the firm’s prices on the demand for the firm’s services, i.e., in terms of the firm’s *own* elasticity of demand, it is more useful to define the extent of a firm’s antitrust market power in terms of whether changes in the firm’s prices have any significant effect on market quantities and prices.” (emphasis omitted)). Arthur, for example, maintains that it is structural market power that antitrust should concern itself with and defines this as a “uniform” form of market power that affects “all buyers alike” where “[e]ach *must* pay the seller’s price or do without the good . . . .” Arthur, *supra* note 21, at 37 (emphasis added); see, e.g., Carrier & Tushnet, *supra* note 30, at 1870–76 (arguing how deception, a demand-side market failure, in the form of false advertising by a monopolist can damage the market as a whole).

366. Short-run market power is of no antitrust concern if the long-run can arrive relatively quickly and penetrate the firm’s customer base. An ability to protect “excess profits from erosion,” therefore, is what *really* constitutes antitrust market power because here the long-run will be slow to arrive and damage to the market will persist. Arthur, *supra* note 21, at 28; see also Frank H. Easterbrook, *The Limits of Antitrust*, 63 TEX. L. REV. 1, 11 (1984) (arguing how the purpose of antitrust is to “speed up the arrival of the long run (so that firms lose market power faster)”).

367. Gregory J. Werden, *Demand Elasticities in Antitrust Analysis*, 66 ANTITRUST L.J. 363, 371 (1998) (“[T]he vast majority of firms *have at least a little* market power. In particular, every seller of a product that is differentiated with respect to any relevant dimension almost certainly has some market power.” (emphasis added)); George A. Hay, *Market Power in Antitrust*, 60 ANTITRUST L.J. 807, 812–14 (1992) (comparing various definitions of market power and concluding that they are “not very useful for antitrust purposes” because defining market power as “the ability to raise price” above competitive levels will apply to “any firm facing a downward sloping demand curve, no matter how slight the slope (i.e., no matter how elastic the demand curve)”; William M. Landes & Richard A. Posner, *Market Power in Antitrust Cases*, 94 HARV. L. REV. 937, 939 (1981) (“Under perfect competition, price equals marginal cost, so if a firm’s price is above its marginal cost, the implication is that the firm does not face perfect competition, i.e., that it has at least some market power.”).

in calling for a more inclusive antitrust approach to these kinds of market failures (ones that have “usually [been] associated with consumer protection violations”),<sup>368</sup> the question is “the extent [to which] they exist significantly” such that they “should [instead] affect antitrust decision[-]making.”<sup>369</sup>

A. *Illustrations of “Substantial” Behavioral Market Power in Digital Platform Markets*

Both *Google Search (Shopping)* and *Google Android* demonstrate the magnitude of demand-side deviations from *perfection* in digital platform markets, where empirical studies showed that BE deviations did have the capacity to generate “substantial” market power.

In the Commission’s decision of *Google Search (Shopping)*, for instance, which has recently been upheld by the EU General Court,<sup>370</sup> the Commission found that the highest search rankings “generate significant traffic” to those search results.<sup>371</sup> Specifically, users usually look at the first three to five search result rankings on page one and “pay little or no attention to the remaining results.”<sup>372</sup> Starkly, the studies the Commission relied on show that the first three links account for 40%–65% of total clicks on desktops, and on mobile devices, this effect is increased with the top three links assuming more than 70% of total clicks.<sup>373</sup> Overall, the ten highest results receive 95% of all clicks and the highest result is clicked on more than any other.<sup>374</sup> As one of

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368. Robert H. Lande, *Market Power Without a Large Market Share: The Role of Imperfect Information and Other “Consumer Protection” Market Failures* 1 (Am. Antitrust Inst., AAI Working Paper No. 07-06, 2007), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1103613](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1103613) [<https://perma.cc/4SN6-4HV9>].

369. *Id.* at 13 (arguing that sometimes these market failures can generate market power similar to “market share-based market power”); *see also* Stucke, *supra* note 30, at 1094 (“The critical issue is whether the misrepresentation reasonably appears capable of making a significant contribution to maintaining or attaining monopoly power . . .”).

370. Case T-612/17 *Google LLC & Alphabet, Inc. v. Comm’n (Google Shopping)*, ECLI:EU:T:2021:763, ¶ 596 (Nov. 10, 2021), *appeal filed*, Case C-48/22 P (Jan. 20, 2022).

371. *Google Search (Shopping)*, *supra* note 110, ¶ 453.

372. *Id.* ¶ 455.

373. *Id.* ¶ 455 n.541.

374. *Id.* ¶ 457.

the studies concludes, “consumers seem to display an inherent bias” towards higher ranked search results.<sup>375</sup>

In *Google Android*,<sup>376</sup> a similarly “substantial” deviation from *perfection* was displayed. Explained through the lens of the status quo bias, the Commission demonstrated its power to foreclose competition and generate market power with illuminating data.<sup>377</sup> For example, between 2014 and 2017 in the largest EU states, search queries on Google Search accounted only for 10%–20% to 40%–50% on devices where Google Search was not pre-installed; when Google Search was pre-installed, it accounted for 90%–100%.<sup>378</sup> Further illustrating the power of the status quo bias, search queries were almost non-existent, switching from Google Search to rival search applications.<sup>379</sup> Specifically, on devices *worldwide* on which Google Search was the default app, rivals’ apps were downloaded on only 0%–5% of those devices between 2011 and 2016.<sup>380</sup>

*B. The Potential “Sustainability” of Cognitive Foreclosure in Digital Platform Markets*

Market power needs to be “durable” in addition to being “substantial” to generate the kind of market power that antitrust ought to concern itself with. If consumers can learn from their mistakes and become more *perfect* in their rationality and willpower, then there is hope for the market to correct itself and obviate the need for intervention. This Section, however, shows some pessimism for these capacities in the online world.

A final consideration is whether BE’s “substantial” deviation from *perfection* can be rendered transient (countervailed by consumer learning). Through experience, consumers may be able to overcome their cognitive shortcomings and increase the “quality” of their

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375. *Id.* ¶ 455 n.541 (emphasis omitted).

376. *Google Android*, *supra* note 222.

377. *See id.* ¶¶ 791-803.

378. *Id.* ¶ 793.

379. *Id.* ¶¶ 805-816.

380. *Id.* ¶ 808.

decision-making.<sup>381</sup> This would push the demand-side's market disciplining effect closer towards *perfection*. Studies show that learning is curtailed unless feedback is “careful, frequent, and quick.”<sup>382</sup> Some environments are conducive to such preconditions while others are not. For example, weather forecasters may competently calibrate their decision-making over time as they repeatedly report the weather,<sup>383</sup> while members of a jury in a criminal trial possess “little opportunity to learn from mistakes.”<sup>384</sup>

Although other markets and phenomena, like utilities markets and brands, have demonstrated “substantial” behavioral market power,<sup>385</sup>

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381. Donald C. Langevoort, *Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review*, 51 VAND. L. REV. 1499, 1521 (1998) (“There is a substantial debate in the literature . . . as to whether facing repeated decision tasks will provide the kind of feedback that gradually improves the quality of the decision making.”).

382. Colin F. Camerer, *Comment on Noll and Krier*, “Some Implications of Cognitive Psychology for Risk Regulation,” 19 J. LEGAL STUD. 791, 794 (1990).

383. *Id.*

384. Langevoort, *supra* note 381.

385. Notorious for sticky consumers are utility markets. In the market for electricity, for example, Wilson and Price reveal findings that would tend to demonstrate “substantial” market power on the part of electricity suppliers. See Chris M. Wilson & Catherine Waddams Price, *Irrationality in Consumers' Switching Decisions: When More Firms May Mean Less Benefit* (ESRC Ctr. for Competition Pol'y, CCP Working Paper No. 05-04, 2005) (U.K.), <https://econwpa.ub.uni-muenchen.de/econwp/io/papers/0509/0509010.pdf> [<https://perma.cc/TX44-MXKX>]. They also posit that the source of this market power—consumer switching errors—is consumer irrationality. *Id.* at 2–3. Bar-Gill and Stone arrive at similar conclusions in the market for mobile phone plans. See Oren Bar-Gill & Rebecca Stone, *Mobile Misperceptions*, 23 HARV. J.L. & TECH. 49 (2009). Moreover, the consumer decision-making mistakes are, again, a product of irrationality or as the authors put it, a market response to consumers' “imperfect rationality.” *Id.* at 52. The magnitude of the mistakes demonstrates the potential for BE failures to generate “substantial” market power. See *id.* at 85, 98. A more persuasive example of BE failures potentially generating “substantial” market power may be the UK Competition and Market Authorities' (CMA) *Energy Market Investigation*. COMPETITION & MKTS. AUTH., ENERGY MARKET INVESTIGATION: FINAL REPORT (June 24, 2016) (U.K.), <https://assets.publishing.service.gov.uk/media/5773de34e5274a0da3000113/final-report-energy-market-investigation.pdf> [<https://perma.cc/HU7U-G74Q>]. Major reasons identified for this disengagement can be characterized as consumer inertia and bounded rationality. *Id.* at 485. Brands have also been shown to demonstrate significant market power. Brand name drugs, for example, can sometimes command much higher prices than generics despite the two products being functionally interchangeable. In the market for painkillers, for example, generic equivalents to Advil and Tylenol may sell as much as 50% lower than the latter. See Simon P. Anderson, Federico Ciliberto, Jura Liaukonyte & Régis Renault, *Push-Me Pull-You: Comparative Advertising in the OTC Analgesics Industry*, 47 RAND J. ECON. 1029, 1038 tbl.1 (2016). Other examples outside the pharmaceutical context further highlight the capacity of brands to generate significant market power. Big brand gasoline names like Shell and Chevron, for instance, are ranked consistently in the top five fuel products for pricing power. *Report: Chevron Leads Fuel Brands*

it may be argued that these markets differ significantly in their capacity for “sustaining” such market failures vis-à-vis digital platform markets. This is because of digital platform markets’ idiosyncratic characteristics. In light of what we now know about digital markets and platforms’ powerful capacities to manipulate users, there is an argument that digital platform markets are environments that are peculiarly hostile, rather than conducive, to learning. Users’ manipulation susceptibility and platforms’ manipulation abilities and incentives could constitute unique and powerful obstacles in this respect.<sup>386</sup>

As to manipulation susceptibility, we have already seen the amplification of biases in the online world. It would therefore seem naïve to expect consumers to overcome their cognitive shortcomings in digital environments, particularly because the evidence on learning effects is generally mixed at best.<sup>387</sup> Some studies suggest that as human beings we are terrible at calibrating over time.<sup>388</sup> Regarding manipulation abilities and incentives, platforms’ continuous and ubiquitous control over users, coupled with unparalleled sophistication from Big Data—an element not present in other markets but specific to digital platform markets—would also seem to cut against a belief in the capacity of consumers to correct their BE failures over time. Indeed, if digital platforms possess amplified incentives to retain our

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in *Pricing Power*, CONVENIENCE STORE NEWS (July 12, 2018), <https://csnews.com/report-chevron-leads-fuel-brands-pricing-power> [<https://perma.cc/7BQW-ETXS>]. One study demonstrated differences in per gallon prices of 18.2 cents between gas stations and reasoned that brand allegiance drove the difference. Jennifer R. Thompson, *Brand Loyalty and Gasoline Pricing in Sacramento*, AGRIC. & RES. ECON. UPDATE, July/Aug. 2007, at 9, 9. Haagen-Dazs’ ability to enter the ice-cream market at a price 30% to 40% higher than its closest substitute may be attributed to its branding efforts in portraying images of affluence and sophistication. Erich Joachimsthaler & David A. Aaker, *Building Brands Without Mass Media*, HARV. BUS. REV., Jan.–Feb. 1997, at 39, 41. Survey evidence reveals that a substantial amount of consumers are willing to pay premiums just for branded products despite the existence of functionally interchangeable substitutes. Seventy-two percent will pay a 20% premium above the price of the closest substitute rival; 50% will pay a 25% premium; 40% will pay a 30% premium; and 25% say “price does not matter” when it comes to purchasing brands that they are loyal to. SCOTT M. DAVIS, BRAND ASSET MANAGEMENT: DRIVING PROFITABLE GROWTH THROUGH YOUR BRANDS 5 (2002).

386. See *supra* Part II.

387. Berndt Brehmer, *In One Word: Not from Experience*, 45 ACTA PSYCHOLOGICA 223, 224 (1980) (“[A] “solid body of evidence [shows] that people do not *always* learn from experience . . . .” (emphasis added)).

388. See *generally id.* at 223–40.

attention and leave us perpetually locked into an addictive, dream-like state, then the platform's only incentive would be to induce us into an even deeper sleep—especially when faced with the prospect of consumer learning. In particular, digital platforms are uniquely positioned to “sludge” the rivalrous process by rendering at will the consumer learning and switching process *more difficult*,<sup>389</sup> simply by altering the choice architecture and content release in ways that can take advantage of each individual user's cognitive limitations and specific behavioral data. For these reasons, one might view digital platform markets as environments with significantly enhanced capacities for sustaining substantial behavioral market failures.

#### CONCLUSION

In examining the BE implications for antitrust's two most fundamental doctrinal concepts—conduct and market power—this Article has extended previous Behavioral Antitrust literature by elucidating how the fusion of two emerging phenomena, digital platform technology and BE, is moving us closer towards an antitrust world of cognitive foreclosure—a form of foreclosure that is pernicious but powerful. In particular, it is shown how such phenomena may cut against both the immediacy and intensity of the substitution effect<sup>390</sup> in a way that may be “substantial” and “sustainable.” It has therefore provided a context in which a demand-side market failure, usually regulated by consumer protection regimes and traditionally contested as genuine antitrust issues, may justifiably come within the remit of antitrust enforcement.

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389. Cass R. Sunstein, *Sludge and Ordeals*, 68 DUKE L.J. 1843, 1850 (2019) (“[Sludge] should be taken to refer to the kind of friction, large or small, that people face when they want to go in one or another direction. For their own reasons, whether self-interested or altruistic, private and public institutions might impose or increase sludge.” (footnote omitted)); *see also* Richard H. Thaler, Editorial, *Nudge, Not Sludge*, 361 SCIENCE 431, 431 (2018) (describing sludge).

390. *See* Devlin & Jacobs, *supra* note 13, at 1026; Heinemann, *supra* note 15, at 231 (arguing that BE “eliminates the fiction of perfect rationality”).