

*University of Pennsylvania Carey Law School*

**ILE**

**INSTITUTE FOR LAW AND ECONOMICS**

A Joint Research Center of the Law School, the Wharton School,  
and the Department of Economics in the School of Arts and Sciences  
at the University of Pennsylvania

---

**RESEARCH PAPER NO. 22-25**

**The Overlooked Systemic Impact of the  
Right to Be Forgotten: Lessons from Adverse  
Selection, Moral Hazard, and Ban the Box**

**Christopher S. Yoo**

*UNIVERSITY OF PENNSYLVANIA CAREY LAW SCHOOL*

This paper can be downloaded without charge from the  
Social Science Research Network Electronic Paper Collection:

<https://ssrn.com/abstract=4124596>

# **The Overlooked Systemic Impact of the Right to Be Forgotten: Lessons from Adverse Selection, Moral Hazard, and Ban the Box**

Christopher S. Yoo\*

## ABSTRACT

The right to be forgotten, which began as a part of European law, has found increasing acceptance in state privacy statutes recently enacted in the U.S. Commentators have largely analyzed the right to be forgotten as a clash between the privacy interests of data subjects and the free speech rights of those holding the data. Framing the issues as a clash of individual rights largely ignores the important scholarly literatures exploring how giving data subjects the ability to render certain information unobservable can give rise to systemic effects that can harm society as a whole. This Essay fills this gap by exploring what the right to be forgotten can learn from the literatures exploring the implications of adverse selection, moral hazard, and the emerging policy intervention known as ban the box.

keywords: privacy, right to erasure, right to deletion, General Data Protection Regulation (GDPR), Google Spain, asymmetric information, hidden information, hidden action, insurance

## INTRODUCTION

The growing importance of digital platforms and concerns about their impact on public discourse and consumer markets has transformed privacy law from an obscure specialist field into one of the fastest growing areas of legal practice. One particularly novel and interesting development in privacy law is the emergence of the right to be forgotten, the legal entitlement that empowers data subjects to have information about themselves removed upon request. The modern concept was originated by the European Court of Justice's *Google Spain* decision, in which the data subject asserted that the return of search results linking to a legal notice that

---

\* John H. Chestnut Professor of Law, Communication, and Computer & Information Science and Founding Director of the Center for Technology, Innovation and Competition, University of Pennsylvania. Thanks to Tom Baker, Alex Mueller, and Lauren Steinfeld for their comments on earlier drafts of this paper, Timothy von Dulm for his expert library support, and to Sophie Rolling for her research assistance.

appeared in a newspaper more than a decade earlier harmed his reputation in the eyes of the public.<sup>1</sup> The European Commission codified the right to be forgotten in Article 17 of the General Data Protection Regulation, retitling it as the right to erasure.<sup>2</sup>

In the U.S., three recently enacted state privacy statutes have given data subjects the right to request the deletion of personal information.<sup>3</sup> Surveys suggest that such regimes are quite popular, although views vary with the type of information involved.<sup>4</sup> These state statutes do not represent the first time U.S. law has incorporated such a right. Early common law antecedents experimented with but ultimately failed to recognize a robust right to be forgotten in U.S. law.<sup>5</sup> Legislatures have enacted some sector-specific restrictions on the use of obsolete information. For example, the Fair Credit Reporting Act (FCRA) places a ten-year limit on information about

---

<sup>1</sup> Case C-131/12, *Google Spain SL v. Agencia Española de Protección de Datos (AEPD)*, ECLI:EU:C:2013:424, ¶ 57 (June 15, 2013) (opinion of Advocate General Jääskinen).

<sup>2</sup> Commission Regulation 2016/679, General Data Protection Regulation, art. 17, 2016 O.J. (L 119) 1, 43-44 (creating the new “Right to erasure,” which was parenthetically subtitled the “right to be forgotten”). The Court of Justice of the European Union has held that Article 17 applies only within the borders of Europe. Case C-507/17, *Google LLC v. Commission nationale de l’informatique et des libertés (CNIL)*, ECLI:EU:C:2019:772 (Sept. 24, 2019).

<sup>3</sup> California requires the deletion of personal information that the business has collected from the consumer. CAL. CIV. CODE § 1798.105(a) (enacted in June 2018). Other states extend the right to all personal data. COLO. REV. STAT. §§ 6-1-1303(17), -1306(1)(d) (enacted in July 2021) (extending the right to “personal data,” defined to be “information that is linkable or reasonably linkable to an identified or identifiable individual”); VA. CODE ANN. §§ 59.1-571, -573(A)(3) (enacted in March 2021) (extending the right to all “personal data provided by or obtained about the consumer,” using the same definition of personal data).

<sup>4</sup> Brooke Auxier, *Most Americans support right to have some personal info removed from online searches*, PEW RSCH. CTR. (Jan. 27, 2020), <https://www.pewresearch.org/fact-tank/2020/01/27/most-americans-support-right-to-have-some-personal-info-removed-from-online-searches/>.

<sup>5</sup> Compare *Melvin v. Reid*, 297 P. 91 (Cal. Dist. Ct. App. 1931) (holding that use of a person’s true name in a movie portraying the life of a former prostitute who was acquitted of murder violated the California constitutional right to pursue and obtain happiness), with *Sidis v. F-R Publ’g Corp.*, 113 F.2d 806, 809 (2d Cir. 1940) (holding that the right privacy does not extend to the “dress, speech, habits, and the ordinary aspects of personality” and the “misfortunes and frailties” of “neighbors and ‘public figures’”). A later court recognized that *Melvin v. Reid* “represents something of a high-water mark for the privacy rights of the formerly famous” and that “[t]he analysis of *Sidis* has proven to be much more persuasive than that of *Melvin* in modern times.” *Jones v. New Haven Register, Inc.*, 763 A.2d 1097, 1101 (Conn. Super. Ct. 2000). What emerged instead of a generalized right to be forgotten covering all facts is a tort limiting the public disclosure of private facts about private individuals. RESTATEMENT (SECOND) OF TORTS § 652D (AM. LAW INST. 1965); William L. Prosser, *Privacy*, 48 CALIF. L. REV. 383, 392-98 (1960). Even so, this tort has long been regarded as moribund. See, e.g., Diane L. Zimmerman, *Requiem for a Heavyweight: A Farewell to Warren and Brandeis’s Privacy Tort*, 68 CORNELL L. REV. 291, 362-65 (1983) (calling the tort a failure that is ill-suited to the modern world of information and calling for its abolition).

prior bankruptcies and a seven-year limit on information about most other negative economic events on any consumer reports issued by consumer reporting agencies.<sup>6</sup> Many states also expunge criminal histories after the passage of certain amount of time.<sup>7</sup> Unlike the right to be forgotten, these statutes apply automatically to all data subjects and do not depend on their submission of a request for removal.

The right to be forgotten has proven to be somewhat controversial among U.S. academics. The bulk of the commentary has framed the issue as a clash between the data subject's privacy rights on the one hand and the free speech rights of the entity that possesses the information on the other hand,<sup>8</sup> a tension redolent of James Whitman's classic framing of privacy as a clash between European law's focus on dignity and U.S. law's focus on liberty.<sup>9</sup>

Strikingly, both sides of this debate have focused almost exclusively on the individual rights of the actors without analyzing the broader impact of the right to be forgotten on third parties and society as a whole. The omission is significant, because it ignores the substantial economic literature examining how the fact the unobservability of information can harm others who are not directly in contact with the data. Indeed, it can lead to systemic failures that affect all of society.

---

<sup>6</sup> 15 U.S.C. § 1681c(a)(1)-(5). The statute defines a consumer report to be any communication of "any information . . . bearing on a consumer's credit worthiness, credit standing, credit capacity, character, general reputation, personal characteristics, or mode of living which is used or expected to be used or collected . . . for the purpose of serving as a factor in establishing the consumer's eligibility for— (A) credit or insurance . . . ; (B) employment purposes; or (C) any other purpose authorized under section 1681b of this title." *Id.* § 1681a(d)(1).

<sup>7</sup> See 50-State Comparison: *Expungement, Sealing & Other Record Relief*, RESTORATION OF RIGHTS PROJECT (Feb. 2022), <https://ccresourcecenter.org/state-restoration-profiles/50-state-comparison-judicial-expungement-sealing-and-set-aside-2/> (section on "Automatic record clearing").

<sup>8</sup> See, e.g., Robert C. Post, *Data Privacy and Dignitary Privacy: Google Spain, the Right to Be Forgotten, and the Construction of the Public Sphere*, 67 DUKE L.J. 981, 988-89 (2018); Jeffrey Rosen, *The Right to Be Forgotten*, ATLANTIC (July/Aug. 2012), <https://www.theatlantic.com/magazine/archive/2012/07/the-right-to-be-forgotten/309044/>.

<sup>9</sup> James Q. Whitman, *The Two Western Cultures of Privacy: Dignity Versus Liberty*, 113 YALE L.J. 1153, 1160-64 (2004); see also Robert C. Post, *Three Concepts of Privacy*, 89 GEO. L.J. 2087, 2092-96 (2001) (drawing a similar distinction between dignity- and freedom-based concepts of privacy).

This Essay would like to fill this void by exploring the implications of three significant bodies of academic commentary that have explored the adverse consequences that can arise when certain types of information is unobservable. Parts I and II analyze the opportunistic uses of asymmetric information known as *adverse selection* and *moral hazard*. Part III explores the burgeoning literature on the emerging legal requirement commonly known as *ban the box*. Each of these literatures provides insights into how limiting access to certain types of information can have far-reaching and unexpected effects. Part IV applies the insights of these frameworks to the right to be forgotten both in terms of economics and in terms of the noneconomic interests that the right protects.

## I. ADVERSE SELECTION

The concept of adverse selection first emerged with respect to insurance but has since migrated to the field of economics and public policy more generally.<sup>10</sup> The *locus classicus* for adverse selection is Nobel Laureate George Akerlof's classic article on "The Market for Lemons."<sup>11</sup> Akerlof explored what occurs when would-be sellers possess asymmetric information, such as private information about the quality of goods they possess. Because quality is unobservable, the goods in this market are sold for a single price based on the average quality of the goods being offered for sale.<sup>12</sup> Prices based on the average quality of the goods prevent would-be sellers of higher quality goods from selling them for their true value.<sup>13</sup> Later

---

<sup>10</sup> For a useful and accessible (if somewhat skeptical) overview of adverse selection in the context of insurance, see Peter Siegelman, *Adverse Selection in Insurance Markets: An Exaggerated Threat*, 13 YALE L.J. 1223 (2004).

<sup>11</sup> George A. Akerlof, *The Market for "Lemons": Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970).

<sup>12</sup> *Id.* at 489.

<sup>13</sup> *Id.*

scholars accurately describe this effect as a negative externality that low-quality sellers impose on high-quality sellers.<sup>14</sup>

The inability to sell their goods for what they are worth gives owners of higher quality goods powerful incentives to withdraw those goods from the market.<sup>15</sup> This effect is similar to Gresham's Law, in which "bad money drives out the good" as holders of coins made of metal with higher value hoard them and only coins of lower value enter into circulation,<sup>16</sup> albeit subject to one key difference: Whereas Gresham's Law assumes that quality is observable by all market participants, under adverse selection, only sellers can know the true quality of the units they possess.<sup>17</sup>

Akerlof's primary example was a market for used cars in which sellers have unobservable private information about the true quality of their cars. Because the unobservability of quality means that the market price will be based on the average quality of the available cars, those with cars of above-average quality will find that price unattractive and decline to sell their cars, which causes the market to consist entirely of below-average cars.<sup>18</sup> This in turn causes prices to fall, which in turn may cause the owners of the highest quality cars remaining in the market to stop offering their goods for sale.<sup>19</sup> The withdrawal of higher quality goods from the market has socially detrimental consequences. At a minimum, driving higher

---

<sup>14</sup> Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 90 Q.J. ECON. 629, 629, 638, 648 (1976). As Rothschild and Stiglitz note, "[t]he externality is completely dissipative; there are losses to the [high-quality] individuals, but the [low-quality] individuals are no better off than they would be in isolation" *Id.* at 638.

<sup>15</sup> Akerlof, *supra* note 11, at 489-90.

<sup>16</sup> See Richard Dutu et al., *The Tale of Gresham's Law* (Fed. Rsrv. Bank of Cleveland, Econ. Commentary, Oct. 1, 2005), <https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-commentary/economic-commentary-archives/2005-economic-commentaries/ec-20051001-the-tale-of-greshams-law.aspx>.

<sup>17</sup> Akerlof, *supra* note 11, at 490.

<sup>18</sup> *Id.* at 491.

<sup>19</sup> *Id.* at 490.

quality cars out of the market causes the market to become inefficiently small. Moreover, the same effect can occur with the cars remaining in the market, causing a cascade in which “it is quite possible to have the bad driving out the not-so-bad driving out the medium driving out the not-so-good driving out the good in such a sequence of events that no market exists at all.”<sup>20</sup>

Although Akerlof focused primarily on the reduction in supply, later scholars have shown that adverse selection can have demand-side effects as well, as the systematic bias toward lower quality decreases buyers’ expectations regarding the average value of the goods for sale and causes some who would have otherwise purchased to leave the market.<sup>21</sup> In the end, “it is quite possible that no goods will be traded at any price level,” and the market may collapse altogether.<sup>22</sup> Akerlof further illustrated his model by applying it to markets for insurance, employment, and credit.<sup>23</sup>

The Supreme Court recognized the importance of adverse selection when assessing the Affordable Care Act (ACA) in *King v. Burwell*, in which it acknowledged that adverse selection “encouraged people to wait until they were sick to buy [health] insurance.”<sup>24</sup> Echoing reasoning from prior opinions,<sup>25</sup> the Court noted that the decision of healthy people to opt out of health insurance forced insurance providers to charge higher premiums, which in turn led even fewer

---

<sup>20</sup> *Id.* at 490.

<sup>21</sup> Jonathan Levin, *Information and the Market for Lemons*, 32 RAND J. ECON. 657, 662 (2001).

<sup>22</sup> Akerlof, *supra* note 11, at 490-91.

<sup>23</sup> *Id.* at 492-99.

<sup>24</sup> *King v. Burwell*, 576 U.S. 473, 480 (2015).

<sup>25</sup> *See Nat’l Fed’n of Indep. Bus. v. Sibelius*, 567 U.S. 519, 598-99 (2012) (Ginsburg, J., concurring in part, concurring in the judgment in part, and dissenting in part) (reasoning that adverse selection leads “individuals [to] wait until they become ill to buy insurance,” which makes “those in need of immediate medical care—i.e., those who cost insurers the most—. . . the insurance companies’ main customers,” which in turn “leaves insurers with two choices: They can either raise premiums dramatically to cover their ever-increasing costs or they can exit the market”); *Metro. Life Ins. Co. v. Massachusetts*, 471 U.S. 724, 731 (1985) (observing that “because of ‘adverse selection’ in mental health insurance: good insurance risks were not purchasing coverage, and this drove up the price of coverage for those who otherwise might purchase mental health insurance”).

people to purchase insurance.<sup>26</sup> The result was the type of “economic ‘death spiral’” predicted by Akerlof in which “the number of people buying insurance sank lower and lower” to the point where “insurers began to leave the market entirely.”<sup>27</sup> Another possibility identified by Nobel Laureate Joseph Stiglitz and Andrew Weiss is that adverse selection can cause actors to ration scarce insurance and refuse to sell it to low-risk actors willing to pay the market price to avoid attracting high-risk actors who would destabilize the equilibrium.<sup>28</sup> Either result reduces social welfare.

What is the proper response to adverse selection? Akerlof suggested government provision.<sup>29</sup> Indeed, as the Supreme Court noted, Congress relied on this rationale when including a mandatory coverage requirement in the ACA.<sup>30</sup> That said, Nobel Laureate Paul Milgrom and John Roberts regarded it as “naive” to assume that market failure caused by adverse selection necessarily calls for government intervention without considering the extent to which the private sector can deploy practices that mitigate those market failures.<sup>31</sup> They identified three classes of strategies for doing so.<sup>32</sup>

One class of strategies known as *signaling* focuses on the actors that hold the private information. Under these strategies, actors who hold higher quality goods look for ways to reveal that fact to would-be buyers. For example, some sellers may use pre-sale guarantees, branding, warranties, or advertising to signal that their goods are of higher quality and charge

---

<sup>26</sup> *King*, 576 U.S. at 480.

<sup>27</sup> *Id.*

<sup>28</sup> Joseph E. Stiglitz & Andrew Weiss, *Credit Rationing in Markets with Imperfect Information*, 71 AM. ECON. REV. 393 (1981).

<sup>29</sup> Akerlof, *supra* note 11, at 494.

<sup>30</sup> *King v. Burwell*, 135 S. Ct. 2480, 2486, 2493 (2015) (citing 42 U.S.C. § 18091(2)(I)); *Nat’l Fed’n of Indep. Bus. v. Sibelius*, 567 U.S. 519, 598-99 (2012) (Ginsburg, J., concurring in part, concurring in the judgment in part, and dissenting in part).

<sup>31</sup> PAUL MILGROM & JOHN ROBERTS, *ECONOMICS, ORGANIZATION, AND MANAGEMENT* 152 (1992).

<sup>32</sup> *Id.* at 154-59.



more for them.<sup>33</sup> Nobel Laureate Michael Spence similarly identified how workers can use education to signal their higher level of productivity in an attempt to receive higher wages.<sup>34</sup> Finding ways to reveal the higher quality allows these goods to be sold for more than the price of average goods, which can lead these sellers to remain in the market and for socially beneficial transactions to occur despite the unobservability of certain information.

Another set of strategies known as *screening* is aimed at the actors that do not hold the private information. These strategies are designed to make otherwise unobservable information more discernable to the uninformed actor through practices such as pre-purchase testing,<sup>35</sup> minimum quality standards,<sup>36</sup> or product certification.<sup>37</sup>

The third set of strategies known as *self-selection* provide consumers with a well-designed menu of products that induces them to reveal their hidden information by the option that they choose. For example, Michael Rothschild and Nobel Laureate Joseph Stiglitz showed how insurers can design policies that induce high-risk and low-risk consumers to purchase different options even though the insurance company cannot determine which is which.<sup>38</sup> In labor markets, employers can offer compensation plans designed to attract only higher-quality workers through performance pay or increasing wages based on seniority.<sup>39</sup> If designed

---

<sup>33</sup> See Akerlof, *supra* note 11, at 499, 500 (enforceability of presale guarantees and branding); Sanford J. Grossman, *The Informational Role of Warranties and Private Disclosure About Product Quality*, 24 J.L. & ECON. 461 (1981) (warranties); Paul Milgrom & John Roberts, *Price Advertising Signals of Product Quality*, 94 J. POL. ECON. 796 (1986) (advertising).

<sup>34</sup> A. MICHAEL SPENCE, MARKET SIGNALING: INFORMATION TRANSFER IN HIRING AND RELATED PROCESSES (1973).

<sup>35</sup> ERIC RASMUSEN, GAMES AND INFORMATION: AN INTRODUCTION TO GAME THEORY \_ [232] (4th ed. 2006).

<sup>36</sup> Akerlof, *supra* note 11, at 500; accord Hayne E. Leland, *Quacks, Lemons and Licensing: A Theory of Minimum Quality Standards*, 87 J. POL. ECON. 1328 (1979).

<sup>37</sup> Chun-Hui Miao, *Competition in Quality Standards*, 57 J. INDUS ECON. 214 (2009).

<sup>38</sup> See Rothschild & Stiglitz, *supra* note 14, at 634-38. For a useful and accessible discussion appearing in the legal academic literature, see Siegelman, *supra* note 10, at 1235-40.

<sup>39</sup> See George Baker, Michael Jensen & Kevin Murphy, *Competition and Incentives; Practice vs. Theory*, 43 J. FIN. 593 (1988) (showing how performance pay can attract only more productive workers); Joanne Salop & Steven Salop, *Self-Selection and Turnover in the Labor Market*, 90 Q.J. ECON. 619 (1976) (showing how creating a

properly, self-selection devices can induce consumers to reveal information about themselves that is not directly observable.

Although these measures can mitigate the problems caused by adverse selection, they do so only imperfectly. As an initial matter, these solutions are often subject to restrictive assumptions.<sup>40</sup> In addition, signaling, screening, and self-selection are inevitably both costly and not completely effective in distinguishing between low quality and high quality goods.<sup>41</sup> Moreover, these imperfections can incentivize excessive investments in signaling, screening, and self-selection that can leave high quality actors worse off.<sup>42</sup> Variations with the subsegment into which these strategies divide sellers and buyers can allow the problems of adverse selection to arise within each subsegment and can leave key segments unserved.<sup>43</sup> Thus, measured in the purely economic terms of actuarial fairness, in which every person pays for their own risk, these solutions remain incomplete.

Commentators skeptical of the literature on adverse selections have offered both internal and external critiques to its key findings. The internal critiques accept the basic framework

---

wage scale that pays lower wages to newer workers and higher wages to more experienced workers can attract higher quality workers less likely to change jobs).

<sup>40</sup> See, e.g., Rothschild & Stiglitz, *supra* note 14, at 629, 637 (recognizing that their model is highly stylized and sensitive to changes in the details).

<sup>41</sup> MILGROM & ROBERTS, *supra* note 31, at 156, 158-59.

<sup>42</sup> *Id.* at 156; Rothschild & Stiglitz, *supra* note 14, at 636, 638.

<sup>43</sup> Rothschild & Stiglitz, *supra* note 14, at 638. Rothschild & Stiglitz note that their model has applications to local public goods. *Id.* at 648. For a discussion of how heterogeneity within subgroups can limit optimality for local public goods, see Christopher S. Yoo, *Copyright and Public Good Economics: A Misunderstood Relation*, 155 U. PA. L. REV. 635, 682-83 n.154 (2007) (discussing mixed clubs). Nobel Laureate Kenneth Arrow also drew a connection between adverse selection and public utility pricing. Kenneth J. Arrow, *The Economics of Agency*, in PRINCIPALS AND AGENTS: THE STRUCTURE OF BUSINESS 37, 40-42 (John W. Pratt & Richard J. Zeckhauser eds., 1985) [hereinafter Arrow, *Economics of Agency*]. For a discussion of the impact of customer heterogeneity within subgroups on the optimality of public utility pricing, see Christopher S. Yoo, *Network Neutrality, Consumers, and Innovation*, 2008 U. CHI. LEGAL. F. 179, 207-09. In the context of the Internet, lighter users may flee uniformly priced plans until the market for that segment completely collapses. Joe Weinman, *The Market for "Melons": Quantity Uncertainty and the Market Mechanism* 9-11 (Sept. 6, 2010) (unpublished manuscript), available at [http://www.joeweinman.com/Resources/Joe\\_Weinman\\_The\\_Market\\_For\\_Melons.pdf](http://www.joeweinman.com/Resources/Joe_Weinman_The_Market_For_Melons.pdf).

advanced by adverse selection theory and question how frequently hidden information occurs, how well possessors of that information are able to assess the relevant risks, whether any harms might be offset by countervailing information asymmetries available to the other parties, and how often death spirals and rationing actually occur.<sup>44</sup> In addition, they argue that risk aversion may lead overrepresentation of the low-risk group rather than the underrepresentation predicted by adverse selection theory.<sup>45</sup> The external critique rejects the actuarial fairness model that uses the economically oriented goal of having every person pay for their own risk as its measure of optimality in favor of a “solidarity principle” that values institutions for their ability to provide social insurance that allocates according to need.<sup>46</sup> Interestingly, in suggesting that adverse selection may have systemic effects that differ from those that have been the focus of the existing literature on adverse selection, these critiques reinforce rather than detract from the core insight animating this Essay, which is that the presence of hidden information has implications that go far beyond the direct parties to the transaction.

The literature on adverse selection thus underscores that the presence of information observable only by one party can have systemic effects that affect a wide range of actors. As an initial matter, it can disadvantage higher quality actors that are prevented from revealing that their true level of quality. It can also deprive sellers and buyers that are mutually willing to transact at a particular price from the opportunity to do so, which harms both them and all of society. In addition, the initial reactions of sellers and buyers to hidden information are not typically the end of the story. Instead, adverse selection spurs a series of imperfect reactions and

---

<sup>44</sup> Siegelman, *supra* note 10, at 1241-61 (reviewing the literature).

<sup>45</sup> *Id.* at 1264-74 (reviewing the literature).

<sup>46</sup> Deborah A. Stone, *The Struggle for the Soul of Health Insurance*, 18 J. HEALTH POL. POL'Y & L. 287, 288-94 (1993).

counterreactions that are costly, are less effective than what would have occurred had the information asymmetry not existed in the first place, and can create secondary distortions and benefits of their own. In short, the literature on adverse selection teaches that focusing exclusively on individual actors without considering broader systemic effects frames the issues too narrowly regardless of the precise way that the optimal balance is ultimately struck.

## II. MORAL HAZARD

Adverse selection is closely related to another concept known as moral hazard, which also first arose in the context of insurance but has since been recognized as a more general phenomenon.<sup>47</sup> Although some commentators trace the roots of moral hazard to Adam Smith,<sup>48</sup> the modern debate began with Nobel Laureate Kenneth Arrow's landmark article on health economics, which included a section on moral hazard observing that the presence of health insurance may reduce the incentives for the insured to minimize losses through steps such as seeking preventative treatments or shopping for better prices.<sup>49</sup> Although the term was initially used in both its normative and positive senses,<sup>50</sup> Mark Pauly's response to Arrow maintained that moral hazard "has in fact little to do with morality."<sup>51</sup> Despite Arrow's response that moral

---

<sup>47</sup> For the seminal history, see Tom Baker, *On the Genealogy of Moral Hazard*, 75 TEX. L. REV. 237 (1996). For an exploration of conceptual antecedents that predated the adoption of the current terminology and the migration of the concept outside of insurance, see David Rowell & Luke B. Connelly, *A History of the Term "Moral Hazard,"* 79 J. RISK & INS. 1051, 1053-60, 1067-68, 1071 (2012).

<sup>48</sup> MILGROM & ROBERTS, *supra* note 31, at (citing ADAM SMITH, *THE WEALTH OF NATIONS* 700, 719-20 (Modern Library 1937) (1776)); Michael C. Jensen & William H. Meckling, *The Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 305 (1976) (quoting SMITH, *supra*, at 700); Rowell & Connelly, *supra* note 47, at 1066 (same).

<sup>49</sup> Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AM. ECON. REV. 942, 961-64 (1963).

<sup>50</sup> See Baker, *supra* note 47, at 250-51 (discussing how the early insurance literature normality farmed moral hazard in terms of "bad character: and "temptation"); Adam Leaver, *Fuzzy Knowledge: An Historical Exploration of Moral Hazard and Its Variability*, 44 ECON. & SOC'Y 91, 99 (2015) (same).

<sup>51</sup> Mark V. Pauly, *The Economics of Moral Hazard: Comment*, 58 AM. ECON. REV. 531, 531 (1968); *accord id.* at 535 (rejecting arguments that moral hazard is "a moral or ethical problem" involving "malingering," "fraud," "the failure of individuals . . . to uphold acceptable moral qualities," or "moral perfidy"); MILGROM & ROBERTS,

hazard retained some tinge of “internalized . . . moral principles,”<sup>52</sup> Pauly’s article is widely regarded as marking a turning point in the modern debate, with his economic approach thereafter “becom[ing] the conventional wisdom.”<sup>53</sup>

Stated more generally, moral hazard arises when contracting parties can take unobservable postcontractual actions (or inactions) that are privately beneficial but detrimental to other parties.<sup>54</sup> As was the case with adverse selection, the ability to externalize the costs of these unobservable actions onto others drives a wedge between the private and social costs of their behavior, which can lead them to undertake too much risk or too few precautions compared with the social optimum.<sup>55</sup>

Moral hazard is closely related to adverse selection, owing in part to the fact that insurance industry literature used the term moral hazard to describe both concepts until the early twentieth century.<sup>56</sup> In addition, both concepts arise from asymmetric information, with the key

---

*supra* note 31, at 168 (noting that the behavior associated with moral hazard “is not especially wicked and that the negative implications in labeling it ‘moral hazard’ may be somewhat misplaced”).

<sup>52</sup> Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, 58 AM. ECON. REV. 537, 538 (1968).

<sup>53</sup> Baker, *supra* note 47, at 269; accord Benjamin Hale, *What’s So Moral About the Moral Hazard?*, 23 PUB. AFF. Q. 1, 2 (2009) (similarly arguing that “there is nothing inherently moral about the moral hazard”). Other scholars have disagreed, arguing that Pauly’s perspective did not take hold until the early 1990s and that debates over the precise meaning of moral hazard have persisted. Leaver, *supra* note 50, at 95-98, 100. Others have observed that any remaining noneconomic discussions of moral hazard as a normative concept have been confined to the insurance industry literature. Allard E. Dembe & Leslie I. Boden, *Moral Hazard: A Question of Morality?*, 10 NEW SOLUTIONS: J. ENV’T L & OCCUPATIONAL HEALTH POL’Y 257, 265-73 (2000); Rowell & Connelly, *supra* note 47, at 1071-72.

<sup>54</sup> MILGROM & ROBERTS, *supra* note 31, at 167. The literature distinguishes between two different types of moral hazard: actions that affect the probability of loss and actions that affect the size of the loss. Isaac Ehrlich & Gary S. Becker, *Market Insurance, Self-Insurance, and Self-Protection*, 80 J. POL. ECON. 623, 363 (1972). The literature refers to the former as *ex ante* moral hazard and the latter as *ex post* moral hazard. Baker, *supra* note 47, at 270; Henri Loubergé, *Developments in Risk and Insurance Economics: The Past 40 Years*, in HANDBOOK OF INSURANCE 1, 13-14 (Georges Dionnes ed., 2d ed. 2013).

<sup>55</sup> Bruce C. Greenwald & Joseph E. Stiglitz, *Externalities in Economies with Imperfect Information and Incomplete Markets*, 101 Q.J. ECON. 229, 244-45 (1986); Tom Baker & Rick Swedloff, *Regulation by Liability Insurance: From Auto to Lawyers Professional Liability*, 60 UCLA L. REV. 1412, 1417-18 (2013).

<sup>56</sup> Rowell & Connelly, *supra* note 47, at 1060-61 (describing how the term moral hazard was first used in 1865 in the context of fire insurance, the term adverse section was first used in 1892 in the context of life insurance, and the terms were not differentiated until 1922).

difference being one of timing. For adverse selection, the information asymmetry exists *at the time of contracting*.<sup>57</sup> As a result, it can be said to arise from *hidden information*.<sup>58</sup> For moral hazard, the information asymmetry arises from unobservable actions undertaken *after the time of contracting*.<sup>59</sup> Consequently, this type of information asymmetry is often described as the result of *hidden action*.<sup>60</sup>

The distinction is clouded somewhat by the fact that some conduct can fairly be characterized as falling into either category. Consider drivers who exercise greater care before getting insurance and revert to form after obtaining insurance. If drivers are regarded as concealing their poor skill before obtaining insurance, the higher-than-expected loss rate seems best characterized as resulting from adverse selection. Treating those drivers instead as having undertaken less care after obtaining insurance would bring them within the ambit of moral hazard.<sup>61</sup>

Although the seminal discussions took place in the context of health insurance, both sides recognized that moral hazard can arise in other types of insurance.<sup>62</sup> Consistent with this, the Supreme Court has invoked moral hazard in opinions regarding a wide range of types of insurance.<sup>63</sup> For example, in *Sun Insurance Office v. Scott*, the Court held that a clause that voided an insurance policy on chattels if the insured reduced their value by encumbering them with a mortgage represented a valid measure to avoid moral hazard.<sup>64</sup>

---

<sup>57</sup> MILGROM & ROBERTS, *supra* note 31, at 150.

<sup>58</sup> Arrow, *Economics of Agency*, *supra* note 43, at 39-40.

<sup>59</sup> MILGROM & ROBERTS, *supra* note 31, at 167.

<sup>60</sup> Arrow, *Economics of Agency*, *supra* note 43, at 38-39.

<sup>61</sup> For a similar example, see MILGROM & ROBERTS, *supra* note 31, at 169.

<sup>62</sup> See Arrow, *supra* note 49, at 961 (fire insurance); Pauly, *supra* note 51, at 531 (auto insurance).

<sup>63</sup> See Pension Benefit Guar. Corp. v. LTV Corp., 496 U.S. 633, 659 (1990) (Stevens, J., dissenting); Sun Ins. Off. v. Scott, 284 U.S. 177, 180 (1931).

<sup>64</sup> *Scott*, 284 U.S. at 180.

Beyond insurance, moral hazard often arises in employment when difficulties in metering individual productivity permits employees to shirk.<sup>65</sup> Even more famously, the moral hazard caused by risky behavior by financial institutions covered by government-backed insurance is widely regarded as a significant cause of several major financial meltdowns, including the collapse of the savings and loan industry and the Great Recession of 2007-2009, among others.<sup>66</sup>

Indeed, moral hazard arises in a wide variety of contexts. As Arrow noted, moral hazard may exist in any principal-agent relationship in which shirking is costly to detect (which is to say all of them).<sup>67</sup> Even more generally, moral hazard can arise in any situation in which an actor may take a post-contractual action that harms the other contracting party and cannot be easily monitored or checked.<sup>68</sup> As a result, the academic literature has applied moral hazard to product liability, workers' compensation, welfare, banking regulation, bankruptcy, takings, and business law, among others.<sup>69</sup>

Moral hazard can create welfare losses that are very similar to those created by adverse selection. The information asymmetry allows parties to externalize the costs of their unobservable actions, which provides insufficient incentives for them to act in a socially optimal

---

<sup>65</sup> See, e.g., Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 AM. ECON. REV. 777, 778-79 (1972). The authors' later works confirm that they view this article as begin part of the literature on moral hazard. Armen A. Alchian & Susan Woodward, 143 J. INST. & THEORETICAL ECON. 110, 115 (1987); Harold Demsetz, *The Theory of the Firm Revisited*, 4 J.L. ECON. & ORG. 141, 151-53 (1988). Other scholars concur. See, e.g., Henry Hansmann, *When Does Worker Ownership Work? ESOPs, Law Firms, Codetermination, and Economic Democracy*, 99 YALE L.J. 1749, 1762 (1990); Francine Lafontaine & Margaret Slade, *Vertical Integration and Firm Boundaries: The Evidence*, 45 J. ECON. LIT. 629, 636 (2007); Roger B. Myerson, *Toward a Theory of Leadership and State Building*, 108 PROC. NAT'L ACAD. SCI. U.S. 21297, 21298 (2011); Oliver E. Williamson, *Opportunism and Its Critics*, 14 MANAGERIAL & DECISION ECON. 97, 100 (1993).

<sup>66</sup> MILGROM & ROBERTS, *supra* note 31, at 170-78 (savings and loan and other crises); Kevin Dowd, *Moral Hazard and the Financial Crisis*, 20 CATO J. 141 (2009) (Great Recession).

<sup>67</sup> Kenneth J. Arrow, *The Economics of Moral Hazard: Further Comment*, 58 AM. ECON. REV. 537, 538 (1968); accord MILGROM & ROBERTS, *supra* note 31, at 170; Joseph E. Stiglitz, *Risk, Incentives and Insurance: The Pure Theory of Moral Hazard*, 8 GENEVA PAPERS ON RISK & INS. 4 (1983).

<sup>68</sup> MILGROM & ROBERTS, *supra* note 31, at 168.

<sup>69</sup> See, e.g., Baker, *supra* note 47, at 237 & n.1 (citing examples); see also *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1070 n.5 (1992) (Stevens, J., dissenting) (citing moral hazard in the context of takings).

manner.<sup>70</sup> The potential losses caused by such opportunistic behavior can cause prices to rise, which in turn can lead markets to contract and, in extreme cases, even collapse in much the same manner as Akerlof found under adverse selection.<sup>71</sup> Importantly, moral hazard can impose costs on third parties who are not parties to the contract.<sup>72</sup>

These societal losses led Arrow to suggest that government provision or compulsion represented the best solution to the market failures associated with moral hazard.<sup>73</sup> Other scholars have pointed out that actors can take steps to mitigate them.<sup>74</sup> Some have proposed creating solutions similar to the signaling mechanisms suggested for adverse selection through institutions such as professional licensing.<sup>75</sup> Others have argued for responses similar to screening, such as greater monitoring to ensure that actors engage in appropriate behaviors after contracting.<sup>76</sup> Still others have identified self-selection devices that use observable outcomes to align the parties' incentives regarding unobservable conduct, including coinsurance,<sup>77</sup> performance contracts,<sup>78</sup> or implicit or explicit performance bonds,<sup>79</sup> among others.

---

<sup>70</sup> MILGROM & ROBERTS, *supra* note 31, at 168.

<sup>71</sup> *See, e.g.*, *Cincinnati Ins. Co. v. Estate of Chee*, 826 F.3d 433, 436 (7th Cir. 2016) (“Moral hazard would burgeon, implying higher prices for coverage, if insurers were willing to provide any coverage- moral hazard can cause markets for insurance to collapse.”).

<sup>72</sup> For example, in the context of health insurance, the reduction in coverage also creates harms to nonparties by reducing disease control and worker productivity. Richard J. Zeckhauser, *Coverage for Catastrophic Illness*, 21 PUB. POL’Y 149, 159-60 (1973).

<sup>73</sup> Arrow, *supra* note 49, at 945, 961.

<sup>74</sup> *See, e.g.*, MILGROM & ROBERTS, *supra* note 31, at 185-92; Pauly, *supra* note 51, at 531, 535.

<sup>75</sup> Carl Shapiro, *Investment, Moral Hazard, and Occupational Licensing*, 53 REV. ECON. STUD. 843, 851-52 (1986). Although licensing increases total welfare, it benefits consumers who value quality at the expense of those who do not. *Id.* at 850-51. Shapiro also explores an alternative approach called certification, which consists of government mandated information provision, finding that while licensing leads to overinvest in human capital by low quality sellers, certification can lead to overinvestment in human capital by high quality sellers. *Id.* at 855.

<sup>76</sup> MILGROM & ROBERTS, *supra* note 31, at 186-87; Bengt Holmstrom, *Moral Hazard and Observability*, 10 BELL J. ECON. 74 (1979).

<sup>77</sup> Arrow, *Economics of Agency*, *supra* note 43, at 45; Martin S. Feldstein, *The Welfare Loss of Excess Health Insurance*, 81 J. POL. ECON. 251, 252 (1973); Pauly, *supra* note 51, at 535-36.

<sup>78</sup> *See, e.g.*, Stephen Ross, *The Economic Theory of Agency: The Principal’s Problem*, 63 AM. ECON. REV. 134 (1973); Joseph E. Stiglitz, *Incentives and Risk Sharing in Sharecropping* 64 REV. ECON. STUD. 219 (1971).

<sup>79</sup> Gerald Garvey, *Money Transfers Versus Hostages as Guarantors of Contractual Performance*, 14 INT’L REV. L. & ECON. 245 (1994) (explicit bond); Edward Lazear, *Why Is There Mandatory Retirement?*, 87 J. POL.



As was the case for adverse selection, these solutions have their limits. For example, monitoring is costly and is never completely effective, and even reasonably effective devices for aligning incentives always do so imperfectly.<sup>80</sup> Solutions designed to align incentives may also have the second-order effect of shifting risk to contracting parties that are in a worse position to bear it.<sup>81</sup>

At the same time, the problems created by moral hazard may have their compensating benefits in the form of positive externalities that benefits others who are not parties to the insurance contract. For example, health insurance may reduce others' exposure to disease or improve collective productivity.<sup>82</sup> Restated in terms of the debate quoted above, features that appear to be deleterious bugs from the standpoint of the individually focused economic criteria of actuarial fairness may instead constitute beneficial features from the social insurance perspective of the solidarity principle.<sup>83</sup> These critiques differ in their assessment of the net impact of the systemic effects associated with moral hazard on social welfare. In so doing, however, they do nothing to gainsay, and in fact reinforce, the core conclusion that moral hazard creates systemic effects that any proper analysis should take into account.

Moral hazard thus provides additional insights into how information asymmetry can cause markets to fail. The unobservability of certain actions or failures to act allows parties to externalize costs of their actions onto other parties. This can cause the loss of socially beneficial transactions and an inefficient contraction of markets that can reduce markets to a suboptimal

---

ECON. 1261 (1979) (implicit bond); H. Lorne Carmichael, *Self-Enforcing Contracts, Shirking and Life Cycle Incentives*, 3 J. ECON. PERSP. 65 (1989) (implicit bond).

<sup>80</sup> MILGROM & ROBERTS, *supra* note 31, at 168, 187; John M. Marshall, *Moral Hazard*, 66 AM. ECON. REV. 880, 890 (1976).

<sup>81</sup> MILGROM & ROBERTS, *supra* note 31, at 187-88.

<sup>82</sup> Zeckhauser, *supra* note 72, at 160; Baker, *supra* note 47, at 288-89.

<sup>83</sup> See *supra* note 46 and accompanying text.

size and can even lead to their complete collapse, which harms not only the contracting parties but also all of society. Although steps exist that can mitigate the problems caused by moral hazard, they are all imperfect, costly, and can give rise to secondary distortions, which make them incompletely effective in restoring outcomes to those that would have occurred had the information not been asymmetric. At the same time, these losses may be counterbalanced by other compensating benefits that accrue to broader society. Regardless of the net effect of these multiple considerations, the literature on moral hazard reinforces the central finding from adverse selection that any assessment of the full impact of asymmetric information requires consideration of its full systemic effect and not simply the effect on the immediate parties.

### III. BAN THE BOX

The right to be forgotten would also be well served to draw lessons from an emerging movement known as ban the box, which prohibits employers from inquiring about criminal histories on initial job applications.<sup>84</sup> The hope is that reducing the salience of this information until later in the hiring process will increase employment of ex-convicts (and ultimately reduce recidivism) and possibly reduce racial discrimination.<sup>85</sup>

In restricting access to information about a negative aspect of a person's past, ban the box shares some features with the right to be forgotten. Note, however, that the withholding of the information applies to all job applicants whether they request it or not. This means that, as was

---

<sup>84</sup> For a survey, see Steven Raphael, *The Intended and Unintended Consequences of Ban the Box*, 4 ANN. REV. CRIMINOLOGY 191 (2021). As of 2021, ban the box has been adopted in 35 states and more than 150 cities and counties, covering 258 million people or three-fourths of the U.S. population. *Id.* at 192-93.

<sup>85</sup> Amanda Agan & Sonja Starr, *Ban the Box, Criminal Records, and Racial Discrimination: A Field Experiment*, 133 Q.J. ECON. 191, 192 (2018); Jennifer L. Doleac & Benjamin Hansen, *The Unintended Consequences of "Ban the Box": Statistical Discrimination and Employment Outcomes When Criminal Histories Are Hidden*, 38 J. LABOR ECON. 321, 322-23 (2020).

the case with FCRA and some criminal expungement regimes, ban the box cannot be invoked opportunistically, it is susceptible to the general market failures associated with asymmetric information.

Recent empirical studies have found that ban the box is proving ineffective of increasing employment among applicants with prior convictions,<sup>86</sup> although one study found that it may increase hiring by public employers.<sup>87</sup> More problematic are studies indicating that ban the box may be having unintended consequences. Specifically, shielding information about criminal records may be having the perverse effect of worsening racial discrimination.<sup>88</sup> Consistent with early theoretical work on privacy suggesting that the suppression of relevant information leads those who need to suppressed the information to turn to imperfect proxies,<sup>89</sup> these empirical studies find that because job readiness remains correlated with the possession of a criminal record, employers prevented from inquiring directly about prior convictions are turning to inaccurate racial stereotypes as their next-best approximation.<sup>90</sup> Although a counter literature has emerged challenging these empirical findings,<sup>91</sup> a recent survey of the literature concluded that the weight of the empirical evidence indicates that ban the box does not promote the

---

<sup>86</sup> See Evan K. Rose, *Does Banning the Box Help Ex-Offenders Get Jobs? Evaluating the Effects of Prominent Example*, 39 J. LABOR ECON. 79 (2021); Osborne Jackson & Bo Zhao, *The Effect of Changing Employers' Access to Criminal Histories on Ex-Offenders' Labor Market Outcomes: Evidence from the 2010-2012 Massachusetts CORI Reform* (Fed. Rsrv. Bank of Boston, Working Paper No. 16-30, Feb. 2017).

The literature on whether ban the box reduces recidivism is mixed. Compare Stewart J. D'Alessio et al., *The Effect of Hawaii's Ban the Box Law on Repeated Offending*, 40 AM. J. CRIM. JUST. 336 (2014) (finding that ban the box reduces recidivism), and Osborne Jackson & Bo Zhao, *Does Changing Employers' Access to Criminal Histories Affect Ex-Offenders' Recidivism?: Evidence from the 2010-2012 Massachusetts CORI Reform* (Fed. Rsrv. Bank of Boston, Working Paper No. 16-31, Feb. 2017). (same), with Ryan Sherrard, "Ban the Box" Policies and Criminal Recidivism (Nov. 10, 2021) (unpublished manuscript), available at <https://ssrn.com/abstract=3515048> (drawing the opposite conclusion).

<sup>87</sup> Terry-Ann Craigie, *Ban the Box, Convictions, and Public Employment*, 58 ECON. INQ. 425 (2020).

<sup>88</sup> Agan & Starr, *supra* note 85, at 195, 206-22; Doleac & Hansen, *supra* note 85, at 324-25, 342-45.

<sup>89</sup> George J. Stigler, *An Introduction to Privacy in Economics and Politics*, 9 J. LEGAL STUD. 623, 629 (1980).

<sup>90</sup> Agan & Starr, *supra* note 85, at 192, 193-94, 208; Doleac & Hansen, *supra* note 88, at 323.

<sup>91</sup> See Dallan F. Flake, *Do Ban-the-Box Laws Really Work?*, 104 IOWA L. REV. 1079 (2019).

employment of applicants with criminal histories by private-sector employers, although the outcome may be different in the public sector.<sup>92</sup> This is consistent with the results of similar measures limiting prospective employers from obtaining information on other adverse factors, such as drug use and poor credit histories.<sup>93</sup> The survey also found “convincing” and “troubling” evidence that ban the box may be inducing race and gender discrimination that called for further research.<sup>94</sup>

The implication is that withholding information can have unpredictable systemic effects even when the decision whether to withhold is not at the discretion of the data subject. Denying decisionmakers access to information relevant to their decision naturally leads them to attempt to infer it from the data that remains available, as has been demonstrated in other contexts, including law school education.<sup>95</sup> Except in the unlikely event that one of the available proxies is perfectly correlated with the withheld information of interest, these inferences are inevitably less accurate.<sup>96</sup> Moreover, preventing employers from asking applicants whether they have prior convictions harms those without a criminal record by preventing them from conveying that truthful information to employers. Interestingly, one study found that African American men who were able to demonstrate that they did not have criminal records were called back at higher rates, although the difference was not statistically significant.<sup>97</sup>

---

<sup>92</sup> Raphael, *supra* note 84, at 193.

<sup>93</sup> *Id.* at 202-03.

<sup>94</sup> *Id.* at 202, 205.

<sup>95</sup> A small-scale study of first-semester, first-year law students revealed a tendency to compensate for the lack of interim assessments prior to the end-of-term final exam by attempting to infer class performance from false feedback indicators such as LSAT scores, an ungraded legal writing assignment, and personal characteristics (such as whether a student was married, older, or argumentative). Lawrence Silver, Comment, *Anxiety and the First Semester of Law School*, 1968 WIS. L. REV. 1201, 1210-13.

<sup>96</sup> Note that although the impetus to turn to proxies exists when the decisionmaker is a human being, it is even stronger for artificial intelligence.

<sup>97</sup> Mike Vuolo et al., *Criminal Record Questions in the Era of Ban the Box*, 16 CRIMINOLOGY & PUB. POL'Y 139, 154-55 (2017).

Ban the box is still a relatively new policy innovation, and future studies will no doubt shed additional light into the ongoing debate over its overall impact. For the purposes of this Essay, it suffices to note that the dynamics that lay at the heart of the debate over ban the box derive from the same core insights identified by the literature on adverse selection and moral hazard, which are that the unobservability of certain information can have important and unexpected systemic effects that a complete analysis should consider. Simply put, the removal of negative information can have a differential impact on different data subjects in ways that harms individuals about whom that information is positive. In addition, removing information may not be a stable equilibrium and may instead prompt efforts to compensate for the missing information. These efforts can have systemic effects that limit the effectiveness of the intervention and that can have detrimental unintended consequences.

#### IV. IMPLICATIONS FOR THE RIGHT TO BE FORGOTTEN

Together, the literatures on adverse selection, moral hazard, and ban the box raise a wide range of concerns that can arise from selectively limiting information about data subjects. First, the ability of actors to conceal negative information allows them to impose a negative externality on actors with positive information that reduce the benefits they receive from transactions or cause them to exit the market altogether. The resulting contraction not only harms both the sellers with positive unobservable information that exit the market; it also harms their potential transactional partners that would otherwise have entered into mutually beneficial transactions with them. Additionally, it can adversely change the prices paid by those that remain in the market, creating a windfall for those with unobservable negative information and a penalty on those without. As the market contracts, the same effects can arise with respect to above-average and below-average actors that remain in the market to the point where the market collapses

entirely, in which case no beneficial transactions occur at all. Actors faced with this dilemma can implement a variety of alternative institutional responses, such as alternative ways to signal or screen for quality or self-selection mechanisms that induce market participants to reveal quality. These are all costly, imperfect, and tend to create secondary distortions of their own, although some may create their own positive externalities. The net result has implications that go far beyond the person that is the subject of the unobservable information and their potential transactional partners. In short, these systemic effects affect a wide range of third parties and society as a whole.

These problems can be easily mapped onto the right to be forgotten. Enabling data subjects to require the deletion of certain information prior to contracting allows them to turn otherwise observable information into hidden information, which raises the problems associated with adverse selection. In addition, some authorities have interpreted the right to be forgotten to include a corollary right preventing the revelation of whether a data subject has exercised that right.<sup>98</sup> As such, invocation of the right to be forgotten could constitute the type of postcontractual hidden action associated with moral hazard.

Individuals have strong incentives to exercise the right to be forgotten in ways that are privately beneficial. Some examples are relatively trivial, such as artists requesting the deletion

---

<sup>98</sup> For example, the UK Information Commissioner's Office's (ICO's) first enforcement action under the right to be forgotten ordered Google in August 2015 to remove links to news stories identifying which individuals had exercised their right to be forgotten. Glynn Moody, *Google ordered to remove links to stories about Google removing links to stories*, ARS TECHNICA (Aug. 21, 2015, 2:34 PM), <https://arstechnica.com/tech-policy/2015/08/google-ordered-to-remove-links-to-stories-about-google-removing-links-to-stories/>. The enforcement and notice are no longer available on the ICO's website. A limited discussion that does not describe the content of the decision in detail appears in the ICO's annual report for 2015-16. INFO. COMM'RS OFF., INFORMATION COMMISSIONER'S ANNUAL REPORT AND FINANCIAL STATEMENTS 2015/16, at 22 (2016), <https://ico.org.uk/media/about-the-ico/documents/1624517/annual-report-2015-16.pdf>.

of negative reviews of their performances.<sup>99</sup> Others affect important economic outcomes, such as lowering prices or providing better chances for approval for a loan or being hired.<sup>100</sup> Still others involve serious noneconomic matters, exemplified by doctors' efforts to suppress reports of past medical misconduct, both alleged and proven.<sup>101</sup> Observers have also expressed concerns that the right to be forgotten could be used by unscrupulous politicians and business people to attempt to conceal past misbehavior.<sup>102</sup>

Although the right to be forgotten was initially envisioned as being asserted by individuals, in a world in which multiple companies offer to scrub a person's social media

---

<sup>99</sup> See, e.g., Caitlin Dewey, *Pianist asks The Washington Post to remove a concert review under the E.U.'s 'right to be forgotten' ruling*, WASH. POST (Oct. 31, 2014), <https://www.washingtonpost.com/news/the-intersect/wp/2014/10/31/pianist-asks-the-washington-post-to-remove-a-concert-review-under-the-e-u-s-right-to-be-forgotten-ruling/>.

<sup>100</sup> See, e.g., Curtis R. Taylor, *Consumer Privacy and the Market for Customer Information*, 35 RAND J. ECON. 631 (2004) (prices); Tullio Jappelli & Marco Pagano, *Information Sharing, Lending and Defaults: Cross-Country Evidence*, 26 J. BANKING & FIN. 2017 (2002) (lending); Ali A. Mahmoud et al., *Performance Predicting in Hiring Process and Performance Appraisals Using Machine Learning*, PROC. 2019 10TH INT'L CONF. ON INFO. & COMM'N SYS. (ICICS) 110 (2019) (hiring).

<sup>101</sup> See, e.g., David Payne, *Google, doctors, and the "right to be forgotten,"* 350 BMJ: BRIT. MED. J., Jan. 10, 2015, at 14, 14, 15, available at <https://www.bmj.com/bmj/section-pdf/872736?path=/bmj/350/7990/Feature.full.pdf> (grant of request to remove link to information regarding conviction of doctor for poisoning pregnant mistress and denial of request for removal of reports of "botched procedure"); Jon Porter, *'Right to be forgotten' used to force Google to remove medical negligence link*, VERGE (Jan. 22, 2019, 6:35 AM EST), <https://www.theverge.com/2019/1/22/18192626/eu-right-to-be-forgotten-dutch-surgeon-medical-negligence> (grant of request to remove link to information regarding past medical suspension); *The right to be forgotten: Drawing the line*, ECONOMIST, Oct. 3, 2014, at 71, 71, available at <https://www.economist.com/international/2014/10/03/drawing-the-line> (denial of request to remove links to negative patient reviews).

<sup>102</sup> See, e.g., Danny Helm, *Right to Be Forgotten? Not That Easy*, N.Y. TIMES, May 30, 2014, at B1, available at <https://www.nytimes.com/2014/05/30/business/international/on-the-internet-the-right-to-forget-vs-the-right-to-know.html>; Wills Robinson & Sarah Griffiths, *Paedophile, misbehaving politician and GP who was unhappy with his online reviews among those inundating Google with 'right to be forgotten' requests after EU ruling*, DAILY MAIL (May 16, 2014, 7:04 EST), <http://www.dailymail.co.uk/sciencetech/article-2629243/Paedophile-misbehaving-politician-GP-unhappyreview-scores-inundating-Google-right-forgotten-requests-EU-ruling.html>. Empirical studies have shown assertions of the right to be forgotten by politicians remain relatively rare. Theo Bertram et al., *Five Years of the Right to be Forgotten*, CCS'19: PROC. 2019 ACM SIGSAC CONF. ON COMPUT. & COMM'NS SEC. 959, 964 (2019), available at <https://dl.acm.org/doi/pdf/10.1145/3319535.3354208>. The greater potential importance of assertions of the right by politicians means that the significance of these assertions cannot be assessed simply by comparing their frequency with the frequency of assertions by private individuals.

footprint,<sup>103</sup> it is perhaps inevitable that businesses would arise that offer to leverage the right to be forgotten to help people influence the way they are perceived.<sup>104</sup> Indeed, such reputation management agencies represent among the heaviest users of the right to be forgotten.<sup>105</sup>

The ability to selectively shield adverse personal information has immediate consequences. First, it conveys a windfall on those exercising that right over people without adverse information and people with adverse information who do not exercise the right. Such windfalls do not occur in a vacuum, of course. Conveying benefits to people who would not otherwise be entitled to receive them inevitably has negative effects on their transactional partners. This in turn will impose negative effects on other actors doing business with those partners and ultimately on the entire market.

The flaws created by asymmetric information can have ripple effects that create unintended consequences. As noted earlier, the price effects and market contraction that are the first-order effects of asymmetric information can touch off a series of secondary reactions and counterreactions. For example, the ability to use the right to be forgotten to remove adverse information necessarily introduces a bias into the pool of available data. This inevitably degrades the quality of any models built on this data. The added uncertainty also inevitably leads market participants to adjust their willingness to pay in a manner reminiscent of how auction participants respond to uncertainty by lowering their bids to protect against the

---

<sup>103</sup> See, e.g., Grade Wong & Erielle Reshef, *Do you need a social media clean-up? We had job hunters try out 2 services*, GOOD MORNING AM. (Mar. 8, 2018), <https://www.goodmorningamerica.com/living/story/social-media-clean-job-hunters-services-53595529>.

<sup>104</sup> Mark Scott, *European Companies See Opportunity in the 'Right to Be Forgotten'*, N.Y. TIMES, July 10, 2014, at B3, available at <https://www.nytimes.com/2014/07/09/technology/european-companies-see-opportunity-in-the-right-to-be-forgotten.html>; Amy Gesenhues, *The Inevitable Happened: First Company Provides "Right To Be Forgotten" Removal Service*, SEARCH ENGINE LAND (June 25, 2014, 12:01 AM), <https://searchengineland.com/reputation-vip-online-management-firm-launches-site-assist-googles-forget-form-194998>.

<sup>105</sup> Bertram et al., *supra* 102, at 963-64.



possibility of the well-known “winner’s curse.”<sup>106</sup> The broader the scope of data that can be suppressed, the more widespread this effect will be.

The lower quality of information can lead to changes in screening decisions as well as prices. For example, a recent paper by Jin-Hyuk Kim and Liad Wagman lays out a theoretical model that shows how restricting access to personal information can lead to less effective screening of below-average customers, which in turn leads to higher prices and lower social welfare for everyone.<sup>107</sup> The study then tests the model’s predictions empirically by analyzing how local privacy ordinances requiring a higher level of consent for the sharing of financial information (opt-in instead of opt-out consent) affect the market for mortgages, finding that reduced information sharing was correlated with less effective screening (in the form of lower denial rates) and higher foreclosure rates (indicative of less accurate loan decisions), findings consistent with the proposed model.<sup>108</sup>

The right to be forgotten does present issues that differ in some ways from the classic example of asymmetric information. For example, most of the examples given to illustrate adverse selection and moral hazard involve final goods, whereas the information affected by the right to be forgotten is typically an intermediate good.<sup>109</sup> Although this makes the impact of shielding information somewhat more indirect and variable depending on the precise business model involved, the net effect is largely the same. For advertising business models, the withholding of information makes advertising less effective, which lowers the returns to

---

<sup>106</sup> See E.C. Capen et al., *Competitive Bidding in High Risk Situations*, 23 J. PETROL. TECH. 641, 645 (1971) (providing the seminal analysis of the winner’s curse). Jonathan Levin alluded to how adverse selection can create a “buyer’s curse” without developing the concept at any length. Levin, *supra* note 21, at 657-58, 663-65.

<sup>107</sup> Jin-Hyuk Kim & Liad Wagman, *Screening Incentives and Privacy Protection in Financial Markets: A Theoretical and Empirical Analysis*, 46 RAND J. ECON. 1, 5-8, 18 (2015).

<sup>108</sup> *Id.* at 3, 10-18.

<sup>109</sup> Richard A. Posner, *The Right to Privacy*, 12 GA. L. REV. 393, 394 (1978).

advertising and thus the prices that advertising-based firms can charge to advertisers.<sup>110</sup> The resulting loss of revenue can cause these firms to contract or even exit the market. For business models based on recommendations, the reduction in data makes the recommendations less effective, which has much the same effects as reductions in the effectiveness of advertising.<sup>111</sup>

Furthermore, in the typical examples of adverse selection and moral hazard, information asymmetry arises from a natural feature, such as the fact that one actor possesses information about quality of a good or their personal characteristics that others cannot observe. In such cases, government intervention is sought to counteract these effects. Under the right to be forgotten, in contrast, the information asymmetry results from the imposition of a government policy rather than an inherent feature of the market.

In addition, FCRA and criminal expungement statutes have more limited scope than the right to be forgotten. As a result, those statutes affect only a limited type of data (credit and criminal histories), while the right to be forgotten can be exercised with respect to any type of information and can thus create a much broader range of distortions. Moreover, because the right to be forgotten is not automatic, it gives control over the observability of information to the person with better access to the asymmetric information. The discretionary nature of the information asymmetry caused by the right to be forgotten makes it more susceptible to opportunistic abuse than in the archetypical cases of adverse selection and moral hazard. Whereas in the case of adverse selection, government intervention is seen as part of the solution to the problem, for the right to be forgotten, the government is the problem's cause.

---

<sup>110</sup> See, e.g., Avi Goldfarb & Catherine E. Tucker, *Privacy Regulation and Online Advertising*, 57 MGMT. SCI. 57 (2010).

<sup>111</sup> See, e.g., Shreya Basu, *Personalized Product Recommendations and Firm Performance*, 48 ELEC. COM RSCH. & APPLICATIONS 101074, at 8 (2021).

The negative economic effects associated with adverse selection and moral hazard are important in and of themselves. Even though these economic harms may not be directly related to the dignitary and other concerns that many regard as motivating the right to be forgotten, it bears noting that the right to forgotten applies to all personal data regardless of its nature.<sup>112</sup> As a result, nothing in the right to be forgotten prevents it from being used opportunistically for purely economically motivated reasons.

That said, the same dynamics identified by the economic literature can arise with respect to noneconomic considerations as well. Consider the case of Mario Cosetja González, the person whose complaint led to Europe's recognition of the right to be forgotten. His core concern was that searches for his name returned a twelve-year-old newspaper announcement required by the government announcing the forced sale of certain property that he owned to recover unpaid social security debts.<sup>113</sup> The Court framed the issue as a balance between Costeja's right to keep this information private on the one hand and the economic interests of Google and the public's interest in having access to this information on the other.<sup>114</sup>

Framing the issue around the rights of the data subject, the data holder, and those interested in accessing the data ignores the lessons of the economics of adverse selection and moral hazard, which teach that asymmetric information has systemic and societal effects that can affect even those who have no direct contact with the data or the market. For example, allowing people to conceal negative information changes others' perception of the average frequency with which such events occur. Allowing people to sanitize others' perceptions of their past can create

---

<sup>112</sup> Commission Regulation 2016/679, General Data Protection Regulation, art. 17, 2016 O.J. (L 119) 1, 43-44; CAL. CIV. CODE § 1798.105; COLO. REV. STAT. 6-1-1306(1)(d); VA. CODE ANN. § 59.1-573(A)(3).

<sup>113</sup> Case C-131/12, *Google Spain SL v. Agencia Española de Protección de Datos (AEPD)*, ECLI:EU:C:2014:317, ¶¶ 14-15 (May 13, 2014).

<sup>114</sup> *Id.* ¶¶ 97-99.

a false impression of how often people struggle with insolvency and how often they are able to overcome it. This dynamic can have significant adverse effects, illustrated by reports of how university students' tendency to present only a positive outward presentation of their selves often gives other students the erroneous belief that no one else is going through the same struggles that they are.<sup>115</sup> Permitting information about people like Costeja to remain online might provide a more accurate baseline for third-party decisionmakers and serve a valuable educational function by providing a more accurate picture of how frequently such foreclosures occur, as well as an object lesson that such setbacks can be overcome. Conversely, allowing everyone to curate their lives may provide them personal benefits while creating social costs by distorting others' perceptions of reality.

There is thus an interesting parallel between the right to be forgotten and concerns about digital platforms' ability to curate end users' online experiences.<sup>116</sup> The right to be forgotten has the effect of giving data subjects the ability to exert a degree of reciprocity. Although it might be tempting to embrace the right as a welcome counterbalance to the status quo, a proper analysis would have to consider that exercises of control on both sides simultaneously create benefits and are susceptible to self-interested behavior that may not be socially beneficial. A full analysis requires a full assessment of the net impact of these effects. But curation on either side of the equation should provide some basis for concern.

---

<sup>115</sup> For discussions of how students concealing their problems on university campuses can give other students the erroneous perception that no other students face those problems, see, e.g., Yomi Abdi, *Stop saying 'Penn Face,'* DAILY PENNSYLVANIAN (Nov. 18, 2021, 9:37 PM), <https://www.thedp.com/article/2021/11/penn-face-mental-health-social-ivy>; Sarah Craig & Roman Peregrino, *Where have all the students gone? How leave of absence policies hinder student wellness*, GEO. VOICE (Sept. 11, 2021), <https://georgetownvoice.com/2021/09/11/leaves-of-absence-mental-health/>.

<sup>116</sup> For leading statements, see, e.g., TARLETON GILLESPIE, CUSTODIANS OF THE INTERNET: PLATFORMS, CONTENT MODERATION, AND THE HIDDEN DECISIONS THAT SHAPE SOCIAL MEDIA (2018); SHOSHANA ZUBOFF, THE AGE OF SURVEILLANCE CAPITALISM (2019).

Finally, all three literatures show how making information unobservable is rarely a stable equilibrium and instead can lead to reactions and counterreactions that can have unintended consequences. At a minimum, the literature on ban the box teaches that the denial of access to certain data naturally induces decisionmakers to attempt to construct proxies for that information out of the information that remains visible, which requires the incurrence of additional cost and leads to less effective results. In addition, other actors may engage in additional forms of signaling, screening, and self-selection to compensate for the information asymmetry created by the right to be forgotten. All these second-order consequences are costly and imperfect and can create secondary distortions of their own, including results that are unexpectedly perverse. Indeed, the literature on ban the box explicitly points to the right to be forgotten as a potential example of a “well-intentioned polic[y]” that may “have unintended consequences” and in which “providing more information [might be] a better strategy.”<sup>117</sup>

## CONCLUSION

The right to be forgotten represents an emerging feature in U.S. law that is likely to grow more important in years to come. As a result, it is important to move past the current framing that casts the right as a tradeoff between the data subject’s right to privacy and the data holder’s freedom of speech in favor of one that takes a more systemic approach. Focusing solely on the individual rights at stake overlooks the mature literatures on adverse selection, moral hazard, and ban the box that show how making certain information unobservable can have negative consequences to a wide range of third parties and to society as a whole. In addition, these literatures further teach that shielding important information can give rise to unintended

---

<sup>117</sup> Doleac & Hansen, *supra* note 85, at 329 & n.13.

secondary consequences that can create additional harms that can be difficult to anticipate. Any complete assessment of the right to be forgotten must take these broader considerations into account.