ELECTRONIC WORD OF MOUTH AND CONSUMER PROTECTION: A LEGAL AND ECONOMIC ANALYSIS

JENS DAMMANN*

The most fundamental challenge in consumer protection law lies in the information asymmetry that exists between merchants and consumers. Merchants typically know far more about their products and services than consumers do, and this imbalance threatens the fairness of consumer contracts.

However, some scholars now argue that online consumer reviews play a crucial role in bridging the information gap between merchants and consumers. According to this view, consumer reviews are an adequate substitute for some of the legal protections that consumers currently enjoy.

This Article demonstrates that such optimism is unfounded. Consumer reviews are—and will remain—a highly flawed device for protecting consumers, and their availability therefore cannot justify dismantling existing legal protections.

This conclusion rests on three main arguments. First, there are fundamental economic reasons why even well-designed consumer review systems cannot eliminate information asymmetries between merchants and consumers.

Second, unscrupulous merchants undermine the usefulness of reviews by manipulating the review process. While current efforts to stamp out fake reviews may help to eliminate some of the most blatant forms of review fraud, sophisticated merchants can easily resort to more refined forms of manipulation that are much more difficult to address.

Third, even if the firms operating consumer review systems were able to remedy all the various shortcomings that such systems have, it is highly

*. Ben H. and Kitty King Powell Chair in Business and Commercial Law, The University of Texas School of Law. For research assistance or editing, or both, I am grateful to Jael Dammann, Elizabeth Hamilton, Stella Fillmore-Patrick, and Jean Raveney.

unlikely that they would choose to do so: by and large, the firms using review systems lack the right incentives to optimize them.

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INTRODUCTION

Online consumer reviews are a ubiquitous feature of the digital economy.[1] Whether consumers are buying flat-screen televisions on Amazon, booking apartments on Airbnb, or purchasing travel insurance on Squaremouth, they have access to an abundance of reviews and ratings by fellow consumers when making their purchase.[2] Moreover, reviews and ratings are not only relevant to online transactions; websites such as Yelp and TripAdvisor allow consumers to consult online consumer reviews when purchasing goods or services in brick-and-mortar stores. In some sectors, consumers may not even have to go online to benefit from online reviews. Many businesses, particularly in the tourism industry, proudly display aggregate online ratings from websites such as TripAdvisor in their offline establishments.

Of course, consumers' views have always mattered; even before the rise of online consumer reviews, companies thrived or failed depending on the degree of their customers' satisfaction.[3] In the past, however, consumers

1. *E.g.*, Chia-Chen Chen & Ya-Ching Chang, *What Drives Purchase Intention on Airbnb? Perspectives of Consumer Reviews*, *Information Quality, and Media Richness*, 35 TELEMATICS & INFORMATICS 1512, 1513 (2018); Raffaele Filieri, Fraser McLeay, Bruce Tsui & Zhibin Lin, *Consumer Perceptions of Information Helpfulness and Determinants of Purchase Intention in Online Consumer Reviews of Services*, 55 INFO. & MGMT. 956, 956 (2018); Bart de Langhe, Philip M. Fernbach & Donald R. Lichtenstein, *Navigating by the Stars: Investigating the Actual and Perceived Validity of Online User Ratings*, 42 J. CONSUMER RES. 817, 817 (2016); Feng Zhu & Xiaoquan (Michael) Zhang, *Impact of Online Consumer Reviews on Sales: The Moderating Role of Product and Consumer Characteristics*, 74 J. MARKETING 133, 133 (2010).

2. *Cf.* Georgios Askalidis, Su Jung Kim & Edward C. Malthouse, *Understanding and Overcoming Biases in Online Review Systems*, 97 DECISION SUPPORT SYS. 23, 23 (2017) (pointing out that "all of the top 10 U.S. online retailers, as well as most of the biggest retailers in the rest of the world" and "all the major digital stores" "collect and display user reviews for their products").

3. This was true even before the rise of electronic word of mouth. *See* Marsha L. Richins & Teri Root-Shaffer, *The Role of Involvement and Opinion Leadership in Consumer Word-of-Mouth: An Implicit*

interested in their peers' verdicts had to rely on offline word of mouth. Today, the Internet makes it exceedingly easy for consumers to let others benefit from their experience, either by submitting written reviews or by awarding a certain number of "points" or "stars."

In keeping with the prevailing terminology in fields such as economics and marketing, this Article uses the term "online consumer review" to refer to both star ratings and written reviews.[4] Online consumer reviews form the core of what the marketing literature calls "electronic word of mouth" or "e-WOM,"[5] a term that covers all online statements that consumers make about companies or products.[6]

A wealth of empirical research demonstrates that electronic word of mouth is highly relevant to consumers' purchasing decisions.[7] Positive consumer reviews can cause sales to increase substantially;[8] negative ones tend to have the opposite effect.[9] In 2016, the U.S. Congress recognized the potential value of electronic word of mouth when it enacted the Consumer Review Fairness Act,[10] which prohibits contractual clauses that ban consumers from posting reviews.[11]

For consumer protection law and policy, the widespread availability of consumer reviews may seem nothing short of revolutionary. Traditionally, legal scholars and economists have regarded the information asymmetry between merchants and consumers as the central problem in consumer law.[12] Merchants typically know much more about the quality of their products and services than consumers do.[13] Moreover, a similar information asymmetry

Model Made Explicit, 15 ADVANCES CONSUMER RES. 32, 32 (1988) (summarizing the empirical literature on traditional word of mouth and citing an estimate according to which 80% of purchases are made based on someone else's recommendation).

4. *E.g.*, Raffaele Filieri, *What Makes an Online Consumer Review Trustworthy?*, 58 ANNALS TOURISM RES. 46, 46 (2016) (using the same term).

5. *Cf. id.* at 47 (pointing out that online consumer reviews are a special type of e-WOM); Askalidis et al., *supra* note 2, at 23 (noting the rise of electronic word of mouth).

6. *E.g.*, Goele Aerts, Tim Smits & P.W.J. Verlegh, *How Online Consumer Reviews Are Influenced by the Language and Valence of Prior Reviews: A Construal Level Perspective*, 75 COMPUTERS HUM. BEHAV. 855, 855 (2017); Filieri et al. *supra* note 1, at 957; Kristopher Floyd, Ryan Freling, Saad Alhoqail, Hyun Young Cho & Traci Freling, *How Online Product Reviews Affect Retail Sales: A Meta-Analysis*, 90 J. RETAILING 217, 218 (2014).

7. *See infra* Part II.

8. *See infra* Part II.

9. *See infra* Part II. Notably, empirical research suggests that consumers tend to trust negative reviews more than positive ones. *E.g.*, Filieri, *supra* note 4, at 59.

10. Consumer Review Fairness Act of 2016, Pub. L. No. 114-258, 130 Stat. 1355 (codified at 15 U.S.C. § 45b).

11. 15 U.S.C. § 45b(c).

12. *E.g.*, Amitai Aviram, *Regulation by Networks*, 2003 BYU L. REV. 1179, 1188.

13. *See, e.g.*, Robert H. Mnookin, *Strategic Barriers to Dispute Resolution: A Comparison of Bilateral and Multilateral Negotiations*, 8 HARV. NEGOT. L. REV. 1, 5 (2003) ("The seller typically knows

exists for the legal terms that merchants use since consumers almost always lack the time and expertise to read and understand a contract's fine print.[14] As a result, only the merchant is aware of the various stipulations that the agreement contains.[15]

The merchant's informational advantage serves as a justification for much of modern consumer protection law: by imposing minimum quality standards for goods and services, the law reassures consumers that they can expect a certain minimum level of quality.[16] Similarly, the legal system guarantees a minimum level of quality regarding a contract's boilerplate terms by declaring particularly one-sided contractual terms unconscionable.[17]

If consumer reviews were able to eliminate or substantially reduce the information asymmetry between merchants and consumers, they would arguably diminish the need for legal intervention. Therefore, it is unsurprising that some scholars view consumer reviews as a potential substitute for traditional legal protections and call on courts to be more generous to merchants in evaluating the fairness of contractual terms.[18]

far more about the quality of what is being sold than the buyer."); Peter Margulies, *Advising Terrorism: Material Support, Safe Harbors, and Freedom of Speech*, 63 HASTINGS L.J. 455, 458 (2012) (noting that "[s]ellers typically know more about the products they sell" than consumers).

14. *See, e.g.*, Shmuel I. Becher, *Asymmetric Information in Consumer Contracts: The Challenge That Is Yet to Be Met*, 45 AM. BUS. L.J. 723, 724 (2008); Omri Ben-Shahar, *The Myth of the 'Opportunity to Read' in Contract Law*, 5 EUR. REV. CONT. L. 1, 2 (2009); David Gilo & Ariel Porat, *The Hidden Roles of Boilerplate and Standard-Form Contracts: Strategic Imposition of Transaction Costs, Segmentation of Consumers, and Anticompetitive Effects*, 104 MICH. L. REV. 983, 984 (2006); Avery Katz, *The Strategic Structure of Offer and Acceptance: Game Theory and the Law of Contract Formation*, 89 MICH. L. REV. 215, 294 (1990); Todd D. Rakoff, *Contracts of Adhesion: An Essay in Reconstruction*, 96 HARV. L. REV. 1173, 1179 (1983). *But see* Alan Schwartz, *The Case Against Strict Liability*, 60 FORDHAM L. REV. 819, 826 (1992) ("[C]onsumers probably are familiar with the aspects of contracts that relate to product failure.").

15. Jens Dammann, *Flytraps, Scarecrows, and the Transparency Paradox: The Case for Redesigning the Law on Vague Boilerplate Contracts*, 2018 U. ILL. L. REV. 185, 189. David Gilo and Ariel Porat argue persuasively that competition between merchants may sometimes help attenuate this problem since merchants with more consumer-friendly contracts may find it in their interest to alert consumers to the fact that competing merchants' contracts are less generous. David Gilo & Ariel Porat, *Viewing Unconscionability Through a Market Lens*, 52 WM. & MARY L. REV. 133, 164–65 (2010). However, depending on the number of competitors, the number of contractual provisions at issue, and the costs of informing consumers, this incentive may not be strong enough to ensure that consumers are adequately informed. *See id.* at 170–76 (discussing potential obstacles).

16. *E.g.*, Dammann, *supra* note 15, at 190.

17. *E.g.*, Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203, 1271 (2003).

18. *See* Scott R. Peppet, *Freedom of Contract in an Augmented Reality: The Case of Consumer Contracts*, 59 UCLA L. REV. 676, 686 (2012) (arguing that courts should be more likely to enforce contracts in the digital age since the availability of online information "makes it more likely that standard form consumer contracts will be fair"); *see also* Molly Cohen & Arun Sundararajan, *Self-Regulation and Innovation in the Peer-to-Peer Sharing Economy*, 82 U. CHI. L. REV. ONLINE 116, 121 (2015) (arguing that online consumer review systems reduce information asymmetries and that such digital technologies

Lending additional support to this optimistic narrative is the fact that online platforms such as Amazon have taken meaningful steps to eliminate a well-known flaw of consumer review systems: fake reviews.[19] For example, Amazon indicates which of the reviews displayed on its website were written by verified purchasers and which ones were not.[20]

Is it time, then, to dismantle some of the legal protections that lawmakers and courts have developed over the years to shield consumers from the consequences of their ignorance? This Article argues against such an approach. Consumer reviews do not offer a plausible solution to the problem of information asymmetry, let alone a suitable alternative to established legal protections for consumers.

This claim rests on three main arguments. First, even well-designed rating systems suffer from fundamental economic limitations.[21] To give just one very simple example, consumers who consider reviewing products have highly distorted incentives.[22] Assuming that a product's aggregate rating is simply the arithmetic mean of the various ratings, early customers know—or should know—that their reviews have a significant impact on the product's average rating.[23] By contrast, customers of products or services that have already been rated by many others know—or ought to recognize—that their reviews will have a small impact on the product's average rating.[24] Therefore, these customers have a lower incentive to weigh in.[25] As a result, rating averages tend to show bias in favor of early buyers' views. This early-purchaser bias proves problematic because both the relative and the absolute quality of products can vary over time.[26]

Second, unscrupulous merchants undermine the integrity of rating systems by manipulating the review process.[27] While screening efforts are likely to weed out some of the more blatant attempts at manipulation, they

offer an alternative to government intervention); *cf.* Do-Hyung Park & Jumin Lee, *eWOM Overload and Its Effect on Consumer Behavioral Intention Depending on Consumer Involvement*, 7 ELECTRONIC COM. RES. & APPLICATIONS 386, 386 (2008) (noting that consumer reviews can both provide information about a product and send a signal about its popularity and arguing that reviews that satisfy these two functions "can completely meet consumers' information needs").

19. David Streitfeld, *His Biggest Fan Was Himself*, N.Y. TIMES: BITS (Sept. 4, 2012, 10:42 AM), https://bits.blogs.nytimes.com/2012/09/04/his-biggest-fan-was-himself [https://perma.cc/Q9VJ-XMWV] (citing an estimate that as many as one-third of all reviews may be fake).

20. *See infra* Part IV.

21. *See infra* Part III.

22. *See infra* Section III.B.

23. *See infra* Section III.B.3.

24. *See infra* Section III.B.3.

25. *See infra* Section III.B.3.

26. *See infra* Section III.B.3.

27. *See infra* Part IV.

are unlikely to protect consumers against more advanced types of abuse.[28]

Third, even if the firms providing consumer review systems (hereinafter "providers") were able to create unbiased rating systems and to prevent review manipulation, it is unlikely that they would choose to do so. Providers lack appropriate incentives to optimize online review systems. Admittedly, many of the pertinent firms have some economic stake in protecting the integrity of their review systems.[29] For example, if Amazon's ratings were known to be completely unreliable, they would no longer be of much help in persuading consumers to make purchases. However, firms' interest in protecting the credibility of their rating systems is not the only incentive at play.[30] Online sellers who maintain their rating systems must balance their interest in preserving the credibility of their ratings with the desire to maximize short-term profits by tolerating or even encouraging excessively positive reviews. There are compelling reasons to believe that the latter interest sometimes trumps the former.[31]

The central claim advanced in this Article—that consumer reviews offer consumers only limited protection—is of fundamental importance to consumer protection law and policy. It implies that consumer reviews cannot function as a substitute for traditional legal protections for consumers, such as implied warranties or the unconscionability doctrine. Courts and lawmakers should thus reject any attempt to invoke the availability of consumer reviews as a justification for dismantling or reducing these traditional legal protections.

This Article is structured as follows: Part I provides some necessary background by delving into the economic theory on consumer contracts. Part II summarizes and analyzes the sizable empirical economic literature on electronic word of mouth. Part III examines the structural limitations of consumer reviews. Part IV demonstrates that efforts aimed at eradicating manipulative reviews are bound to fail. Part V explains why the firms that maintain consumer review systems lack the right incentives to optimize them. Part VI considers the possibility of legislation aimed at improving consumer reviews and argues that such legislation would likely do more harm than good.

28. *See infra* Section IV.B.
29. *See infra* Section V.A.
30. *See infra* Section V.B.
31. *See infra* Section V.C.

I. THE ECONOMICS OF CONSUMER PROTECTION

Before addressing the empirical literature on consumer reviews, it is helpful to revisit the economic theory underlying consumer contract law. Consumer law's central challenge lies in the information asymmetry between merchants and consumers.[32] Consumer contracts typically involve the exchange of money for goods or services, and as a general rule, merchants know more about the products or services they supply than their customers do.[33]

Moreover, merchants are much better informed about the terms of their contracts. In practice, contracts between merchants and consumers often contain boilerplate terms: that is, preprinted terms that the merchants, or their lawyers, have prepared in advance.[34] Such boilerplate clauses are generally lengthy[35] and hard to understand.[36] Unsurprisingly, therefore, most consumers fail to read them.[37] A recent study by Yannis Bakos, Florencia Marotta-Wurgler, and David R. Trossen serves to illustrate this point. The authors of the study analyzed how often shoppers bothered to read the contract terms used by online software sellers.[38] They discovered that "only one or two in 1,000 shoppers access a product's [end-user license agreement] for at least 1 second."[39] Moreover, "most of the few shoppers who do access [end-user license agreements] do not spend enough time doing so to have digested more than a fraction of their content."[40] In other words, it is generally safe to assume that when the parties enter into a contract, only the merchant who has drafted the agreement knows its content.

32. *See* sources cited *supra* notes 12–15.

33. *See* sources cited *supra* note 13.

34. *See, e.g.*, Erik Encarnacion, *Contract as Commodified Promise*, 71 VAND. L. REV. 61, 113 (2018) (noting the ubiquity of boilerplate contracts); Tess Wilkinson-Ryan, *A Psychological Account of Consent to Fine Print*, 99 IOWA L. REV. 1745, 1753 (2014) (noting the ubiquity of boilerplate terms).

35. *See, e.g.*, Karen Eggleston, Eric A. Posner & Richard Zeckhauser, *The Design and Interpretation of Contracts: Why Complexity Matters*, 95 NW. U. L. REV. 91, 99 (2000) ("Many simple sales contracts include lengthy boilerplate provisions . . . .").

36. *See, e.g.*, Robert A. Hillman & Jeffrey J. Rachlinski, *Standard-Form Contracting in the Electronic Age*, 77 N.Y.U. L. REV. 429, 446 (2002) ("Consumers recognize that they are unlikely to understand the lengthy and complicated legal jargon in the boilerplate."); Gilo & Porat, *supra* note 14, at 984 (noting that consumers find boilerplate terms hard to understand); Katz, *supra* note 14, at 273 (noting that boilerplate terms are frequently "expressed obscurely or in legal or technical jargon"); Lewis A. Kornhauser, Comment, *Unconscionability in Standard Forms*, 64 CALIF. L. REV. 1151, 1163 (1976) (noting that boilerplate contracts "will be written in obscure legal terms"); Andrew A. Schwartz, *Consumer Contract Exchanges and the Problem of Adhesion*, 28 YALE J. ON REG. 313, 350 (2011) (noting that boilerplate terms are frequently difficult to understand for consumers).

37. *See* sources cited *supra* note 14; *see also* Wilkinson-Ryan, *supra* note 34, at 1753 (noting that "boilerplate terms are . . . never read").

38. Yannis Bakos, Florencia Marotta-Wurgler & David R. Trossen, *Does Anyone Read the Fine Print? Consumer Attention to Standard-Form Contracts*, 43 J. LEGAL STUD. 1, 8 (2014).

39. *Id.* at 3.

40. *Id.* at 32.

A. THE MARKET FOR LEMONS

What are the welfare consequences of the informational asymmetries between merchants and consumers? To answer this question, scholars point to Akerlof's model of a market for lemons.[41]

Akerlof—using the example of used-car sales—posits a market in which consumers know only the proportion of good and bad cars in the market but not the actual quality of the car they buy.[42] In this market, rational consumers will base the price that they are willing to pay on the expected rather than the actual quality of a product. The expected quality in this context is the average quality of goods for sale. Because consumers focus on the average rather than on the actual quality of goods, merchants neither get punished for selling below-average goods nor rewarded for selling above-average goods.[43] In Akerlof's words, "[B]ad cars sell at the same price as good cars since it is impossible for a buyer to tell the difference between a good and a bad car . . . ."[44] As a result, merchants who offer high-quality goods may be unwilling to sell at the price that consumers are willing to pay and may, therefore, leave the market. The exodus of these "high-quality" merchants means that the average quality of goods offered for sale declines. In response, consumers adjust their expectations and lower the price that they are willing to pay. Their decreased willingness to pay may, in turn, cause more merchants to leave the market, leading to a further reduction in the average quality of goods for sale.

The result can be a vicious cycle that continues until the market reaches a low-quality-low-price equilibrium in which all merchants sell low-quality products, and all purchasers insist on a price reflecting the low quality of goods sold.[45] In game-theoretical terms, this outcome constitutes a Nash equilibrium in which each party's strategy represents the best response to the other parties' strategies.[46] Given that all merchants sell low-quality goods, the best response for consumers is to insist on a price reflecting this low quality, and given that all consumers insist on a low price, the best response

41. George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970). Akerlof's lemon market model is now a standard reference point in the literature on consumer contracts. *See, e.g.*, Rakoff, *supra* note 14, at 1227 n.194 (citing Akerlof); Korobkin, *supra* note 17, at 1235 n.126 (citing Akerlof).

42. Akerlof, *supra* note 41, at 489.

43. *Id.* at 490.

44. *Id.*

45. *Cf. id.* ("[I]n a . . . continuous case with different grades of goods . . . it is quite possible to have the bad [cars] driving out the not-so-bad driving out the medium driving out the not-so-good driving out the good . . . .").

46. For the definition of a Nash equilibrium, see, for example, DREW FUDENBERG & JEAN TIROLE, GAME THEORY 11 (1991).

for merchants is to sell only low-quality goods. In the extreme case, namely if no consumers are interested in buying low-quality goods, no sales may take place at all.[47]

Crucially, the emergence of a lemon market does not imply that consumers pay too much for the goods and services that they purchase. On the contrary, consumers get exactly what they pay for: they pay for low-quality goods, and they receive low-quality goods. Nonetheless, the lemon market leads to inefficient outcomes. That is because it prevents certain mutually beneficial transactions from occurring: some merchants would be delighted to sell high-quality goods at a higher price, and some consumers would be more than happy to pay higher prices for high-quality goods. However, given that consumers are unable to ascertain the actual quality of any particular good, such transactions will not take place even though they would benefit both consumers and sellers.

This logic does not only apply to the quality of goods or services but also to that of boilerplate terms[48]: if consumers do not know the content of the boilerplate terms that merchants use, they will be unwilling to pay a higher price to merchants that use consumer-friendly boilerplate terms.[49] Furthermore, if merchants do not get compensated for using consumer-friendly boilerplate terms, they may leave the market or, more likely, start using more merchant-friendly terms.[50] In other words, just as informational asymmetries between merchants and consumers can lead to a low-price-low-quality equilibrium in the market for goods and services, they can also lead to a low-price-low-quality equilibrium concerning boilerplate terms.

B. TRADITIONAL RESPONSES

The law's traditional approach to solving the lemon market problem has been to rely on a mixture of mandatory disclosure requirements and minimum quality standards.[51] Mandatory disclosure is meant to target the problem at its root by eliminating the information asymmetry.[52] Minimum quality standards address the lemon market problem by providing consumers with a guarantee that the products and services offered, as well as the contract

47. Akerlof, *supra* note 41, at 490–91.

48. Victor P. Goldberg, *Institutional Change and the Quasi-Invisible Hand*, 17 J.L. & ECON. 461, 485 (1974); Dammann, *supra* note 15, at 190; Melvin Aron Eisenberg, *The Limits of Cognition and the Limits of Contract*, 47 STAN. L. REV. 211, 244 (1995).

49. Dammann, *supra* note 15, at 190; Eisenberg, *supra* note 48, at 213.

50. Dammann, *supra* note 15, at 190; Eisenberg, *supra* note 48, at 244.

51. Dammann, *supra* note 15, at 190.

52. *E.g.*, Christina Parajon Skinner, *Bank Disclosures of Cyber Exposure*, 105 IOWA L. REV. 239, 271 (2019).

terms used, are of a certain quality.[53] However, both of these mechanisms are inherently flawed.

Mandatory disclosure has a particularly poor track record. As Omri Ben-Shahar and Carl Schneider conclude in their landmark monograph on disclosure regulation, consumers generally fail to read mandatory disclosures.[54] Moreover, if they read them, they fail to comprehend the information supplied.[55] Even if consumers read and understand mandatory disclosures, they often fail to adjust their behavior.[56]

Issues with boilerplate contracts illustrate this problem. Boilerplate contracts can be dozens of pages long and are often incomprehensible to the average consumer.[57] Therefore, forcing merchants to give consumers access to boilerplate terms does not help consumers. That is not to say that mandatory disclosure never works. In some circumstances, mandatory disclosure can be quite useful. For example, consumers with aggressive food allergies may benefit from regulations requiring producers of foodstuffs to display lists of ingredients.[58] However, relying on mandatory disclosure alone will often be inadequate to protect consumers effectively.

Mandatory minimum quality standards are arguably more effective than compulsory disclosure in protecting consumers but have shortcomings of their own. Even with rigorous enforcement, they can at best replace the low-quality equilibrium with a one-size-fits-all equilibrium.[59] Unless paired with other mechanisms, such as reputational incentives, minimum standards will only prompt merchants to sell goods conforming to the prescribed level of quality.[60] Accordingly, all merchants may end up offering goods of the legally prescribed quality, and all purchasers will pay prices reflecting this quality.[61] This outcome may be preferable to the low-price-low-quality equilibrium, but it remains far from optimal. In an ideal setting without information asymmetry, different parties could choose different combinations of price and quality, thereby maximizing, in each case, the

53. Dammann, *supra* note 15, at 190.

54. OMRI BEN-SHAHAR & CARL E. SCHNEIDER, MORE THAN YOU WANTED TO KNOW: THE FAILURE OF MANDATED DISCLOSURE 55 (2014).

55. *Id.*

56. *Id.*

57. *Cf.* sources cited *supra* note 14 (explaining that consumers generally are not able to read or understand boilerplate terms).

58. *E.g.*, Robert Glenn Ayres, *May Contain Hooves: Why and How the Government Should Implement Plain-Language Disclosure of Animal Products in Food Labels*, 5 STAN. J. ANIMAL L. & POL'Y 1, 15 (2012).

59. *Cf.* Dammann, *supra* note 15, at 193.

60. *Id.*

61. *Id.*

parties' joint payoff from the contract.[62] Another central problem with minimum standards is that they can be difficult to police in practice. If the stakes are low, consumers may not find it in their interest to litigate. In theory, class actions can alleviate this problem, as they relieve the individual consumer of the burden of bringing suit. However, the Supreme Court's pro-arbitration stance means that merchants are free to avoid class actions by including arbitration clauses with class action waivers in their boilerplate contracts.[63]

The shortcomings of the law's traditional protections against information asymmetries imply that there is substantial room for privately created mechanisms protecting consumers. The decisive question, of course, is whether consumer contracts offer a plausible alternative to traditional legal protections.

II. THE IMPACT OF CONSUMER REVIEWS

A large body of empirical research attests to the importance of online consumer reviews in guiding consumers' purchasing decisions.[64]

Such reviews can impact consumers in two main ways. First, consumer reviews can increase awareness of a particular product, brand, or service. The marketing literature terms this phenomenon the "awareness effect" of online reviews.[65] Second, reviews may convince consumers of the quality of a product or service. That is known as the "persuasive effect."[66] Both effects can potentially lead to an increase in sales and profits.

However, as an empirical matter, establishing a causal link between online consumer reviews and sales or profits is not a trivial task. Early empirical studies typically focused on the correlation between the number ("volume") and positivity ("valence") of reviews on the one hand and sales

62. *Id.*

63. AT&T Mobility LLC v. Concepcion, 563 U.S. 333, 356–57 (2011) (Thomas, J., concurring); *see* Brian T. Fitzpatrick, *The End of Class Actions?*, 57 ARIZ. L. REV. 161, 179–90 (2015) (noting that companies can combine class action waivers with arbitration clauses to avoid class actions); Thomas J. Stipanowich, *The Third Arbitration Trilogy:* Stolt-Nielsen*,* Rent-A-Center*,* Concepcion *and the Future of American Arbitration*, 22 AM. REV. INT'L ARB. 323, 388 (2011) (pointing out that the Supreme Court's holding in *Concepcion* allows companies to avoid class actions).

64. *E.g.*, Bettina von Helversen, Katarzyna Abramczuk, Wiesław Kopeć & Radoslaw Nielek, *Influence of Consumer Reviews on Online Purchasing Decisions in Older and Younger Adults*, 113 DECISION SUPPORT SYS. 1, 2 (2018) (summarizing existing research on this topic); Nan Hu, Paul A. Pavlou & Jie Zhang, *On Self-Selection Biases in Online Product Reviews*, 41 MIS Q. 449, 450 (2017) (noting the "prevalent view . . . that consumers rely on online product reviews to infer product quality and make purchasing decisions").

65. Wenjing Duan, Bin Gu & Andrew B. Whinston, *Do Online Reviews Matter?–An Empirical Investigation of Panel Data*, 45 DECISION SUPPORT SYS. 1007, 1008 (2008).

66. *Id.*

and profits on the other hand.[67] Researchers were able to demonstrate such positive correlations for a large number of products and services such as movie tickets,[68] books,[69] hotels,[70] and beer.[71] However, to ascertain the impact of online consumer reviews, such correlation studies are of limited use. Even if a high volume of reviews or a high average rating tends to go hand in hand with large sales or profits, one cannot deduce that the amount or valence of consumer reviews is *causal* for large sales or profits.[72] Correlation does not imply causation. Instead, the observed correlation may be due to so-called "omitted variables,"[73] such as the quality of the product.[74] For example, the fact that a given movie is particularly entertaining may be responsible for both a large number of positive reviews and high sales. Moreover, even if there exists a causal link between online reviews and sales, it is not always clear in which direction the causality runs. For instance, a high sales volume translates into a higher number of customers who can review the product, and so a high sales volume may cause a large number of reviews rather than—or in addition to—the other way around.

The more recent empirical literature on consumer reviews is therefore much more careful to look for causation rather than mere correlation. To demonstrate causation, studies on online consumer reviews typically rely on one of three main approaches: surveys, actual experiments, and difference-in-differences studies using observational data. I will address these approaches in turn.

67. *Cf.* Floyd et al., *supra* note 6, at 227 (undertaking a meta-analysis and finding that both the volume and the valence (positivity) of reviews is correlated with sales).

68. Even in the more recent literature, correlation studies are still common. *See, e.g.*, Ewa Maslowska, Edward C. Malthouse & Vijay Viswanathan, *Do Customer Reviews Drive Purchase Decisions? The Moderating Roles of Review Exposure and Price*, 98 DECISION SUPPORT SYS. 1, 6–7 (2017) (finding a positive and statistically significant relationship between review valence and purchasing decisions and also finding that this relationship is stronger for customers who visited the site where the reviews were displayed). *But see* Duan et al., *supra* note 65, at 1014 (finding that whereas the volume of reviews has an impact on movie sales, the positivity (valence) of such reviews does not impact movie sales if one includes extensive controls).

69. PEI-YU CHEN, SHIN-YI WU & JUNGSUN YOON, THE IMPACT OF ONLINE RECOMMENDATIONS AND CONSUMER FEEDBACK ON SALES, PROCEEDINGS FOR THE 2004 INT'L CONFERENCE ON INFO. SYS. 722 (2004).

70. Karen L. Xie, Zili Zhang & Ziqiong Zhang, *The Business Value of Online Consumer Reviews and Management Response to Hotel Performance*, 43 INT'L J. HOSPITALITY MGMT. 1, 6 (2014).

71. Eric K. Clemons, Guodong "Gordon" Gao & Lorin M. Hitt, *When Online Reviews Meet Hyperdifferentiation: A Study of the Craft Beer Industry*, 23 J. MGMT. INFO. SYSTEMS 149, 150 (2006).

72. This problem is now well-recognized in the empirical literature. *E.g.*, Duan et al., *supra* note 65, at 1008. Interestingly, despite their limited usefulness, correlations are continually extolled in reporting over rating systems. *See, e.g.*, Sapna Maheshwari, *When Is a Star Not Always a Star? When It's an Online Review*, N.Y. TIMES, Nov. 18, 2019, at B1 (stressing that a study found that an additional Amazon star is correlated with a sales increase of 26%).

73. For a basic introduction to the problem of omitted variable bias see, for example, JOSHUA D. ANGRIST & JÖRN-STEFFEN PISCHKE, MOSTLY HARMLESS ECONOMETRICS 59–64 (2009).

74. Zhu & Zhang, *supra* note 1, at 139.

A. CONSUMER SURVEYS

The most straightforward way of establishing causality is to survey consumers regarding the role that online consumer reviews play in their purchasing decisions. Over the years, a substantial number of studies have pursued this approach, yielding several vital insights.

For one, consumer surveys consistently show that consumers purchasing goods or services online often read at least some online reviews.[75] If this seems trivial, recall that empirical research has also demonstrated that almost no consumers ever read the fine print that merchants include in their contracts.[76] In other words, one of the critical advantages of online reviews appears to be that consumers read them. Furthermore, when surveyed, consumers consistently indicate that they view online reviews by other consumers as a relatively trustworthy source of information.[77] For example, a 2015 online survey of more than thirty thousand consumers in sixty countries revealed that 66% of respondents trusted consumer reviews posted online "somewhat or completely."[78]

In light of these findings, it is unsurprising that consumers also tend to indicate that they attach substantial importance to online consumer reviews when making purchasing decisions. For example, a 2012 survey asked 1,007 digital shoppers to mention the three sources of information that they considered most important in making purchasing decisions.[79] For 52% of those surveyed, online consumer reviews made it into the top three, making it the top source of information.[80] By way of comparison, friends and family came in second (49%), and experts' reviews third (42%).[81]

Seeking to analyze consumer behavior by way of surveys is not without methodological limitations. One central problem is non-response bias, meaning that respondents may not be representative of the survey's target population.[82] Consumers who do not read consumer reviews may refuse to

75. Caroline Beaton, *Why You Can't Really Trust Negative Online Reviews*, N.Y. TIMES, June 15, 2018, at A3 (citing a 2016 Pew Research Center Report according to which 82% of Americans said that they consulted online consumer reviews at least sometimes before making purchases); Luis V. Casaló, Carlos Flavián, Miguel Guinalíu & Yuksel Ekinci, *Do Online Hotel Rating Schemes Influence Booking Behaviors?*, 49 INT'L J. HOSPITALITY MGMT. 28, 28 (2015) (citing survey evidence according to which 60% of U.S. travelers rely in part on electronic word of mouth when booking vacations).

76. *See supra* text accompanying notes 38–40.

77. *See, e.g.*, Floyd et al., *supra* note 6, at 217 (citing market research according to which 70% of consumers trust online reviews).

78. NIELSEN, GLOBAL TRUST IN ADVERTISING 4 (2015).

79. LISA FRETWELL, JON STINE, HITEN SETHI & ANDY NORONHA, 'CATCH AND KEEP' DIGITAL SHOPPERS 3 fig.2 (2013).

80. *Id.*

81. *Id.*

82. Put more technically, non-response bias arises if the persons who respond to surveys

participate in the relevant surveys, meaning that consumers who think highly of consumer reviews may be overrepresented among respondents. Moreover, consumers may not all answer truthfully. For example, consumers who do not usually read consumer reviews may falsely claim that they do to appear more diligent and knowledgeable. Even consumers who make a good faith effort to answer survey questions correctly may unwittingly give incorrect answers due to several well-known psychological biases such as confirmation bias,[83] self-serving bias,[84] or herd mentality.[85] These potential limitations, namely non-response bias and inaccurate answers, are common to survey research in general, which is why social scientists sometimes view survey research with a healthy dose of skepticism.[86] The preferred approach is to examine how people actually behave rather than how they claim to behave. In technical terms, "revealed preferences" are viewed as more reliable than "stated preferences."[87] One straightforward way of capturing people's revealed preferences is to run actual experiments. I will turn to this approach next.

systematically differ from persons who do not respond. *E.g.*, David A. Harpman, Michael P. Welsh & Edward W. Sparling, *Unit Non-Response Bias in the Interval Data Model*, 80 LAND ECON. 448, 448 (2004).

83. The term "confirmation bias" refers to the problem that humans dislike challenging their own beliefs and therefore interpret new evidence in such a way that it becomes consistent with the beliefs that they already hold. *E.g.*, Andrew J. Wistrich & Jeffrey J. Rachlinski, *How Lawyers' Intuitions Prolong Litigation*, 86 S. CAL. L. REV. 571, 595 (2013); Scott O. Lilienfeld, Rachel Ammirati & Kristin Landfield, *Giving Debiasing Away: Can Psychological Research on Correcting Cognitive Errors Promote Human Welfare?*, 4 PERSP. ON PSYCHOL. SCI. 390, 392 (2009). This bias is potentially relevant to survey research on consumer reviews since it may cause respondents to overestimate the importance that they attach to online reviews. For example, if a consumer's initial impression of a review is positive, the consumer may subconsciously tend to read those reviews that assign a high star rating in an attempt to confirm this initial positive impression. *See, e.g.*, Wei Wei, Li Miao & Zhuowei (Joy) Huang, *Customer Engagement Behaviors and Hotel Responses*, 33 INT'L J. HOSPITALITY MGMT. 316, 318 (2013) (noting that customers' initial preferences may bias their perception of user-generated reviews and that customers may read user-generated reviews to validate their initial preferences).

84. The term "self-serving bias" can broadly be described as humans' tendency to "make . . . judgments in a manner skewed to favor [their] own self-interest." Ward Farnsworth, *The Legal Regulation of Self-Serving Bias*, 37 U.C. DAVIS L. REV. 567, 568 (2003). In the context of survey research on the role of online reviews, one concern is that respondents may tend to view themselves as better informed than they are. For example, respondents may overestimate the amount of online research that they do before purchasing a product or service.

85. The term "herd mentality" captures humans' tendency to "imitate the actions of others and in so doing ignore, to some extent, their own information and judgments regarding the merits of their decisions." Marcel Kahan & Michael Klausner, *Path Dependence in Corporate Contracting: Increasing Returns, Herd Behavior and Cognitive Biases*, 74 WASH. U. L.Q. 347, 355 (1996). In the context of survey research, one concern is that respondents may infer from the very fact that they are being surveyed that other consumers attach importance to online reviews and may therefore overstate their own willingness to attach weight to such reviews.

86. *See, e.g.*, Gabriella Monahova, Chetan Sanghvi & John Scalf, *From* Staples *to* Staples*: 20 Years of Merger Enforcement in the United States*, 24 GEO. MASON L. REV. 1141, 1160 (2017).

87. *See* Richard L. Revesz & Matthew R. Shahabian, *Climate Change and Future Generations*, 84 S. CAL. L. REV. 1097, 1144 (2011); John Bronsteen, Christopher Buccafusco & Jonathan S. Masur, *Well-Being Analysis vs. Cost-Benefit Analysis*, 62 DUKE L.J. 1603, 1613 (2013).

B. ACTUAL EXPERIMENTS

A substantial number of studies have sought to assess the impact of consumer reviews by way of actual experiments,[88] meaning experiments conducted in a laboratory setting.[89] These experiments typically use some version of the following research design[90]: Researchers randomly divide study participants into different groups. The researchers then ask the participants to select or purchase products on certain websites. Unbeknownst to the participants, the sites are fake, and the different groups are exposed to different versions of the site. The website to which the treatment group is exposed contains (fake) online customer reviews, whereas the control group is confronted with a version of the site that displays no or different customer reviews. This setup allows researchers to ascertain the influence that online reviews have on the study participants' decisions.

The details of the research design vary, but the core finding on the relationship between online reviews and consumers' choices is generally the same: online consumer reviews consistently prove to have a significant impact on study participants' purchasing decisions.[91]

C. STUDIES RELYING ON OBSERVATIONAL DATA

While actual experiments have the advantage of yielding a particularly clear strategy for identifying causal relationships, a potential downside lies

88. In empirical studies, one can distinguish "actual" or "laboratory" experiments from so-called "natural experiments." The term "natural experiment" refers to studies in which researchers try to gain information from an event that is outside their control.

89. *See, e.g.*, Park & Lee, *supra* note 18. In this study, 334 college students were randomly allocated to different groups. Students in some of the groups were presented with different types of fake reviews. Students were then asked how popular the product was, how informative the reviews were, and whether they were likely to purchase the product. The researchers found that "the effects of perceived popularity and informativeness on purchasing intention were positive and significant for all participants." *Id.* at 394.

90. *See, e.g.*, Casaló et al., *supra* note 75, at 31 (describing a study in which participants were tasked with choosing hotels in Spain after being exposed to varied (fake) lists of best and worst hotels). The same general design has been used to gauge the impact of traditional word of mouth. *See* Russell N. Laczniak, Thomas E. DeCarlo & Sridhar N. Ramaswami, *Consumers' Responses to Negative Word-of-Mouth Communication: An Attribution Theory Perspective*, 11 J. CONSUMER PSYCHOL. 57, 60–61 (2001) (describing a study in which 192 undergraduate students were randomly assigned to different groups and were then asked to select personal computers (PCs) after having been exposed to different word of mouth information contained in transcripts regarding the quality of the PCs); Fei L. Weisstein, Lei Song, Peter Andersen & Ying Zhu, *Examining Impacts of Negative Reviews and Purchase Goals on Consumer Purchase Decision*, 39 J. RETAILING & CONSUMER SERVICES 201, 203–05 (2017) (describing two experimental studies in which undergraduate students were tasked with choosing products and finding that negative reviews impact purchasing decisions).

91. For example, Casaló et al., *supra* note 75, at 31, tasked research participants with booking hotels in Spain after giving them access to varied (fake) information about worst and best-ranked hotels. *Id.* The authors found that if a hotel was featured on a best-hotels list rather than a worst-hotels list, study participants booking intentions were much higher. *Id.* at 32 tbl.2.

in the possibility that people may behave differently in a laboratory setting than they do in the real world. In part for this reason, some researchers seeking to ascertain the impact of online consumer reviews continue to rely on observational data.[92]

The challenge for such studies is to find a setting in which researchers can identify causal relationships rather than mere correlations. The key is to use so-called "natural experiments," meaning real-world situations in which, due to some exogenous variation, one group of customers is exposed to consumer reviews while others are not.[93] The seminal study was published in 2006 by Judith Chevalier and Dina Mayzlin.[94] It focuses on the impact of online consumer reviews on book sales.[95] The study exploits the fact the same books are typically for sale on different platforms such as Amazon and Barnes & Noble. The aggregate ratings that books receive on these different platforms often diverge.[96] Because the books are identical across platforms, the authors treat differences in the valence of reviews as a source of quasi-random exogenous variation.[97] They then show that more positive aggregate reviews are associated with higher sales. Since the authors assume that the variation in review valence is exogenous, they conclude that higher aggregate reviews *cause* higher sales.[98]

Another particularly well-designed study, published in 2016 by Michael Luca, also confirms the relevance of online reviews to sales.[99] Luca analyzed

92. *See, e.g.*, sources cited *infra* notes 94, 99.

93. Regarding the term "natural experiment," see *supra* note 88.

94. Judith A. Chevalier & Dina Mayzlin, *The Effect of Word of Mouth on Sales: Online Book Reviews*, 43 J. MARKETING RES. 345 (2006).

95. *Id.* at 345.

96. *Id.* at 345–46.

97. One might conjecture that different sales and different ratings on the two platforms are due to the fact that the customers using Amazon differ from the customers using Barnes & Noble. To account for this possibility, Chevalier and Mayzlin use a so-called difference-in-differences approach. *Id.* at 346. That is, they examined whether changes in the valence or volume of reviews at one site relative to the other site predicted changes in the volume of sales on one website relative to the other website. *Id.* This approach "filters out" time-invariant differences between the populations that use each platform.

98. *Id.* at 354.

99. Michael Luca, *Reviews, Reputation, and Revenue: The Case of Yelp.com* 22–24 (Harvard Bus. Sch. NOM Unit, Working Paper No. 12-016, 2016). *But see* Zhu & Zhang, *supra* note 1. Zhu and Zhang focused on the impact of online consumer reviews on video game sales. *Id.* at 138. The study exploited the fact that manufacturers often make the same game available for different gaming consoles such as PlayStation and Xbox. *Id.* Online retailers sell these different versions separately, and the various versions also receive distinct online reviews. *Id.* For example, a particular game's Xbox version may garner different ratings than its PlayStation version. The study's authors made the assumption that the quality of the game does not change across consoles and, based on that assumption, treated differences in the valence of reviews as quasi-random exogenous variations. *Id.* Then, they examined whether a product's average rating was associated with more sales. They find no statistically significant evidence that this is the case. *Id.* at 142. However, the Zhu and Zhang study faces greater methodological challenges than either the Chevalier-Mayzlin or the Luca studies. *See* Chevalier & Mayzlin, *supra* note 94; Luca, *supra*. The concern with comparing video games on different game consoles is that the "same" game may not

the impact of Yelp restaurant reviews on revenues and found that an additional star on Yelp increased restaurant revenues by, on average, 9%.[100] Key to Luca's research design is the fact that because aggregate reviews on Yelp are rounded up or down, restaurants with almost identical rating averages can have different aggregate ratings, depending on whether their averages are just high enough to be rounded up or just low enough to be rounded down.[101]

Studies relying on natural experiments to exploit observational data face limitations of their own. For example, one problem with using Yelp reviews, as in the Luca study, is that Yelp has been accused of eliminating some positive reviews from its site if business owners refuse to enter into advertising contracts with Yelp.[102] For this reason, any approach that relies on differences in Yelp reviews as an exogenous variation is somewhat troublesome.

In sum, each type of research—surveys, lab experiments, natural experiments—may be subject to criticism on some dimension. However, in the aggregate, the research on electronic word of mouth makes a compelling case that consumer reviews have a considerable impact on consumers' purchasing decisions.

III. THE FUNDAMENTAL FLAWS OF CONSUMER REVIEWS

While the importance of electronic word of mouth to consumers' decisionmaking is beyond doubt,[103] an entirely different question is whether consumer reviews are likely to provide consumers with accurate and useful information when making their choices. Existing empirical research strongly suggests that this is not the case.[104] Online reviews suffer from various inherent biases that undermine their ability to provide consumers with the information they need.

run equally well on both consoles. Moreover, for each of the consoles analyzed (Xbox and PlayStation), different games are available. Thus, the games of interest may face a different level of competition on the two consoles. This suggests that ratings may very well be driven by actual differences in the products' quality, and these differences may also be driving differences in sales.

100. Luca, *supra* note 99, at 14.

101. *Id.* at 11.

102. *Cf.* Claire Ballentine, *California Court Rules that Yelp Does Not Have to Remove the Bad Stuff*, N.Y. TIMES, July 4, 2018, at B3 (describing a small business owner's unsuccessful lawsuit against Yelp); Geoffrey A. Fowler, *Review Site Yelp Sued by Businesses*, WALL ST. J., Mar. 19, 2010, at B5 (reporting on a lawsuit in which local businesses are accusing Yelp of using extortion to pressure them to advertise).

103. *See supra* Part II.

104. De Langhe et al., *supra* note 1, at 818 (finding that average Amazon ratings correlate poorly with Consumer Report scores and that average ratings do not predict resale value whereas Consumer Report scores do).

A. WHY DO CONSUMERS WRITE REVIEWS?

Some of these weaknesses of consumer reviews stem from the very motives that cause consumers to submit reviews in the first place. Therefore, it is helpful to begin by examining reviewers' motivations.

Online merchants and platforms such as Amazon, Expedia, or Airbnb typically rely on their customers to submit reviews voluntarily. When consumers rate their purchases on Amazon or review the hotels they booked on Expedia, no one forces them to do so. Customers who fail to rate the goods or services they have purchased do not face any penalties. Nor, as a general rule, do reviewers receive compensation for their efforts.[105]

It is therefore unsurprising that many customers abstain from reviewing their purchases. For example, a 2014 study using data from an apparel company found that only about 1.5% of the firm's customers ever wrote a review.[106] Other numbers reported in the literature are even lower.[107]

But what about those customers that do leave reviews? Economists and other social scientists have relied on both surveys and experiments to identify consumers' motivations,[108] revealing several key reasons:

105. There are exceptions to this rule, which I discuss below. *See infra* Part III.

106. Eric T. Anderson & Duncan I. Simester, *Reviews Without a Purchase: Low Ratings, Loyal Customers, and Deception*, 51 J. MARKETING RES. 249, 251 (2014).

107. *E.g.*, Hu et al., *supra* note 64, at 453 (citing an estimate according to which only 0.1% of Amazon's customers leave reviews).

108. *See* D.S. Sundaram, Kaushik Mitra & Cynthia Webster, *Word-of-Mouth Communications: A Motivational Analysis*, 25 ADVANCES IN CONSUMER RES. 527, 528 (1998) (analyzing 731 survey responses from authors of online consumer reviews); Thorsten Hennig-Thurau, Kevin P. Gwinner, Gianfranco Walsh & Dwayne D. Gremler, *Electronic Word-of-Mouth via Consumer-Opinion Platforms: What Motivates Consumers to Articulate Themselves on the Internet?*, 18 J. INTERACTIVE MARKETING 38, 44–45 (2004) (exploring survey data from 2,063 consumers who had written online comments or reviews on an opinion platform); Yaou Hu & Hyun Jeong Kim, *Positive and Negative eWom Motivations and Hotel Customers' eWom Behavior: Does Personality Matter?*, 75 INT'L J. HOSPITALITY & MGMT. 27, 32–33 (2018) (exploring the motives of online reviewers in the hotel industry and finding that self-enforcement and enjoyment tend to be the driving factor behind positive reviews whereas the desire to vent and economic incentives tend to drive negative reviews); Henning Kreis & Sabrina A. Gottschalk, *Relating eWOM Motives to eWOM Channel Choice—Why Do We Post Where We Do?*, 67 SCHMALENBACH BUS. REV. 406, 423 (2015) (examining consumers' motives for engaging in electronic word of mouth and finding that these choices partly explain consumers' choices of particular e-WOM outlets); Yufu Kuwashima, *The Scope of Motivation Studies for (e)Word-of-Mouth*, 18 ANNALS BUS. ADMIN. SCI. 183, 190–92 (2019) (surveying the research on the motivations behind traditional and electronic word of mouth); Charla Mathwick & Jill Mosteller, *Online Reviewer Engagement: A Typology Based on Reviewer Motivations*, 20 J. SERV. RES. 204, 207–08 (2017) (surveying top reviewers on Amazon and analyzing their motivations); Jonathan Lafky, *Why Do People Rate? Theory and Evidence on Online Ratings*, 87 GAMES & ECON. BEHAV. 554, 566 (2014) (providing experimental evidence that consumers rating products are motivated both by a desire to reward or punish sellers and by a desire to inform future buyers); Christy M.K. Cheung & Matthew K.O. Lee, *What Drives Consumers to Spread Electronic Word of Mouth in Online Consumer-Opinion Platforms*, 53 DECISION SUPPORT SYS. 218, 221 (2012) (using a sample of 203 members of a consumer review community to analyze the factors that motivate consumers to spread positive e-WOM); Tiago Oliveira, Benedita Araujo & Carlos Tam, *Why*

1. The Desire to Punish or Reward

A central motive is the desire to punish or reward sellers: good reviews allow consumers to express their gratitude, bad ones are "payback."[109] Interestingly, there is some evidence that the desire to punish is more critical than the desire to reward. In the most well-known study on the subject, Dilip Sundaram, Kaushik Mitra, and Cynthia Webster found that 36.5% of all negative reviews were motivated by a desire to punish, whereas only 18% of positive reviews were meant to reward the company.[110]

2. Protecting Other Customers

Altruism vis-à-vis other consumers also plays an important role. Many reviewers seek to assist other consumers, either by warning them of deficient products or services or by alerting them to the high quality of a product or service.[111] For example, Sundaram and his coauthors found that 28% of positive reviewers and 23% of negative reviewers claimed to be acting at least in part to protect others.[112]

3. Making One's Voice Heard

Some reviewers are motivated by reasons best summarized as the desire to make one's voice heard. This category includes customers who enjoy sharing their experiences as well as customers who write reviews to vent their anger or frustration.[113] In the Sundaram study, 33% of all positive reviews were wholly or partially motivated by the desire to share positive experiences, while 25% of consumers writing negative reviews did so at least in part to vent their anger and frustration.[114]

Do People Share Their Travel Experiences on Social Media?, 78 TOURISM MGMT. 1, 6–7 (2020) (analyzing a dataset of 381 survey responses to explore why some customers share travel experiences and others do not); Jonah Berger & Eric M. Schwartz, *What Drives Immediate and Ongoing Word of Mouth?*, 48 J. MARKETING RES. 869, 876 (2011) (analyzing a dataset of everyday conversations to analyze the factors driving traditional (offline) word of mouth); Yinlong Zhang, Lawrence Feick & Vikas Mittal, *How Males and Females Differ in Their Likelihood of Transmitting Negative Word of Mouth*, 40 J. CONSUMER RES. 1097, 1099–1100 (2014) (using data from marketing research to analyze gender differences with respect to the motives behind negative e-WOM).

109. *See, e.g.*, Sundaram et al., *supra* note 108, at 530–31; Lafky, *supra* note 108, at 563–64.

110. Sundaram et al., *supra* note 108, at 530.

111. *Id.*; Hennig-Thurau et al., *supra* note 108, at 49; Lafky, *supra* note 108, at 563–64.

112. *See* Sundaram et al., *supra* note 108, at 530 (analyzing 731 survey responses); *see also* Hennig-Thurau et al., *supra* note 108, at 49 (analyzing survey responses reporting that 17% of respondents were motivated solely by a desire to help other consumers); Lafky, *supra* note 108, at 563–64 (providing experimental evidence that the desire to warn consumers is one of the reasons motivating ratings).

113. Sundaram et al., *supra* note 108, at 529–30.

114. *Id.*

4. Self-Enhancement

Finally, reviewers may be motivated by the desire for what is commonly referred to as "self-enhancement." Reviewers want to elevate their prestige; they want to be perceived as experts, connoisseurs, or smart shoppers.[115] The quest for self-enhancement has been estimated to motivate about one-fifth of all reviews.[116] Moreover, it is plausible to conjecture that this number may be even higher for rating systems that allow reviewers to set up a profile page and cultivate followers given that such options should be particularly appealing to reviewers seeking to elevate their social status.

B. BIASES

Online reviews suffer from several significant biases. Moreover, at least some of these biases are driven by the motivations that cause customers to review products or services in the first place.

1. Acquisition Bias

One important source of bias lies in the fact that customers do not purchase products at random. Instead, purchasers are a self-selected group.[117] The set of purchasers consists of those potential customers that felt sufficiently positive about a particular product to buy it.

This self-selection on the part of buyers gives rise to so-called "acquisition bias": only those customers who are sufficiently well-disposed towards a product to buy it become actual purchasers and thus potential reviewers.[118] Accordingly, reviewers are generally biased in favor of the product that they are reviewing.

This narrative finds empirical support in studies that focus on the distribution of ratings. Typically, most reviews are very positive, and some are very negative; very few reviewers give neutral reviews.[119] Acquisition bias may not be the only possible explanation for the frequency of glowing ratings and reviews,[120] but the predominance of positive reviews is very

115. *Id.*
116. *Id.*
117. Hu et al., *supra* note 64, at 450.
118. *Id.* The problem of fake reviews that were written by reviewers who never actually bought the product that they are reviewing will be discussed below. *See infra* Part IV.
119. Lafky, *supra* note 108, at 556 fig.1 (analyzing a sample of 17,500 Amazon ratings for more than 400 products and finding that very few reviewers give a middling rating of two or three stars); Verena Schoenmüller, Oded Netzer & Florian Stahl, *The Extreme Distribution of Online Reviews: Prevalence, Drivers and Implications* 4, 16 fig.2 (Columbia Bus. Sch. Research Paper No. 18-10, 2019) (analyzing a dataset of 280 million reviews from twenty-five online platforms and finding that the phenomenon of extreme distribution of reviews is dominant across platforms).
120. Acquisition bias has important implications for the review process. Setting aside the problem

much in line with what the theory on acquisition-bias predicts.

2. Reviewer Extremism

The second type of bias, which I will refer to as "reviewer extremism," arises because not all customers who have bought a particular product are equally likely to review it online. Instead, empirical studies have shown that consumers with strongly negative or strongly positive views are much more likely to review products or services than the average consumer.[121]

This bias is unsurprising if one considers the various motives leading consumers to write reviews in the first place. As explained above, the desire to punish or reward sellers constitutes a crucial motivation for penning reviews. However, goods or services of average quality are much less likely to trigger a desire to reward or punish than a performance that is particularly disappointing or impressive.[122] Products or services of medium quality are also unlikely to trigger an impulse to warn other consumers or to vent anger.[123] In other words, reviewers who think that a product is of medium quality will typically lack a strong motive to weigh in at all.

The typical distribution pattern of online reviews is entirely consistent with that narrative. Typically, most reviews are very positive, and some are very negative; very few reviewers give neutral reviews.[124] As argued above, acquisition bias may at least in part explain the preponderance of positive reviews, but the motives driving reviews are certainly a plausible explanation for why negative reviews are so much more common than middle-of-the-road ones. Furthermore, researchers have found that, across platforms, the degree of reviewer extremism tends to correlate negatively with the fraction of customers writing reviews.[125] This finding is very much consistent with the claim that reviewer self-selection is at least in part responsible for reviewer extremism.

To further explore the interplay between reviewers' motivation and review valence, one study relies on a laboratory experiment in which reviewers incur a small monetary cost for each review they submit.[126] The intuition behind this experiment is that if reviewers are weighing the

of fake reviews that were written by "customers" who never actually bought the product that they are reviewing, the self-selection of purchasers means that the pool of potential reviewers is biased as well.

121. *E.g.*, Hu et al., *supra* note 64, at 450; Schoenmüller et al., *supra* note 119, at 4.

122. Lafky, *supra* note 108, at 556.

123. *Id.*

124. *Id.* at 556 fig.1 (analyzing a sample of 17,500 Amazon ratings for more than 400 products and finding that very few reviewers give a middling rating of two or three stars); Schoenmüller, *supra* note 119, at 16 fig.2 (displaying rating distributions for various different platforms).

125. Schoenmüller, *supra* note 119, at 5.

126. Lafky, *supra* note 108, at 554.

immaterial benefits that they reap, such as vengeance or venting, against the costs they incur writing a review, such as effort or, in this experiment, monetary losses, then increasing the cost of reviews will change the pool of reviewers.[127] Confronted with higher costs, only reviewers who derive unusually large benefits from reviewing because they feel particularly strongly about the products they bought, should still be writing reviews. Accordingly, the study's author hypothesizes that raising the costs of writing reviews will lead to a smaller number of reviews but will also increase reviewer extremism,[128] and his findings confirm this hypothesis.[129]

For the objectivity and usefulness of consumer reviews, consumer extremism constitutes a severe challenge. Consumer extremism implies that average review scores may be driven by what statisticians refer to as outliers—observations that appear to lie outside the reach of a model.[130] As a result, online reviews may tell the average customers little about what they can expect. For example, consider restaurant ratings. Neither the views of the most enthusiastic customers nor those of the restaurant's harshest critics may be all that informative.

At first glance, it would seem that rating system providers could fix the problem of reviewer selection bias by making it mandatory for consumers to leave a rating. For example, Amazon could block a customer's ability to make new purchases until the customer has rated their last purchase. However, customers might resent being forced to review products, making it unlikely that firms like Amazon would ever adopt such a system. Even worse, a mandatory review requirement might turn buyers into "angry reviewers," who assign negative ratings to express their outrage at being forced to submit a rating. In any case, a mandatory review requirement would not work at all for rating websites like Yelp, where customers can review products or services that they have purchased offline.

3. Early-Purchaser Bias

Another bias may arise because early purchasers may have stronger incentives to submit reviews than later purchasers.[131] I will refer to this as "early-purchaser bias."

127. *See id.* at 560–61.
128. *Id.* at 560.
129. *Id.* at 563.
130. For a simple introduction to the problem of outlier observations see, for example, WILLIAM H. GREENE, ECONOMETRIC ANALYSIS 139–42 (7th ed. 2012).
131. *Cf.* Wenqi Shen, Yu Jeffrey Hu & Jackie Rees Ulmer, *Competing for Attention: An Empirical Study of Online Reviewers' Strategic Behavior*, 39 MIS Q. 683, 687–96 (2015) (finding that the number of days that have elapsed since a product's release is negatively correlated with the likelihood of posting a review).

One reason for this bias lies in the use of average ratings. Most websites that allow consumer reviews display some aggregate rating. That aggregate rating is frequently equal to the mean of all submitted ratings.[132] For example, if one customer assigns one star and the second customer three stars, the aggregate rating is two stars. The use of average ratings implies that the reviewer's marginal impact depends on the reviewer's timing and the number of reviews. The first reviewer gets to singlehandedly determine the initial average rating until a second reviewer weighs in. By contrast, the thousandth reviewer has only a minuscule impact on the average rating.

Even setting aside aggregate ratings, reviewers are likely to understand the importance of timing. For example, a reviewer seeking to punish the seller likely knows that his punishment will be quite effective if his negative review is among the first reviews that the product receives. Similarly, a reviewer craving attention will typically understand that the first review of a particular product is much more likely to be read than the ten thousandth review.[133]

The available empirical literature is consistent with this narrative. It has been shown that most of the impact on sales comes from the first ten reviews.[134] Furthermore, a 2016 study provides direct evidence for an early-purchaser bias in that it shows that the decision to post a review is negatively correlated with the number of days that have elapsed since the product was first released.[135] The same study also presents evidence suggesting that reviewers on Amazon strategically select the products they review in order to maximize the attention that their reviews generate.[136] Even controlling for the amount of time that has passed since a product's release, reviewers on Amazon tend to avoid "crowded review segments," and instead focus on products that have received fewer reviews.[137] This behavior is entirely rational if one assumes that reviewers are competing for attention.[138]

132. *See* Olga Ivanova & Michael Scholz, *How Can Online Marketplaces Reduce Rating Manipulation? A New Approach on Dynamic Aggregation of Online Ratings*, 104 DECISION SUPPORT SYSTEMS 64, 66 (2017) (noting that "most ratings are commonly aggregated using arithmetic mean").

133. *Cf.* Shen et al., *supra* note 131, at 689–90 (explaining that it makes sense for reviewers seeking to gain attention to review products that have collected fewer reviews).

134. *Cf.* Georgios Askalidis & Edward C. Malthouse, *The Value of Online Customer Reviews*, *in* RECSYS '16: PROCEEDINGS OF THE 10TH ACM CONFERENCE ON RECOMMENDER SYS. 155, 156 fig.1 (2016) (finding that the first ten online reviews drive most of the increase in purchase likelihood).

135. Shen et al., *supra* note 131, at 691 tbl.5 (using data from Amazon and Barnes & Noble).

136. *Id.* at 689–90.

137. *Id.* at 689. Note, though, that no such effect has been observed for reviews on Barnes & Noble. *Id.* at 690. A possible explanation lies in the fact that Barnes & Noble does not rank reviewers, thereby reducing reviewers' ability to gain attention and social status by writing reviews. *Id.*

138. *Id.* (explaining that since Amazon ranks reviewers and displays that rank, choosing less crowded product segments makes sense for reviewers seeking to gain attention).

For these reasons, holding all else equal, a product's average ratings are more likely to be an accurate reflection of early rather than of late purchasers' experiences.

This distortion would not matter if the experiences made by early purchasers were just as helpful to buyers as those of later purchasers. However, reviews that are several years old may be entirely misleading. First, the product's objective attributes may have changed. For example, the manufacturer may have started to skimp on quality control, allowing more deficient items to reach consumers. Second, even if a product's objective attributes have not changed, its quality relative to competing products may have declined: newer products may have entered the market, making the reviewed product obsolete. And third, even if a product's objective and relative qualities remain unchanged, its price may have risen, making it a less attractive choice.[139] In sum, the fact that the product was rated highly when it first entered the market five years ago may not be all that informative to current buyers.

Admittedly, there exists at least a partial solution to the problem of early-purchaser bias. Rather than displaying average ratings, websites using online consumer reviews could display a weighted average that attaches more importance to recent reviews than to old ones. The largest and most important provider of ratings, Amazon, is already using this approach. Rather than presenting customers with mean ratings, Amazon's aggregate rating explicitly takes into account other factors such as the age of reviews and the question of whether the reviewer was a verified purchaser.[140]

Unfortunately, the weighted-ratings approach also has downsides. As discussed below, there are numerous ways in which the interests of rating providers diverge from those of consumers.[141] If online providers use weighted aggregate ratings, there is always the risk these ratings are designed to benefit merchants rather than consumers.

Moreover, the widespread adoption of weighted aggregate ratings has

139. *Cf.* Yabing Jiang & Hong Guo, *Design of Consumer Review Systems and Product Pricing*, 26 INFO. SYSTEMS RES. 714, 714–15 (2015) (using game theory to analyze how firms can strategically modify prices over time to impact ratings and maximize profits); Hu et al., *supra* note 64, at 451 (relying on game theory to determine how firms can adjust their pricing in a multi-period model to influence product ratings and thereby maximize profits).

140. Amazon's website contains the following disclosure, which is displayed if one clicks on the aggregate rating for any product: "To calculate the overall star rating and percentage breakdown by star, we don't use a simple average. Instead, our system considers things like how recent a review is and if the reviewer bought the item on Amazon. It also analyzes reviews to verify trustworthiness." *E.g.*, *How to Avoid Huge Ships*, AMAZON, https://www.amazon.com/dp/0870334336#customerReviews [https://perma.cc/NCM2-SUY9] (click on "How are ratings calculated?").

141. *See infra* Part V.

the potential to undermine the usefulness of such ratings in persuading consumers to make purchases. Essentially, rating providers using a weighted aggregate rating are asking consumers to trust them. However, if consumers trusted digital platforms and online merchants to provide accurate evaluations of the products they offer, consumer reviews would not be as influential as they are.

4. Paid Reviews

At least some of the biases discussed above, such as reviewer extremism or early-purchaser bias, stem directly from the motivations that cause customers to submit uncompensated reviews in the first place. For example, as long as reviewers do not receive compensation for their efforts, those who feel most strongly about the products and therefore have a desire to reward, punish, or warn are most likely to submit reviews, leading to the widely observed phenomenon of reviewer extremism.

It is, therefore, noteworthy that not all online consumer reviews are uncompensated. Instead, some reviewers get rewarded for their efforts. For analytical purposes, one can distinguish two types of compensation. First, there are "bribes," which I define as payments made with the shared expectation that the reviewer will write a review in the seller's interest. I discuss such bribes below in the context of fraudulent reviews.[142] Second, platforms may compensate reviewers without any expectation regarding the reviews' valence.

Amazon has prominently embraced the latter approach. In 2007, the company introduced its so-called Vine program, which allows selected Amazon customers to receive free products in exchange for reviewing these products.[143] According to Amazon, the company selects Vine reviewers "based on their reviewer rank, which is a reflection of the quality and helpfulness of their reviews as judged by other Amazon customers."[144]

Reviews-for-compensation schemes like Amazon Vine have the advantage of avoiding or mitigating some of the biases inherent in uncompensated reviews. In particular, reviewers who duly review every product they receive are free from the selection biases impacting other reviewers: by definition, their reviews are not limited to products that they liked well enough to purchase, and they are not making the selection of which products to review. As an added benefit, compensated reviewers may

142. *See infra* Part V.

143. *What Is Amazon Vine?*, AMAZON, https://www.amazon.com/gp/vine/help [https://perma.cc/5MP3-Q5L5].

144. *Id.*

be more experienced at reviewing products, yielding more informative reviews.

Unfortunately, while paid reviews may have some advantages, the practice of compensating reviewers creates problems as well. The obvious concern is that such reviewers may be overly positive in their evaluation. This issue can arise for two reasons.

First, there is the possibility of selection bias: given that positive reviews help sell goods, encouraging positive reviews is in the interest of online merchants and digital marketplaces. Therefore, unscrupulous platforms or merchants may be more likely to select compensated reviewers whose reviews err on the side of positivity. In other words, assuming that Amazon does its best to choose reviewers regardless of their reviews' valence, there is no reason to believe that every platform would proceed in an equally ethical fashion.[145]

Second, even if rating providers select reviewers in a completely objective and unbiased manner, the chosen reviewers may, consciously or subconsciously, err on the side of positivity. Several factors are conducive to such bias on the part of reviewers. To begin, despite the rating provider's protestations to the contrary, reviewers may suspect that they are more likely to be selected for a reviews-for-compensation scheme if their reviews tend to be positive. That is because reviewers know that positive reviews will typically benefit the provider. For example, in the case of Amazon's Vine program, Amazon charges corporations a fee for having their products reviewed as part of this program. All else equal, a tendency by Vine reviewers to write "generous" reviews will make the Vine program more attractive to sellers, thereby causing more sellers to make use of the Vine program, which in turn translates into higher fees for Amazon. Moreover, positive reviews help sell products, which also benefits Amazon since Amazon charges sellers a fee for every item they sell.[146] Hence, it takes only a limited degree of cynicism for reviewers to suspect that, all else equal, Amazon likes positive reviews at least a little bit better than negative ones.

Furthermore, because rational reviewers know that by writing positive reviews, they make the Vine program more attractive to sellers, they may also understand that positive reviews marginally increase the prospects for additional compensated reviews in the future: a greater number of sellers

145. To avoid the perception of such a conflict of interest, Amazon explicitly states that it selects the members of the Vine program "based on their reviewer rank, which is a reflection of the quality and helpfulness of their reviews as judged by other Amazon customers." *Id.* However, the exact formula for choosing Vine reviewers, if there is one, remains a secret.

146. *How Much Does It Cost To Sell on Amazon.com?*, AMAZON, https://services.amazon.com/selling/faq.html [https://perma.cc/6ZUK-KFCA].

using the Vine program translate into more opportunities to write compensated reviews.

In sum, while compensating reviewers may avoid some of the biases inherent in unpaid reviews, it creates other biases.

C. CAN CONSUMERS CORRECT FOR BIASES?

The previous Sections have focused on the various biases inherent in the review process. But the question remains to what extent these biases end up harming consumers. Perhaps consumers confronted with a mix of excessively positive and excessively negative reviews are in fact quite adept at inferring a good's actual quality.

Unfortunately, there are compelling reasons to believe that this is not the case. Both the general literature on human decisionmaking and available empirical evidence on the impact of online ratings suggest the opposite.

First, numerous studies have shown that rating averages matter.[147] This finding is entirely unsurprising. On popular websites such as Amazon, many products gather thousands of reviews, and few consumers will have time to read most, let alone all of them. Hence, it makes sense for customers to attach some significance to aggregate ratings.

Second, even those consumers who make an effort to read a large number of detailed reviews may not be able to infer from them the product's true quality. A 2017 lab experiment explicitly set out to test consumers' ability to adjust for the bias arising from the self-selection of reviewers and concluded that the study participants were unable to correct for this bias.[148]

To be clear, none of this implies that there are no consumers that peruse individual reviews and are able to arrive at a more accurate assessment of a product's quality than that given by the aggregate rating. However, for the above reasons, individual consumers' ability to filter out some of the biases inherent in the review process can at best mitigate the problem posed by such biases.

IV. MANIPULATION

Even genuine consumer reviews suffer from biases that undermine their ability to provide useful information to other customers. However, there is often little assurance that online reviews are authentic in the first place. Due

147. *See supra* Part II; de Langhe et al., *supra* note 1, at 818–19 (analyzing data from Amazon and consumer survey data and finding that customers "place enormous weight" on aggregate ratings).

148. Hu et al., *supra* note 64, at 450 (conducting an experimental study showing that consumers are unable to correct for self-selection bias and infer goods' true quality).

to the impact that online reviews have on consumers' purchasing decisions, unscrupulous merchants have every incentive to manipulate the review process.

Attempts at manipulation are widespread. Exact numbers are hard to come by because it is impossible to determine definitively which reviews are fake and which ones are not, but according to standard estimates, about a third of all reviews across major platforms are likely to be fraudulent.[149]

The tools that dishonest merchants use to manipulate their ratings are often crude, simple, and very effective. They review their own products,[150] buy positive reviews in bulk from so-called "review factories,"[151] or offer their customers free merchandise in exchange for five-star reviews.[152]

Fake reviews can be bad news for online digital platforms that rely on consumer reviews to entice customers to do their shopping online rather than in brick-and-mortar stores. Purchasing goods or services online requires trust, and consumer reviews play a crucial role in establishing that trust.[153] Should consumers come to believe that many or most reviews are fraudulent, this would erode the business model of online platforms.

Against this background, some platforms, such as Amazon, have taken vigorous steps to reduce the number and impact of fake reviews.[154] Predictably, unscrupulous sellers have responded by designing more elaborate schemes to manipulate ratings.[155] The result has been an arms race between ruthless merchants bent on gaming the system and platforms bent on restoring some semblance of integrity to the rating process.[156] Unfortunately, in many cases, manipulative merchants appear to be having the upper hand.

149. Ivanova & Scholz, *supra* note 132, at 64 (using an online text analysis tool to evaluate reviews on Amazon and finding that "only around 78% of the reviews are reliable"); Rebecca Dolan, *That's Debatable: Have Online Reviews Lost All Value?*, WALL ST. J., Sept. 28, 2019, at D11 (citing a former Amazon employee and current operator of a consulting firm who estimates that about 30% of reviews on Amazon are fraudulent); Suzanne Kapner, *FTC Presses Online Retailers To Halt Fake Five-Star Reviews*, WALL ST. J., Nov. 29, 2019, at A1 (citing an estimate by Fakespot, Inc. according to which "[m]ore than a third" of all online reviews on major websites such as Amazon or Walmart are fraudulent).

150. David Streitfeld, *The Best Reviews Money Can Buy*, N.Y. TIMES, Aug. 26, 2012, at BU1.

151. Dammann, *supra* note 15, at 192–93; *see, e.g.*, Joanna Stern, *Is It Really Five Stars? How to Spot Fake Amazon Reviews*, WALL ST. J. (Dec. 20, 2018, 9:00 AM), https://www.wsj.com/articles/is-it-really-five-stars-how-to-spot-fake-amazon-reviews-11545314400 [https://perma.cc/5URV-JHX4] (describing companies offering positive reviews for refunds).

152. Dammann, *supra* note 15, at 192–93.

153. *Cf.* Askalidis et al., *supra* note 2, at 23 (noting that "[u]ser reviews are . . . being used to build trust between customers in decentralized marketplaces").

154. *See infra* Section IV.A.

155. *See infra* Section IV.A.4.

156. *E.g.*, David Streitfeld, *In a Race to Out-Rave Rivals, 5-Star Web Reviews Go for $5*, N.Y. TIMES, Aug. 20, 2011, at A1.

A. EXAMPLE: AMAZON'S FIGHT AGAINST FAKE REVIEWS

Amazon's fight against fake and manipulated reviews illustrates some of the challenges that digital platforms face in this context. Amazon is by far the largest online retailer, and consumer reviews are an essential part of the services that it offers its customers. According to estimates, Amazon now accounts for about $60 billion in online shopping and roughly half of all online purchases in the United States.[157] Amazon's unique position has important implications for the problem of fake reviews. The company's massive market share provides dishonest manufacturers and merchants with a powerful incentive to manipulate reviews. Moreover, the large number of competing products sold on Amazon make good ratings even more critical than they already are: if a product is poorly rated, customers can effortlessly switch to another one that has garnered more favorable reviews.

At the same time, Amazon has an unusually strong economic interest in preventing fraudulent reviews. Because Amazon accounts for such a large share of online retail, it stands to suffer disproportionately if customers stop trusting online reviews. Furthermore, Amazon's dual role as a merchant and as a platform provider also creates an incentive to combat fake reviews. If dishonest merchants selling their wares via Amazon submit fake reviews and thereby sell more products, this success may come at the expense of Amazon's own competing products.

Amazon has therefore been particularly aggressive in its efforts to stem the tide of fraudulent reviews. In 2018 alone, it spent more than $400 million on the fight against fake reviews[158] and deleted over thirteen million fraudulent reviews.[159] However, as detailed below, even Amazon is struggling to curb the problem posed by fraudulent reviews.

1. Amazon's Beginnings

Jeff Bezos formed Amazon in 1994 as an online bookstore.[160] Providing customers with easily accessible information about the books they were interested in was one of the main features that Amazon used to distinguish itself from brick-and-mortar bookstores. Allowing customers to review books and making these reviews available to other customers was a crucial

157. Jon Emont, *Amazon Cracks Down on Scams, Fires Employees over Data Leak*, WALL ST. J., Dec. 11, 2018, at B4.

158. *See* Dolan, *supra* note 149 (citing figures provided by Amazon).

159. Maheshwari, *supra* note 72. Amazon is not the only platform to try to root out fake reviews. TripAdvisor claims to have rejected 1.4 million submitted reviews in 2018. Dolan, *supra* note 149.

160. *E.g.*, Floyd Norris, *The Money Is in the Stock, Not the Books*, N.Y. TIMES, May 18, 1997, § 3, at 1.

part of that strategy.[161]

The ability to submit reviews has never been limited to customers who have purchased the books they review. Anyone with an Amazon account can write a review.[162] Nonetheless, the threat posed by fake reviews did not initially receive any public attention. In Amazon's early years, fake reviews typically served a satirical purpose and became a source of entertainment for insiders. For example, after John Trimmer's well-intentioned book *How to Avoid Huge Ships*[163] became available on Amazon, it quickly prompted countless humorous reviews. The one that won the most helpful votes starts as follows: "As a huge ship myself, I'm hurt and offended that the author of this disreputable tract would suggest that I be avoided."[164] A 2001 article in the New York Times that focused on fake Amazon book reviews did not even mention the potential of fake reviews for fraudulent purposes and instead discussed fake reviews solely as an example of offbeat humor.[165]

2. The Rise of Fake Reviews

Over the years, Amazon transformed itself from an online bookseller into a general online retailer, and finally into a company that doubles as both a merchant and a platform for other merchants.[166] As Amazon's importance grew, so did the incentives for merchants and manufacturers to submit fake reviews.

Initially, dishonest merchants would rely on the same crude techniques used on other platforms, such as writing their own reviews[167] or purchasing them in bulk from review factories.[168] What set Amazon apart was the brazenness with which review factories marketed their services. Websites with names like AmazonReviewStar.com or BuyAmazonReviews.com would offer to sell positive reviews in bulk,[169] and would even post

161. Max Frankel, *Grists for Lists*, N.Y. TIMES MAG., Apr. 27, 1997, § 6, at 28; Elizabeth Dwoskin & Craig Timberg, *Despite Amazon's Ban, Paid Reviews Proliferate*, WASH. POST, Apr. 24, 2018, at A1; Doreen Carvajal, *Titles, Titles Everywhere but Not a Page to Turn*, N.Y. TIMES, Sept. 2, 1996, § 1, at 37 (listing the readers' ability to post their own reviews of books as one of Amazon's features).

162. *About Amazon Verified Purchase Reviews*, AMAZON, https://www.amazon.com/gp/help/customer/display.html?nodeId=202076110 [https://perma.cc/22CE-HHL6].

163. JOHN W. TRIMMER, HOW TO AVOID HUGE SHIPS (2d ed. 1993).

164. Authored under the name John Petty, this review is available at https://www.amazon.com/gp/customer-reviews/R2G7F2VB3P3LBY/ref=cm_cr_dp_d_rvw_ttl?ie=UTF8&ASIN=0870334336 [https://perma.cc/S9LB-NK6R].

165. John Schwartz, *Who's Composing All Those Fake Online Reviews?*, N.Y. TIMES, Aug. 27, 2001, at C4.

166. Sam Schechner, *EU to Probe Amazon's Marketplace Conduct*, WALL ST. J., July 18, 2019, at A1.

167. *See* Streitfeld, *supra* note 150, at BU1.

168. *See* sources cited *supra* note 151.

169. *E.g.*, Ben Fox Rubin, *Amazon Continues Crackdown on Alleged Fake Reviews*, CNET (Apr.

advertising videos describing their services.[170]

Moreover, fraudulent reviewers made little effort to disguise the deceptive nature of their reviews. For example, telltale signs of fraudulent reviews included large numbers of generically worded five-star reviews, all written on the same day.[171] In due course, major newspapers took notice and began to criticize Amazon's reviews for being unreliable.[172]

3. Amazon's Countermeasures

In recent years, Amazon has vigorously fought back against the deluge of fraudulent reviews.[173] Amazon's guidelines now explicitly state that no one can solicit positive reviews, or offer or accept compensation in exchange for reviews.[174] In particular, Amazon has banned merchants from offering free merchandise in exchange for reviews.[175] To enforce these prohibitions, Amazon has sued thousands of commercial providers of fake reviews.[176]

Amazon also routinely deletes reviews that it deems suspicious and suspends accounts that fraudsters use to submit fake reviews. Moreover, since 2009, Amazon has indicated whether each consumer review is based on a "verified purchase."[177] For a transaction to qualify as a "verified purchase," the reviewer must have bought the reviewed product via Amazon.[178] In what may constitute an effort to give additional weight to the distinction between verified and unverified purchases, Amazon's aggregate product rating is no longer equal to the mean of all ratings. Instead, it uses a "machine-learned model," which takes into account factors including the age of a rating, whether the ratings are from verified purchasers, and factors that

15, 2016, 6:49 PM), https://www.cnet.com/news/amazon-continues-crack-down-on-alleged-fake-reviews-site [https://perma.cc/YEF2-E4LP].

170. *See id.* (linking to an advertising video on YouTube posted by PaidBookReviews.org).

171. *See, e.g.*, Stern, *supra* note 151 (warning readers to watch out for large numbers of "generic-sounding five-star reviews posted on the same date").

172. Ben Macintyre, *Stars in Our Eyes*, TIMES, Dec. 11, 2010, at 2; Streitfeld, *supra* note 150.

173. *Cf.* Dolan, *supra* note 149 (noting that Amazon claims to have spent more than $400 million in 2018 alone on the fight against fraudulent reviews).

174. *Community Guidelines*, AMAZON, https://www.amazon.com/gp/help/customer/display.html/ref=help_search_1-1?ie=UTF8&nodeId=GLHXEX85MENUE4XF&qid=1582929003&sr=1-1 [https://perma.cc/C4KV-RWGR].

175. Stern, *supra* note 151.

176. Andrew Ellson, *Amazon Sues Writers in Fight Against Fake Review 'Factories*,*'* TIMES, Oct. 19, 2015, at 9; Emont, *supra* note 157.

177. Marios Kokkodis, Theodoros Lappas & Gerald C. Kane, *Direct and Indirect Benefits of Introducing Purchase Verification in E-commerce Platforms: Evidence from a Natural Experiment* 10 (Stevens Inst. Tech. Sch. Bus. Research Paper, 2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3478353 [https://perma.cc/9ZUK-F359].

178. *Amazon Verified Purchase Reviews*, AMAZON, https://www.amazon.com/gp/help/customer/display.html?ie=UTF8&nodeId=G75XTB7MBMBTXP6W [https://perma.cc/B6TC-4CKQ].

establish reviewer trustworthiness.[179]

4. Fake Reviewers Strike Back

Amazon goes well beyond the efforts of most other digital platforms in its fight against fake reviews.[180] For example, anyone can write a review on Yelp or TripAdvisor without providing proof that they are actual customers of the firms that they review. Nonetheless, there are reasons to believe that even Amazon's efforts have had only limited success in stemming the tide of fraudulent reviews.

To begin, lawsuits against fake reviews appear to have driven suppliers underground rather than eliminating the market for fake reviews.[181] The Internet remains awash with by-invitation-only forums where Amazon customers are invited to write positive reviews in exchange for being reimbursed the price of the goods they buy and, possibly, an additional fee for writing the review.[182] Since this approach relies on the reviewer purchasing the product they are reviewing, such reviews even benefit from Amazon's preferred treatment of "verified purchases." In another common scam, fraudsters set up fake accounts, add a real address belonging to a random person, and then purchase items for the sole purpose of reviewing them.[183]

B. FUNDAMENTAL CHALLENGES

Amazon's fight against manipulation stands out because of Amazon's prominence as a digital marketplace and because of Amazon's extraordinary efforts to combat fraud. However, Amazon's efforts also illustrate the fundamental challenges that digital platforms face when trying to halt the deluge of fake reviews.

1. Identifying Fake Reviews

The core problem is that it is hard to distinguish fake reviews from real ones. The difficulty of telling genuine reviews and fake ones apart is particularly evident in those cases where reviewers assign a certain number

179. *How Are Product Star Ratings Calculated?*, AMAZON, https://www.amazon.com/gp/help/customer/display.html/ref=hp_left_v4_sib?ie=UTF8&nodeId=GQUXAMY73JFRVJHE [https://perma.cc/AJM6-DTUA].

180. Note, however, that many websites that allow customer reviews now employ software that seeks to identify suspicious reviews by focusing on repetitions or numerous reviews submitted using the same IP address. Dolan, *supra* note 149. Apple Inc. has taken a particularly radical approach and has eliminated all consumer reviews from its website. Kapner, *supra* note 149.

181. Dwoskin & Timberg, *supra* note 161.

182. Stern, *supra* note 151.

183. Emont, *supra* note 157.

of stars or points without a written component. However, even if reviewers submit written reviews, identifying fraudulent reviews can be very challenging.

i. Humans' Ability to Spot Fake Reviews

In one study, Cornell researchers recruited participants on Amazon Mechanical Turk to write (but not post) 400 fake reviews for various products.[184] They then mixed these fake reviews with an equal number of real reviews for the same products and asked a panel of three study participants to try to distinguish the genuine reviews from the fake ones.[185] The three "judges" enjoyed only minimal success at this task; their accuracy rates were 53.1%, 56.9%, and 61.9%, respectively.[186] These rates are quite unimpressive, given that random guesses would, on average, have an accuracy rate of 50%. Accordingly, the study concludes that "the detection of deceptive opinion spam is well beyond the capabilities of human judges, most of whom perform roughly at-chance."[187]

The fact that humans are quite imperfect at spotting fake reviews is unsurprising. In the psychological literature, it is well established that humans are not well-equipped to detect fraud based on written text alone.[188] Written text lacks many elements that allow humans to sense dishonesty in face-to-face conversation, such as tone of voice, speech patterns, and visual cues.[189]

ii. Fraud Detection Software

Are machine-learning programs more adept than customers at detecting fake reviews? There is no shortage of firms offering such software; ReviewMeta and FakeSpot are two such firms. However, there are reasons to be skeptical. There is no guarantee that software of this type will spot all or even the majority of fake reviews.

A general problem with machine-learning is that it can be biased toward

184. Myle Ott, Yejin Choi, Claire Cardie & Jeffrey T. Hancock, *Finding Deceptive Opinion Spam by Any Stretch of the Imagination*, *in* PROCEEDINGS OF THE 49TH ANNUAL MEETING OF THE ASSOCIATION FOR COMPUTATIONAL LINGUISTICS 309, 312 (2011).

185. *Id.*

186. *Id.* at 313 tbl.2.

187. *Id.* at 317.

188. *E.g.*, Anderson & Simester, *supra* note 106; *cf.* Charles F. Bond, Jr. & Bella M. DePaulo, *Accuracy of Deception Judgments*, 10 PERSONALITY & SOC. PSYCHOL. REV. 214, 225 (2006) (conducting a meta-study on the accuracy of test subjects' ability to spot deception and finding that humans' accuracy at spotting lies increases substantially if they are presented with an audio recording). *See generally* Bella M. DePaulo, James J. Lindsay, Brian E. Malone, Laura Muhlenbruck, Kelly Charlton & Harris Cooper, *Cues to Deception*, 129 PSYCHOL. BULL. 74 (2003) (conducting a meta-study on cues to deception and discussing a broad number of audio cues and their importance to spotting lies).

189. *See generally* Bond & DePaulo, *supra* note 188; DePaulo et al., *supra* note 188.

past practices. Machine-learning algorithms have to be "trained" using so-called historical "training data,"[190] and the methods by which the machine-learning algorithm makes decisions are tailored to such historical data. In the context of fraud detection software, this means that known fake reviews are used to allow the program to find ways to tell fake reviews from genuine ones. However, the use of historical data for training purposes becomes a handicap if fraudulent reviews continue to evolve.

Various tests of machine-learning software have yielded mixed results.[191] Some studies have found accuracy rates for fraud detection software as low as 67%, which is barely better than the 50% accuracy rate that one can expect from random guessing, while others reported that their software detected 91% of all (known) fake reviews.[192]

However, the core problem with this type of study lies in the fact that in real life, fake reviewers can strategically respond to the use of fraud detection software, a possibility that the pertinent studies do not account for. For example, the study that reported the 91% accuracy rate, published in 2019 by Daniel Martens and Walid Maalej, found that the fake reviews in their dataset were much less likely to be short than genuine reviews.[193] If websites were to employ their software, fake reviewers could simply switch to writing short reviews to escape detection. What is more, fraudsters can systematically experiment with different types of fake reviews, thereby finding out which types of fake reviews get flagged or deleted and which ones do not. This approach allows them to look for gaps in the software's defenses. At this point, the already-mentioned bias towards past practices again becomes relevant. It is one thing to develop software that works well on a static dataset, where the training data are of the same structure as the data that are then used to test the software. It is quite another to develop software that prevents fraudsters from successfully adjusting their techniques.

190. *E.g.*, Cary Coglianese & David Lehr, *Transparency and Algorithmic Governance*, 71 ADMIN. L. REV. 1, 14 (2019).

191. Daniel Martens & Walid Maalej, *Towards Understanding and Detecting Fake Reviews in App Stores*, 24 EMPIRICAL SOFTWARE ENGINEERING 3316, 3319–21 (2019) (testing fraud detection software by using a dataset consisting of a mixture of real and fake reviews); Nitin Jindal & Bing Liu, *Opinion Spam and Analysis*, *in* WSDM '08: PROCEEDINGS OF THE 2008 INTERNATIONAL CONFERENCE ON WEB SEARCH AND DATA MINING 219, 222–23 (using a dataset of "fake" and genuine reviews to test fraud detection software and relying on the assumption that actual reviews are fake if the author has submitted identical or near-identical reviews for different products); Ott et al., *supra* note 184, at 311–12 (creating a testing set by commissioning Amazon Turk writers to write fake reviews).

192. Martens & Maalej, *supra* note 191, at 3351.

193. *Id.* at 3334.

2. Enforcing Prohibitions

Enforcing prohibitions against bribes can also be challenging. As previously noted, despite Amazon's intensive and public efforts to sue suppliers of fraudulent reviewers, "for sale" reviews are still available.[194] Moreover, research on the impact of online reviews suggests that merchants may not have to buy large numbers of favorable reviews in order to promote the sale of their products. Even a few fraudulent reviews can make a big difference for a product's sales, especially if they are submitted soon after the product enters the market.[195]

Enforcement becomes more complicated when goods or services are provided to relatively few customers. For example, consider an apartment offered on Airbnb. A host intent on gaming the system can easily "rent" the apartment in sham transactions to some of his friends during the off-season, thereby securing top-notch reviews. Airbnb charges a 3% fee for each booking.[196] However, if the apartment is rented for, say, $200 for one night, the fee that needs to be paid to Airbnb per review is a measly $6.

3. Self-Motivated Customer Fraud

The preceding sections have focused on ways in which manipulative merchants game the system. However, recent empirical research indicates that there may be an additional problem lurking on the web: customers who submit fake reviews on their own initiative.

Eric Anderson and Duncan Simester were the first to document this phenomenon in a 2014 study in the *Journal of Marketing Research*.[197] The authors examined a sample of 325,869 reviews from an online clothing retailer.[198] They found that about 5% of all product reviews were from customers who were not recorded to have purchased the relevant products.[199] Because the relevant reviews were attributable to more than 12,000 customers, many of whom actually bought numerous other items, the study's authors concluded that the reviews lacking an underlying transaction were written by real customers rather than persons affiliated with the manufacturer

194. *See, e.g.*, Li Peng, Geng Cui, Mengzhou Zhuang & Chunyu Li, *Consumer Perceptions of Online Review Deceptions: An Empirical Study in China*, 33 J. CONSUMER MARKETING 269, 276 (2016) ("Seller manipulations of online product reviews have been widely and increasingly used in practice . . . .").

195. *Cf.* Askalidis & Malthouse, *supra* note 134, at 155–58 (finding that the first ten online reviews account for most of the increase in purchase likelihood).

196. *What Are Airbnb Service Fees?*, AIRBNB, https://www.airbnb.com/help/article/1857/what-is-the-airbnb-service-fee [https://perma.cc/UY3P-G6D4].

197. Anderson & Simester, *supra* note 106.

198. *Id.* at 252.

199. *Id.* at 249.

or the seller.[200] In theory, these customers could have acquired the products elsewhere.[201] However, the authors also found that the reviews lacking a recorded transaction showed telltale signs of having been written without any experience of the product. In particular, the relevant reviews were substantially less likely than other reviews to mention how a specific piece of clothing felt or fit.[202] Accordingly, it appears likely that the writers never purchased or otherwise obtained the products they reviewed.

The phenomenon that individuals submit fake reviews without being solicited to do so is unsurprising if one considers the typical motives for writing reviews. Reviewers who like their voices to be heard may enjoy "policing" a company's offerings, thereby influencing the company's sales and, indirectly, its policy.[203] However, the existence of self-motivated customer fraud makes it even more challenging to combat fraudulent online reviews. In particular, online merchants and digital platforms may be hesitant to delete potentially fraudulent reviews written by real customers for fear of offending their customer bases. Tellingly, even Amazon has not yet adopted a policy of removing all reviews that are not written by verified purchasers, opting instead to indicate, for each review, whether a verified purchaser wrote it.

In sum, neither human diligence nor artificial intelligence provides a viable barrier to review fraud. At best, efforts serve to mitigate a persistent and multifaceted problem.

V. INCENTIVES

The picture that this Article has painted of online review systems is bleak. Reviewers' biases undermine their ability to provide objective information to customers.[204] Moreover, online review systems are vulnerable to manipulation, a weakness that unscrupulous merchants eagerly exploit.[205] In this Part, I address an additional fundamental challenge for online reviews: even if the providers of consumer rating systems *could* design highly functional rating systems, it is not clear that most, let alone all, of them would. The reason is simple. Rating system providers (hereinafter "providers") typically face incentives that are not aligned with consumers' best interests.

On the one hand, providers have a financial interest in preserving the

200. *Id.*
201. *Id.* at 255.
202. *Id.* at 249.
203. *Cf. id.* at 262 (hypothesizing that the fake reviewers "act[] as self-appointed brand managers").
204. *See supra* Part III.
205. *See supra* Part IV.

reputation of their rating systems, and therefore they have an incentive to weed out fake reviews.[206] On the other hand, providers have a financial incentive to encourage or at least tolerate excessively positive ratings. Moreover, there are compelling reasons to think that the former motive does not always trump the latter. I will address these issues in turn.

A. THE UPSIDE OF PROFIT MAXIMIZATION

Providers typically use rating systems to generate profits, although the revenue sources differ from provider to provider. For online merchants such as Amazon or Barnes & Noble, consumer ratings increase revenues by inducing consumers to buy products that they might not otherwise have purchased. Websites that display reviews without also selling goods or services, such as Yelp, use product reviews to generate revenue from advertising. One way or the other, though, rating systems tend to yield financial benefits for the firms that provide them.

This profit motive has an essential benefit in that it incentivizes providers to protect their rating systems' integrity.[207] All else equal, more reliable rating systems are more useful to consumers, which in turn makes them more valuable to the providers that operate them. For example, if consumer reviews on Amazon were known to be completely and utterly unreliable, some consumers might no longer want to buy goods on Amazon, fearing that the risk of receiving low-quality products is too high. Tellingly, the largest online retailer, Amazon, is spending hundreds of millions of dollars to fight fake reviews.[208]

B. THE DOWNSIDE OF PROFIT MAXIMIZATION

Despite the profit motive's salutary effect, it also creates incentives to design rating systems in a suboptimal way. This downside becomes clear if one focuses on the different business models that providers use. Providers generally fall into one or more of three different categories: merchants, digital marketplaces, and independent rating services.

1. Merchants

The first category—merchants—covers firms that sell goods or services on their own account. Most large merchants, even those better known for their brick-and-mortar stores, now have websites that allow consumers to

206. *See infra* Section V.A.

207. M. TODD HENDERSON & SALEN CHURI, THE TRUST REVOLUTION: HOW THE DIGITIZATION OF TRUST WILL REVOLUTIONIZE BUSINESS AND GOVERNMENT 156 (2019).

208. *See supra* text accompanying note 158.

review their products and services.[209] Sears, Nordstrom, or Macy's are prominent examples. For merchants, online reviews are useful in that they can promote sales: buying goods or services online requires trust, and consumer ratings are a valuable instrument in building such trust. However, whereas positive reviews are good for business, negative reviews are not.[210] Thus, while merchants have a long-term financial stake in preserving the integrity of their rating systems, they also benefit in the short run from encouraging, or at least tolerating, excessively positive reviews. Rational merchants must grapple with these two competing interests, and as I will show below, there is no reason to believe that merchants' long-term interest in maintaining the integrity of their rating system will always win out.

2. Digital Marketplaces

I use the term "digital marketplace" to cover platforms that allow buyers and sellers of goods or services to enter into contracts. For example, eBay enables sellers to auction goods to buyers and websites such as Airbnb or HomeAway create forums for short-term or long-term rental agreements.

Just like online merchants, digital marketplaces have a long-term interest in maintaining the reputation of their rating systems. Their ability to attract online customers depends on it. However, like online merchants, online marketplaces also have an incentive to encourage or tolerate excessively positive ratings. That is obvious in those cases where the fees that the digital marketplace charges depend on the number or volume of transactions. For example, landlords using Airbnb must pay a 3% fee for every rental.[211] This fee structure ensures that more sales translate directly into higher revenues for the firm running the digital marketplace.

Moreover, even if the fees that the digital marketplace charges do not depend directly on the number or volume of transactions, the marketplace can benefit from excessively positive reviews. Positive reviews can make the marketplace more attractive to merchants, which in turn allows the marketplace to attract more merchants or to charge higher fees to the merchants that use it.

To be clear, this Article does not argue that the short-term interest in maximizing fees always trumps the long-term interest in maintaining the integrity of rating systems. However, as shown below, there is little reason to think that the latter always trumps the former either.

209. *See* Askalidis et al., *supra* note 2.
210. *See supra* Part II.
211. *See supra* note 196.

3. Independent Rating Services

The term "independent rating services," as used in this Article, covers websites that allow consumers to rate firms, services, or products while mainly relying on advertising to generate revenues. A prominent example is Yelp,[212] which enables consumers to rate numerous types of service providers ranging from restaurants to dry cleaners to electricians.

Independent rating services have no direct financial stake in the sales that their ratings help to generate. However, their business model nonetheless creates various incentives that are in direct conflict with optimizing the rating system's reliability.

Websites dependent on revenue from advertising can rely on three main types of advertising: display-based advertising, click-based advertising, and subscription-based advertising. Display-based advertising means that merchants pay the website to display their ads.[213] In click-based advertising, the site still displays ads but only gets paid if consumers click on the ads displayed, which leads them to the merchant's website.[214] Meanwhile, subscription-based advertising refers to the practice of charging higher fees in exchange for more comprehensive advertising services, such as displaying particular merchants at the top of a list of search results or including them in a list of favored providers.[215]

All three types of advertising can create incentives to inflate ratings. Click-based ads are often displayed in conjunction with information about the pertinent firms' aggregate ratings. High ratings make the consumer more likely to click on these ads and thereby increase the rating website's revenues.

For subscription and display-based advertising, the incentive to inflate ratings is more complicated. Consumers who visit a rating service's website are likely to rely at least in part on the pertinent ratings in choosing between different merchants or products; otherwise, they would not visit the site in the first place. Consumers' reliance on reviews and ratings implies that advertising meant to draw the consumer's attention is much less likely to

212. YELP, http://www.yelp.com [https://perma.cc/RB8B-X4D9].

213. *E.g.*, Matt Berriman, *How to Devalue One of Your Key Propositions*, AUSTRALIAN, June 27, 2011, at 27.

214. *E.g.*, Yumiko Ono, *Ad Firms Vie for Piece of Japan's Web Market*, WALL ST. J., Mar. 27, 2000, at B15A.

215. There are two types of lists to be distinguished in this context. To begin, digital marketplaces may display lists of popular services providers that are selected merely based on merit, for example, based on the average review quality. For example, travel websites such as TripAdvisor often display lists of best and worst destinations. Casaló et al., *supra* note 75. Then, there are lists that that merchants pay to be included in. The main text refers to this second type of list.

result in a sale if the firm or product being advertised is poorly reviewed. Therefore, all else equal, firms with above-average ratings are more likely to profit from ads on rating websites than firms with below-average ratings. Accordingly, a rating service encouraging positive ratings may find it easier to persuade firms to advertise on that site.

Aside from potential incentives to encourage or tolerate positive reviews, rating services' reliance on advertising revenues also creates problematic incentives of a different sort. In practice, small businesses frequently complain that rating services pressure them into concluding advertising contracts by removing positive consumer reviews if they decline.[216] In other words, if a business owner pays for advertising, the site continues to feature both positive and negative consumer reviews. By contrast, if a business owner refuses to pay, the rating website removes the positive consumer reviews and leaves only the negative ones, thereby giving the impression that most customers were dissatisfied with the business' products or services. Because reports of such tactics remain anecdotal, it is hard to tell how common such pressuring tactics are and whether they play any meaningful role at all.

However, it is noteworthy that according to the Ninth Circuit, a rating website would not even violate the law, at least in California, if the website removed positive ratings to induce firms to conclude advertising contracts.[217] In a lawsuit that a merchant brought against Yelp, the court explained that "unless a person has a preexisting right to be free of the threatened economic harm, threatening economic harm to induce a person to pay for a legitimate service is not extortion."[218] In other words, since rating websites are free to decide which, if any, reviews to publish, and since they also have the right to charge for advertising, removing positive reviews to pressure firms to pay for advertising merely constitutes "hard bargaining."[219]

Setting aside the question of how persuasive this reasoning is, the relevant holding creates an obvious concern: if it is legal for rating services to selectively remove particular reviews to induce merchants to pay for advertising, then at least some rating services are likely to make use of this technique. As a result, the desire to generate ad revenues may induce rating websites to freely "edit" firms' ratings: they can punish firms by removing

216. *Cf.* Ballentine, *supra* note 102 (describing a small business owner's unsuccessful lawsuit against Yelp); Fowler, *supra* note 102, at B3 (reporting on a lawsuit in which local businesses are accusing Yelp of using extortion to pressure them to advertise).

217. Levitt v. Yelp! Inc., 765 F.3d 1123, 1134 (9th Cir. 2014).

218. *Id.* at 1130. *But see* People v. Bollaert, 203 Cal. Rptr. 3d 814, 840 (Ct. App. 2016) (rejecting *Levitt*).

219. *See Levitt*, 765 F.3d at 1134.

positive reviews or reward them by eliminating negative ones.

C. SHORT-TERM V. LONG-TERM PROFITS

There is no reason to believe that firms providing rating system will always let the desire to preserve the integrity of their rating system trump their interest in maximizing short-term profits.

1. Short-termism

Some merchants may simply value short-term profits more highly than the potential long-term benefits that can flow from preserving the long-term reputation of their rating systems. The reasons are many. First, future profits are less valuable than present ones—this phenomenon is known as the "time-value of money."[220] Moreover, future revenues are often quite uncertain. Further, it may be that not all rating system providers expect to survive in the long run. An online retailer that expects to be wiped out by Amazon in a few years may attach little value to preserving the integrity of ratings. For other firms, generating cash flow in the short run may be the only way to survive in the long term, and accordingly, these firms may value the short-term revenues created by positive reviews much more highly than the benefits of a reliable rating system. For these reasons, it is highly implausible to think that most, let alone all, rating system providers give the integrity of their rating system absolute priority over short-term gains.

2. Externalities Imposed on Customers

Externalities pose another problem. For merchants to have optimal incentives to preserve the integrity of their rating systems, they must bear the full costs of fake reviews. However, merchants do not typically bear this cost. To a substantial extent, these costs fall on customers who rely on the fake reviews and on third parties. In this section, I will focus on the costs imposed on customers.

Fake reviews dupe customers into buying products that they would not otherwise have bought, and in this regard, they are the ones who shoulder the bulk of the costs of fake reviews. Of course, merchants may also suffer. Customers who have had a bad experience as a result of fake reviews may be less likely to make online purchases in the future. Some customers may demand a refund, thereby creating additional costs for the merchant. However, several factors suggest that in many cases, customers may never find out that they have been duped, thus allowing the merchant to escape any

220. *See, e.g.*, Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051, 1119 (2000).

adverse consequences.

To begin with, most consumers are bad at judging the quality of the goods that they have purchased.[221] This finding is less surprising than it may seem at first glance. In many cases, objectively evaluating the quality of a product requires familiarity with the quality of competing products, which consumers often lack.[222]

Furthermore, many customers may never find out that a product that they did not buy as a result of fake negative reviews would have been a more advantageous purchase. Rather, such customers may happily live their lives without ever finding out that the product they avoided would have made them even happier.

To be clear, the argument that this Article advances is not that fake reviews will never undermine customers' trust. Instead, the crucial point is that there will be many cases in which fake reviews have little or no impact on consumers' trust. Accordingly, merchants do not bear the full costs of fake reviews and thus lack optimal incentives to police consumer reviews.

3. Costs Imposed on Third Parties: Trust as a Shared Resource

Even if customers find out that they have been misled and successfully obtain a refund, the website where the fake reviews were posted is unlikely to bear all of the resulting costs. Instead, some of the pertinent costs are borne by other merchants and even other customers. Human trust has an unspecific nature[223]: a consumer who has had a poor purchasing experience as a result of fake online reviews may be particularly likely to distrust online reviews on the website where they bought the relevant product. However, the consumers' change of perspective may not be limited to that particular website. Instead, the consumer may also deduce from their experience that online consumer reviews in general are less trustworthy than they expected. Accordingly, the consumer may become less likely to trust online reviews in general. Moreover, the consumer may share their frustration with others,

221. This has been known for a long time. *See, e.g.*, Tibor Scitovszky, *Some Consequences of the Habit of Judging Quality by Price*, 12 REV. ECON. STUD. 100, 100 (1944) (explaining that consumers use a product's price to infer its quality since they are poor judges of quality). For a more recent account, see Donald R. Lichtenstein & Scot Burton, *The Relationship Between Perceived and Objective Price-Quality*, 26 J. MARKETING RES. 429, 430 (1989) (pointing out the survival of brands that offer a poor price-quality combination shows that consumers are highly imperfect at judging products).

222. Lichtenstein & Burton, *supra* note 221, at 441.

223. Existing empirical research yields at least some evidence that trust in the context of online transactions is unspecific. Thus, Paul A. Pavlou & David Gefen, *Building Effective Online Marketplaces with Institution-Based Trust*, 15 INFO. SYS. RES. 37, 52 (2004), use data from surveys and online transactions to show that digital marketplaces' feedback features that are meant to allow consumers to differentiate between different sellers also increase trust "in the entire community of sellers."

thereby causing them to become less trusting of online reviews in general as well.

The problem that fake reviews undermine consumer trust, not just vis-à-vis the specific seller or manufacturer but more generally, can be likened to what is known as the "tragedy of the commons."[224] When several users share a particular resource, each of them may have an incentive to use it excessively, thereby spoiling or depleting it, even though it would be in the shared interest of all users to preserve the resource.[225] In other words, the tragedy of the commons captures the problem of action concerning shared resources.[226]

One can think of consumers' trust as a shared resource.[227] Trust plays a vital role in maximizing social welfare.[228] Trust lowers transaction costs and allows economic relationships to flourish, including in cases where the enforcement of rights via legal sanctions is impracticable. In other words, trust is the "glue that keeps business partners together."[229] Without trust, online transactions would be much more difficult, and thus it lies in the collective interest of online sellers to protect consumers' trust. However, each seller may find it in their individual interest to exploit consumers' trust, thereby damaging that trust in the long run, given that all sellers share the

224. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243, 1244 (1968).

225. *Id.*

226. *E.g.*, Douglas G. Baird & Robert K. Rasmussen, *Antibankruptcy*, 119 YALE L.J. 648, 653 (2010).

227. Empirical studies have demonstrated that humans are willing to trust others even if the counterparty has no legal or economic incentive to honor that trust. The seminal paper is Joyce Berg, John Dickhaut & Kevin McCabe, *Trust, Reciprocity and Social History*, 10 GAMES & ECON. BEHAV. 122 (1995). The paper presents the results of an experiment in which study participants were randomly paired. In each pair, one player was randomly selected as the first mover, the other player as the second mover. Each player was given an endowment of money. The first mover had the option to "send" some or all of his endowment to the second mover and was told that any money the first mover sent would be tripled. The second mover would then have the choice to send part of his (tripled) receipts back. The researchers informed the players that the game would end once the second player made their decision. At that point, each player would receive the amount of money in the player's account. Both players knew that they would never learn the other player's identity. Originally, the researchers had hypothesized that neither player would be willing to send any money. The intuition behind this hypothesis was simple. The second mover had no incentive to send any money to the first mover and would therefore fail to send any money; the first mover, in turn, would anticipate the second mover's strategy and therefore fail to send any money in the first place. However, the experiment's outcome was not consistent with this hypothesis. On average, first movers sent an amount of $5.16 out of a total endowment of $10, and second movers sent back $4.66. In the following decades, various other studies repeated this or similar experiments, which are now widely known as "sender games." *See*, *e.g.*, Noel D. Johnson & Alexandra A. Mislin, *Trust Games: A Meta-Analysis*, 32 J. ECON. PSYCHOL. 865, 875–76 (2011) (conducting a meta-analysis of sender game studies and finding, inter alia, that the amount sent depends on such factors as the multiplier used and the question of whether the study participants are students).

228. *E.g.*, HENDERSON & CHURI, *supra* note 207, at 2.

229. Bart Nooteboom, Hans Berger & Niels G. Noorderhaven, *Effects of Trust and Governance on Relational Risk*, 40 ACAD. MGMT. J. 308, 310 (1997).

adverse consequences.

These negative externalities create an incentive for inefficient behavior: online marketplaces and merchants cannot be expected to invest sufficiently in the reliability and quality of their ratings if they know that they will not shoulder the full costs of unreliable ratings.

VI. THE CASE AGAINST LEGAL INTERVENTION

The question remains: should lawmakers or courts intervene to improve the quality or integrity of consumer ratings? Various possible interventions come to mind.

A. NEW LEGISLATION

The U.S. Congress, relying on the Commerce Clause, could adopt new legislation aimed at making ratings more reliable. Such an approach is by no means unrealistic or farfetched. In 2016, Congress enacted the Consumer Review Fairness Act, which prohibits contractual provisions that prevent consumers from posting reviews.[230] Moreover, in 2019, individual lawmakers urged Amazon to do more to combat fake reviews.[231] Hence, new legislation on this issue does not seem unrealistic.

1. Possible New Rules

For example, Congress could explicitly require providers to take reasonable precautions against fraudulent ratings. Moreover, Congress could impose explicit criminal sanctions on anyone submitting fake reviews.[232] Federal law could also require merchants and digital platforms to disclose which ratings were submitted by actual buyers, a rule that Amazon already adheres to by indicating which reviewers are "verified purchasers."

2. Critique

The risk associated with any such new rules is that introducing rigid and formalized regulation might inadvertently do more harm than good. Rating systems are in a constant state of evolution, and economists are only beginning to focus on the question of how to optimize their design.[233]

230. 15 U.S.C. § 45b(c).

231. Gabriella Muñoz, *Democrats Launch Probe into Fake Amazon Reviews*, WASH. TIMES (July 10, 2019), https://www.washingtontimes.com/news/2019/jul/9/democrats-launch-probe-fake-amazon-reviews [https://perma.cc/889Q-KS8H] (reporting that the House Energy and Commerce Committee Chair and the Consumer Protection Subcommittee Chair asked Amazon CEO Jeff Bezos to explain Amazon's efforts to prevent fake reviews).

232. Under current law, fake reviews might conceivably constitute wire fraud under 18 U.S.C. § 1343.

233. *E.g.*, Jiang & Guo, *supra* note 139 (using game theory to explore whether firms seeking to

Moreover, digital marketplaces and online merchants are still in the process of experimenting with different approaches. One example is Amazon's stated policy of giving more weight to reviews that other consumers have rated as helpful when calculating a product's aggregate rating.[234]

Moreover, there are good reasons to believe that rating systems need to remain in a state of flux. Deceitful merchants keep developing ever more sophisticated techniques for manipulating online review systems. Any federal regulation aimed at improving the reliability of consumer ratings could unintentionally hamper or even put an end to innovation aimed at improving rating systems. For example, in an attempt to prevent providers from displaying manipulated aggregate scores, a federal statute might require providers to present consumers with an aggregate rating that represents the arithmetic mean of all submitted reviews. However, such a rule would prevent useful innovations like Amazon's choice to attach more weight to verified reviews than to unverified ones in calculating the aggregate rating.

Moreover, new federal legislation inevitably comes with the risk of industry capture.[235] Who is to say that the industry's less reputable players would not lobby Congress into adopting rules that cement merchants' ability to game the system? In sum, there is reason to doubt that consumers would benefit if lawmakers or courts were to intervene to improve the quality of ratings.

B. STRICTER ENFORCEMENT

The Federal Trade Commission Act explicitly bans the use of "unfair or deceptive acts or practices in or affecting commerce."[236] Even in the absence of new legislation, therefore, the Federal Trade Commission ("FTC") can target online merchants that use manipulated ratings to scam consumers. Against this background, one FTC Commissioner, Rohit Chopra, has called on the FTC to take more forceful action against fake reviews.[237]

maximize sales should use low or high rating scales). Economists are also beginning to analyze the determinants of review helpfulness, meaning the characteristics that render reviews helpful to other customers. *E.g.*, Mohammad Salehan & Dan J. Kim, *Predicting the Performance of Online Consumer Reviews: A Sentiment Mining Approach to Big Data Analytics*, 81 DECISION SUPPORT SYSTEMS 30, 34 (2016) (using regression models to determine the impact of various review characteristics on review helpfulness).

234. *See supra* Part IV.

235. *See* George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 3 (1971) (proposing a theory on regulation that focuses on industry-capture).

236. 15 U.S.C. § 45.

237. *E.g.*, Maheshwari, *supra* note 72.

1. Current Enforcement Practice

The FTC has not remained entirely on the sidelines. In 2019, it brought a case against a cosmetics company, Sunday Riley, that had used fake online reviews to promote sales of its products.[238] The company had a website that allowed customers to submit reviews. According to the FTC, the company's CEO explicitly instructed staff to write fake reviews, giving them detailed step-by-step instructions on how to create fake customer accounts and leave positive reviews.[239] The case was settled, and the settlement required the company and its CEO to abstain from manipulating their review system in the future but imposed no fine.[240]

State regulators have become involved as well, and they have been much more heavy-handed than the FTC. For example, in 2013, the New York State Attorney General settled a case with nineteen review factories, which, in the aggregate, agreed to pay $350 million.[241]

2. The Case Against Stricter Enforcement

The FTC and state authorities could, of course, invest much more substantial resources in the fight against fake reviews. However, it is not evident that this would be a particularly efficient use of public funds.

To begin with, fake consumer reviews are only one of several problems that beset online rating systems.[242] Furthermore, the providers of online review systems are far better positioned than federal or state authorities to take measures against fake reviews. After all, they know which customers have actually purchased goods, and they have access to all their sales data, which allows them to look for patterns indicating suspicious reviews. There is also an enforcement angle to consider. Review factories and other fraudulent actors can easily move offshore, undermining the FTC's enforcement efforts. Finally, one cannot dismiss the possibility that increased government enforcement efforts might have negative spillover effects. In the worst case, more stringent efforts by federal and state authorities might offer digital marketplaces an excuse to scale back their own

238. Press Release, Fed. Trade Comm'n, Devumi, Owner and CEO Settle FTC Charges They Sold Fake Indicators of Social Media Influence; Cosmetics Firm Sunday Riley, CEO Settle FTC Charges That Employees Posted Fake Online Reviews at CEO's Direction (Oct. 21, 2019), https://www.ftc.gov/news-events/press-releases/2019/10/devumi-owner-ceo-settle-ftc-charges-they-sold-fake-indicators [https://perma.cc/TR6L-9BUR].

239. *Id.*

240. *Id.*

241. Patrick Clark, *New York State Cracks Down on Fake Online Reviews*, BLOOMBERG (Sept. 23, 2013, 2:31 PM), https://www.bloomberg.com/news/articles/2013-09-23/new-york-state-cracks-down-on-fake-online-reviews [https://perma.cc/628Z-JC2U].

242. *See supra* Part II.

efforts to weed out fraud.

In sum, while calls for more stringent administrative action may seem tempting at first glance, there is little reason to believe that more government involvement would do much to protect consumers from fake reviews.

CONCLUSION

Much of consumer protection law rests on the assumption that merchants enjoy an informational advantage over consumers: specifically, that merchants know far more about their products and services than consumers do. This information asymmetry creates the risk of one-sided contracts, justifying the need for legal rules that protect consumers.

However, today's digital economy has vastly increased consumers' access to information. Consumers purchasing goods or services online can typically consult previous buyers' reviews. Against this background, some scholars argue that the time has come to scale down the traditional legal protections that consumers enjoy.

This Article rejects such proposals. Consumer reviews cannot function as an adequate substitute for consumer protection law. They suffer from numerous biases that undermine their ability to provide consumers with useful information. Moreover, fraudulent reviews are ubiquitous and will in all likelihood continue to remain so. Even if rating system providers were able to address these shortcomings, many of them would likely fail to do so for lack of appropriate incentives.

None of this means that online consumer reviews are useless. On balance, the benefits that they provide to consumers may well outweigh their costs. However, unless consumer ratings become much more reliable than they are now, their existence does not justify lowering traditional legal protections.