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### Amazon's Pricing Paradox

Rory Van Loo

*Boston University School of Law*

Nikita Aggarwal

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**AMAZON'S PRICING PARADOX**

*Rory Van Loo\* & Nikita Aggarwal\*\**

ABSTRACT

Antitrust scholars have widely debated the paradox of Amazon seemingly wielding monopoly power while charging low prices to consumers. A single company's behavior thereby helped spark a vibrant intellectual conversation as scholars debated why Amazon's prices were so low, whether enforcers should intervene, and, eventually, how the field of antitrust should be reformed. One of the main sources of agreement in these and other scholarly conversations has long been that Amazon charges low prices. This Article challenges that assumption by demonstrating that Amazon customers may pay significantly higher prices than is commonly understood due to strategies that do not necessarily depend on monopoly power. More importantly, unraveling the disconnect between perception and reality yields broader insights. One of the reasons why perceptions of Amazon's pricing have remained disconnected from reality is that conversations about regulating Amazon have paid inadequate attention to behavioral economics. Behavioral economics reveals how the company leverages its sophisticated algorithms, large datasets, and dark patterns to build a marketplace of consumer misperception by, for instance, making it difficult for consumers to find the low-priced items. Such practices undermine the goals of competition, in the economic sense of the word. But these practices have traditionally been the focus of consumer law rather than antitrust. Indeed, the longstanding inattention to these consumer law-related behavioral pricing practices raises the question of whether scholars have been incorrectly describing Amazon's prices as low. Amazon may offer many products at low, competitive prices, but by exploiting consumers' behavioral biases, Amazon may prevent a substantial number of consumers from finding those low prices. Thus, a behavioral consumer lens is necessary to see

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\* Professor of Law, Boston University; Affiliated Fellow, Yale Law School Information Society Project.

\*\* Lecturer, UCLA School of Law; Postdoctoral Research Fellow, UCLA Institute for Technology, Law, and Policy. For valuable feedback and conversations, we are grateful to Oren Bar-Gill, Stacey Dogan, Talia Gillis, Bondy Kaye, Bob Lawless, Daniel Markovits, Manisha Padi, Benjamin Pyle, Matthias Qian, Christopher Robertson, David Walker, Kathy Zeiler, and participants in workshops at Boston University, CS+Law, and Yale Law School. Brianne Allan, Kyle Angelotti, Jackson Barnett, Jennifer Bentley, Allyson Brennan, Celene Chen, Tess Cushing, Leah Dowd, Ethan Fitzgerald, Heather Flokos, Ian Horton, Ryan Kramer, Jack Langa, Kate McLeod, Jane Murphy, Emily Rothkin, Brittany Swift, and Lauren Vandemortel contributed excellent research.

that what was originally framed as an antitrust paradox is better viewed as a more general pricing paradox. A company perceived as offering low prices may have been instead manipulating consumers to pay more. To see the full set of concrete legal solutions for promoting competition in Amazon's marketplace and beyond, it is important to move consumer law out of antitrust's shadow. Consumer law interventions include mandating information disclosures by Amazon to empower artificially intelligent digital intermediaries that could help lower consumers' search costs. Lawsuits based in unfair or deceptive acts or practices are also possible. Consumer law and antitrust law operating at full force offer the best chance for ushering in an era of "open retail" in which digital markets remain competitive and adequately serve consumers.

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## I. INTRODUCTION

Amazon has come under fire for its treatment of workers<sup>1</sup> and small businesses.<sup>2</sup> On the consumer side, however, Amazon is one of the most beloved brands in the United States.<sup>3</sup> This positive image is fueled by not only the great convenience that Amazon offers, but also the

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1. David Streitfeld, *Amazon's Clashes with Labor: Days of Conflict and Control*, N.Y. TIMES (June 15, 2021), <https://www.nytimes.com/2021/04/05/technology/amazon-control-bathroom-breaks.html> [<https://perma.cc/CE4C-AEM5>] (noting Amazon's poor treatment of drivers and workers in fulfillment centers); see Keith Cunningham-Parmeter, *From Amazon to Uber: Defining Employment in the Modern Economy*, 96 B.U. L. REV. 1673, 1675 (2016) (noting that Amazon uses contractors "to shield [itself] from laws designed to protect workers").

2. Lina M. Khan, Note, *Amazon's Antitrust Paradox*, 126 YALE L.J. 710, 781 (2017); Karen Kim, Comment, *Amazon-Induced Price Discrimination Under the Robinson-Patman Act*, 121 COLUM. L. REV. F. 160, 162–63 (2021).

3. Casey Newton, *The Verge Tech Survey 2020*, VERGE (Mar. 2, 2020, 8:00 AM), <https://www.theverge.com/2020/3/2/21144680/verge-tech-survey-2020-trust-privacy-security-facebook-amazon-google-apple> [<https://perma.cc/23QL-9R6P>] (noting that Amazon had a ninety-one percent favorability rating).

enduring assumption, in both academic scholarship and the media, that Amazon's prices are "low."<sup>4</sup> In light of those perceptions, the idea that authorities should do something about Amazon's pricing practices to protect consumers seems absurd.<sup>5</sup>

This Article challenges those widespread perceptions and shows that there is reason to believe that Amazon's customers pay

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4. To be clear, and as we explain in greater depth in *infra* Section II.D, we are not challenging the argument made by Khan and other antitrust scholars that Amazon's low prices were the result of anticompetitive predatory pricing, and our thesis is consistent with either side of this debate. Our point for now is simply that there has been an enduring perception that Amazon offers, and consumers pay, low prices. See, e.g., Khan, *supra* note 2, at 768 (suggesting that Amazon's low prices in digital books were designed to harm competitors, which could harm consumers in the long run); Elettra Bietti, *A Genealogy of Digital Platform Regulation*, 7 GEO. L. TECH. REV. 1, 52 (2023) ("Amazon's prices are low . . ."); Ashlyn Myers, Note, *Amazon Doesn't Have an Antitrust Problem: An Antitrust Analysis of Amazon's Business Practices*, 41 HOUS. J. INT'L L. 387, 405 (2019) (describing Amazon's "remarkably low" prices); Shaoul Sussman, *Prime Predator: Amazon and the Rationale of Below Average Variable Cost Pricing Strategies Among Negative-Cash Flow Firms*, 7 J. ANTITRUST ENF'T 203, 219 (2019) (concluding that Amazon has long sold at below-average variable cost); Angelos Vlazakis & Angeliki Varela, *Amazon's Antitrust Fair Play, a Transatlantic Evaluation*, 41 N. ILL. U. L. REV. 64, 79 (2020) (noting "that the company has built a reputation based on the low prices of the products featured in its Marketplace, a feature not traditionally associated with a monopolist's behavior"); Seth G. Benzell & Felix B. Chang, *Evaluating Antitrust Remedies for Platform Monopolies: The Case of Facebook*, 76 VAND. L. REV. 773, 826 (2023) ("Amazon's low prices cannot be explained by profit maximization alone."); Paniz Arab, *Retail Mergers, Markets, and the Rise of Amazon*, 13 U.C. IRVINE L. REV. 751, 753 (2023) ("Consumers now have the option to buy most products from Amazon with quick shipping and low prices."); Greg Ip, *The Antitrust Case Against Facebook, Google and Amazon*, WALL ST. J. (Jan. 17, 2018, 11:52 AM), <https://www.wsj.com/articles/the-antitrust-case-against-facebook-google-amazon-and-apple-1516121561> [https://perma.cc/HW2A-KCQT] (observing that Amazon and other large tech companies are "driving down prices").

5. This observation broadens that made by Khan about Amazon's antitrust paradox, to encompass other areas of law, especially what is traditionally referred to as consumer protection, which may also intervene to address economically undesirable pricing practices. See Khan, *supra* note 2, at 716 (sketching an antitrust paradox). Indeed, a well-cited article focused on Amazon and consumer protection highlights how the company *promotes* consumer protection. See Jane K. Winn, *The Secession of the Successful: The Rise of Amazon as Private Global Consumer Protection Regulator*, 58 ARIZ. L. REV. 193, 201 (2016) (arguing that Amazon serves as a regulator when it sues parties offering fake review services to merchants on Amazon Marketplace). Scholarship focused on Amazon has nonetheless raised several important issues for consumers beyond price, most notably privacy and product liability. See, e.g., Edward J. Janger & Aaron D. Twerski, *The Heavy Hand of Amazon: A Seller Not a Neutral Platform*, 14 BROOK. J. CORP. FIN. & COM. L. 259, 272–73 (2020) (arguing that Amazon should be held more liable for defective products and observing that part of the problem is the push for low prices); Lauren Bass, *The Concealed Cost of Convenience: Protecting Personal Data Privacy in the Age of Alexa*, 30 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 261, 278–79 (2019) (describing how "Amazon collects and stores copious amounts of data about its customers," and users often disclose personal, sensitive, and even confidential information in Alexa's presence). Scholars have also developed helpful treatments of Amazon's other practices in passing. See, e.g., Aaron Perzanowski & Chris Jay Hoofnagle, *What We Buy When We Buy Now*, 165 U. PA. L. REV. 315, 339 (2017) (observing that consumers may not understand that they do not fully own music and videos purchased on Apple, Amazon, and other platforms).

anticompetitively high prices.<sup>6</sup> One explanation for the longstanding perception that Amazon's prices are low is that the topic of price has overwhelmingly been analyzed through an antitrust law lens that ignores the effects of behavioral manipulation.<sup>7</sup> As such, antitrust conversations have overlooked the various ways in which Amazon might charge consumers higher prices by strategically causing consumer misperception — conduct that falls more within the purview of consumer law.<sup>8</sup>

In a series of highly influential behavioral law and economics articles, scholars have argued that firms often exploit consumers' psychological limitations to manipulate consumers into paying higher prices.<sup>9</sup> In particular, they have shown that sellers strategically add complexity to purchasing decisions. For instance, retailers can make customers subconsciously assume that a price is a bargain if it is framed as a discount — such as by advertising a \$125 bread maker as discounted from \$200, even if the \$125 price is not actually lower than other comparable bread makers.<sup>10</sup> Similar behaviorally manipulative pricing tactics have been observed for a wide range of goods and services — for everything from cell phone plans to credit cards, mortgages, and online retail goods.<sup>11</sup> However, the behavioral

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6. See 15 U.S.C. § 57(b)(1)(c) (requiring that the Federal Trade Commission satisfy a “reason to believe” standard to request information relating to unfair and deceptive acts).

7. For some of the many instances of the antitrust literature referring to Amazon's low prices, see *supra* note 4. This Article will use “antitrust law” to refer to what is sometimes more broadly described as “competition law.” See PHILLIP AREEDA & LOUIS KAPLOW, *ANTITRUST ANALYSIS: PROBLEMS, TEXT, AND CASES* 3–4 (5th ed. 1997); *infra* Section III.A.

8. See *infra* Section III.B. This Article uses “consumer law” to describe what is sometimes described as “consumer protection.”

9. See, e.g., Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1124 (1974) (establishing that consumers face predictable psychological limitations which impede rational decision-making). Behavioral economists later extended Kahneman and Tversky's work in a series of highly influential papers. See, e.g., Xavier Gabaix & David Laibson, *Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets*, 121 Q.J. ECON. 505, 506–07 (2006) (finding that sellers offer low-price printers, realizing that consumers will ignore the high costs of ink cartridges — where manufacturers make most of their profits). These insights were later applied by legal scholars. See, e.g., Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1473–75 (1998) (outlining the underappreciated role of behavioral economics in the law); Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203, 1290–91 (2003) (showing how most buyers do not consider all of the various secondary terms — such as late fees and arbitration provisions — in determining the full price of the agreement). Although the foundational descriptive and analytic contributions of behavioral law and economics are now firmly embedded, the resulting prescriptions are debated. See Ryan Bubb & Richard H. Pildes, *How Behavioral Economics Trims Its Sails and Why*, 127 HARV. L. REV. 1593, 1677–78 (2014).

10. See WILLIAM POUNDSTONE, *PRICELESS: THE MYTH OF FAIR VALUE (AND HOW TO TAKE ADVANTAGE OF IT)* 156 (2010).

11. See OREN BAR-GILL, *SEDUCTION BY CONTRACT: LAW, ECONOMICS, AND PSYCHOLOGY IN CONSUMER MARKETS* 166 (2012) (discussing how complex contracts hinder

economics literature has long ignored the behavioral pricing practices of product search engines — like Amazon and Google Shopping — with the main manipulator instead seen as the third-party seller.<sup>12</sup>

Some law and technology scholarship has theorized that online product search tools could leverage personal data, artificial intelligence computational techniques like machine learning, and “dark patterns” — deceptive user interface designs — to manipulate consumers into paying higher prices.<sup>13</sup> Indeed, as early as 2015, one of us posited that Amazon leveraged machine learning and behavioral data to anticompetitively raise prices.<sup>14</sup> Yet, beginning in 2017, a set of mostly antitrust-focused conversations by legal scholars and economists

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“effective comparison-shopping”); Rory Van Loo, *Helping Buyers Beware: The Need for Supervision of Big Retail*, 163 U. PA. L. REV. 1311, 1336–47 (2015) (applying behavioral economics insights broadly to both online and offline retail sellers); *see also* Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420, 1503–24 (1999) (discussing manipulation in contexts such as cigarette advertising).

12. *See, e.g.*, Glenn Ellison & Sara Fisher Ellison, *Search, Obfuscation, and Price Elasticities on the Internet*, 77 ECONOMETRICA 427, 449 (2009) (using purchase data to show that online third-party sellers of computer parts can raise prices through obfuscation strategies, such as hiding the shipping costs); *infra* Section II.B.1.

13. *See, e.g.*, Rory Van Loo, *Rise of the Digital Regulator*, 66 DUKE L.J. 1267, 1277 (2017) (“With artificially intelligent computers that engage in deep learning similar to that of the human mind, retailers nudge customers to higher-margin products.”); Rory Van Loo, *Digital Market Perfection*, 117 MICH. L. REV. 815, 837 (2019) (summarizing the challenges and potential of an era in which both sellers and consumers deploy artificial intelligence tools to automate commerce); Arunesh Mathur, Jonathan Mayer & Mihir Kshirsagar, *What Makes a Dark Pattern . . . Dark? Design Attributes, Normative Considerations, and Measurement Methods*, PROC. 2021 CHI. CONF. ON HUM. FACTORS COMPUTING SYS., May 2021, at 15–16 (reviewing the literature on, and conceptualizing, “dark patterns”). These articles built on foundations laid in earlier influential, insightful, and prescient scholarship that was not focused on automated algorithms raising consumer prices by manipulating search results. *See, e.g.*, Tal Z. Zarsky, *“Mine Your Own Business!”: Making the Case for the Implications of the Data Mining of Personal Information in the Forum of Public Opinion*, 5 YALE J.L. & TECH. 1, 33–41 (2003) (showing how data-based technologies can enable price discrimination); Oren Bracha & Frank Pasquale, *Federal Search Commission? Access, Fairness, and Accountability in the Law of Search*, 93 CORNELL L. REV. 1149, 1206–07 (2008) (calling for regulation of “[g]eneral-purpose search engines,” such as Google, because of their “manipulation” of search results); Ryan Calo, *Digital Market Manipulation*, 82 GEO. WASH. L. REV. 995, 1003–07 (2014) (arguing that computer-mediated technologies, such as the design of the web page, enable firms to manipulate consumers). On machine learning generally, *see* STUART RUSSELL & PETER NORVIG, *AI: A MODERN APPROACH* (4th ed. 2020).

14. *See generally* Van Loo, *supra* note 11, at 1345–46 (using the example of a single search for a “canteen” to illustrate Amazon’s obfuscation potential and concluding that these tactics give it the potential to raise prices anticompetitively); *id.* (“[F]inding the best deal out of thousands of results would be even more time-consuming and presumably few consumers would actually go through hundreds of individual product pages to find what the Amazon algorithm could do in a microsecond if the company wished: locate the cheapest item.”). These observations about Amazon were part of a broader argument about online retail platforms and had very limited empirical evidence related to Amazon. *Id.*; *see also* Julie E. Cohen, *Law for the Platform Economy*, 51 U.C. DAVIS L. REV. 133, 146 (2017) (referencing Amazon’s preferencing of its own products in passing as part of a broader analysis of platforms).

emerged and continued to describe Amazon as charging low prices until at least mid-2023, when we posted our findings online.<sup>15</sup>

This Article begins to reconcile those parallel price universes.<sup>16</sup> It synthesizes the theoretical foundations laid by behavioral economists and technology law scholars, and adds a review of the existing empirical research about Amazon's pricing that has yet to be integrated into the legal literature.<sup>17</sup> It also contributes new empirical findings, based on a review of 4,800 items sold on Amazon, that go further than prior studies toward showing that Amazon engages in pricing practices that are harmful to consumers.<sup>18</sup> The weight of this evidence suggests that Amazon deploys countless strategies well known to influence shoppers to pay more. Moreover, since many of the core practices we study are the same as those observed as early as 2015, it raises the possibility that the marketplace's overall low-price perception has long been inaccurate.<sup>19</sup>

As one of many examples, we present the first evidence that Amazon's search results systematically bury the lowest priced items even if they have equal or better ratings.<sup>20</sup> We find, for instance, that the best deal on the first page — factoring in ratings and unit price (excluding shipping costs) — was on average located in the seventeenth slot, where few consumers look.<sup>21</sup> Moreover, consumers who chose the first relevant item returned in the search results would have paid on average twenty-nine percent more than if they had located

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15. This Article was posted on SSRN in May of 2023, four months before the Federal Trade Commission filed a lawsuit alleging that Amazon had used monopoly power to degrade search results and charge higher prices. See Rory Van Loo & Nikita Aggarwal, *Amazon's Pricing Paradox* (May 2, 2023), <https://ssrn.com/abstract=4436546> [<https://perma.cc/CBU8-UWTA>]; Press Release, Fed. Trade Comm'n, *FTC Sues Amazon for Illegally Maintaining Monopoly Power* (Sept. 26, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/09/ftc-sues-amazon-illegally-maintaining-monopoly-power> [<https://perma.cc/P93L-9AAS>]. Examples of legal scholars continuing to refer to low Amazon prices through 2023 are provided *supra* note 4, and for economists making related but more nuanced points, see, for example, Leshui He, Imke Reimers & Benjamin Shiller, *Does Amazon Exercise Its Market Power? Evidence from Toys "R" Us*, 65 J.L. & ECON. 665, 680 (2022) ("Amazon continues to charge relatively low prices . . ."). One reason for this perspective may be an assumption that Amazon has incentives to provide price transparency. See Michael Dinerstein, Liran Einav, Jonathan Levin & Neel Sundaresan, *Consumer Price Search and Platform Design in Internet Commerce*, 108 AM. ECON. REV. 1820, 1821 (2018) (making this assumption).

16. See *infra* Section II.D.

17. For instance, a 2018 study of online book pricing has yet to be integrated into the legal literature, although the study's narrow item focus on books may mean that, even if it had received more attention, it may not have changed perceptions. See Jifeng Luo, Han Zhang & Haizheng Li, *Pricing Strategies in Online Book Industry: A Comparative Study*, 16 INFO. SYS. & BUS. MGMT. 791, 805 (2018).

18. See *infra* Section II.B.

19. Van Loo, *supra* note 11, at 1345; *infra* Part II.

20. We explain how our findings are distinct from prior and related studies of Amazon, which did not examine this burying tactic, in *infra* Section II.B.1.

21. See *infra* Section II.B.



the best deal.<sup>22</sup> One of the reasons these findings are important is that more than half of Amazon's regular customers purchase the top result provided.<sup>23</sup> And filtering the search results by "Price: Low to High" does not solve these problems on most searches, particularly since this feature still ignores unit price and shipping costs.<sup>24</sup> Nor does the Federal Trade Commission's ("FTC's") recent antitrust lawsuit against Amazon target this burying tactic.<sup>25</sup>

It is important not to get lost in the weeds of any one example. Focusing excessively on any individual example risks making the problem seem less significant than it is. By analogy, a single purchase of a sugary beverage may be of questionable relevance to an individual's development of diabetes. But in the aggregate, these kinds of individual behaviors — combined with many other related behaviors, such as inadequate exercise — can prove detrimental, not only for individuals but also for society.<sup>26</sup> Similarly, instead of focusing on individual tactics or items sold on Amazon, it is important to keep in mind the bigger picture: the large array of practices that Amazon uses to increase prices across a vast number of items. The burying of the best deals in search results is only one of many different aspects of the decision context that make shopping on Amazon far more complex than it may appear.<sup>27</sup>

One implication of this analysis is that by relying excessively on an antitrust lens, legal scholarship may have adopted and contributed to a skewed perception of Amazon's prices. Even if Amazon could use monopoly power to force higher prices on consumers, it does not need to.<sup>28</sup> Instead of risking the wrath of antitrust enforcers, it could, in theory, instead offer many products at competitive prices. But by controlling the choice environment, Amazon can make it so that a substantial number of consumers never find the competitively priced

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22. *Id.*

23. CATIE GRASSO, FEEDVISOR, THE 2019 AMAZON CONSUMER BEHAVIOR REPORT 16 (2019), <https://feedvisor.com/resources/amazon-trends/the-2019-amazon-consumer-behavior-report> [<https://perma.cc/E27C-JHDS>] ("For those who buy products on Amazon daily or almost everyday, more than half (54%) always buy the first product listed on Amazon's search engine results page (SERP).").

24. See *infra* Section II.B. Likewise, the filter for product rating is too blunt to enable consumers to find the lowest price products with the highest ratings, for example, with 4.5 stars or more.

25. See Fed. Trade Comm'n, *supra* note 15 (focusing instead on other tactics by Amazon).

26. See Alfred E. Kahn, *The Tyranny of Small Decisions: Market Failures, Imperfections, and the Limits of Economics*, 19 KYKLOS INT'L REV. SOC. SCI. 23, 23–29, 44–45 (1966).

27. See *infra* Section II.C.

28. Note that monopoly power may enhance the kinds of practices we outline herein, even if monopoly power — in the traditional antitrust sense of the concept — is not necessary for them. See, e.g., Eric Posner & Richard M. Hynes, *The Law and Economics of Consumer Finance*, 4 AM. L. & ECON. REV. 168, 174 (2001); Gerhard Wagner & Horst Eidenmüller, *Down by Algorithms? Siphoning Rents, Exploiting Biases, and Shaping Preferences: Regulating the Dark Side of Personalized Transactions*, 86 U. CHI. L. REV. 581, 583 (2019); *infra* Section III.A.

item even if it is just “one click away.”<sup>29</sup> Amazon's behavioral pricing practices thus have the potential to greatly harm both competition and consumers.<sup>30</sup> By failing to engage with the theoretical and empirical study of behavioral pricing, scholars have not made the full case for why the law should intervene in Amazon's pricing practices.<sup>31</sup>

To advance competition in a commercial landscape increasingly driven by search results, the broader legal framework will need to integrate behavioral economics analyses that have mostly resided within consumer law. Indeed, it may not be possible for antitrust authorities to recognize anticompetitive pricing, at least when prices are delivered through search results, without applying a behavioral economics lens.<sup>32</sup> Moreover, behavioral law and economics and consumer law provide a set of tools for regulating Amazon's anticompetitive pricing practices independent of antitrust.<sup>33</sup> For instance, mandatory disclosures could require Amazon to provide a way for consumers to sort results by unit price, thereby helping to clarify Amazon's prices for consumers. Or the law could mandate that Amazon share information with third-party digital intermediaries that help shoppers find the best deal. More extensive legal interventions, such as prosecution by state attorneys general and the FTC based on existing consumer laws, are also possible.<sup>34</sup>

These consumer law interventions would preserve the very convenience that attracts many consumers to Amazon. If anything, these interventions would make shopping on Amazon more convenient, particularly for bargain-conscious consumers, by making it easier to find the best deals. Nor would they require Amazon to change the prices of any item; they would simply require the company to make its pricing

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29. Cf. *The Power of Google: Serving Consumers or Threatening Competition?: Hearing Before the S. Subcomm. on Antitrust, Competition Pol'y & Consumer Rts. of the S. Comm. on the Judiciary*, 112th Cong. 232 (2011) (statement of Eric Schmidt, Executive Chairman, Google Inc.) (describing how Google's “competition is only one click away”).

30. See, e.g., BAR-GILL, *supra* note 11, at 166–68 (explaining the relationship between consumer misperception and competition).

31. Scholars have, however, made related broader arguments that encompass Amazon. See, e.g., Van Loo, *supra* note 11, at 1326–31 (reviewing the literature and concluding that mass retailers, such as Walmart and Amazon, can leverage technologies to raise consumer prices).

32. See *infra* Section III.A. This nuanced observation builds on a number of related points about the problems brought about by the disconnect between consumer protection and antitrust. See generally Joshua D. Wright, *The Antitrust/Consumer Protection Paradox: Two Policies at War with Each Other*, 121 YALE L.J. 2216 (2012) (warning about the different approaches to consumer preferences); Harry First, *Excessive Drug Pricing as an Antitrust Violation*, 82 ANTITRUST L.J. 701, 718–20 (2019) (discussing the way the FTC bridges the divide between antitrust and consumer protection).

33. Since consumer laws are not a substitute for antitrust (nor labor regulation), calling attention to the need for stronger consumer laws does not detract from efforts to improve antitrust (or labor regulation), and related market failures. Indeed, the opposite may be true. See *infra* Section III.A.

34. *Infra* Section III.B.1; Van Loo, *supra* note 11, at 1382–92.

clearer and simpler alongside that great convenience. That transparency should put more market pressure on Amazon to offer lower prices.

This Article adopts the terminology of the behavioral law and economics literature in describing Amazon's conduct as "manipulation."<sup>35</sup> That literature identifies such conduct, including behavioral pricing, as inefficient.<sup>36</sup> But manipulating consumers into paying more online, including with the use of artificial intelligence techniques and dark patterns, also raises broader ethical and distributional issues that we and others have discussed elsewhere.<sup>37</sup> Space constraints limit our ability to give these topics the full treatment they deserve. The main goal of this Article is to contribute to a more comprehensive understanding of how Amazon's business model, seen in its pricing practices, depends in great part on market failures beyond those that have traditionally been the focus of antitrust. In doing so, this Article seeks to encourage a more rigorous legal and scholarly inquiry into the anticompetitive effects of Amazon's behavioral pricing practices. We can appreciate Amazon's convenience while still concluding that consumers and society should expect more out of the company now that it has become a central node in the economy.

Part II outlines the theoretical, institutional, and empirical foundations for understanding Amazon's pricing. It offers a more comprehensive consumer law-based account of Amazon's pricing tactics than previously existed, drawing on existing and new empirical analyses from product pages and search results. Part III explores the policy implications of Amazon's tactics. Administrative agency oversight is important, but less intrusive solutions can be found in

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35. In addition to the sources cited *supra* note 11, see more recently Oren Bar-Gill & Omri Ben-Shahar, *Rethinking Nudge: An Information-Costs Theory of Default Rules*, 88 U. CHI. L. REV. 531, 543 (2021) ("[O]ur theory identifies those practices that reduce efficiency and harm consumers and should thus be prohibited as manipulation.").

36. See BAR-GILL, *supra* note 11, at 166–68 (describing behavioral pricing as inefficient and a market failure); Cass R. Sunstein, *Fifty Shades of Manipulation*, 1 J. MKTG. BEHAV. 213, 215–17 (2015) (exploring manipulation beyond lying and deception).

37. See, e.g., Andreas Tsamados, Nikita Aggarwal, Josh Cowls, Jessica Morley, Huw Roberts, Mariarosaria Taddeo & Luciano Floridi, *The Ethics of Algorithms: Key Problems and Solutions*, 37 AI & SOC'Y 215, 216, 224–25 (2022) (arguing that algorithmic systems and online platforms raise significant moral concerns); Rory Van Loo, *Broadening Consumer Law: Competition, Protection, and Distribution*, 95 NOTRE DAME L. REV. 211, 215, 241 (2019) (observing that "companies' ability to engage in behavioral overcharge has increased significantly due to sophisticated pricing algorithms and quantitative insights into consumers" and concluding that such practices can contribute significantly to economic inequality). For other explorations of a broader set of Amazon harms and normative foundations for caring about them, see KATHRYN JUDGE, *DIRECT: THE RISE OF THE MIDDLEMAN ECONOMY AND THE POWER OF GOING TO THE SOURCE* 81–83 (2022) (observing potential harms such as the loss of accountability, connection, and community). Although this Article focuses mostly on price increases for which there is a case that they are inefficient, when algorithms raise prices in ways that economic theory suggests are efficient, it is still necessary to weigh the "steep distributional" costs. Oren Bar-Gill, *Algorithmic Price Discrimination When Demand is a Function of Both Preferences and (Mis)perceptions*, 86 U. CHI. L. REV. 217, 236 (2019).

regulations that empower third-party, pro-consumer digital intermediaries. Such regulations would not only require minimal government involvement, but also give consumers the digital tools necessary to match Amazon's algorithmic sophistication.

Before turning to the main discussion, an observation is in order about this Article's focus on Amazon. Writings about a single company — including about Amazon<sup>38</sup> — have at different times shifted intellectual conversations about antitrust, while also contributing to policymaking and major lawsuits.<sup>39</sup> Additionally, Amazon merits sustained attention due to its market share and position as one of the most valuable companies in the world.<sup>40</sup> Amazon's commercial position is also historically unparalleled, at least in the sense that it operates in a digital era in which data brings additional competitive advantages to retailers. Amazon has a fast-growing market share projected to soon reach fifty percent of retail e-commerce, at a time when the country is becoming more dependent than ever on large tech platforms.<sup>41</sup> Other leading companies, ranging from Google to Walmart to e-commerce startups, emulate Amazon.<sup>42</sup> Thus, the company offers a new context in which old principles may not apply, with a scale that alone justifies examination of its practices. As a result, understanding the full costs and policy implications of Amazon gives a window into the legal blueprint necessary for the future of online commerce.

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38. David Streitfeld, *Amazon's Antitrust Antagonist Has a Breakthrough Idea*, N.Y. TIMES (Sept. 7, 2018), <https://www.nytimes.com/2018/09/07/technology/monopoly-antitrust-lina-khan-amazon.html> [<https://perma.cc/BX4E-FQWT>] (explaining how Lina Khan's Yale Law Journal Note "reframed decades of monopoly law" and ultimately influenced ongoing antitrust lawsuits and investigations into Alphabet, Amazon, and Facebook).

39. See, e.g., STEVE WEINBERG, *TAKING ON THE TRUST: THE EPIC BATTLE OF IDA TARBELL AND JOHN D. ROCKEFELLER* 246–51 (2008) (recounting how Ida Tarbell's three-volume treatise and other writings about Standard Oil led to the breakup of the company and helped make the case for creating the FTC).

40. See Alina Selyukh, *What Americans Told Us About Online Shopping Says a Lot About Amazon*, NPR (June 6, 2018, 5:11 AM), <https://www.npr.org/2018/06/06/615137239/what-americans-told-us-about-online-shopping-says-a-lot-about-amazon> [<https://perma.cc/BQ4M-D2CZ>].

41. See Stephanie Chevalier, *Projected Retail E-Commerce GMV Share of Amazon in the United States from 2016 to 2021*, STATISTA (Oct. 13, 2021), <https://www.statista.com/statistics/788109/amazon-retail-market-share-usa> [<https://perma.cc/RT7K-TTZA>] (providing market shares).

42. See, e.g., C. Scott Hemphill, *Disruptive Incumbents: Platform Competition in an Age of Machine Learning*, 119 COLUM. L. REV. 1973, 1993 (2019) ("Google has challenged Amazon in shopping starts — that is, to be the starting place for online shoppers."); Jennifer Smith, *Imitating Amazon: E-Commerce Battle Bolstered by Companies Mimicking the Market Leader*, WALL ST. J. (Dec. 17, 2019, 5:41 AM), <https://www.wsj.com/articles/imitating-amazon-e-commerce-battle-bolstered-by-companies-mimicking-the-market-leader-11576578601> [<https://perma.cc/T3KR-UA2G>] (explaining how competitors of all sizes follow Amazon's lead).

## II. A MARKETPLACE OF MISPERCEPTION

This Part provides the theoretical, institutional, and empirical foundations for understanding Amazon's pricing practices. It contributes to the literature a sustained and more comprehensive behavioral account of the challenges consumers face in using Amazon's search results to find the best deal.

*A. Misperception Harms Consumers and Competition*

An estimated ninety-five percent of Amazon customers are reportedly satisfied with the results of their Amazon searches.<sup>43</sup> If immediate consumer satisfaction were the sole metric for whether to regulate, it would be difficult to argue that anything was wrong. However, consumer laws do not require consumer awareness of harm to dictate whether intervention is warranted.<sup>44</sup> If a homebuyer is paying more in interest over the life of a loan because of her race, age, or gender, the law does not require that the homebuyer be aware of the harm or unhappy with the loan in deciding whether the lender has violated the law.<sup>45</sup> Similarly, if most Amazon consumers are unknowingly paying higher prices on Amazon due to manipulation, it can be harmful to both consumers and the broader economy, even if consumers are not conscious of it.

Price-related harms can occur even in a market that is competitive in the sense that the market has many sellers. To illustrate in a simplified manner, if one seller offers a higher price than another seller for a comparable product, in theory, consumers will purchase from the lower-priced seller. That process will continue until the higher-priced seller either lowers its price, offers a more appealing product, or goes out of business.<sup>46</sup> But even if there are a large number of sellers, if consumers are unable to determine which sellers are offering the lowest prices or highest quality products, sellers will have less incentive to offer low prices and high quality.<sup>47</sup> Instead of the market pressuring

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43. GRASSO, *supra* note 23, at 14, 16 (finding that sixty-six percent of consumers "start their search for new products on Amazon" and ninety-five percent of consumers "are satisfied with the results they get").

44. Nor is consumer awareness of harm a prerequisite under antitrust. See *United States v. Microsoft Corp.*, 253 F.3d 34, 50 (D.C. Cir. 2001) (articulating the elements of Section Two of the Sherman Act).

45. See Equal Credit Opportunity Act, 15 U.S.C. § 1691(a).

46. See PHILLIP AREEDA, HERBERT HOVENKAMP & ROGER D. BLAIR, *ANTITRUST LAW: AN ANALYSIS OF ANTITRUST PRINCIPLES AND THEIR APPLICATION* 8 (2d ed. 2000) (summarizing market dynamics).

47. See, e.g., Gabaix & Laibson, *supra* note 9, at 507–09 (developing a theoretical model for shrouded prices); Ellison & Ellison, *supra* note 12, at 449 (finding empirical evidence of prices higher than the competitive level in an online market with a large number of different sellers due to sellers' ability to make it hard for buyers to understand and compare prices).

sellers to offer a competitive price, when consumers cannot easily understand or compare prices, sellers can still charge higher prices without the threat of losing customers. As a result, strategies that cause consumers to misperceive price or quality can significantly undermine the societal benefits that economic models suggest competition achieves.<sup>48</sup>

Antitrust law has limited ability to address these questions of whether consumers adequately understand prices and products.<sup>49</sup> As such, competition also depends on effective consumer laws, one of the goals of which is to allow consumers to make informed and rational decisions about prices and products. To elaborate on the consumer law side of competition, one of the central contributors to consumer misperception is complexity. A well-established principle in behavioral psychology is that the more complex the purchase — say, buying a laptop with a warranty — the more difficult it is for consumers to compare prices and products.<sup>50</sup> However, it is important to note that price and product complexity is an empirical concept rather than an intuitive one. Decisions become too complex when the mind can no longer effectively process the information, even if the decision appears straightforward to the consumer. For instance, in choosing a cell phone plan, one must consider the data usage, fees for exceeding data limits, and late payment fees, along with the base price. Oren Bar-Gill and Rebecca Stone found that, because of the complexity of weighing various options for data, minutes, and base prices, consumers chose a more expensive plan among options at a specific carrier — mistakes that cost them on average eight percent of their total wireless bill.<sup>51</sup> Again, this research lies outside of antitrust.

With that overview of economic theory and evidence, it now becomes possible to define an important concept: overcharge. Overcharge is commonly used in the antitrust context to refer to the extra amount consumers are paying above the competitive price due to a violation of antitrust law. As far as consumer laws are concerned, a competitive price is the price that would be paid with a sufficient

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48. See Gabaix & Laibson, *supra* note 9, at 507–09 (discussing shrouded prices).

49. Alan Devlin & Michael Jacobs, *The Empty Promise of Behavioral Antitrust*, 37 HARV. J.L. & PUB. POL'Y 1009, 1029, 1059 (2014). There is an argument for greater consideration of behavioral economics in antitrust, and recent antitrust lawsuits against tech platforms for self-preferencing tactics, such as one against Google, draw at least in part on behavioral economics. See Peter O'Loughlin, *Cognitive Foreclosure*, 38 GA. ST. U. L. REV. 1097, 1097 (2022) (“[W]e may be moving closer towards an antitrust world whereby firms can manipulate consumers’ psychological shortcomings to foreclose competition.”).

50. Korobkin, *supra* note 9, at 1226–27 (describing how complex decisions cause consumers to take shortcuts when comparing prices).

51. Oren Bar-Gill & Rebecca Stone, *Mobile Misperceptions*, 23 HARV. J.L. & TECH. 49, 96–97 (2009) (analyzing usage data and concluding that many could have saved money by choosing a different plan).

number of consumers making informed and rational decisions.<sup>52</sup> Perfect competition has considerable limits as an economic model, and it is never expected that markets will reach perfect competition.<sup>53</sup> Nonetheless, regulators and scholars have long analyzed competition by asking whether the law can move markets closer to perfect competition.<sup>54</sup> For present purposes, overcharge refers to the difference between the average prices consumers pay and the prices they would pay if the law enabled them to make informed decisions based on current market conditions and product offerings. For example, the eight percent more that consumers were found to have paid for cell phone plans due to complex pricing options would be overcharge.<sup>55</sup> Reducing such overcharge would not only lower consumer prices but would also increase efficiency.<sup>56</sup>

### *B. Amazon's Internal Price Strategies*

An estimated sixty-six percent of online shoppers start their search on Amazon, and many do not look elsewhere.<sup>57</sup> As such, Amazon acts as the gateway to the web for many consumers,<sup>58</sup> and Amazon's interface provides the choice setting for a large number of consumer decisions. This Section lays out the challenges consumers face in using Amazon's search results to find the best deal.

#### 1. Methodology and Prior Literature

Economic scholarship on search engines leaves little doubt that the ordering of search results can strongly influence the prices that consumers pay. But this literature typically assumes that third-party

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52. See Van Loo, *supra* note 11, at 1320. These are necessary but not sufficient conditions. The firms in the market must also, for example, not engage in anticompetitive price-setting. Additionally, although competitive prices are technically set at marginal cost, economists define them as still allowing the firm's owners a healthy return on investment. See, e.g., Ellison & Ellison, *supra* note 12 (finding returns range from 3.6 percent to 6.3 percent absent obfuscation).

53. See, e.g., JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 106 (1942) (concluding that perfect competition is impossible).

54. Neil W. Averitt, *The Role of the FTC in American Society*, 39 OKLA. L. REV. 39, 50 (1986) (arguing that the FTC Act exists to prevent unfair competition and ensure that consumers can choose among a range of options "unconstrained by deception or coercion").

55. Bar-Gill & Stone, *supra* note 51, at 96.

56. See *id.* On the great influence of efficiency on policymaking, see Jedediah Britton-Purdy, David Singh Grewal, Amy Kapczynski & K. Sabeel Rahman, *Building A Law-and-Political-Economy Framework: Beyond the Twentieth-Century Synthesis*, 129 YALE L.J. 1784, 1790–91 (2020).

57. See GRASSO, *supra* note 23, at 14, 16.

58. See DIGIT. COMPETITION EXPERT PANEL, UNLOCKING DIGITAL COMPETITION 30 (2019) ("Regardless of the view on dominance over a particular defined market, it is clear that for thousands of smaller independent online sellers in particular, Amazon's marketplace is a strategically important gateway to consumers.").

sellers are the ones with strong incentives to raise prices, while assuming that search engines or platforms seek to promote price transparency.<sup>59</sup> Perhaps the leading recent study demonstrating the capacity of search results to influence prices, in discussing platforms “such as eBay or Amazon,” asserted the following: “For the most part, these platforms want to limit search frictions and provide consumers with transparent and low prices.”<sup>60</sup> There is also recent evidence that a substantial portion of customers trust Amazon’s search algorithm to objectively seek to provide the best choice for the consumer, at least beyond the advertisements.<sup>61</sup> If that is true, one contributor to this may be that people tend to have greater faith in machines than they do in humans to produce objective and helpful advice, a phenomenon often referred to as “automation bias.”<sup>62</sup> Thus, since companies have a well-documented ability to influence consumers’ decisions through search results, and because many consumers will presumably not review search results with a skeptical eye, it is particularly important to understand how Amazon structures its search results.

To illuminate these important practices, we draw on existing research and present the key findings from our study based on a sample of one hundred unique search results, containing roughly 4,800 products sold on Amazon.com. Each Amazon search was coded to identify, among other things, the deals offered at the top of the first page of search results and to compare those to the deals offered further down the page. Through this dataset, we explored four main avenues by which Amazon could be manipulating consumers’ purchasing decisions through its search results: burying, complexifying, anchoring, and self-preferencing. We only report results below at the conventional five percent level of statistical significance. Further details about our

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59. See, e.g., Dinerstein et al., *supra* note 15, at 1821 (“Sellers on these platforms may have very different incentives.”); Ellison & Ellison, *supra* note 12, at 438 (studying how third-party sellers engage in price obfuscation to raise prices without asking whether the search engines themselves actively promote obfuscation).

60. Dinerstein et al., *supra* note 15, at 1821. There is an extensive literature on this point that the discussion below integrates, of which the Dinerstein paper is one prominent example. See *id.* at 1820–23 (“The platform design, the process that helps potential buyers on the internet navigate toward products they may purchase, plays a critical role in . . . determining market outcomes.”).

61. See, e.g., GRASSO, *supra* note 23, at 16 (finding that most regular Amazon customers purchase the first item returned); Survey: *The Ever-Growing Power of Reviews* (2023 Edition), POWER REVIEWS, <https://www.powerreviews.com/research/power-of-reviews-2023> [<https://perma.cc/KZA8-KD49>] (surveying 9,000 consumers and finding that 49% reported trusting product sites’ search engines).

62. Linda J. Skitka, Kathleen L. Mosier & Mark Burdick, *Does Automation Bias Decision-Making?*, 51 INT’L J. HUM.-COMPUT. STUD. 991, 1002 (1999) (showing in an experiment that participants’ excess faith in automation can lead to worse outcomes for the participants); Nizan Geslevich Packin, *Consumer Finance and AI: The Death of Second Opinions?*, 22 N.Y.U. J. LEGIS. & PUB. POL’Y 319, 346 (2020) (describing how “society increasingly relies on algorithms as experts and places great faith in them”).



methodology are provided below in the discussion of results, as well as in the Appendix.

To elaborate on our contribution to the literature, we are unaware of any prior study examining whether Amazon systematically buries the best deals in the search results, and quantifying the potential impact. The two main relevant areas of prior research about Amazon examined narrower and different dimensions of Amazon's marketplace. First, researchers at ProPublica analyzed Amazon's default selection for which seller fulfills a transaction once the consumer clicks on the "buy" button. They showed that by not always giving consumers the cheapest default shipping option, Amazon may significantly increase the prices that consumers pay.<sup>63</sup> However, that step is not relevant to the many Amazon searches and purchases that do not involve payment of shipping costs, whether because they surpass the minimum threshold for free shipping or because the consumer is an Amazon Prime member.<sup>64</sup> Also, because ProPublica's findings relating to shipping cost obfuscation examine what happens after a certain item is chosen, they do not speak to the burying of deals within the initial search results. To the extent that Amazon is still engaging in shipping cost obfuscation practices, our findings should be seen as an additional layer of price complexity beyond what prior research has shown.

The other main relevant prior area of research showed that Amazon gives preference to its own products in search results.<sup>65</sup> But those studies have not revealed how self-preferencing has the potential to cause consumers to pay more compared to the best deals available.<sup>66</sup> From a consumer protection standpoint, that is an important omission. We provide some data on those price comparisons between Amazon's own brands and other options. More broadly, we study whether

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63. See Julia Angwin & Surya Mattu, *Amazon Says It Puts Customers First. But Its Pricing Algorithm Doesn't*, ProPublica (Sept. 20, 2016, 8:00 AM), <https://www.propublica.org/article/amazon-says-it-puts-customers-first-but-its-pricing-algorithm-doesnt> [https://perma.cc/7W72-982D] (analyzing 250 items and showing that once consumers have decided to purchase a specific item, the default fulfillment option chosen by Amazon would be on average 20% more expensive than the cheapest alternative once shipping costs are added).

64. Amazon Prime is Amazon's paid membership program. See *About Amazon Prime*, AMAZON, <https://www.amazon.com/gp/help/customer/display.html?nodeId=201910360> [https://perma.cc/EZ8U-Y7HZ] (detailing Prime membership benefits).

65. Adrienne Jeffries & Leon Yin, *Amazon Puts Its Own "Brands" First Above Better-Rated Products*, THE MARKUP (Oct. 14, 2021, 8:00 AM), <https://themarkup.org/amazons-advantage/2021/10/14/amazon-puts-its-own-brands-first-above-better-rated-products> [https://perma.cc/376R-XBKU] (finding that Amazon systematically puts its own products at the top of search results, but without looking at the price impact of that practice); Chiara Farronato, Andrey Fradkin & Alexander MacKay, *Self-Preferencing at Amazon: Evidence from Search Rankings 2*, (Nat'l Bureau of Econ. Research, Working Paper No. 30894, 2023), <https://www.nber.org/papers/w30894> (finding that Amazon branded products are ranked higher than observably similar products in the search results).

66. Farronato et al. find that Amazon brands are lower in price compared to the average product in a search, but do not compare those prices to the best deals in a search. *Id.* at 4.

Amazon buries products even beyond merely promoting its own products, and the price and quality effects of this practice on the deals offered to consumers. In short, the empirical literature has yet to speak to the core questions that have animated behavioral law and economics scholars in other areas: Beyond shipping, to what extent does Amazon push people to pay more, and get worse deals, than if they had made another choice?

Three caveats are in order before turning to those results. First, showing that some Amazon behavior contributes to price misperception does not necessarily mean that the specific behavior merits any regulation. Some practices are either individually too innocuous, or too hard to address, to warrant intervention targeted at that practice. They instead might only be possible to address indirectly in ways that improve all consumer decisions, such as by ensuring that consumers have access to independent digital shopping helpers. Whether and how to regulate these practices is a separate question discussed in Part III.<sup>67</sup> Second, because Amazon has no duty to disclose such information, many specifics are unknown, such as why its search and pricing algorithms produce the results that they do. Finally, the highly personalized nature of Amazon's search results means that any one researcher's search results may not be representative of other customers' experiences.<sup>68</sup>

These limitations may help explain why the extensive legal literature on platform regulation and behavioral economics has been slow to contribute empirical research about how search results influence prices paid by consumers. Studies in fields outside the law have produced valuable insights into platform behavior by analyzing search result outputs,<sup>69</sup> but each of the possible methodologies one might adopt to study search result outputs has limitations.<sup>70</sup> We chose our methodology to complement the existing studies of search results from other fields, which have heavily relied on tools such as software extraction of data.<sup>71</sup> In the context of Amazon's pricing, illuminating many of the key dynamics that would most interest legal scholars requires a human assessment of each search result. Indeed, we use one

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67. See *infra* Part III.

68. See *infra* Section II.B.5.

69. See, e.g., Amit Datta, Anupam Datta, Jael Makagon, Deirdre K. Mulligan & Michael Carl Tschantz, *Discrimination in Online Advertising: A Multidisciplinary Inquiry*, PROC. MACH. LEARNING RSCH., Feb. 2018, at 1, 3 (exploring potential causes of racial discrimination in job advertisements shown in Google results). For more qualitative approaches to studying online platforms and search results, see, for example, Min Jiang, *Search Concentration, Bias and Parochialism: A Comparative Study of Google, Baidu, and Jike's Search Results from China*, 64 J. COMM'C'N 1088, 1100–01 (2014) (using qualitative methods to compare bias in results from different search engines in China).

70. These are discussed in greater depth below. See *infra* Section II.B.3 (observing how software programs face limits in identifying the best deal).

71. See, e.g., Angwin & Mattu, *supra* note 63 (relying on software to scrape search results).

of the empirical tools legal scholars use most widely in analyzing judicial decisions — hand-coding of institutional outputs — to examine platform search results.<sup>72</sup> This Article thus makes a modest methodological contribution to the legal literature on technology platforms and responds to the growing calls for methodological pluralism to study complex legal topics.<sup>73</sup>

To be clear, there are significant limitations to what we can infer from our study, and the meaning we can attribute to Amazon’s pricing practices in terms of harm to consumers and competition. As our dataset does not include data on which items consumers eventually purchase from Amazon, we cannot say how consumers respond to the tactics that we study. Additionally, we cannot rule out the possibility that Amazon is presenting its search results based on criteria that consumers value beyond price and ratings.<sup>74</sup> To answer these questions definitively, one would need access to Amazon’s internal data.

Nonetheless, our results challenge the widespread accounts that link Amazon to low prices without considering how Amazon charges higher prices by exploiting and strategically encouraging consumer misperception.<sup>75</sup> They also indicate an important set of further studies necessary to better understand Amazon’s prices. Although no single model can perfectly capture the purchasing behavior of every consumer, our methodology was informed by industry data on how a significant portion of Amazon customers shop.<sup>76</sup> In particular, our focus on product price is supported by survey data showing that eighty-two percent of Amazon shoppers view price as “a very important factor when selecting a product.”<sup>77</sup> Furthermore, since about eight of every

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72. Legal scholars often hand-code legal decisions to produce descriptive statistics about judicial decisions. See, e.g., Richard M. Re, *Beyond the Marks Rule*, 132 HARV. L. REV. 1943, 1954 n.88 (2019) (“Cases were coded by me and by the research assistants noted in the star note.”).

73. On the importance of methodological pluralism, see, for example, David S. Law & Mila Versteeg, *The Evolution and Ideology of Global Constitutionalism*, 99 CAL. L. REV. 1163, 1248 (2011) (“Constitutionalism is a multifaceted phenomenon that calls for a variety of scholarly approaches, ranging from statistical analysis of the content of formal constitutions at one end to sociological observation of how government officials behave on an everyday basis. Methodological pluralism is healthy for any academic discipline . . .”); Gregory Mitchell, *Why Law and Economics’ Perfect Rationality Should Not Be Traded for Behavioral Law and Economics’ Equal Incompetence*, 91 GEO. L.J. 67, 128 (2002) (calling for “the embrace of methodological pluralism and a reorientation in the conception of behavioral causes to better appreciate person-by-situation-by-decision task interactions”).

74. See generally Elizabeth C. Hirschman & Morris B. Holbrook, *Hedonic Consumption: Emerging Concepts, Methods and Propositions*, 46 J. MKTG. 92 (1982) (distinguishing between extrinsic, utilitarian consumption values like price, and intrinsic, hedonic values like shopping experience).

75. See sources cited *supra* note 4.

76. See *infra* notes 80 to 83 and accompanying text.

77. Greg Magana, *Amazon Rules the Product Search Process*, BUS. INSIDER (Mar. 20, 2019, 9:13 AM), <https://www.businessinsider.com/online-shoppers-rely-heavily-on-amazon-2019-3> [https://perma.cc/N8NB-5LQD].

ten people in the United States shop at Amazon,<sup>78</sup> it is reasonable to assume that many Amazon customers live on tight household budgets.

The next step in acquiring a deeper empirical understanding would be to collect nonpublic information about Amazon's pricing practices. To take that step, the FTC would only need a "reason to believe" that Amazon has material information that is relevant to unfair or deceptive acts.<sup>79</sup> Thus, one way to view the meaning of our findings is by asking whether they indicate a reason to believe that the Amazon marketplace is manipulating consumers through its search results, specifically through burying, complexifying, anchoring, and self-preferencing.

## 2. Burying

To explore burying, we first looked at how consumers would fare if they chose the first item in the search result, as about half of all Amazon shoppers do.<sup>80</sup> We compared the first relevant item to the item that was the best deal on the first page, defined as the item with at least as good ratings and the lowest price.<sup>81</sup> Customers willing to scan all items on the first page of results for the best deal would have saved an average of twenty-nine percent over the first relevant item, factoring in unit price when applicable.<sup>82</sup> That best deal was at the seventeenth slot on average (corresponding to the fifth or sixth line of the search results on a desktop computer screen).

Of course, these findings do not speak to the choices made by those consumers who decide to compare the first few items in the search results. To reflect that reality, we examined how a consumer who compared the first four items in the search results (the "headline") would have fared. We chose the first four items because they are the entire top line of results on a typical computer screen, and because research reveals that the first three results account for an estimated sixty-four percent of Amazon clicks.<sup>83</sup> Consumers choosing the best deal in the headline would fare better than those simply choosing the

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78. See GRASSO, *supra* note 23, at 15.

79. See, e.g., 15 U.S.C. § 57(b)(1)(c) (establishing a "reason to believe" standard for requesting information relating to unfair and deceptive acts).

80. GRASSO, *supra* note 23, at 16.

81. For our expanded methodology for finding the "best" deal, see Appendix. This comparison is based on  $n = 95$  searches for which the first four headline results included at least one relevant item.

82. Note that these figures are a floor for savings from searching the first page, since they only represent the best deal on the first page, which was about forty-eight items. Yet sixty-one percent of searches returned over one hundred items, and twenty-one percent of searches returned over five hundred items. It is possible that greater savings can be found by searching beyond the first page which, if true, would only strengthen our findings.

83. See Loren Baker, *Amazon's Search Engine Ranking Algorithm: What Marketers Need to Know*, SEARCH ENGINE J. (Aug. 14, 2018), <https://www.searchenginejournal.com/amazon-search-engine-ranking-algorithm-explained/265173/> [<https://perma.cc/6CDG-3CEN>].

first relevant item, but they would still pay an average of twenty-five percent more than if they had instead looked for the best deal on the first page, beyond the headline.<sup>84</sup> Although we factored in unit prices to locate the best deal, similar savings were found in searches for which unit prices were not relevant, meaning that the savings we found are not simply due to bulk-buying or volume discount effects.<sup>85</sup>

Since the first listed items are increasingly third-party “sponsored” ads, we also considered what would happen if the consumer ignored the ads and instead purchased the first relevant non-ad item, i.e., the first relevant item in the “organic search results.”<sup>86</sup> Consumers who went to the first relevant non-ad item would pay less than those who chose the first item, but would still pay an average of twenty-four percent more than the best deal on the first page of results. We also examined how a consumer comparing the first four non-ad results would have fared. Consumers choosing the best deal among the first four non-ad results would pay less than those choosing among the first four results (including ads), or indeed the first ad or non-ad result (if different). But they would still pay an average of twenty percent more than if they looked for the best deal on the entire first page.

Overall, these findings suggest that consumers could save considerably by ignoring Amazon’s top results and instead scrolling lower into the results and, when necessary, calculating unit prices. Moreover, those savings do not need to come at the expense of lower quality or customer satisfaction, as we controlled for ratings.<sup>87</sup>

To reiterate, there are limitations to the inferences we can draw from our results. We cannot know, for instance, whether consumers are in fact recognizing the first item returned as a bad deal when it is, and not purchasing it. Nor can we determine whether Amazon is ranking search results based on other nonprice factors that consumers value but that are not reflected in the ratings. Also, third parties have some influence on where they land in the search results, most directly because they can pay for a sponsored slot, including paying more for a higher position — although Amazon can still reserve the top slot for its own

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84. This disparity is not explained by differences in shipping speed or cost. Indeed, the standard shipping time for the best headline deal in our dataset was on average the same as the standard shipping time for the best overall deal (where not in the headline): four to five days.

85. On searches that did not involve items sold in multiple units, savings were twenty-six percent by selecting the best overall deal compared to the best headline deal, compared to twenty-five percent for all searches.

86. See GRASSO, *supra* note 23, at 16.

87. Indeed, the best deal still had an average rating of 4.6 out of five stars (for the deal comparison with ads), and 4.7 out of five stars (for the non-ad deal comparison), which for all searches was as high or higher than the best deal in the top few items. For more details, see Appendix (describing how we controlled for product quality).

products.<sup>88</sup> In reality, however, this influence is limited. Amazon's overall control of the search architecture means that sellers are effectively forced to choose between paying to be at the top — which would lower their profit margins or require them to raise prices — or being buried in the results, even if they offer the best deal.

At a minimum, our findings suggest that Amazon's search algorithms make it more difficult for some budget-conscious consumers to find what they would view as the most attractive deal. This would mean that the subset of budget-conscious consumers who do not have the time or financial literacy to compare prices on the first page of results, or who simply trust Amazon's algorithms, would not get the best price. The subset of consumers that are able and willing to compare prices would pay in the form of time. Thus, regardless of the actual item chosen, budget-conscious consumers would pay for burying with either time or money. As we show next, the complexity of the search results exacerbates this problem, by increasing the time it takes consumers to move through the results.

### 3. Complexifying

In terms of complexity of the decision setting, it is worth emphasizing that several factors make it more difficult for consumers to compare search results. As a threshold example, there are many irrelevant results, such as AAA batteries returned in searches for AA batteries.<sup>89</sup> The prevalence of irrelevant results, and other contributors to complexity mentioned below, explain why we opted to use human coding rather than computer coding to study Amazon's search results. Complexity, including due to product heterogeneity, means that the consumer cannot simply scan prices to find the best deal among the forty-eight results on the first page, but must also weigh many other factors that collectively require additional time and analysis.

One of the best-known sources of complexity in the behavioral economics literature is add-on costs, or fees that come later.<sup>90</sup> The past couple of decades have brought an explosion of these strategies, in which businesses shift the costs of items to less visible aspects of the purchase — such as expensive parking rates in a hotel stay, high penalties for checking baggage when flying, or data fees for cell phones.<sup>91</sup> Thus, although it may strike many people as counterintuitive

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88. See, e.g., Jeffries & Yin, *supra* note 65 (finding “that Amazon places products from its house brands and products exclusive to the site ahead of those from competitors”).

89. Incorrect results have long been the subject of speculation among Amazon customers. See, e.g., *Why Does Amazon's Product Search Return Such Bad Results?*, QUORA, <https://www.quora.com/why-does-Amazons-product-search-return-such-bad-results> [<https://perma.cc/EB7Z-MNJ9>].

90. See Ellison & Ellison, *supra* note 12, at 427.

91. See *id.* (describing add-on pricing as a “profit-enhancing obfuscation strategy”).

that a seller would want to make it harder for the consumer to find the seller's most attractive offering, ample legal and economic scholarship has documented how sellers gain from strategically making it more difficult for consumers to find the best deal.<sup>92</sup>

Amazon benefits from add-on fees and other sources of complexity in various ways. As discussed earlier, shipping obfuscation is the main dimension of Amazon's pricing practices that has been directly studied in a manner closest to our study.<sup>93</sup> However, Prime members are mostly spared from this particular source of complexity because they do not pay more for shipping.<sup>94</sup> Nonetheless, it is also possible that many Prime members are paying far more than necessary. This concern is not relevant for those who purchase Prime to access streaming or other perks. However, for those who purchase Prime expecting to save money on shipping, it would be necessary to understand the costs of paying for that shipping separately. Shipping is free for orders over \$25, even without Prime.<sup>95</sup> Thus, among a consumer's total purchases, only orders under \$25 are relevant for assessing the true cost of Prime membership, again if the member's sole goal in signing up for Prime is to save money on shipping. On that basis, the most accurate way to calculate the cost of membership would be to spread the \$180 (before tax) annual Prime membership fee only across the subsequent purchases for which the consumer would have paid more for shipping.<sup>96</sup> If part of the appeal of Prime is faster shipping, then the member should also count those orders for which Prime brings faster shipping *and* the member would have been willing to pay for the day or two of time saved.

By way of illustration, consider how Prime members spend an average of \$1,400 annually.<sup>97</sup> As a hypothetical, imagine that Prime makes a difference to shipping for only half of a customer's \$1,400 Amazon expenditures — that is, the customer would pay extra for faster shipping or the purchase is under \$25 — then the Prime surcharge would amount to twenty-six percent of the price of those items, again

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92. See *supra* Section II.A (summarizing the behavioral economics literature). Oren Bar-Gill has most thoroughly developed the theory and empirics of how sellers strategically use complexity to charge higher prices. See BAR-GILL, *supra* note 11, at 124.

93. See Angwin & Mattu, *supra*, note 63.

94. *Supra* Section II.B.1.

95. See Alberto Cavallo, *More Amazon Effects: Online Competition and Pricing Behaviors* 16 (Nat'l Bureau of Econ. Rsch., Working Paper No. 25138, 2018).

96. More broadly, for calculation purposes, benefits include whatever perks the customer would have paid for, such as "free" videos.

97. Daniela Coppola, *Average Monthly Spending of Prime Members on Amazon in the U.S. 2021*, by Range, STATISTA (Nov. 5, 2021), <https://www.statista.com/statistics/1274279/monthly-spending-on-prime-amazon-users-united-states> [<https://perma.cc/GUF6-ZM4Z>].

only for those purchasing Prime solely for shipping.<sup>98</sup> Presumably, many budget-conscious Prime consumers are not undertaking such calculations, and consequently do not realize how much they are actually paying for their Prime membership's "FREE Two-Day Shipping."<sup>99</sup>

Beyond shipping, little if any empirical attention has been paid to the role of comparing unit prices in search results. Amazon makes it more cumbersome for consumers to compare unit prices by not ensuring that unit prices accompany all relevant items and by not providing a way for consumers to filter by unit price. Sixty-two percent of the searches in our study, based on the headline four items, included at least one item sold in multiple units or containers with different volumes, and thus the consumer needed to know the unit price to comparison shop. Yet, forty-seven percent of these searches were missing unit prices for at least one item for which they were relevant.<sup>100</sup> This data suggests that unit prices are not uniformly listed in a large number of searches in which unit prices are necessary to locate the best deal.

Amazon also offers subscriptions as another pricing option for many regularly consumed items, from coffee to paper towels. These "Subscribe & Save" prices are listed in search results and product pages, labeled often as a "5% / 15%" discount.<sup>101</sup> This option may be a useful service for many consumers. But determining whether to sign up requires the consumer to make a difficult and speculative prediction about whether the advertised savings will continue to provide the best deal in the future, how much of the product the consumer will use, and whether the consumer trusts herself to stay vigilant about checking those subscription prices, which may continually change. Subscription options thus add another layer of decision-making complexity. Moreover, upon clicking on an item, the purchase defaults to the subscription option when it is available, meaning that the consumer must proactively opt out of subscribing. That default leverages

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98. Calculated as \$180 Prime membership divided by one-half of the \$1,400 average expenditures,  $180/(1,400/2) = 0.257$ . Under this assumption, the amount could be lower as the amount of shipping paid on the other half of purchases must be subtracted from the Prime membership fee first. To determine whether Prime is worth that surcharge, it would then be necessary to calculate how much the customer would have otherwise paid for accelerated or normal shipping on such items.

99. See *supra* note 64 (detailing Prime membership benefits).

100.  $n = 29$ , of sixty-two searches for which unit pricing was relevant. In total, for searches needing unit prices to adequately compare, forty percent of the items produced by those searches did not list the unit price ( $n = 69$ , of 171 items matching the search term for which the unit price is relevant).

101. Screenshot on file with authors.



behavioral economics insights showing that default settings heavily influence consumer behavior.<sup>102</sup>

Finally, Amazon offers many different categories of items and labels that the consumer must sort through. These include the “Limited time deal,” “Amazon’s Choice,” “Best Seller,” and “Climate Pledge Friendly” labels.<sup>103</sup> Amazon also subcategorizes results under headings such as “Highly Rated,” “Highly Rated With a Low Unit Price,” “Top Rated From Our Brands,” and “Editorial Picks.”<sup>104</sup> While some of these labels and categories may guide the consumer toward better deals, at least sometimes they do not.<sup>105</sup> Rather, these labels could augment misperception by consumers. For instance, the “Best Seller” label may imply that many consumers have closely scrutinized alternative options before purchasing that item, while in fact the high volume of sales could instead be due to Amazon burying the best deals. The “Best Seller” label could thereby communicate unwarranted price and product legitimacy.

As behavioral psychologists and behavioral economists have documented extensively, cognitive overload pushes consumers to rely on mental shortcuts and make irrational decisions.<sup>106</sup> Since Amazon’s labels add additional factors to consider, they may contribute to overloading the consumer with so much information that they are more likely to misperceive the price and make a suboptimal purchase.<sup>107</sup>

Advertisements add more information and complexity for consumers when comparing search results. In recent years, Amazon has shifted increasingly toward integrating ads into search results, not only at the top but intermittently throughout the search results.<sup>108</sup> This includes ads for third-party brands (“sponsored” items) as well as Amazon’s private-label brands.<sup>109</sup> Note that the labels mentioned above, which Amazon wants the customer to see — such as “Amazon’s Choice” — appear prominently in the search results, in bold colors at the top of each product box. In contrast, the “sponsored,” “featured from our brands,” and “Amazon brand” labels appear in the middle of

102. Lauren Willis, *When Nudges Fail: Slippery Defaults*, 80 U. CHI. L. REV. 1155, 1171 (2013) (“Given the power of defaults to attract business, controlling the default can be extremely valuable.”).

103. Screenshots on file with authors.

104. For a discussion of the Amazon’s Choice label, see, for example, Louise Matsakis, *What Does It Mean When a Product Is ‘Amazon’s Choice’?*, WIRED (June 4, 2019, 11:39 AM), <https://www.wired.com/story/what-does-amazons-choice-mean> [<https://perma.cc/GEV6-HKZV>].

105. *See id.*

106. *See supra* Section II.A.

107. OMRI BEN-SHAHAR & CARL E. SCHNEIDER, MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE 9–11 (2014) (describing how one website’s disclosures overloaded readers with so much information that nobody noticed a hidden offer for \$100 to anyone who spotted it).

108. *See* Jeffries & Yin, *supra* note 65.

109. *See infra* Section II.B.5.

the product box and in a much less conspicuous, faint gray label.<sup>110</sup> These easily overlooked labels are nevertheless an improvement over Amazon's prior practice of not always disclosing which products in the search results were sponsored.<sup>111</sup>

More research is needed to determine whether Amazon's search results hinder consumer decision-making due to strategically exaggerated complexity. Future study is also warranted of how much customers are paying after subscribing compared to other available options. Our main argument is that, based on what has been shown in the behavioral economics literature, Amazon's choice architecture complexity would be expected to make it harder and more time-consuming for consumers to compare search results. Furthermore, those effects would compound the potential harm to consumers from our findings about the order of search results, if information overload makes it less likely that consumers will find the best deals buried deep in the search results.

#### 4. Anchoring

Anchoring refers to how context heavily influences the human mind. Various studies have shown that the initial information provided — known as the anchor or reference point — alters consumers' subsequent judgments and can cause many consumers to think that they are getting a low price when they are not.<sup>112</sup> A common price anchoring technique used by retailers — in both brick-and-mortar and online shops — is to display a crossed out “MSRP” or “list price” next to the current, cheaper price.<sup>113</sup>

Amazon search results often deploy anchoring. Above the actual price, Amazon often puts a crossed-out list price, from which the item was allegedly discounted. For example, Amazon lists a Cuisinart bread

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110. Note, these observations are accurate at the time of data collection but, given the dynamic nature of Amazon's pricing and labelling practices, are liable to change.

111. This prior practice was the subject of an FTC enforcement action. See STRATEGIC ORG. CTR., COMPLAINT TO THE FEDERAL TRADE COMMISSION AGAINST AMAZON FOR UNLAWFUL DECEPTION UNDER SECTION 5 OF THE FEDERAL TRADE COMMISSION ACT (2021), [https://thesoc.org/wp-content/uploads/2021/12/SOC-FTC-AMZ-Advertising-Complaint\\_2021\\_12\\_08.pdf](https://thesoc.org/wp-content/uploads/2021/12/SOC-FTC-AMZ-Advertising-Complaint_2021_12_08.pdf) [<https://perma.cc/4HJN-8BNL>] (alleging Amazon violated Section 5 of the FTC Act for failing to “disclose which of its search engine results are paid advertisements rather than ‘organic’ search results”).

112. Tversky & Kahneman, *supra* note 9, at 1128; DANIEL KAHNEMAN, THINKING, FAST AND SLOW 123–24 (2013); Fritz Strack & Thomas Mussweiler, *Explaining the Enigmatic Anchoring Effect: Mechanisms of Selective Accessibility*, 73 J. PERSONALITY & SOC. PSYCH. 437, 440 (1997).

113. See DAN ARIELY & JEFF KREISLER, DOLLARS AND SENSE: HOW WE MISTHINK MONEY AND HOW TO SPEND SMARTER 100–01 (2018).

maker with a sale price of \$108 but indicates that its “original” list price was \$185.<sup>114</sup>

Our study revealed that sixty-five percent of search results contained at least one item with a crossed-out list price in the first four headline items. Among the relevant headline items that contained such crossed-out list prices, the reference price represented on average a twenty-three percent markdown on the crossed-out list price.<sup>115</sup>

However, consumers picking the items with the largest apparent discount in the headline in our data set would have paid on average thirty-one percent more than the best deal. In other words, a hypothetical naïve consumer always buying the most “discounted” item in the headline would think they were saving on average twenty-three percent but would actually be paying thirty-one percent more than the best deal.<sup>116</sup>

## 5. Personalized Pricing and Self-Preferencing

Another potential misperception strategy is self-preferencing of Amazon’s own brand items. Prior research has shown that Amazon favors its own brands by systematically putting them at the top of search results.<sup>117</sup> Antitrust scholars have criticized Amazon’s self-preferencing as anticompetitive,<sup>118</sup> and bipartisan bills have been proposed in Congress to address this problem.<sup>119</sup> However, our study found that only five percent of relevant items at the top of the search results in our dataset were Amazon brands. It is possible that Amazon scaled back this form of self-preferencing in light of the scrutiny.

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114. See AMAZON, <http://www.amazon.com> [hereinafter *Amazon Search*] (searching for “Cuisinart Bread Maker, Up To 2lb Loaf, New Compact Automatic”) (last visited Oct. 23, 2023) (screenshot on file with the authors).

115. Thirty-six percent of relevant items (n = 108 of 299) contained crossed-out list prices.

116. Although it is difficult to verify the veracity of Amazon’s crossed-out list prices, and thus their suggested discounts, it is worth noting that Amazon paid a fine of two million dollars for anchoring consumers with inflated list prices in a recent state attorney general enforcement action. See Final Judgment Pursuant to Stipulation at 4–5, *People v. Amazon.com, Inc.*, No. 37-2021-00011984 (Super. Ct. Cal. Mar. 24, 2021), <https://www.courthousenews.com/wp-content/uploads/2021/03/Amazon-Judgment.pdf> [perma.cc/4WZW-PH58].

117. See Jeffries & Yin, *supra* note 65. This refers to products explicitly identified as an Amazon brand, for example, “Amazon Basics” or “Amazon Brand - Solimo.” Amazon has several private label brands. These were originally listed without signaling that they were Amazon brands. However, after criticism, Amazon seems to have moved toward labeling at least some of its own brands as such (screenshot on file with the authors). Cf. Reiley Pankratz, *Duty to Disclose: Amazon’s E-Commerce Platform, Private-Label, and the Need for Disclosure*, 30 KAN. J.L. & PUB. POL’Y 162, 162–63 (2020) (criticizing the lack of disclosures for brands like Solimo).

118. See Lina M. Khan, *The Separation of Platforms and Commerce*, 119 COLUM. L. REV. 973, 985–96 (2019) (summarizing the literature).

119. MAJORITY STAFF OF SUBCOMM. ON ANTITRUST, COM. & ADMIN. L. OF THE S. COMM. ON THE JUDICIARY, 116TH CONG., INVESTIGATION OF COMPETITION IN DIGITAL MARKETS 7–8 (2020).

One final lever strengthens Amazon's ability to use its internal search engine to charge more, while limiting the risk of customer flight. Amazon has collected troves of data from consumers' direct use of its online marketplace. As a result, it knows a great deal about its customers' preferences and behaviors — including a given customer's susceptibility to anchoring or burying — and can thereby personalize the results it provides, and prices it offers, to maximize profits. For instance, when consumers search or visit a product page, Amazon collects extensive data on their behavior — including where a consumer's mouse hovers.<sup>120</sup> It also knows when consumers are returning to an item's product page over time, which suggests a greater likelihood of purchasing that item.<sup>121</sup> Indeed, Amazon has sufficiently rich internal data on each customer to predict when customers may be searching on its website and then purchasing elsewhere.<sup>122</sup> We did not study these mechanisms directly, and attempted to control for them, but they merit further investigation.<sup>123</sup>

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Notwithstanding limitations, our findings suggest that Amazon's search results may be anticompetitive in the sense of manipulating consumers away from the informed and rational decisions that are important for competition to thrive. To locate the buried best deal on the first page, consumers must compare approximately fifty items returned on the first page alone, often with further prices in each item page for each of many product size and color permutations as well as for “Subscribe & Save” and crossed-out “discounted” list prices. Consumers may need to make multiple calculations to uncover the true unit price, determine how much of their Prime membership is applied to a given purchase, and estimate the lifetime costs of a product with add-on purchases.

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120. See Nick Bravo, *Amazon Private Labels Threaten Manufacturers*, TRENDSOURCE (July 5, 2016, 8:00 AM), <http://trustedinsight.trendsource.com/trusted-insight-trends/amazon-private-labels-threaten-manufacturers> [<http://perma.cc/HSB9-RPUU>] (describing how Amazon is “capitalizing on their enormous troves of data concerning consumer purchasing habits”); *Privacy Notice*, AMAZON.COM (Aug. 11, 2023), <https://www.amazon.com/gp/help/customer/display.html?nodeId=GX7NJQ4ZB8MHFRNJ> [<https://perma.cc/B7TL-G9AK>] (stating that Amazon.com collects and analyzes page interaction information such as mouseovers).

121. See AMAZON.COM, *supra* note 120 (describing how Amazon.com collects data on URL clickstreams; content searches; length of visits on webpages; and other page interaction information).

122. Retailers generally have considerable access to information that can be used to tailor prices. See generally Bar-Gill, *supra* note 37, at 218–19 (2019) (describing the extensive data available to firms for price discrimination).

123. See Appendix.

Again, our empirical research based on Amazon search results should be viewed within the large body of influential economic theory and evidence suggesting that the profit-maximizing move for companies is to engage in behavioral price manipulation, including through anchoring and burying.<sup>124</sup> For example, it would be unsurprising for a machine learning search algorithm programmed to maximize profits to come to the conclusion that burying the best deals was optimal.<sup>125</sup> Amazon's search result rankings are driven by an experimental process designed to test how consumers respond to various configurations.<sup>126</sup> Its algorithms regularly adjust prices and rankings based on various factors, including competitors' offerings and prior consumer behavior.<sup>127</sup> By some accounts, Amazon adjusts prices millions of times per day.<sup>128</sup> Not only can these changes help to identify opportunities to manipulate consumers and maximize Amazon's profits, but they also mean that the consumer cannot assume that the (potentially time-intensive) price comparison undertaken for a given purchase will still be valid the next time.

Thus, our results suggest that the time, complexity, and psychological pressure required to make effective decisions within Amazon may be greater than commonly assumed. Given these barriers to finding the best deal, it is understandable that many consumers simply go with the top result — or decide quickly after scanning a few options.<sup>129</sup> In light of past empirical studies of other companies, Amazon's tactics would be expected to cause its customers to pay higher prices.<sup>130</sup> We thus believe that there is a sufficient "reason to believe" that Amazon has material information relevant to unfair or deceptive acts in its search results for the FTC and attorneys general to

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124. Business scholars and consultants have repeatedly concluded that behavioral pricing practices can increase profits, and that practices that raise prices are an inevitable, logical part of doing business. *See, e.g.*, Gabaix & Laibson, *supra* note 9, at 531 (explaining why firms would place themselves at a disadvantage if they did not shroud prices and how firms receive lower profits when they interact with informed consumers); Ryan Hamilton & Alexander Chernev, *Low Prices Are Just the Beginning: Price Image in Retail Management*, 77 J. MKTG. 1, 4, 8–9 (2013) (reviewing business and economic literature on behavioral pricing); *supra* Section II.A.

125. *Cf.* Van Loo, *supra* note 11, at 1336–47 (summarizing the algorithmic pricing practices of retailers).

126. *See* Brian Wallheimer, *Are You Ready for Personalized Pricing?*, CHI. BOOTH REV. (Feb. 26, 2018) <https://www.chicagobooth.edu/review/are-you-ready-personalized-pricing> [<https://perma.cc/EFJ7-XQYN>].

127. *See* Bravo, *supra* note 120, and accompanying text.

128. *See* Haley Peterson, *Amazon Changed the Price of an Item 8 Times in a Single Day*, BUS. INSIDER (Aug. 1, 2014) <https://www.businessinsider.com/amazon-price-tracking-2014-8> [<https://perma.cc/62EQ-LV58>].

129. *See* GRASSO, *supra* note 23, at 16.

130. *See supra* note 11 (providing examples of research concluding that consumers pay higher prices).

be able to collect nonpublic data about actual Amazon purchases, in order to assess the issue more rigorously.<sup>131</sup>

### C. Comparing Amazon's Prices to Competitors

In theory, the first step in shopping is to decide which retailer to use. That would mean comparing Amazon to Walmart, Target, and many other online and brick-and-mortar retailers. The previous Sections posited one explanation, beyond convenience, for why many consumers do not look outside Amazon: If it is already time-consuming and challenging to find the best deal within Amazon, consumers have less time to look elsewhere. If consumers were able to quickly find the best deals on Amazon, cross-store comparisons would be more feasible.<sup>132</sup>

Amazon has another factor in its favor that lessens the chances that consumers comparison shop outside of Amazon: its image as a retailer offering low prices.<sup>133</sup> That low-price image is important because one of the fundamental principles in retail pricing is that the overall image that a consumer has of a store heavily influences whether they view individual items as low-priced.<sup>134</sup> Consumers are less likely to check prices when they have confidence that a store overall offers good deals.<sup>135</sup> Consequently, retailers work hard to establish a low-price image in consumers' minds. Yet consumers are unreliable in forming such a price image, relying on as few as three to five familiar items to decide on the overall pricing, and relying heavily on intuition, such as inferring from a store's large size that it is more likely to offer volume discounts.<sup>136</sup> As a result, consumers may incorrectly think they are

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131. See, e.g., 15 U.S.C. § 57(b)(1)(c) (establishing "reason to believe" a company is engaging in unfair practices as the standard for beginning a civil investigation).

132. In reality, other sellers also engage in similar obfuscation, which speaks to the need for intervention to change the behavior not just of Amazon, but of all large e-commerce sites. On the widespread nature of such practices, see, for example, Hamilton & Chernev, *supra* note 124, at 4 (summarizing the literature on pricing).

133. This is true not only among legal scholars and the media, as described above, but also consumers. See Dennis Green, *One Figure Shows Why Prime Membership Is So Powerful for Amazon*, BUS. INSIDER (July 16, 2018, 1:31 PM), <https://www.businessinsider.com/amazon-prime-members-dont-price-compare-survey-says-2018-7> [<https://perma.cc/B3AG-UUCH>].

134. See *id.* (discussing the notion that consumer decisions are influenced by a retailer's actual prices and a retailer's image as a vendor with low prices).

135. See, e.g., *id.*; PHIL BARDEN, DECODED: THE SCIENCE BEHIND WHY WE BUY 50–51 (2013) (exploring psychological biases, including how consumers are more likely to purchase items ending in the digit "9"); see also Michael S. Barr, Sendhil Mullainathan & Eldar Shafir, *The Case for Behaviorally Informed Regulation*, in NEW PERSPECTIVES ON REGULATION 25, 33 (David Moss & John Cisternino eds., 2009) ("The amount of information people attend to is limited . . .").

136. Hamilton & Chernev, *supra* note 124, at 4, 6.

making an informed retail decision and getting a good deal while relying on flawed mental shortcuts about the overall prices offered.<sup>137</sup>

Amazon's low-price image thus may lessen the likelihood that consumers make effective decisions about whether to purchase from Amazon or a competitor. The complexity and time-consuming nature of Amazon shopping may mean that many consumers rely on their general sense of Amazon's prices in deciding how much of their limited shopping time and energy to devote to Amazon. Survey results suggest that almost half of all Amazon customers do not feel the need to comparison shop outside of Amazon because they believe it offers the lowest prices available.<sup>138</sup> Many others still perceive Amazon as offering low prices even if they may sometimes look elsewhere.<sup>139</sup>

There is some limited evidence of how Amazon's prices compare to those of competitors, such as Target, Walmart, or independent sellers. The price that consumers pay for Amazon's convenience is difficult to determine since the company sells more than twelve million products and changes its prices for some products over one hundred times per day.<sup>140</sup> Nonetheless, recent informal studies comparing Amazon to Walmart.com have found that Walmart.com offers lower prices than Amazon.<sup>141</sup> If those findings are correct, consumers who simply assume Amazon has the lowest online prices may therefore be paying considerably more due to that assumption.<sup>142</sup>

Another relevant factor in forming a general conclusion about a store's deals is that price differences vary greatly across items. This helps explain how one could, for instance, save eighteen percent by buying sponges from Walmart instead of Amazon, but save eleven

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137. See *id.* (providing examples of heuristics such as relying on subtle cues or a small number of items to determine price).

138. See Green, *supra* note 133.

139. Cf. *id.* (describing the general low-price perception of Amazon).

140. See *id.* at 763; Ramsi A. Woodcock, *The Efficient Queue and the Case Against Dynamic Pricing*, 105 IOWA L. REV. 1759, 1761 (2020).

141. The most recent and largest of these studies looked at one hundred items and found that Walmart prices were lower in most categories — including cleaning products and medicines. See, e.g., *Amazon vs. Walmart: Who's Really Cheaper During COVID-19?*, KRAZY COUPON LADY (May 6, 2023), <https://thekrazycouponlady.com/tips/couponing/amazon-vs-walmart> [<https://perma.cc/37SK-9B73>] (looking at over one hundred items in eight categories); Kyle James, *Which Store Is Cheaper: Walmart or Amazon.com?*, RATHER-BE-SHOPPING (Oct. 19, 2022), <https://www.rather-be-shopping.com/blog/price-smackdown-walmart-vs-amazon> [<https://perma.cc/585Q-NY8P>] (taking twenty-one random products and concluding that shoppers would save more at Walmart).

142. The fact that Walmart offers lower prices than Amazon does not mean that it offers the lowest prices. For example, the national supermarket Aldi has for years offered eighteen to twenty-four percent savings over Walmart's in-store prices. See Nathaniel Meyersohn, *How a Cheap, Brutally Efficient Grocery Chain Is Upending America's Supermarkets*, CNN: BUS. (May 17, 2019), <https://www.cnn.com/interactive/2019/05/business/aldi-walmart-low-food-prices/index.html> [<https://perma.cc/DJP7-9HNF>] (summarizing research into price differences on a basket of forty common goods).

percent by buying diapers from Amazon instead of Walmart.<sup>143</sup> As a result, regardless of how much consumers would save overall by buying exclusively from Walmart rather than exclusively from Amazon, consumers could save considerably more by buying from both retailers.<sup>144</sup>

Nor are these savings only available at Walmart. One academic study estimated that Amazon did not offer the lowest book prices ninety-six percent of the time.<sup>145</sup> Instead, the study suggested that Amazon would more accurately be viewed as adopting a mid-tier pricing strategy in books, not as the low-price leader.<sup>146</sup> Another limited commercial study found that Amazon is considerably more expensive than Target with respect to food and beverage items.<sup>147</sup> Further study is needed to draw confident conclusions about how Amazon's prices compare to competitors, but there is reason to doubt that Amazon offers consistently low online prices.

#### *D. Revisiting the Enduring Perception of Amazon's Low Prices*

How can our conclusions be reconciled with Amazon's enduring reputation as a low-priced retailer? Amazon's low-price image is rooted in two key early narratives. The first is its original focus on books. When it launched in 1994, the company sold books at lower prices than brick-and-mortar bookstores, such as Barnes & Noble and Borders.<sup>148</sup> The second narrative is Amazon's many years of operating without a profit, which was a source of fascination in the media.<sup>149</sup> The overall impression created by these narratives was that Amazon both offered low prices and operated with a razor-thin profit margin.

Even assuming these early narratives were correct, however, a key question is how long they were accurate and whether they were still correct in 2023 when they continued to be asserted in passing as facts. The antitrust literature on Amazon has offered one way to reconcile Amazon's early low prices with higher modern prices. In an influential 2017 student Note, now-FTC Commissioner Lina Khan argued that the way to understand Amazon's low prices was to view them as an attempt

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143. See KRAZY COUPON LADY, *supra* note 141.

144. See *id.*

145. Luo et al., *supra* note 17, at 805 ("In our data sample . . . Amazon.com and Barnes & Noble.com fail to offer the cheapest product . . . 96 percent of the time in the 2006 sample.").

146. See *id.* at 805–07 (concluding, based on a large dataset, that Amazon utilizes mid-tier pricing).

147. See Laura Heller, *Why Amazon Isn't Always the Cheapest*, FORBES, <https://www.forbes.com/sites/lauraheller/2016/05/27/amazon-isnt-always-the-cheapest-and-heres-why> [https://perma.cc/2L6K-U4RV].

148. See *id.*

149. See Myers, *supra* note 4, at 406.



to gain market share by selling below cost.<sup>150</sup> After wiping out the competition, the lost profits from the early time period would be recouped later, after Amazon gained monopoly power.<sup>151</sup>

Whether that thesis is true is subject to debate.<sup>152</sup> There is some evidence that Amazon's prices started low and trended upward, at least in some narrow product categories, such as e-books and diapers, the latter potentially in an effort to intimidate Diapers.com into selling itself to Amazon.<sup>153</sup> However, the evidence suggests that the period during which Amazon may have sold below cost in diapers was limited to about a year.<sup>154</sup> Moreover, because they could not access internal Amazon data, Khan and others were forced to rely largely on evidence from blogs and news sources — evidence that was collected mostly based on listings for only a few specific product categories, such as e-books and diapers, or during earlier time periods, mostly before 2014.<sup>155</sup> Without more reliable evidence on Amazon's pricing, it is difficult to know the historical reality. It is quite possible that Khan and others were correct in their specific observations about price in certain categories and at certain times.

We do not take a position on which side of this antitrust debate is correct. But we do see reasons why perceptions of Amazon's low prices may have long been incorrect or at least exaggerated. For instance, the academic study mentioned earlier, finding that Amazon's book prices were mid-tier, was conducted in 2006.<sup>156</sup> Thus, even in the original product category, books, that established Amazon's low-price reputation, the company was not clearly offering low prices over a decade before scholars began widely discussing Amazon's low prices. The lack of rigorous research comparing Amazon's prices to other retailers' prices alone suggests that historical assertions of Amazon's low prices should be viewed with some skepticism.

Additionally, although consumers who shopped at Amazon for diapers during the year that Amazon did sell diapers below cost would

150. Khan, *supra* note 2, at 747–53 (focusing on the possibility that Amazon can offer low prices during an early period of market gains and then raise them later).

151. *See id.* at 786 (“The most effective way [to compete in markets] is to chase market share and drive out one’s rivals — even if doing so comes at the expense of short-term profits, since the best guarantee of long-term profits is immediate growth.”).

152. Compare Khan, *supra* note 2, at 753 (arguing that Amazon's low prices are a violation of antitrust law's prohibition on predatory pricing), with John B. Kirkwood, *Collusion to Control a Powerful Customer: Amazon, E-Books, and Antitrust Policy*, 69 U. MIAMI L. REV. 1, 42 (2014) (concluding that Amazon's low-price strategy is legal because “Amazon was engaged in loss leading, not predatory pricing”).

153. *Online Platforms and Market Power: Examining the Dominance of Amazon, Apple, Facebook, and Google, Hearing Before the Subcomm. on Antitrust, Com., and Admin. L. of the H. Comm. on the Judiciary*, 116th Cong. 109–10 (2020) (providing an email thread between Amazon employees regarding Diapers.com showing low-price strategy).

154. *See id.*

155. *See* Khan, *supra* note 2, at 715, 751, 753, 757.

156. *See* Luo et al., *supra* note 17, at 805.

have benefited in that single category, that does not mean that they saved money overall that year by trusting Amazon's prices, if they bought other higher-priced products alongside diapers. Retailers regularly offer low prices in one category and make up for it by charging higher prices in other categories.<sup>157</sup> Either way, the limited periods during which Amazon may have undercut competitors — whether to establish a low-price reputation or to intimidate a competitor — would not alone justify the sustained impression that Amazon long offered low prices overall.

Our study further demonstrates that the mere listing of some low-priced items on Amazon does not mean that consumers overall were purchasing those low-priced items. Stated otherwise, it is possible that the lack of a behavioral economics lens caused antitrust observers to miss gaps between the best deals available in Amazon's search results and the deals consumers got. To answer the crucial question of what customers actually purchase, and thus whether Amazon's prices are low, one would need sales data about completed transactions.

Amazon's many years of operating without a profit are also misleading. The company historically did not report its profits in a way that allowed for outsiders to easily determine exactly how profitable its retail business model was. Its years of annual losses simply mean that the company overall spent more than it earned — possibly by aggressively reinvesting existing profits and borrowing to accelerate growth — which even a monopoly can do.<sup>158</sup> It is well known that, during its many years of company-level unprofitability, Amazon invested heavily in building warehouses across the country and a rapid distribution infrastructure.<sup>159</sup> It is thus altogether possible that Amazon has long directed profits from its retail sales to investing in growth. Thus, to the extent that the publicity about Amazon's unprofitability caused scholars and consumers to assume it was selling at rock-bottom prices, that inference may have rested on incorrect reasoning.

In summary, there is reason to doubt Amazon's historical and current low-price reputation. Moreover, the inattention to behavioral strategies such as complexity, burying, and anchoring may have contributed to Amazon's low-price image persisting even when it was

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157. See Kirkwood, *supra* note 152, at 9 (discussing how Amazon engaged in loss leading — not predatory pricing — in the e-books industry by selling some books for a profit and others below cost in order to make an overall profit).

158. Public companies only need to report their overall financial statements, not broken down by business unit, and thus do not have to tell which business units are and are not profitable. *Exchange Act Reporting and Registration*, SEC, <https://www.sec.gov/smallbusiness/goingpublic/exchangeactreporting> [<https://perma.cc/H45Z-MGFN>]; *How to Read a 10-K/10-Q*, SEC (Jan. 25, 2021), <https://www.sec.gov/fast-answers/answersreada10k.htm> [<https://perma.cc/7S75-QKJB>].

159. Khan noted this intense investment in growth. See Khan, *supra* note 2, at 749, 753.

no longer accurate. Faced with the prospect of weighing the various shipping costs, prices for different product permutations, and time needed to find each retailer's buried best deals, many consumers may have simply continued to assume that the best deals were at Amazon long after that was no longer the case. Such assumptions can produce misperceptions that are costly not only for the individual consumer, but for society.

### III. IMPLICATIONS

Part II provided preliminary evidence suggesting that Amazon is harming consumers and markets through manipulative pricing practices. Those practices also have the potential to regressively redistribute wealth, to the extent that Amazon's customers and small businesses are less well off than Amazon's shareholders and executives.<sup>160</sup> Thus, whether one prioritizes efficiency or distribution, there are strong normative grounds for legal intervention.

This Part begins by showing the importance of more fully integrating antitrust, behavioral economics, and consumer law. It then explores lighter information disclosure interventions before considering stronger interventions rooted in ongoing administrative agency monitoring and enforcement. It bears emphasis that these reforms are relevant to other large online retailers as well, such as eBay, Target, and Walmart, to the extent that they engage in similar pricing practices.<sup>161</sup> The ideas discussed below should not be seen as a proposal for pursuing many legal mechanisms simultaneously. Instead, they offer a menu of options from which policymakers can choose, should the evidence continue to indicate the existence of widespread consumer manipulation by Amazon.

#### *A. Integrating Antitrust and Consumer Protection*

The case of Amazon illuminates a shortcoming in the U.S. legal paradigm for competition. In many other countries, such as the U.K., Canada, and Australia, the regulatory framework closely integrates

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160. For a summary of the link between retail anticompetitive pricing and inequality, see Van Loo, *supra* note 11, at 1359. For a review of the literature on the distributional implications of antitrust overcharge, see, e.g., Einer Elhauge, *Horizontal Shareholding*, 129 HARV. L. REV. 1267, 1267 (2016) (discussing the many economists who conclude that overcharge worsens economic inequality and drawing a similar conclusion). *But see* Daniel A. Crane, *Antitrust and Wealth Inequality*, 101 CORNELL L. REV. 1171 (2016) (challenging the core assumptions underlying the relationship between economic inequality and antitrust).

161. As mentioned above, scholars have documented the pervasiveness of behavioral pricing in retail markets. *See supra* notes 10–13 and accompanying text.

competition law and consumer protection.<sup>162</sup> By contrast, the U.S. intellectual conception of “competition law” is oriented around antitrust in a way that is more disconnected from consumer protection.<sup>163</sup> The institutional design of the regulatory framework reflects this disconnect. The FTC largely enforces antitrust through its Bureau of Competition, which is separate from the FTC’s Bureau of Consumer Protection.<sup>164</sup>

Some U.S. scholars, mostly those specializing in antitrust, have emphasized the importance of integrating antitrust and consumer protection, or as it is often framed, integrating “competition and consumer protection.”<sup>165</sup> And these two fields are widely viewed as complementary, in the sense that both ultimately seek to advance consumer welfare and can sometimes be substitutes for one another.<sup>166</sup> However, these valuable conversations do not directly address a central conceptual problem illustrated by the case of Amazon: The intellectual framework too often overlooks the relevance of consumer protection to understanding competition. This disconnect has potentially weakened antitrust law and academics’ broader study of markets.

Scholars have observed that Amazon’s “low prices” have made it harder to build an antitrust case against the company for abuse of monopoly power, given antitrust law’s adherence to high prices as a proxy for consumer harm.<sup>167</sup> If the perception of low prices was long

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162. See, e.g., WILLIAM E. KOVACIC, *THE FEDERAL TRADE COMMISSION AT 100: INTO OUR 2ND CENTURY* 37–38 (2009), <http://www.ftc.gov/os/2009/01/ftc100rpt.pdf> [<https://perma.cc/759X-JUCL>] (observing that many countries organizationally integrate consumer protection and competition into the same agency to a greater extent than in the United States).

163. See, e.g., Louis Kaplow, *On the Relevance of Market Power*, 130 HARV. L. REV. 1303, 1304 (2017) (using “competition law” to refer to antitrust law).

164. See KOVACIC, *supra* note 162, at 58–77. The FTC does have a Bureau of Economics that serves both sides and is intended, at least in part, to integrate consumer protection and competition. However, in practice, this group is divided into two competition divisions and one consumer protection division. See *id.* at 29 (explaining also that there is a division that focuses on research and outreach).

165. See, e.g., *id.* at 35–38 (making the general observation that there are benefits to integrating competition law and consumer protection); Van Loo, *supra* note 37, at 231, 254–55 (arguing for greater integration of competition and consumer protection to obtain a more comprehensive sense of harms); Wright, *supra* note 32, at 2224 (observing that behavioral economics will create challenges for integrating consumer protection and antitrust due to the differing conceptions of consumer preferences). For a more recent and different take on the intersection between these fields, through a moral economy framework, see Luke Herrine, *At the Nexus of Antitrust & Consumer Protection*, 2023 UTAH L. REV. 849, 849.

166. Neil W. Averitt & Robert H. Lande, *Consumer Sovereignty: A Unified Theory of Antitrust and Consumer Protection Law*, 65 ANTITRUST L.J. 713, 713 (1997); Mark Armstrong, *Interactions Between Competition and Consumer Policy*, 4 COMPETITION POL’Y INT’L 97, 100–12 (2008).

167. See, e.g., Khan, *supra* note 2, at 716 (noting that Amazon “has evaded government scrutiny in part through fervently devoting its business strategy and rhetoric to reducing prices for consumers”); John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149, 197 (2015) (“The antitrust enterprise remains firmly grounded in price theory.”).

incorrect, as we argue may have been the case,<sup>168</sup> it suggests that the inattention to Amazon's behavioral manipulation may have shielded the company from antitrust scrutiny.<sup>169</sup> To be clear, we are not saying that it would have been appropriate to investigate Amazon under antitrust law long ago. Instead, the point is that if an intuitive sense of low prices was the barrier to greater antitrust scrutiny, then the antitrust field's inattention to behavioral price manipulation may have prevented a more rigorous assessment of whether Amazon merited closer investigation.

Determining whether it was appropriate not to investigate Amazon for antitrust violations is complicated because scholars focusing on consumer manipulation have repeatedly shown that behavioral overcharge can occur even without any monopoly power.<sup>170</sup> Consequently, when enforcers observe higher prices related to consumer behavioral manipulation, it will be difficult to know whether those higher prices are solely due to the behavioral manipulation rather than, say, monopoly power. It follows that even if antitrust observers were wrong in repeatedly assuming Amazon had low prices,<sup>171</sup> the decision not to look more closely could still have been correct as a matter of antitrust law. In that hypothetical scenario, the behavioral manipulation would instead only merit consumer law scrutiny.

A deeper question for antitrust is whether the failure to consider consumer manipulation can obscure the identification of monopoly power. In theory, monopolies have the ability to extract even more behavioral overcharge than is possible for firms in more competitive markets.<sup>172</sup> One reason why this might be the case is that firms in such a market may face less competitive pressure and thus be less fearful

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168. *Supra* Section II.D.

169. Cf. Newman, *supra* note 167, at 198–99 (explaining some of the antitrust shortcomings in assessing price).

170. See, e.g., Ellison & Ellison, *supra* note 12, at 432, 450 (finding evidence of behavioral overcharge in a highly fragmented market with a large number of smaller competitors); Bar-Gill, *supra* note 37, at 232–34 (modeling manipulation under conditions of perfect competition). Outside of behavioral economics, scholars have made related observations about consumer protection providing independent means of addressing issues similar to antitrust. See, e.g., Natasha Sarin, *What's in Your Wallet (and What Should the Law Do About It?)*, 87 U. CHI. L. REV. 553, 594 (2020) (arguing that due to the Supreme Court's rulings limiting the reach of antitrust, consumer protection can address credit card companies' anti-steering rules).

171. Again, there is some basis for concluding that those, like Lina Khan, who made pricing observations about specific historical periods in specific product categories, such as diapers, may have been correct in those narrow contexts. See *supra* Section II.C.

172. Maurice Stucke's work provides, at a minimum, indirect support for this assertion, although he has focused more on how behavioral practices can increase monopoly power rather than how monopoly power can increase behavioral pricing. See Maurice E. Stucke, *Behavioral Antitrust and Monopolization*, 8 J. COMPETITION L. & ECON. 545, 567 (2012) (arguing that behavioral economics can help firms to maintain their monopoly power through, for instance, lock-in strategies that make it harder for customers to leave).

that they will lose customers by making the decision context more complex.<sup>173</sup>

If that is true, excess behavioral overcharge might, in some settings, provide evidence of monopoly power.<sup>174</sup> Yet without a behavioral economics lens to see how consumers make purchasing decisions, it would be difficult to recognize higher behavioral overcharge enhanced by monopoly power. The antitrust observer might simply observe that Amazon is offering some competitive prices among the hundreds of search results, without understanding that many consumers who would prefer those items may not choose them.<sup>175</sup> The antitrust literature on Amazon does not consider that possibility.

This behavioral law and economics lens on Amazon builds on and contributes to the work of antitrust scholars who have been calling for an update to analyses of online platforms in other contexts. In particular, scholars have begun to consider how digital platforms might use behavioral manipulation to exclude rivals and self-preference their own products.<sup>176</sup> Antitrust scholars have also more broadly debated how and whether to integrate behavioral economics into the consumer welfare analysis.<sup>177</sup> However, that work is still nascent, and the antitrust framework has paid insufficient attention to practices such as burying, complexifying, and anchoring in online commerce.

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173. Without mentioning price effects, because they were examining the context of free searches in engines like Google, Maurice Stucke and Ariel Ezrachi provide some indirect support for this point by noting that scale and network effects may allow the largest search engine to degrade quality to push users toward sponsored results, and provide the incentives to do so. See Maurice E. Stucke & Ariel Ezrachi, *When Competition Fails to Optimize Quality: A Look at Search Engines*, 18 YALE J.L. & TECH. 70, 88 (2016).

174. For a complementary but distinct account of how antitrust might be heading toward addressing the types of behavioral manipulation that was traditionally within the purview of consumer protection, but are now being used for excluding competitors, see O'Loughlin, *supra* note 49, at 1110.

175. See *supra* Part II.

176. See O'Loughlin, *supra* note 49, at 1107 (describing such behavior as cognitive foreclosure). For other related work, see John M. Newman, *Antitrust in Digital Markets*, 72 VAND. L. REV. 1497, 1536 (2019) (exploring antitrust in the context of Zillow's pricing power); Gregory Day & Abbey Stemler, *Are Dark Patterns Anticompetitive?*, 72 ALA. L. REV. 1, 45 (2020) (arguing for "condemning the effects of online manipulation as an anticompetitive effect"). See also Nathan Newman, *Search, Antitrust, and the Economics of the Control of User Data*, 31 YALE J. ON REG. 401, 446 (2014) (proposing a remedy to address Google's monopoly: "coordinated government action to determine exactly how data mining and behavioral profiling by Google strengthen its dominance and harm consumer welfare.").

177. Scholars have also made other insightful distinct observations about the importance of behavioral economics to monopoly power, and space constraints do not allow for summarizing all of them here. See generally, e.g., Wright, *supra* note 32 (summarizing the tension for consumer welfare analyses raised by the implication of behavioral economics that market choices may not be a reliable indicator of consumer preferences); Amanda P. Reeves & Maurice E. Stucke, *Behavioral Antitrust*, 86 IND. L.J. 1527, 1583 (2011) (calling for the FTC to marry consumer protection issues of deception and antitrust more closely); Avishalom Tor, *Understanding Behavioral Antitrust*, 92 TEX. L. REV. 573, 573 (2014) (arguing that "proponents and opponents of behavioral antitrust frequently and fundamentally misconstrue its methodology").

One implication is that there may be important institutional and analytical benefits, at least in the context of a firm like Amazon, from integrating what were traditionally consumer protection and antitrust analyses of overcharge.<sup>178</sup> Each side operating in isolation would have less relevant expertise and legal authority for identifying overcharge driven by both consumer manipulation and monopoly power.

At a minimum, more study is needed of the possibility that inattention to consumer manipulation makes the antitrust framework less rigorous in the context of a firm like Amazon, such that even some antitrust experts misperceive its prices as low. And broader conversations about how the legal architecture should respond to digital markets would benefit from greater attention to consumer law rather than allowing antitrust conversations to drive perceptions of competition and price.

### *B. A Legal Architecture for Open Retail*

This Section explores ways that the law might address Amazon's price manipulation. In the absence of new legislation, authorities have options under existing laws. But legal reforms at the intersection of both consumer law and antitrust would offer a more promising solution.

#### 1. Existing Laws

As early as 2014, internal Amazon documents called for the company's employees to "[t]est the [b]oundaries of what is allowed by law."<sup>179</sup> Regulators have, however, been slow to apply key consumer laws to the types of practices that our findings suggest Amazon uses to overcharge consumers.<sup>180</sup> In other words, Amazon seems to have been more willing to test the law than regulators. Many different consumer laws might be brought to bear on Amazon's price manipulation. For instance, David Friedman has shown that laws prohibiting retailers from falsely claiming a discounted price are underenforced.<sup>181</sup> But the prohibition of unfair, deceptive, or abusive acts or practices ("UDAP") is the core of consumer protection law. UDAP statutes in all fifty states,

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178. Cf. Van Loo, *supra* note 37, at 231, 254–55 (proposing greater integration of competition and consumer protection so that the magnitude of the harm of overcharge can be better understood).

179. Aditya Kalra, *Amazon Documents Reveal Company's Secret Strategy To Dodge India's Regulators*, REUTERS (Feb. 17, 2021), <https://www.reuters.com/investigates/special-report/amazon-india-operation> [<https://perma.cc/MJ6A-6JRZ>] (examining Amazon's response to Indian regulation).

180. See Van Loo, *supra* note 11, at 1314.

181. See David Adam Friedman, *Reconsidering Fictitious Pricing*, 100 MINN. L. REV. 921, 924–25 (2016). As an example, some of Amazon's practices may constitute violations of more specific consumer regulations, such as the prohibition of fictitious pricing. See *id.* at 922.

modeled after federal legislation, allow the state attorneys general and, in some cases, private individuals, to sue companies.<sup>182</sup>

Although the application of UDAP specifically to Amazon price manipulation has not been established, UDAP's statutory text, case law, and history speak to the possibility of applying existing authority to Amazon's pricing practices.<sup>183</sup> By way of illustration, we demonstrate in the following discussion how the FTC's UDAP authority could be applied to Amazon's pricing practices, with a focus on its search result manipulation. And a similar analysis would apply to attorneys general bringing cases against Amazon for violations of UDAP statutes, as well as other anti-competitive practices.<sup>184</sup>

Enforcement targeting unfairness may have a greater chance than enforcement targeting deception, which requires a false statement or omission of material fact.<sup>185</sup> Congress has defined the FTC's unfairness authority as preventing practices "likely to cause [1] substantial injury to consumers which is [2] not reasonably avoidable by consumers themselves and [3] not outweighed by countervailing benefits to consumers or to competition."<sup>186</sup> The first prong, substantial injury, can result from a "small harm to a large number of people."<sup>187</sup> Assuming that Amazon's burying, complexifying, self-preferencing, and anchoring make consumers pay more, as economic theory and evidence from other contexts suggest,<sup>188</sup> those practices satisfy the first prong.

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182. See Matthew A. Edwards, *The Law, Marketing, and Behavioral Economics of Consumer Rebates*, 12 STAN. J.L. BUS. & FIN. 362, 397, 403 (2007).

183. See Van Loo, *supra* note 11, at 1370–73 (concluding that the FTC's unfairness authority could and should be used to act on behavioral pricing practices, including those driven by artificial intelligence, deployed by online and brick-and-mortar retailers). Lauren Willis later made an argument similar to Van Loo's that deceptive algorithmic practices meet the black-letter UDAP law for unfairness. See Lauren E. Willis, *Deception by Design*, 34 HARV. J.L. & TECH. 115, 176–80 (2020). For a more recent and broader treatment of unfairness, see Luke Herrine, *The Folklore of Unfairness*, 96 N.Y.U. L. REV. 431, 525 (2021) (showing how the FTC's unfairness authority is potent and has laid dormant due to deregulatory pressures).

184. Indeed, some states' broader application of UDAP illustrates the potential usefulness of UDAP to attorneys general with respect to Amazon. See Dee Pridgen, *The Dynamic Duo of Consumer Protection: State and Private Enforcement of Unfair and Deceptive Trade Practices*, 81 ANTITRUST L.J. 911, 919–23 (2017).

185. See Fed. Trade Comm'n, FTC Policy Statement on Deception (Oct. 14, 1983), <https://www.ftc.gov/legal-library/browse/ftc-policy-statement-deception> [<https://perma.cc/M834-M4D6>]. On the other hand, the deception prong of UDAP prohibits "a representation, omission or practice that is likely to mislead the consumer." *Id.* It provides another possibility, if that doctrine were to evolve. A case could be made, for instance, that the omission of shipping rates in the "Price: Low to High" sorting feature, and perhaps also the burying and anchoring of search results, amount to deception.

186. 15 U.S.C. § 45(n) (2012).

187. Fed. Trade Comm'n, FTC Policy Statement on Unfairness (Dec. 17, 1980), <https://www.ftc.gov/public-statements/1980/12/ftc-policy-statement-unfairness> [<https://perma.cc/LK6T-QK3G>].

188. See *supra* Section II.B.1.



Regarding the second prong, to avoid paying higher prices, consumers would need to first spend considerable time searching through pages of results and then utilize, at a minimum, spreadsheet algebraic capabilities to determine the product's full price. They would also need to somehow de-bias themselves from the psychological effects of anchoring, and labels such as "limited time deal" and "Best Seller," as well as many other subtle psychological influences. A court may or may not find it reasonable to expect consumers to take those steps.<sup>189</sup> However, that is at least a colorable legal issue because economics generally dominates the FTC's policy interpretation of UDAP laws — with particular emphasis on efficiency.<sup>190</sup> From this perspective, it would be desirable to avoid the waste from requiring millions of consumers to spend unnecessary time shopping around. Thus, absent a countervailing economic justification (covered in the third prong), the second prong would weigh in favor of finding that the harm due to Amazon's pricing strategies is "not reasonably avoidable by consumers themselves."<sup>191</sup>

At a high level, the most difficult prong is the third: Is there a pro-competitive reason for Amazon's obfuscation that would outweigh the other prongs? A pro-competitive reason loosely means that the practice overall contributes to making markets work better — such as by responding to consumers' interests, improving innovation, or decreasing costs.<sup>192</sup> Many of Amazon's practices could also be perceived as pro-competition and pro-consumer. Amazon is providing consumers with more choice through a large array of sizes, colors, financing options, subscription capabilities, and other features for each product; information about best-selling items; and the convenience of subscription. This might suggest an uncertain cost-benefit analysis, on the third prong, of whether the competition harms of Amazon's practices outweigh their benefits.

This Article has demonstrated, however, that these practices do not necessarily lead consumers to make optimal choices and find the best deals. It would be especially difficult to justify the burying and anchoring of search results on pro-competitive grounds. And there are other practices that more explicitly undermine the ability of consumers to find the most competitive price, such as the exclusion of shipping costs from the "Price: Low to High" sorting feature.

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189. See, e.g., *Int'l Harvester Co.*, 104 F.T.C. 949 app. at 1070, 1073–74 (1984) (defining "reasonably avoidable").

190. See Herrine, *supra* note 183, at 436–38, 511–13 (criticizing the heavy emphasis on economics).

191. 15 U.S.C. § 45(n) (2012).

192. John M. Newman, *Procompetitive Justifications in Antitrust Law*, 94 IND. L.J. 501, 516 (2019).

Caselaw provides some support for seeing pricing obfuscation as a UDAP violation under the unfairness test. In a private California suit, plaintiffs accused a large oil company of purchasing fuel at sixty degrees Fahrenheit and selling it at seventy degrees, so the consumer would receive less fuel.<sup>193</sup> The plaintiffs argued that such practices meant that “consumers are unable to determine the actual price of motor fuel or to compare prices between retailers.”<sup>194</sup> The court allowed the claim to proceed under a state UDAP statute that uses a similar test and definition of “unfairness” as the federal statute.<sup>195</sup>

Further support comes from consumer finance. In the early 2000s, financial institutions commonly steered borrowers away from low-interest loans toward higher-interest loans.<sup>196</sup> The motive for that steering — arguably like Amazon’s motive to bury and frame search results — was that higher-interest loans earn greater profits for the financial institutions.<sup>197</sup> Beginning around 2010, individuals began to sue banks and other entities for that practice, using UDAP authority.<sup>198</sup> Judges have made it clear that such profit-oriented steering is a valid target for UDAP claims.<sup>199</sup>

Thus, to address Amazon’s overcharge, the FTC or attorneys general could try to more aggressively bring UDAP enforcement actions. As a historical matter, Congress intended unfairness authority to adapt with markets on an “incremental, evolutionary basis.”<sup>200</sup> Moreover, when the FTC has had the political will to assert the statute’s full authority — most notably, in the 1960s and 1970s — UDAP has offered a powerful tool to fill gaps in existing laws when businesses harmed consumers.<sup>201</sup> Thus, there is some potential for the FTC or

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193. *Klein v. Chevron U.S.A., Inc.*, 137 Cal. Rptr. 3d 293, 298–99 (Ct. App. 2012).

194. *Id.* at 299.

195. *Id.* at 302–03, 331–32; see CAL. BUS. & PROF. CODE § 17200 (West 2023); 15 U.S.C. § 45(a) (2012).

196. See Kathleen C. Engel & Patricia A. McCoy, *A Tale of Three Markets: The Law and Economics of Predatory Lending*, 80 TEX. L. REV. 1255, 1371–72 (2002) (describing how brokers directed homebuyers to take out loans with very high interest rates).

197. See *id.* at 1287 (explaining motivations to push consumers toward higher-commission loans).

198. See, e.g., *Barriga v. JP Morgan Chase Bank, N.A.*, No. C 09-00885 PVT, 2010 U.S. Dist. LEXIS 36679, at \*9 (N.D. Cal. 2010).

199. See *id.* at \*9–10; see also *Nat’l Ass’n of Mortg. Brokers v. Bd. of Governors of Fed. Rsrv. Sys.*, 773 F. Supp. 2d 151, 156, 172 (D.D.C. 2011) (finding that the Federal Reserve has authority under UDAP to prohibit banks from steering borrowers to higher-priced loans); 12 C.F.R. § 226.36 (2022) (“[A] loan originator shall not direct or ‘steer’ a consumer to consummate a transaction based on the fact that the originator will receive greater compensation . . .”).

200. *Am. Fin. Servs. Ass’n v. FTC*, 767 F.2d 957, 982 (D.C. Cir. 1985).

201. See Rory Van Loo, *The Public Stakes of Consumer Law: The Environment, the Economy, Health, Disinformation, and Beyond*, 107 MINN. L. REV. 2039, 2041 (2023) (using the examples of a “\$5 billion fine against Facebook for privacy violations and a \$3 billion enforcement action against Wells Fargo for creating millions of fake customer accounts” to

attorneys general to reach at least some of Amazon's behavioral pricing practices.

At the same time, there are fundamental limits to the potential for the FTC, under UDAP particularly, to address practices that influence overcharge. UDAP laws applied to such practices are unproven, and even if successful, the statute is more oriented toward prohibiting acts. Consequently, UDAP cannot be used to compel Amazon to take affirmative actions — such as providing search result sorting by unit price — except perhaps by settlement order. Moreover, the FTC faces well-known resource and authority limitations.<sup>202</sup> Finally, many of the practices described in Part II may not be practical to individually litigate because the problem encompasses the collective effect of hundreds of practices. In light of the limitations discussed in this section, a more comprehensive approach to remedying the potential harms of Amazon's pricing practices involves legal reform.

## 2. Legal Reforms

Among the many possible new laws that would improve oversight of Amazon, it is worth considering both reforms to regulatory structure as well as substantive legal changes. On the regulatory structure side, more meaningful regulatory monitoring and oversight of Amazon could help. In most industries, ranging from oil to banking, regulators have routine access to nonpublic information in order to determine whether or not a legal violation has occurred.<sup>203</sup> Indeed, Amazon is already subject to inspections on the labor side by the Occupational Safety and Health Administration ("OSHA").<sup>204</sup> In a similar way, Amazon's search algorithms and related strategies could be subject to occasional inspections.<sup>205</sup> An obligation, established in law, for

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show that UDAP has "provided the authority for some of the largest legal actions against companies in U.S. history").

202. *Id.* at 2081–83 (summarizing how Congress has placed limits on exercise of FTC authority and allowed its resources to stagnate even as the industries the agency regulates have expanded substantially).

203. Rory Van Loo, *Regulatory Monitors: Policing Firms in the Compliance Era*, 119 COLUM. L. REV. 369, 371–72 (2019).

204. See, e.g., *Inspection Detail*, OSHA, [https://www.osha.gov/pls/imis/establishment.inspection\\_detail?id=1206314.015](https://www.osha.gov/pls/imis/establishment.inspection_detail?id=1206314.015) [<https://perma.cc/2GX8-72TJ>].

205. Van Loo, *supra* note 11, at 1382 (proposing that the FTC monitor big retailers such as Amazon and Walmart). For proposals to monitor digital technologies in other contexts, see Ryan Calo & Alex Rosenblat, *The Taking Economy: Uber, Information, and Power*, 117 COLUM. L. REV. 1623, 1682–85 (2017) (exploring the possibility of agencies detecting harms in the sharing economy); Julie E. Cohen, *The Regulatory State in the Information Age*, 17 THEORETICAL INQUIRIES L. 369, 372–73 (2016) ("[P]olicymakers must devise ways of enabling regulators to evaluate algorithmically-embedded controls . . ."); Frank Pasquale, *Beyond Innovation and Competition: The Need for Qualified Transparency in Internet Intermediaries*, 104 NW. U. L. REV. 105, 169–71 (2010) (observing the need for monitoring search engines).

Amazon to routinely provide information for inspection by a regulatory agency would be beneficial in part because Amazon has shown itself willing to invest its considerable resources in erecting barriers to block authorities from obtaining information, specifically in the context of antitrust investigations.<sup>206</sup>

It thus may be more effective to establish a baseline regulatory authority to collect information from Amazon and other large online marketplaces, rather than requiring resource-strapped regulators to fight to know what is happening.<sup>207</sup> The information collected would be used to determine that which is currently impossible to know from publicly available information with any great certainty: the extent and impact of Amazon's behavioral pricing. Note that such information could be useful for both antitrust and consumer protection authorities.<sup>208</sup>

The FTC can and should do significantly more to routinely monitor Amazon's behavioral pricing practices, both on the consumer protection and antitrust side, without suspicion of wrongdoing.<sup>209</sup> New legislation would, however, help clarify and strengthen the agency's monitoring authority.

Such information collection could help inform legal changes that might address consumer manipulation either indirectly or directly. Laws could indirectly reduce Amazon's overcharge by mandating better information disclosure to consumers or third-party digital helpers, which would then provide advice to overcome consumers' behavioral biases and cognitive limitations in finding the best deals. More directly, laws can prohibit certain pricing practices that are most likely to manipulate consumers into making suboptimal decisions. These proposals should be seen as complements rather than substitutes. We examine them in turn.

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206. Dana Mattioli, *Amazon Flagged to Justice Department for Possible Criminal Obstruction of Congress*, WALL ST. J. (Mar. 9, 2022), <https://www.wsj.com/articles/amazon-flagged-to-justice-department-for-possible-criminal-obstruction-of-congress-11646827200> [<https://perma.cc/C9UN-5KBP>].

207. This idea loosely relates to a proposal in the literature for supervising all large retailers. Van Loo, *supra* note 11, at 1383–86 (“[T]he FTC might consider developing a supervision program loosely modeled after that in consumer finance protection.”).

208. This follows from the possibility that behavioral pricing is used as a vehicle for charging monopoly prices. *See supra* Section III.A.

209. *See generally* Rory Van Loo, *The Missing Regulatory State: Monitoring Businesses in an Age of Surveillance*, 72 VAND. L. REV. 1563, 1617–23 (2019) (arguing that the FTC has more statutory authority than it exercises to collect information on problematic algorithmic practices but that even more authority could facilitate such collection). The FTC has the antitrust authority to gain detailed visibility into Amazon's prices, without new legislation. In 1975, the agency implemented a reporting program to collect cost and sales data from 450 of the largest manufacturing firms. A court upheld the FTC's authority to require the reporting of such data. *Appeal of FTC Line of Bus. Rep. Litig.*, 595 F.2d 685, 690 (D.C. Cir. 1978) (*per curiam*).

*i. Mandatory Data-Sharing and Pro-Consumer Digital Tools*

One of the most attractive options for legal reform is to mandate information sharing or disclosures that target Amazon's behavioral pricing. In theory, disclosures would correct the informational asymmetry that contributes to behavioral manipulation of less informed consumers, while still leaving companies like Amazon with considerable commercial freedom to develop their sales and pricing strategies. Information disclosure laws may be targeted at two main groups: consumers and third-party digital helpers. An example of a consumer-focused information law is one mandating that Amazon, and other large online retailers, allow consumers to sort results by unit price.<sup>210</sup> Research indicates that mandated unit price labels have saved consumers money in grocery stores.<sup>211</sup> Such a mandate may also be warranted for online retailers.

However, information disclosure interventions targeted at consumers face considerable challenges. There are limits to how much these laws can reduce either the informational complexity in retail goods marketplaces or the informational asymmetry between consumers and firms. Even well-designed disclosures for online shopping would depend on consumers overcoming their cognitive limitations to process considerable information about various product and price permutations, "Best Seller" labels, Prime membership, subscriptions, and so on.<sup>212</sup> Amazon has also shown great nimbleness in adjusting practices to new laws, which risks leaving regulators a step behind.<sup>213</sup>

Consequently, disclosures aimed at third-party digital intermediaries offer greater promise. Even scholars skeptical of information disclosure have posited that those aimed at sophisticated third parties offer greater promise.<sup>214</sup> Yet, little attention has been paid

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210. Retailers would also need to ensure that those unit prices are accurate, consistent, and complete.

211. See José Luis Méndez García de Paredes, Ronald Sebastián Angola Cárdenas & Dayana Lisseth Sánchez Garcés, *Unit Price Information on the Reference Price Formation*, 22 J. PROD. & BRAND MGMT. 413, 424 (2013) (sharing research on the effect of unit prices); Van Loo, *supra* note 11, at 1389 (making a similar proposal for large online retailers).

212. This follows from the complexity outlined above for shopping at Amazon, and also what is known about the limits of disclosures. See *supra* Part II; Omri Ben-Shahar & Carl E. Schneider, *The Failure of Mandated Disclosure*, 159 U. PA. L. REV. 647, 746–47 (2011) (concluding that disclosures aimed at individual consumers have limits compared to those targeted at third-party experts); Bubb & Pildes, *supra* note 9, at 1596–97 (arguing that choice-preserving regulations are problematic precisely because they preserve choice).

213. See Kalra, *supra* note 179 (examining response to regulation in India).

214. See Ben-Shahar & Schneider, *supra* note 212, at 746–48 (concluding that disclosures targeted at third-party experts, such as online websites, hold far more promise than those targeted at people). For another proposal related to third parties, see Bar-Gill & Stone, *supra* note 51, at 109 (mentioning the possibility of digital disclosures). However, there is a

to this possibility in the context of retail goods markets, where it has long been assumed that shopping was sufficiently straightforward such that consumers do not need the same kind of help that they do in other markets.<sup>215</sup> Likewise, while some antitrust scholars have considered the possibility of giving third-party *sellers* greater access to the Amazon marketplace, they have overlooked the more consumer law-related idea of providing third-party *intermediaries* access to Amazon's data, to help consumers make more informed decisions.<sup>216</sup>

To illustrate the potential of such a tool by way of analogy, map programs on smartphones help us to reach our desired destinations. Yet we still do not have powerful apps to help consumers navigate the retail landscape and choose the best deals. One could imagine apps that would know our preferences well.<sup>217</sup> They would collect all available information on products and tell us which online and offline stores offer the best deals — including the time that would be spent, gas used, and shipping paid for each option. The app might even execute the transaction for us, after we select our preference out of several options identified by the app. It could also analyze our “Subscribe & Save” account to let us know when the price has increased too much, such that we should unsubscribe. Such a tool would let Amazon do what it wants — from Prime membership to burying results in the seventeenth slot<sup>218</sup> — while giving consumers a better chance to locate the best deals for them even in the face of manipulation and complexity.

A number of entities have taken steps toward that goal but have ultimately come up short.<sup>219</sup> One of the most widely used consumer tools, Honey, operates as a plug-in for consumers' web browsers.<sup>220</sup> Honey has recently taken steps toward alerting consumers to better

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countervailing concern that digital-consumer-helping solutions could generate deadweight efficiency losses by spurring a technological arms race between Amazon and its consumers. See, e.g., Nikita Aggarwal, *The Norms of Algorithmic Credit Scoring*, 80 CAMBRIDGE L.J. 42, 64 (2021); Michal S. Gal & Niva Elkin-Koren, *Algorithmic Consumers*, 30 HARV. J.L. & TECH. 309, 329 (2016); Wagner & Eidenmüller, *supra* note 28, at 588–89.

215. See Van Loo, *supra* note 11, at 1351–53 (explaining the assumptions about retail good simplicity and proposing disclosures that would allow digital helpers to access large retailers' pricing and product information).

216. Herbert Hovenkamp, *Antitrust Interoperability Remedies*, 123 COLUM. L. REV. F. 1, 29–31 (2023) (discussing interoperability remedies that would help third-party sellers access the marketplace for online platforms, including Amazon, without reference to behavioral economics or consumer law).

217. This would require consumers to provide access to their transactional history. See Gal & Elkin-Koren, *supra* note 214.

218. See *supra* Section II.B.2.

219. For an example of a tool attempting to address this problem, see Ian Yeoman, *Playing with Price*, 13 J. REVENUE & PRICING MGMT. 508, 508–09 (2014) (describing Hukkster, a “service that notifies its users when garments they want to purchase fall below a specified price”).

220. Jeremy Laukkonen, *What Is the Honey App, and Can It Really Save You Money?*, LIFEWIRE (Aug. 12, 2020), <https://www.lifewire.com/honey-app-4171926> [<https://perma.cc/9KAR-9M26>] (describing how Honey works).

deals outside of Amazon, although its functionality remains limited.<sup>221</sup> For example, it does not calculate and compare the unit prices of items in Amazon search results.<sup>222</sup> More importantly, it faces difficulties in comparing offerings across marketplaces.<sup>223</sup>

Why has the market consistently failed to provide consumers with a digital intermediary that can provide powerful price and product comparison? The short answer is difficulties in accessing data. As explained above, a marketplace of fully informed and rational consumers is considerably more competitive, and thus less profitable.<sup>224</sup> Consequently, Amazon has fought to keep independent price comparison tools from accessing even the basic information that it publishes openly on the Internet. Amazon can quickly detect bots that try to collect information and use technological means to block them.<sup>225</sup> It has also blocked access by leveraging the law, such as by arguing that collecting data from its marketplace is a violation of its terms and conditions.<sup>226</sup> Judges also allowed large companies like Amazon to misapply statutes to argue that collecting price information amounts to hacking, although such legal strategies are becoming less reliable.<sup>227</sup> Finally, even if Amazon did not actively block third-party tools, an emerging consensus is that for cost-effective interoperability, third parties require direct access to the data feeds of companies like Amazon, rather than relying on collecting data by visiting hundreds of thousands of product pages.<sup>228</sup>

To avoid fighting Amazon, either technically or legally, third-party price comparison tools have sought to strike deals with Amazon to

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221. *Amazon Price Comparison*, HONEY (Mar. 31, 2023), <https://help.joinhoney.com/article/46-can-i-use-honey-on-amazon> [https://perma.cc/U274-HZ2Q].

222. *Id.*

223. *Id.*

224. Gabaix & Laibson, *supra* note 9, at 531.

225. See Bhagyeshwari Chauhan, *5 Major Challenges That Make Amazon Data Scraping Painful*, DATAHUT, <https://blog.datahut.co/challenges-that-make-amazon-data-scraping-so-painful> [https://perma.cc/YUV9-HKAE] (explaining how Amazon can detect and block scraping bots).

226. See Bradley Williams, *Preventing Unintended Internet Discrimination: An Analysis of the Computer Fraud and Abuse Act for Algorithmic Racial Steering*, 2018 U. ILL. L. REV. 847, 869 (stating that Amazon “explicitly bans data mining in its terms of use”).

227. One avenue for potentially blocking such data is through the Computer Fraud and Abuse Act (CFAA). 18 U.S.C. § 1030(a)(2)(C) (2012) (banning unauthorized access to “information from any protected computer”); Jamie L. Williams, *Automation is Not “Hacking”: Why Courts Must Reject Attempts to Use the CFAA as an Anti-Competitive Sword*, 24 B.U. J. SCI. & TECH. L. 416, 419–21 (2018) (summarizing CFAA use against scraping); *Van Buren v. United States*, 141 S. Ct. 1648, 1652 (2021) (narrowing the scope of “unauthorized access” under the CFAA).

228. Cf. Dan Awrey & Joshua Macey, *The Promise and Perils of Open Finance*, 40 YALE J. ON REG. 1, 7–12 (2023) (exploring interoperability in the context of open banking); Thomas E. Kadri, *Digital Gatekeepers*, 99 TEX. L. REV. 951, 993 (2021) (broadly calling for interoperability mandates).

obtain real-time access to Amazon's price and product data. However, such arrangements come with major limitations. One startup, PriceZombie, sought to do just that by allowing consumers to compare prices for free across all major retailers, including Amazon.<sup>229</sup> It struck a deal with Amazon for access, but after quickly growing its user base to over 60,000 active users, it suddenly found its information access privileges revoked. Amazon said that the company had violated its terms of agreement by reporting Amazon price histories that were over twenty-four hours old — in other words, they were giving consumers too much price transparency. PriceZombie soon thereafter closed.<sup>230</sup> This example suggests that third-party apps that depend on Amazon's cooperation have less freedom to alert consumers to better deals elsewhere, as doing so may cause Amazon to withhold data access.<sup>231</sup>

Thus, without legal reform, Amazon price comparison tools are only likely to succeed if they can afford to collect such data and fight Amazon in court, if necessary. Accordingly, large companies have begun to show some progress with their price comparison engines, such as Capital One Shopping and Google Shopping.<sup>232</sup>

Laws can help that process along. The least intrusive option would simply be to pass legislation allowing digital intermediaries to use screen scraping bots to freely collect price and product information that is already available on the Internet — without fear that Amazon will retaliate. Two other interventions would require Amazon and other online retailers to take affirmative steps, each of which has been mandated in other contexts, such as “open banking.”<sup>233</sup> Combined with antitrust actions when appropriate, these consumer law interventions would help to usher in an analogous era of “open retail,” in which small merchants can compete fairly and consumers have the tools to find the best available products and services.

The first additional intervention would be to mandate that online retailers give third-party price comparison tools direct and automatic access to their price and product data through information “feeds,” for example, through an application programming interface (“API”).<sup>234</sup> When Amazon or its merchants post new products or update prices, that information goes into Amazon's private computer system, which then produces the outputs consumers see on product pages. By requiring

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229. @PriceZombie, X (FORMERLY KNOWN AS TWITTER) (Oct. 17, 2016), <https://twitter.com/PriceZombie> [<https://perma.cc/ZY57-8SU2>] (posting news of its shutdown following the company's ban from Amazon).

230. *Id.*

231. On the challenges of third-party apps when they must cooperate with powerful sellers, see Rory Van Loo, *Digital Market Perfection*, 117 MICH. L. REV. 815, 837 (2019).

232. See, e.g., GOOGLE SHOPPING, <https://shopping.google.com/> [<https://perma.cc/52AK-WPHY>]; Hemphill, *supra* note 42.

233. Also known as “Open Finance.” See Awrey & Macey, *supra* note 228, at 3.

234. See *id.* at 27–29.



Amazon and other retailers to share those internal updates with third parties, directly and automatically, comparison tools could more easily and cost-effectively access price and product data. API access would prove significantly more efficient than continually visiting and scanning millions of web pages to locate the various product features, ratings, and price information.<sup>235</sup>

A second, more extensive information-sharing rule would also mandate third-party access to a consumer's account data whenever that consumer requests it. Most importantly, that data would include a consumer's shopping history, which helps the third-party tool to better understand the consumer's tastes and preferences.

Some might be understandably concerned about the privacy implications of such a rule.<sup>236</sup> However, this rule is pro-privacy in the sense of giving consumers better control over their personal data,<sup>237</sup> and potentially reducing harm to consumers through manipulation, which is increasingly important to the rationale of privacy protection.<sup>238</sup> Lawmakers should not allow Amazon to use such information to make consumers pay more, while allowing privacy concerns to block other companies from using that same information to help consumers pay less.<sup>239</sup>

Moreover, similar information-sharing laws are already in place elsewhere. The European Union General Data Protection Regulation's "data portability" rules mandate companies to share personal data with

235. *See id.*

236. *See* Bar-Gill, *supra* note 37 (discussing widespread data use for price discrimination); Ariana Aboulafla, Greg Fritz, Tessa Mears & Macy Nix, *The Price of Prime-Consumer Privacy in the Age of Amazon*, 42 MITCHELL HAMLINE L.J. PUB. POL'Y & PRAC. 138, 139–40 (2020) (outlining threats to privacy created by Amazon). The consumer typically consents by agreeing to the terms in the fine print, but without necessarily understanding what will happen with the data. *See id.* at 139–40, 157–58.

237. *See* Rory Van Loo, *Privacy Pretexts*, 108 CORNELL L. REV. 1, 1, 50 (2022) ("Although data privacy's roots are in guarding against access, its future depends on promoting allied access."); Charles Fried, *Privacy*, 77 YALE L.J. 475, 482 (1968) (defining privacy as "the control we have over information about ourselves").

238. *See, e.g.,* Woodrow Hartzog, *What Is Privacy? That's the Wrong Question*, 88 U. CHI. L. REV. 1677, 1681, 1683 (2021) (cautioning against creating rigid definitions of "privacy" and instead focusing on problem-solving, such as how few privacy rules target "protecting individuals from harassment and manipulation"). There are ways to ensure this happens under existing laws or by including in the legislation an information fiduciary concept, which has yet to be applied to behavioral pricing practices. *See* Jack Balkin, *Information Fiduciaries and the First Amendment*, 49 U.C. DAVIS L. REV. 1183, 1209 (2016) ("An information fiduciary is a person or business who, because of their relationship with another, has taken on special duties with respect to the information they obtain in the course of the relationship."). *But see* Lina Khan & David Pozen, *A Skeptical View of Information Fiduciaries*, 133 HARV. L. REV. 497, 498, 538–40 (2019) (explaining alternatives under existing laws and explaining the limits of the information fiduciary concept).

239. These issues are beyond the scope of this project, and have already been extensively explored in the literature, albeit mostly outside of goods. *See, e.g.,* Van Loo, *Rise of the Digital Regulator*, *supra* note 13 (explaining the promise and challenges of digital intermediaries that help consumers analyze products).

consumers when requested, and gives consumers the right to transfer that data to other companies.<sup>240</sup> The U.K. similarly requires rewards programs to give consumers digitally accessible spending data.<sup>241</sup> Many consumers have reportedly used these laws to access account information and share it with third-party digital tools that help with everything from dietary advice to household budgeting.<sup>242</sup>

One example of the potential for such laws comes from Israel. In 2015, the legislature passed a law requiring brick-and-mortar retailers to make their price and product information available in digital form.<sup>243</sup> Price-comparison websites used the data to inform consumers, and average prices dropped an estimated four to five percent within two years.<sup>244</sup>

Note that these savings are average market-wide declines, which underscores how the benefits of price comparison tools could extend beyond Amazon purchases. To illustrate the implications, at the five-percent level of savings, information-sharing laws would save a family at the poverty line hundreds of dollars annually.<sup>245</sup> And for struggling middle-class families, that level of savings would be in the thousands of dollars annually.<sup>246</sup> Across the retail goods economy, five percent savings would amount to over one hundred billion dollars annually.<sup>247</sup> An effective digital tool could thus provide large-scale savings for consumers.

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240. Regulation 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), art. 20, 2016 O.J. (L 119) ¶ 1.

241. Richard H. Thaler & Will Tucker, *Smarter Information, Smarter Consumers*, HARV. BUS. REV. (Jan.–Feb. 2013), <https://hbr.org/2013/01/smarter-information-smarter-consumers> [<https://perma.cc/ES3L-E7E8>].

242. *Id.*

243. Itai Ater & Oren Rigbi, The Effects of Mandatory Disclosure of Supermarket Prices 3 (Oct. 2, 2017) (unpublished manuscript), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3046703](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3046703) [<https://perma.cc/2FQ2-HURN>].

244. *Id.*

245. Calculated as five percent of estimated spending for the lowest twenty percent of households by income, with the poverty line being about \$25,000 for a family of four and \$30,000 for a family of five. See U.S. BUREAU OF LAB. STATS., CONSUMER EXPENDITURES IN 2018 (2020), <https://www.bls.gov/opub/reports/consumer-expenditures/2018/pdf/home.pdf> [<https://perma.cc/KJ83-6PLL>].

246. *Id.* at 40 tbl.3.

247. Retail spending is almost four trillion dollars annually. *National Data: National Income and Product Accounts Tables*, U.S. DEP'T COM. BUREAU ECON. ANALYSIS, <https://apps.bea.gov/iTable/?reqid=19&step=2&isuri=1&categories=underlying> [<https://perma.cc/528Z-DZW9>] (chose the “NIPA Tables” menu; selected “Personal Consumption Expenditures”; then opened Table 2.4.5U).

*ii. Prohibiting Manipulative Pricing Practices*

A more intrusive option is to prohibit the practices that result in overcharge. One approach would be to forbid specific practices that produce overcharge and enshrine these in statute. For example, rules might prohibit listing prices without shipping included, burying the lowest-priced, highly rated items beyond the first few results, and anchoring search results with higher-price reference points.

These rules could draw from other fields in which similar pricing practices are specifically restricted by law. For example, price manipulation (“market manipulation”) is generally prohibited in pharmaceuticals and financial trading — so firms cannot, for instance, purchase a large volume of stocks with the intent of forcing the price up and then selling.<sup>248</sup> Instructed by Congress to apply UDAP standards, the Federal Reserve wrote rules to prohibit mortgage brokers from steering borrowers toward higher rates.<sup>249</sup> Its rationale for that prohibition is instructive for its parallels to Amazon. After conducting consumer surveys, the Federal Reserve concluded that “large numbers of consumers are simply not aware” that brokers have “an incentive to provide consumers loans with higher interest rates.”<sup>250</sup>

Of course, the case for regulating Amazon does not rest on what happens in other sectors, such as finance.<sup>251</sup> Laws already protect similar economic harms by regulating retailers, such as unit pricing requirements in stores and prohibitions on fictitious pricing.<sup>252</sup> Nonetheless, as the “culture of derivatives, hedges and swaps moves from Wall Street” to online commerce,<sup>253</sup> the laws protecting individuals in those other areas can guide laws that may help regulate Amazon and its competitors.

However, there are limitations to the specific prohibitions approach. These are well-analyzed in the literature on legal rules versus

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248. See, e.g., Medicare Prescription Drug, Improvement, and Modernization Act of 2003, Pub. L. No. 108-173, §§ 1111–1118, 117 Stat. 2066, 2461–64 (codified as amended at 21 U.S.C. § 355 (2012)) (prohibiting price manipulation for prescription drugs); Merritt B. Fox, Lawrence R. Glosten & Gabriel V. Rauterberg, *Stock Market Manipulation and Its Regulation*, 35 YALE J. ON REG. 67, 74–76 (2018) (discussing price manipulation in stock markets).

249. 75 Fed. Reg. 58509, 58511, 58513–514 (Sept. 24, 2010) (“[T]he Board finds that . . . steering consumers to loans that are not in their interest to maximize loan originator compensation, are unfair practices.”).

250. *Id.* The Federal Reserve went on to observe that, as a result of that faith in brokers, “consumers may be less likely to take steps to protect their interests when dealing with brokers.” Ultimately, the Federal Reserve reasoned that these dynamics undermined competition. *Id.*

251. Note that while the stakes of loans may be higher for a particular household, the aggregate harms across the retail sector are greater, since retail goods comprise a considerably larger industry. See U.S. DEP’T COM., *supra* note 247.

252. See Friedman, *supra* note 181, at 922.

253. Yeoman, *supra* note 219, at 508.

principles, or standards.<sup>254</sup> Additional challenges arise in the context of online retail and personalized pricing because, as already mentioned, Amazon continually evolves its pricing practices and adapts quickly to changes in the law.<sup>255</sup> To have any chance of keeping up with Amazon, the law cannot rely on Congress alone for updates.

In light of these challenges, an alternative legislative approach becomes more appealing: passing a general anti-overcharge statute. The statute could emphasize price transparency,<sup>256</sup> and give the FTC the ability to write transparency rules pursuant to that authority. For instance, the FTC could use that authority to require Amazon and other large online retailers to furnish consumers with a fuller lifetime price for a product, including the estimated add-on costs from, say, ink, batteries, or replacement toothbrush heads. The FTC might also write the kind of information-forcing rules discussed above, requiring data-sharing with third parties or the ability to sort search results by unit price.

To return to where this Article began, consumer law interventions can serve as either a complement or substitute to existing proposals for regulating Amazon, particularly antitrust proposals. An especially high-profile proposal involves breaking up Amazon by splitting its marketplace from its role as a merchant selling its own goods.<sup>257</sup> Another would treat Amazon as a utility, with heavy oversight similar to that for railroad, electricity, milk, telecommunications, and water companies.<sup>258</sup> Yet even if either of these approaches were to be adopted, consumer law would still have an important complementary role to play in regulating Amazon's overcharge.

#### IV. CONCLUSION

By synthesizing new and existing empirics, this Article has shown that Amazon's prices may not be as competitive as has long been assumed. The behavior we have documented — burying the best deals, framing high-priced options as bargains, and adding considerable

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254. See generally, e.g., Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685 (1976) (discussing the benefits and drawbacks of legal rules and principles); Kathleen M. Sullivan, *The Justices of Rules and Standards*, 106 HARV. L. REV. 22, 57 (1992) (summarizing "the rules and standards debate in a nutshell").

255. See Kalra, *supra* note 179.

256. Cf. Saul Levmore & Frank Fagan, *The End of Bargaining in the Digital Age*, 103 CORNELL L. REV. 1469, 1471 (2018) ("[L]aw might require disclosures about the prices of completed sales in order to save the resources buyers would expend to discover information already known to the seller.").

257. See Khan, *supra* note 118, at 1091.

258. See K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 CARDOZO L. REV. 1621, 1675 (2018) ("This infrastructural power [of Amazon] can be restrained by applying . . . public utility strategies . . .").

complexity to retail shopping — has the potential to promote widespread consumer misperception. The likely consequence of such practices — extracting more money or wasting time — harms consumers. Making it harder for consumers to find the best deals could also mean some businesses have a harder time competing, even if they offer a better price or product.

State attorneys general and the FTC might have success applying existing laws to hold Amazon accountable for some of these behavioral pricing practices if found, such as steering consumers toward more expensive products and fabricating “discounts” off list prices. A new anti-overcharge statute would further help to clarify the FTC’s authority, and more importantly, allow for rulemaking that could greatly increase price transparency. But in the digital era, some of the most important legal solutions rely not on protecting consumers in the courthouse but on promoting third parties in the marketplace. At the very least, the law can arm consumers’ tech allies with algorithmic sophistication comparable to big tech platforms like Amazon.

Although those specific reforms have potential value, the case of Amazon reveals two larger weaknesses in the legal architecture for online commerce. First, scholarship focusing on Amazon’s pricing has sought to reform antitrust to reconcile the tension between Amazon’s suspected exercise of monopoly power and low prices. But without greater attention to behavioral manipulation in search results beyond self-preferencing, antitrust may fail to identify a more straightforward relationship between monopoly power and high prices.

Second, monopoly power is not the only mechanism that Amazon might use to charge higher prices. Amazon can manipulate consumer behavior to charge higher prices and extract higher rents from consumers, even without maintaining and exercising monopoly power. Yet consumer manipulation is often overlooked, like the area of law — consumer law — within which it resides.

Part of the problem may be that laws improving consumer perception lack the narrative appeal of breaking up big tech. But a dollar saved from avoiding monopoly is the same as a dollar saved from avoiding manipulation. Whether there are few or many online gatekeepers, they would ideally offer not just convenience but a new era of open retail responsive to the best interests of the consumers they serve.

## V. APPENDIX – DATA AND METHODOLOGY

In this study, we used a dataset consisting of one hundred first-page search results, and approximately 4,800 items in total, from Amazon.com. To create this dataset, we constructed a list of search terms selected randomly from the list of “Amazon Basics New

Arrivals,” which includes a wide range of product categories sold on Amazon.com.<sup>259</sup> To optimize for both specificity and comparability of search results, we edited and curated these terms for length, so that all terms were a minimum of three and a maximum of four words long, and to remove fillers (prepositions, articles, etc.). To illustrate, the list of Amazon Basics products includes an item with the following headline description: “Amazon Basics 2 ply paper towel — Flex Sheets — 12 value rolls (previously solimo).” Since this description exceeds our condition on word length, we amended it to “2 ply paper towel.”

Using a method often applied by legal scholars in other contexts,<sup>260</sup> data collection was carried out by four research assistants (“coders”) using the Amazon.com desktop interface in 2022. Data collection proceeded in two phases. In the first phase, the authors and coders reviewed a pilot sample of twenty search results to develop a codebook for content analysis, using the first twenty search terms from the randomized search term list. The pilot data was open coded to establish a set of initial codes. We first reviewed the pilot data independently and then collectively met to discuss, combine, and reconcile codes.<sup>261</sup> In the second phase, we collected a larger sample of search results using the same method.

We focused on features that were most relevant for studying four practices of interest: anchoring, burying, complexifying, and self-preferencing. The data was coded for multiple features, including: (1) price (unit, reference, and list prices); (2) advertising (both third-party “sponsored” ads and Amazon’s own “featured brands”); (3) ratings and number of reviews.<sup>262</sup>

To reduce potential algorithmic bias and to control for variables known to influence Amazon search results such as location, browsing history, and browser type,<sup>263</sup> we set up new non-Prime Amazon

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259. See AMAZON BASICS, <https://amzn.to/3q9rAhj> [<https://perma.cc/5PPV-E2XR>].

260. See, e.g., Re, *supra* note 72.

261. See Nora McDonald, Sarita Schoenebeck & Andrea Forte, *Reliability and Inter-rater Reliability in Qualitative Research: Norms and Guidelines for CSCW and HCI Practice*, PROC. ACM ON HUM.-COMPUT. INTERACTION, Nov. 2019, at 1, 3.

262. To facilitate data verification and replicability, the coders took screenshots of each search result page and the best deals (including the shopping basket showing shipping costs and delivery time). See Jason M. Chin & Kathryn Zeiler, *Replicability in Empirical Legal Research*, 17 ANN. REV. L. & SOC. SCI. 239, 240 (2021) (explaining the need for all inputs to be available for future researchers to replicate results).

263. See, e.g., Martin Feuz, Matthew Fuller & Felix Stalder, *Personal Web Searching in the Age of Semantic Capitalism: Diagnosing the Mechanisms of Personalisation*, FIRST MONDAY (2011), <https://firstmonday.org/article/view/3344/2766> [<https://perma.cc/XZ83-XSQQ>] (studying personalization of Google search results and interpreting empirical results to show that “Google does not only rely on a user’s personal semantic history, but that it extrapolates from what it knows about a person to his or her association with statistical group profiles that Google has built up over time”); Amit Singhal, *Some Thoughts on*

accounts with delivery addresses in the same area (Boston, MA), used the same virtual private network (“VPN”) for all coders, and collected the data in a short time span of one week.<sup>264</sup> To limit scope, we reviewed only the first page of search results.

We excluded search results where the listed items were largely irrelevant to the search term or highly incomparable, rendering product comparison meaningless — which was the case for twenty-one search results. These inclusion criteria were developed through the initial pilot coding. For example, a search for “aa 3-volt lithium batteries” yielded a mixture of batteries of different sizes, voltage, and type (lithium and alkaline). This search was excluded for both relevance and comparability reasons. Where a particular item in the search results was irrelevant, but the search results overall were mostly relevant, we compared only relevant products. For example, a search for “kid’s dinosaur decorative pillow” yielded mostly dinosaur pillows, but also included a few results for stuffed dinosaur toys, which are irrelevant to the search term and therefore not included in the comparison.

For each search result, we ascertained, with an eye toward budget-conscious consumers, (1) the best deal on the first page of search results; (2) whether the best deal was in the first four headline items; (3) whether the best deal was an ad or non-ad item; and (4) whether a better deal could be found by scrolling past the headline items. To minimize the level of qualitative judgment required, we defined the “best deal” specifically and narrowly, as set out below. To test intercoder reliability, the authors met with the coders to test the definition on a random subsample of ten search results.<sup>265</sup> This exercise was conducted using screenshots of selected search results.<sup>266</sup> The dataset is available online.<sup>267</sup>

For the purposes of this study, the “best deal” was identified according to the following formula:

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*Personalization*, GOOGLE INSIDE SEARCH (Nov. 23, 2011), <https://search.googleblog.com/2011/11/some-thoughts-on-personalization.html> [https://perma.cc/AZ3C-QMEK] (describing how Google accounts for language, location, search history, and social network connections in personalizing results); Aniko Hannak, Gary Soeller, David Lazer, Alan Mislove & Christo Wilson, *Measuring Price Discrimination and Steering on E-Commerce Web Sites*, 2014 PROC. CONF. ON INTERNET MEASUREMENT CONF. 305, 317 (discovering “cases of sites altering results based on the user’s OS/browser, account on the site, and history of clicked/purchased products”).

264. See also Angwin & Mattu, *supra* note 63 (describing their methodology for scraping data from Amazon.com).

265. KLAUS KRIPPENDORFF, *CONTENT ANALYSIS: AN INTRODUCTION TO ITS METHODOLOGY* 131–32 (4th ed. 2019).

266. Search result personalization on Amazon.com implies that this test cannot be carried out using search result URLs.

267. *Amazing Pricing Study - Dataset*, [https://drive.google.com/drive/folders/1SXpNCS3rt6OX7beCnQ3fg5iB9rrT-4ef?usp=drive\\_link](https://drive.google.com/drive/folders/1SXpNCS3rt6OX7beCnQ3fg5iB9rrT-4ef?usp=drive_link) [https://perma.cc/3P5N-8TM9].

- (1) The item that has the lowest unit price AND  $\geq 4.5$  stars rating AND  $\geq$  one hundred reviews.
- (2) If no item satisfies (1), the item with the lowest unit price AND  $\geq$  four stars rating AND  $\geq$  one hundred reviews.
- (3) If no item satisfies (1) or (2), the item with the lowest unit price.

Applying this formula:

- (1) The *best headline deal* is the item in the first line of results (i.e., the first four items) that satisfies the formula above.
- (2) The *best overall deal* is the item on the first page of search results that matches the search term, has the lowest unit price with the same rating or higher than the best headline deal, and  $\geq 100$  reviews.
- (3) The best *non-ad headline deal* is the item in the first four non-ad items (if different from (1)) that satisfies the formula above.
- (4) The *best overall deal compared to the best non-ad headline deal* is the item on the first page of search results that matches the search term, has the lowest unit price with the same rating or higher than the best non-ad headline deal, and  $\geq$  one hundred reviews.

This definition is modeled around a simplified budget-conscious, time-poor consumer. Although this hypothetical consumer is principally concerned with finding the result with the cheapest unit price, they are also concerned with finding a relevant result, and would prefer to have high ratings along with the low price, or at least four stars and one hundred reviews.

To illustrate, consider the following example search for a “bean bag chair” from our pilot study. Typing this search term into the search window yields the following headline results:

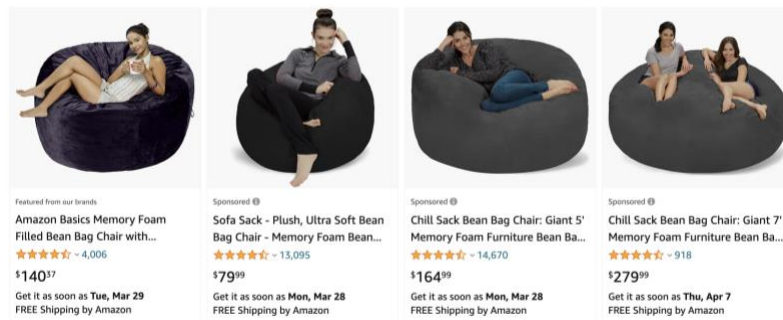




Figure 1: Headline Results for “bean bag chair”

Various features are coded from this first line of results, including the reference and unit prices, advertising, use of crossed-out list prices, customer rating, and number of reviews for each item. Note that the coder must hover over the star image to ascertain the customer rating (which, along with the need to eliminate irrelevant items, makes automatic data collection less feasible, and manual coding more attractive, for this study). Applying the “best deal” formula, as set out above, the coder establishes that the best headline deal is the second item, for \$79.99 (with 4.3 stars). This is because, although all items are relevant to the search, none of the items have a rating of 4.5 stars or more. This analysis corresponds with the first step in the formula. However, all items have a rating of four stars or more, and  $\geq$  one hundred reviews. Therefore, on the second step of the formula, the best headline deal for the budget-conscious consumer is the item with the lowest price, namely the second item.

To assess whether this is the best overall deal on the first page, the coder must ascertain whether there is another item that is cheaper than \$79.99, has at least as high a customer rating as the best headline deal, and has one hundred reviews or more. They find that the best deal on the first page is at item twenty-one, at \$39.99 and 4.4 stars:

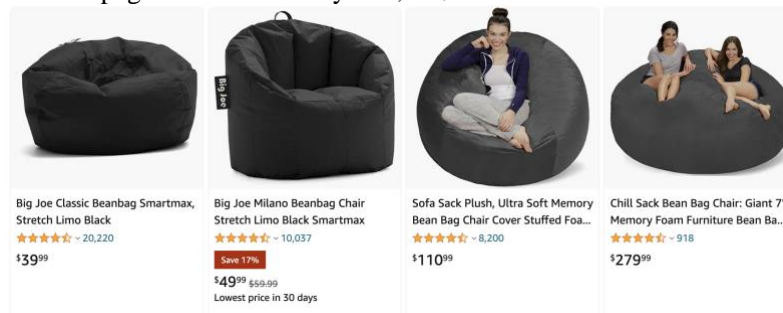


Figure 2: “Best Deal” for “bean bag chair”