MEASURING INNOCENCE: HOW TO THINK ABOUT THE RATE OF WRONGFUL CONVICTION

*Marvin Zalman and Robert J. Norris**

What is the rate of wrongful conviction? This question may be implicit in Blackstone's ratio: "It is better that ten guilty persons escape than that one innocent suffer." Scholarship designed to provide an empirical answer, however, emerged only with the rise of the "innocence movement" in the United States. This article does not provide another study estimating the rate of wrongful felony conviction either for a specified sample, such as death sentences within a specified time period, or for an entire jurisdiction. Instead, we evaluate the rate question itself and assess its importance to innocence scholarship and action. We first trace the question's intellectual lineage, and its historical and ideological roots among innocence believers and *innocence skeptics*. *We then describe and evaluate all or most of the published studies attempting to estimate the wrongful conviction rate. Next, we discuss a reoccurring limitation of this published work, namely, its failure to account for or its unsubstantiated assumptions about guilty pleas and misdemeanor convictions among innocent defendants. Finally, we question the continued importance of the rate question in light of the modern innocence movement and its growing accomplishments*.

Keywords: *wrongful conviction, miscarriage of justice, innocence, error rate, exoneration*

* Marvin Zalman is a Professor of Criminal Justice at Wayne State University. Robert Norris is Assistant Professor of Criminology, Law and Society at George Mason University. An earlier version of this paper was presented at the 2019 annual meeting of the American Society of Criminology. The authors thank Al Blumstein, Ken Chelst, Glinda Cooper, and Allison Redlich for helpful comments.

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INTRODUCTION

Recent decades have seen a growing and sustained interest in wrongful convictions: that is, the convictions of people who were, in fact, innocent of the crime.[1] Developments in this area, collectively referred to as the "innocence movement," are seen in criminal justice practices, legal advocacy, academic scholarship, media coverage, and popular culture.[2] We have learned much about the phenomenon of wrongful convictions, but for anyone interested in the subject—be they innocence scholars, lawyers, policymakers, journalists, or others concerned about accuracy and fairness in criminal justice—there remains an intriguing question: What is the rate of wrongful conviction in the United States?[3]

1. We generally use the term "wrongful conviction" in reference to this particular subset of miscarriages of justice. In the extant literature, other common phrases include "false convictions," "actual innocence," or "factual innocence." Our use of the phrase includes both other-person cases—those in which a crime occurred, but the wrong person was arrested and convicted while the true perpetrator typically remained free—and no-crime cases—those in which no crime actually occurred, but one or more people were erroneously arrested and convicted regardless.

2. For overviews of the movement, see FRANK R. BAUMGARTNER ET AL., THE DECLINE OF THE DEATH PENALTY AND THE DISCOVERY OF INNOCENCE (2008); Keith A. Findley, *Toward a New Paradigm of Criminal Justice: How the Innocence Movement Merges Crime Control and Due Process*, 41 TEX. TECH L. REV. 133 (2008); Jacqueline McMurtrie, *The Innocence Network: From Beginning to Branding*, *in* CONTROVERSIES IN INNOCENCE CASES IN AMERICA 21–37 (Sarah Lucy Cooper ed., 2014); ROBERT J. NORRIS, EXONERATED: A HISTORY OF THE INNOCENCE MOVEMENT (2017); Marvin Zalman, *An Integrated Justice Model of Wrongful Convictions*, 74 ALBANY L. REV. 1465 (2010/2011). For analysis of expanding media attention to wrongful conviction, see Liam Kennedy, *'Man I'm All Torn Up Inside': Analyzing Audience Responses to Making a Murderer*, 14 CRIME MEDIA CULTURE 391 (2018); Robert J. Norris & Kevin J. Mullinix, *Framing Innocence: An Experimental Test of the Effects of Wrongful Convictions on Public Opinion*, 16 J. EXPERIMENTAL CRIMINOLOGY 311 (2020).

3. In this article, we regularly use the phrase "the question" as shorthand for "the question of the rate of wrongful convictions." Two points about this question are important to note at the outset. First, the question is largely directed at felony wrongful convictions. The counts of DNA and other exonerations that accelerated the innocence movement in the 1990s and 2000s were almost all of felonies. The urgency of exonerating prisoners on death row or with life sentences, the limited capacity of innocence organizations, and the availability of DNA evidence in sexual assault cases heavily weighted exoneration cases toward the most serious felonies—a disproportion that still exists, as discussed later in this paper. The studies reviewed in Part II estimate the rate of felony convictions. As the innocence movement has matured, however, a sizeable number of misdemeanor wrongful convictions

There is no perfect metric for determining actual innocence after conviction; the best available is official exoneration. The continually increasing number of vetted post-conviction exonerations based on innocence announced by the National Registry of Exonerations (NRE) is approaching 3,000 in the United States since 1989.[4] Importantly, the cases in the NRE database are almost certainly unrepresentative of all exonerations, let alone all wrongful convictions. Rather, the NRE includes only those cases that were reinvestigated, that produced viable evidence of innocence, and achieved legal victory often after lengthy post-conviction litigation and appeals.[5] Indeed, the true number of wrongful convictions is certainly

have come to light and are recorded in the National Registry of Exonerations, [hereinafter NRE], http://www.law.umich.edu/special/exoneration/Pages/about.aspx. Indeed, we address this important issue in Part III. We do not undervalue the harm of misdemeanor wrongful convictions, but simply note that the studies and speculation about the extent of wrongful convictions have mostly been aimed at felonies.

Second, the terms "prevalence" and "incidence" are used in writing about the extent of wrongful convictions. In medicine and epidemiology, *incidence* "measures the rate of occurrence of new cases and is calculated as the number of new cases of a disease or condition in a specified time period (usually a year) divided by the size of the population under consideration who are initially disease free." *Prevalence* "measure[s] the existence of a disease or condition in a population and is calculated by dividing the number of persons with a disease or condition at a particular time by the number of individuals examined." Marvin Zalman, *Measuring Wrongful Convictions*, *in* ENCYCLOPEDIA OF CRIMINOLOGY AND CRIMINAL JUSTICE 3047–58, 3047 (Gerben Bruinsma & David Weisburd eds., 2014) [hereinafter Zalman, *Measuring*]. Sometimes the terms are used interchangeably. Applying these definitions, the question of a wrongful conviction rate may refer to the incidence of wrongful felony convictions in the nation or in a locality in a given year, but may not necessarily include a periodic time-frame. Statements about the possible number of wrongfully convicted defendants in prison are statements of prevalence. To avoid any confusion between these terms, we use the term "rate" as a ratio that compares wrongful convictions (numerator) to correct convictions (denominator).

4. NRE, *supra* note 3.

5. As of April 11, 2021, the NRE database included 2,768 cases. These are not indicative of all exonerations. Rather, NRE exonerations have been identified and fit the NRE's conservative inclusion criteria, which generally hinges on an official acknowledgment of new evidence of innocence. Their full definitions and criteria are available at https://www.law.umich.edu/special/exoneration/Pages/glossary.aspx. It is also worth noting that new exonerations are added regularly, including those that may have occurred years earlier, as the NRE staff becomes aware of them. As NRE Senior Researcher Maurice Possley told us, "Since the beginning of 2013, the Registry has added, on average, about 200 cases annually to the database." Personal communication from Maurice Possley (Feb. 1, 2021), on file with authors. Although we rely on NRE exonerations as an irreducible minimum figure, it is

much greater than the number of known exonerations, perhaps by several orders of magnitude.[6] This elusive number has stimulated research on the rate of wrongful conviction, but actually determining that number remains challenging, if not impossible. We add that studies of *overall* wrongful conviction rates, the focus of this article, are far fewer than those found in the substantial and rapidly expanding literature that explores the correlates of or factors that contribute to wrongful convictions, such as eyewitness misidentification or forensic errors and misconduct, and literature on the consequences of wrongful convictions.[7]

There is some debate about the significance of the rate question. Some think that knowing the precise wrongful conviction rate is not particularly important, at least for purposes of advancing innocence reforms and

worth noting that another list based on formal post-conviction exonerations since 1989, that scrupulously references cases but does not vet them as well as the NRE, counts roughly twice the number of exonerations as the NRE; see Forejustice, "Innocents Database, 1989–2020 U.S. cases only," http://forejustice.org/idb1989us.html (5,253 cases from 1989 to 2020).

6. James R. Acker, *Taking Stock of Innocence: Movements, Mountains, and Wrongful Convictions*, 33 J. CONTEMP. CRIM. JUST. 8, 9–12 (2017); Samuel R. Gross et al., *Exonerations in the United States, 1989 Through 2003*, 95 J. CRIM. L. & CRIMINOLOGY 523 (2005).

7. See Catherine L. Bonventre et al., *Studying Innocence: Advancing Methods and Data*, in EXAMINING WRONGFUL CONVICTIONS: STEPPING BACK, MOVING FORWARD 301, 305 (Allison D. Redlich, James R. Acker, Robert J. Norris, & Catherine L. Bonventre eds., 2014). Most academic studies of actual innocence evaluate these contributing factors and are found across psychology and other social sciences (e.g., criminology, sociology), law, and forensic science. The wrongful conviction literature is vast and diverse; for example, specialists count the number of research articles related to eyewitness identification in the thousands, BRIAN L. CUTLER & STEVEN D. PENROD, MISTAKEN IDENTIFICATION: THE EYEWITNESS, PSYCHOLOGY, AND THE LAW 68 (1995); *see* NATIONAL RESEARCH COUNCIL, IDENTIFYING THE CULPRIT: ASSESSING EYEWITNESS IDENTIFICATION 71–72 (2014) (papers on eyewitness studies drawn from nine electronic databases in the fields of social science, cognitive science, behavioral science, neuroscience, criminology, and law). Within such specialized literatures, some attention is given to calculating, for example, the proportion of misidentifications that are found in a sample of exonerations, or the ratio of accurate-to-inaccurate identifications. For scholarship on the aftermath and consequences of wrongful convictions for exonerees and others, *see*, e.g., Adrian Grounds, *Psychological Consequences of Wrongful Conviction and Imprisonment*, 46 CANADIAN J. CRIMINOLOGY & CRIM. JUST. 165 (2004); SAUNDRA D. WESTERVELT & KIMBERLY J. COOK, LIFE AFTER DEATH ROW: EXONEREES' SEARCH FOR COMMUNITY AND IDENTITY (2012); Robert J. Norris, *Assessing Compensation Statutes for the Wrongly Convicted*, 23 CRIM. JUST. POLICY REV. 352 (2012); Jennifer E. Thompson & Frank R. Baumgartner, *An American Epidemic: Crimes of Wrongful Liberty*, INJUSTICEWATCH (Apr. 3, 2018), https://www.injusticewatch.org/commentary/2018/an-american-epidemic-crimes-of-wrongful-liberty/.

scholarship.[8] A corollary to this way of thinking is that analyzing the correlates or contributing factors of known exonerations is more important to the work of exonerating the wrongfully convicted and instituting reforms.[9] For other scholars, the rate question is the "most important question about false convictions," as well as "the most basic."[10] Significantly, a number of studies have attempted to estimate the rate of wrongful conviction using a variety of methods, and we analyze these studies herein.

Although our views tend to align with scholars who do not think that knowing a specific rate of felony wrongful conviction is critically important to the innocence movement's work, we believe that reviewing rate scholarship is valuable. One reason is that rate scholarship has grown in recent years and continues to develop, and thus taking stock of this ongoing research enterprise will be useful to scholars probing this issue.[11] Equally if not more importantly, scholars involved in rate research are bound to have attitudes, whether explicit or implicit, about the innocence movement enterprise that may seek to shape how the public views the movement. Such attitudes should be understood and discussed, to the degree possible. Related to this point, we believe that understanding wrongful convictions must take into account new research and scholarship about plea bargaining and misdemeanor convictions that may upend outdated perceptions about wrongful convictions and the criminal legal system generally. Finally, innocence scholars continue to be vexed by the rate question, either by speculating about it,[12] or by extending

8. Richard A. Leo & Jon B. Gould, *Studying Wrongful Convictions: Learning From Social Science*, 7 OHIO STATE J. CRIM. L. 7 (2009); Rodney Uphoff, *Convicting the Innocent: Aberration or Systemic Problem?*, 2006 WIS. L. REV. 739 (2006).

9. Daniel S. Medwed, *Counting Innocence*, CRIM. JUST. ETHICS 121 (2012). See Zalman, *Measuring*, *supra* note 3.

10. Samuel R. Gross, *Convicting the Innocent,* 4 ANN. REV. L. & SOC. SCI. 173, 176 (2008) [hereinafter Gross, *Convicting*]; Paul G. Cassell, *Overstating America's Wrongful Conviction Rate: Reassessing the Conventional Wisdom about the Prevalence of Wrongful Convictions*, 60 ARIZ. L. REV 815, 816 (2018) [hereinafter Cassell, *Overstating*].

11. Cassell, *Overstating*, *supra* note 10; Paul G. Cassell, *Jurisdiction-Specific Wrongful Conviction Rate Estimates: The North Carolina and Utah Examples*, 60 ARIZ. L. REV. 891 (2018) [hereinafter Cassell, *Rate Estimates*]; Charles E. Loeffler et al., *Measuring Self-Reported Wrongful Convictions Among Prisoners*, 35 J. QUANTITATIVE CRIMINOLOGY 259, 264–66 (2018); George C. Thomas III, *Where Have All the Innocents Gone?* 60 ARIZ. L. REV. 865 (2018).

12. Steven M. Cytryn, *Guilty Until Proven Innocent: Providing Effective Relief to the Actually Innocent in New York*, 10 CARDOZO PUB. L. POL'Y & ETHICS J. 469, 471–72

consideration of a wrongful conviction rate in novel ways,[13] or by mentioning it in passing.[14] These references signify a generalized level of scholarly interest regarding the rate question.

In this article, we do not purport to answer the question directly by estimating the rate of wrongful conviction. Our goal is instead to evaluate the nature of the question itself, to explore its historical roots and examine how scholars and practitioners have thought about this question. We examine the approaches to and challenges associated with this question, to assess whether it is truly fundamental to wrongful convictions as a focus of scholarship and advocacy. Further, existing rate estimates are scattered across academic subfields and utilize a variety of methodological approaches. Thus, compiling and discussing all existing rate estimates in one place allows readers to assess both the forest and the trees, and draw their own conclusions about the possible rate of wrongful conviction.

Part I places wrongful conviction rate scholarship in historical and social context. We argue that discussing wrongful conviction rates makes sense

(2012); Leon Friedman, *The Problem of Convicting Innocent Persons: How Often Does It Occur and How Can It Be Prevented?* 56 N.Y.L. SCH. L. REV. 1053, 1053–62 (2012); Jennifer E. Laurin, *Quasi-Inquisitorialism: Accounting for Deference in Pretrial Criminal Procedure*, 90 NOTRE DAME L. REV.783, 786 (2014); Daniel S. Medwed, *The Innocent Prisoner's Dilemma: Consequences of Failing to Admit Guilt at Parole Hearings*, 93 IOWA L. REV. 491, 495–96 (2008); Abigail Penzell, *Apology in the Context of Wrongful Conviction: Why the System Should Say It's Sorry*, 9 CARDOZO J. CONFLICT RESOL. 145 (2007).

13. Justin Brooks & Zachary Brooks, *Wrongfully Convicted in California: Are There Connections between Exonerations, Prosecutorial and Police Procedures, and Justice Reforms?*, 45 HOFSTRA L. REV. 373, 375–78 (2016) (calculating county exoneration rates).

14. Acker, *supra* note 6, at 9–12; Tim Bakken, *Models of Justice to Protect Innocent Persons*, 56 N.Y.L. SCH. L. REV. 837, 841–43 (2012); Jessica S. Henry, *Smoke but No Fire: When Innocent People Are Wrongly Convicted of Crimes That Never Happened*, 55 AM. CRIM. L. REV. 665, 684 (2018); Stephanie L. Kent & Jason T. Carmichael, *Legislative Responses to Wrongful Conviction: Do Partisan Principals and Advocacy Efforts Influence State-level Criminal Justice Policy?*, 52 SOC. SCIENCE. RES. 147, 148 (2015); Daniel S. Medwed, *Innocentrism*, 2008 U. ILL. L. REV. 1549, 1552–53, 1558–59 (2008); D. Kim Rossmo & Joycelyn M. Pollock, *Confirmation Bias and Other Systemic Causes of Wrongful Convictions: A Sentinel Events Perspective*, 11 NORTHEASTERN U. L. REV. 790, 796 (2019); Mitch Ruesink & Marvin D. Free, Jr., *Wrongful Convictions among Women: An Exploratory Study of a Neglected Topic*, 16 WOMEN & CRIM. JUST. 1, 2–4 (2005); Meghan J. Ryan & John Adams, *Cultivating Judgment on the Tools of Wrongful Conviction*, 68 S.M.U. L. REV. 1073, 1075–78 (2015); Boaz Sangero, *Safety from Flawed Forensic Sciences Evidence*, 34 GA. ST. U. L. REV. 1129, 1132 (2018).

only in the context of the innocence movement.[15] Scholarship on the rate question illuminates how lawyers, judges, legal scholars, and social scientists think about wrongful convictions and about justice system reliability more broadly. This thinking is neither linear nor entirely neutral; it is shaped by historical context and ideological predilections, and requires an appreciation of the ubiquity of cognitive biases. Historical context is needed because the innocence movement has led to a marked change in legal thinking, from a general belief in the legal system's high accuracy to harboring serious doubts.[16] The shift from traditional worries about miscarriages of justice as inevitable human failings to an understanding that wrongful convictions are generated by systemic problems supports the quest for a quantitative measure of the problem, and it is thus important that we explore the historical underpinnings of the rate question. Following our discussion of historical and social context, in Part II we examine in detail the published rate estimates that currently exist, including discussion of the methods used, their strengths and weaknesses, and their conclusions about likely error rates. Part III discusses key issues that are generally overlooked in the rate scholarship, specifically, plea bargaining and misdemeanor convictions. Finally, we conclude in Part IV with some thoughts about the rate question and its importance for the innocence movement.

I. SOCIAL AND HISTORICAL CONTEXT

A. Early Interest

Although wrongful convictions have been recognized as serious problems in virtually all legal systems, attempts to quantify them are related to the contemporary innocence movement.[17] Thus, although Edwin Borchard, the first American scholar to explore wrongful convictions, described sixty-five "actual errors of criminal justice," he made no effort to estimate

15. *See* references, note 2, *supra*; Robert J. Norris, *Framing DNA: Social Movement Theory and the Foundations of the Innocence Movement*, 33 J. CONTEMP. CRIM. JUST. 26 (2017).

16. Michael Meltsner, *Innocence Before DNA*, *in* WRONGFUL CONVICTIONS AND THE DNA REVOLUTION: TWENTY-FIVE YEARS OF FREEING THE INNOCENT 14–35 (Daniel S. Medwed, ed. 2017).

17. Marvin Zalman, *Wrongful Conviction: Comparative Perspectives*, *in* THE CAMBRIDGE HANDBOOK OF SOCIAL PROBLEMS 449–72 (A. Javier Travino ed., 2018) (identifying references to wrongful conviction in ancient and medieval Western and Chinese literature, id. at 449–50).

a wrongful conviction rate.[18] Other legal scholars, popular writers, and criminologists who followed Borchard also did not estimate a wrongful conviction rate.[19]

The rate question received little attention until the 1980s, when three research efforts began asking about the potential numbers of wrongful convictions. The first, led by Arye Rattner and C. Ronald Huff, suggested that the size of the wrongful conviction problem was "perhaps the most frequently asked question."[20] They surveyed state Attorneys General and Ohio law enforcement officials, prosecutors, judges, and defense attorneys about their perceptions of the wrongful conviction rate. Although some respondents believed that wrongful convictions never occurred, others suggested error rates ranging from "[l]ess than 1%" to "6–10%." The authors extrapolated from their data to suggest an error rate of 0.5%. Importantly, they did not argue that this was the definitive error rate but relied on a combination of the survey results, their own database of "nearly 500 wrongful conviction cases," and "analysis of the dynamics of wrongful conviction causes" to express a "relatively confident" belief in a "conservative estimate of [a] less than 1%" rate.[21]

Next, law professor Samuel Gross wrote about the relationship between eyewitness misidentification and wrongful conviction.[22] Gross assumed that eyewitness errors were the most common factor contributing to wrongful convictions, but were relatively rare in absolute terms. He highlighted a paradox: eyewitness identifications, a "notoriously unreliable type of evidence" that serves as the "basis of numerous guilty verdicts," are, in hard numbers, "the source of only a small number of wrongful

18. Edwin M. Borchard, Convicting the Innocent: Errors of Criminal Justice (1932).

19. Jerome Frank & Barbara Frank, Not Guilty (1957); Erle Stanley Gardner, the Court of Last Resort (1952); Max Hirschberg, *Wrongful Convictions*, 13 Rocky Mtn. L. Rev. 20–46 (1940/1941); Donald E.J. MacNamara, *Convicting the Innocent*, 15 Crime & Delinq. 57 (1969); Edward D. Radin, the Innocents (1964); David Shichor, *The Wrongfully Accused and the Criminal Justice System*, *in* Victimology: A New Focus 121–33 (Israel Drapkin & Emilio Viano eds., 1974).

20. C. Ronald Huff et al., *Guilty Until Proved Innocent*, 32 Crime & Delinq. 518, 520 (1986).

21. *Id.* at 523.

22. Samuel R. Gross, *Loss of Innocence: Eyewitness Identification and Proof of Guilt*, 16 J. Legal Stud. 395 (1987) [hereinafter Gross, *Loss*].

convictions."[23] He examined 136 mistaken identification cases obtained from published studies and news sources. Those cases produced 97 convictions and 39 dismissals or other indications of innocence. Gross concluded that "the pretrial process of identification usually includes quite a bit more than the confrontation with the eyewitness, and it is the overall accuracy of this process that makes erroneous convictions rare."[24] Arguing that even rare errors are of great concern, he confessed that given his ideological orientation, he was "uneasy" at concluding that police and prosecutors had more to do with protecting innocent defendants than the judicial process.[25]

The third study, by Hugo Adam Bedau and Michael Radelet, examined errors in capital and potentially capital convictions.[26] They reviewed all such sentences from 1900 to 1985, and claimed that 350 of them were erroneous (including 23 wrongful executions). Their exploratory methodology relied on both exonerations and their own review of published case data. The article's explosive conclusions drew forceful criticism from Stephen Markman and Paul Cassell, Justice Department officials in the Reagan administration who published a critique of the Bedau-Radelet study, challenging its methodology. Markman and Cassell re-analyzed some of the cases and argued that the innocence claims were erroneous.[27] This was followed by Bedau and Radelet's rejoinder.[28] The Bedau-Radelet and Markman-Cassell exchange was arguably the most consequential wrongful conviction scholarship in the 1980s.[29]

This early research appeared when the foundation of the innocence movement began shifting into place.[30] Innocence awareness and advocacy expanded throughout the 1990s and emerged as a national movement in

23. *Id.* at 396.

24. *Id.* at 449.

25. *Id.*

26. Hugo Adam Bedau & Michael L. Radelet, *Miscarriages of Justice in Potentially Capital Cases*, 40 STAN. L. REV. 21 (1987).

27. Stephen J. Markman & Paul G. Cassell, *Comment: Protecting the Innocent: A Response to the Bedau-Radelet Study*, 41 STANF. L. REV. 121 (1988).

28. Hugo A. Bedau & Michael Radelet, *Comment: The Myth of Infallibility: A Reply to Markman and Cassell*, 41 STAN. L. REV. 161 (1988).

29. Norris, *supra* note 2.

30. Norris, *supra* note 15.

the twenty-first century.[31] During this time, the growing list of exonerations, particularly those secured through post-conviction DNA testing, and the expansion of innocence scholarship convinced many in the legal system that wrongful convictions occur with some regularity. This "innocence consciousness"[32] viewed wrongful convictions as products of systemic and structural forces rather than random errors, simple human failures, or lax trial processes. That is, not only did wrongful convictions exist, but they might occur consistently and systematically. Such a perspective generated a complex reform agenda characterized by institutional and organizational change.[33] The search for a wrongful conviction *rate* is compatible with these ways of thinking.

B. Scholarship, Ideology, and the Wrongful Conviction Rate Question

The innocence movement's development was accompanied by an explosion of scholarship across the disciplines of law, psychology, forensic science, criminology, and others that produced thousands of articles and monographs. Most of this research examines issues related to the production of wrongful convictions to better understand their sources and prescribe error-reducing procedures.[34]

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31. Acker, *supra* note 6; Keith A. Findley, *The Federal Role in the Innocence Movement in America*, 33 J. CONTEMP. CRIM. JUST. 61 (2017); Richard A. Leo, Rethinking the Study of Miscarriages of Justice: Developing a Criminology of Wrongful Conviction, 21 J. CONTEMP. CRIM. JUST. 201 (2005); McMurtrie, *supra* note 1; Norris, *supra* note 2.

32. Zalman, *supra* note 2, at 1486.

33. Simon A. Cole, *The Innocence Crisis and Forensic Science Reform*, *in* WRONGFUL CONVICTION AND CRIMINAL JUSTICE REFORM: MAKING JUSTICE 167–85 (Marvin Zalman & Julia Carrano eds., 2014); James M. Doyle, *Learning from Error in the American Criminal Justice System*, 100 J. CRIM L. & CRIMINOLOGY 109 (2010); Findley, *supra* note 1; JON B. GOULD, THE INNOCENCE COMMISSION: PREVENTING WRONGFUL CONVICTIONS AND RESTORING THE CRIMINAL JUSTICE SYSTEM (2008); ALLISON D. REDLICH ET AL. (eds.), EXAMINING WRONGFUL CONVICTIONS: STEPPING BACK, MOVING FORWARD (2014); Rossmo & Pollock, *supra* note 7.

34. *See, e.g.*, National Research Council, *supra* note 7, at 71; Saul M. Kassin et al., *Police-Induced Confessions: Risk Factors and Recommendations*, 34 LAW & HUM. BEHAV. 3 (2010); Gary L. Wells et al., *Eyewitness Identification Procedures: Recommendations for Lineups*, 22 LAW & HUM. BEHAV. 603 (1998); Gary L. Wells et al., *Policy and Procedure Recommendations for the Collection and Preservation of Eyewitness Identification Evidence*, 44 LAW & HUM. BEHAV. 3 (2020).

Most existing innocence literature seems to assume that wrongful convictions occur in sufficient number to make innocence reforms worthwhile, and that even a small number of wrongful conviction generate substantial personal and social harm.[35] From this perspective, rate research may be marginal to the innocence movement, but is nevertheless an interesting question.

Importantly, research on the rate of wrongful conviction is, to some degree, related to scholars' ideological preferences. Some suggest that wrongful conviction is a valence issue in that no one *favors* convictions of innocent defendants.[36] However, empirical research suggests that this may be overly optimistic, as ideological considerations have been found influential in regard to both public opinion and state policy adoption in the criminal justice space generally and the wrongful conviction space specifically.[37] Further, ideological divisions reflecting crime control and due process orientations[38] appear in rate scholarship, suggesting, for example, that innocence policies weaken crime control.[39] Related to this, historical scholarship indicates long-existing divisions between *innocence believers*—those who are concerned with wrongful convictions and tend to believe that they occur with troubling frequency[40]—and *innocence skeptics*—those who believe that wrongful convictions never occur or are vanishingly rare.[41]

35. Thompson & Baumgartner, *supra* note 7.

36. Findley, *supra* note 1; Robert J. Norris et al., *Thirty Years of Innocence: Wrongful Convictions and Exonerations in the United States, 1989–2018*, 1 WRONGFUL CONVICTION L. REV. 2 (2020).

37. In the area of public opinion, see Norris & Mullinix, *Framing Innocence*, *supra* note 2, finding ideology as a predictor of criminal justice attitudes, regardless of whether or not respondents received information about wrongful convictions. For examples of politics influencing state policies related to wrongful convictions, see Stephanie L. Kent & Jason T. Carmichael, *Legislative Responses to Wrongful Conviction: Do Partisan Principles and Advocacy Efforts Influence State-Level Criminal Justice Policy?*, 52 SOC. SCI. RES. 147 (2015); William D. Hicks et al., *The Politics of Wrongful Conviction Legislation*, 21 ST. POL & POL'Y Q. 206 (2021).

38. HERBERT L. PACKER, THE LIMITS OF THE CRIMINAL SANCTION (1968).

39. Ronald J. Allen & Larry Laudan, *Deadly Dilemmas*, 41 TEX. TECH L. REV. 65 (2008).

40. BORCHARD, *supra* note 18.

41. Allen & Laudan, *supra* note 39; United States v. Garsson, 291 F. 646 (SDNY 1923) (Learned Hand); Joshua Marquis, *The Myth of Innocence*, 95 J. CRIM. L. & CRIMINOLOGY 501 (2005) [hereinafter, Marquis, *Myth*]; *see generally* D. Michael Risinger, *Innocents Convicted: An Empirically Justified Factual Wrongful Conviction Rate*, 97 J. CRIM. L. &

The ideological division between innocence believers and innocence skeptics is perhaps best exemplified in the work of Samuel Gross and Paul Cassell. Gross, an avowed liberal, expressed uneasiness when his research on the relationship of eyewitness identification and wrongful convictions failed to produce clear evidence of a causal link.[42] Rather than abandon wrongful conviction research, he pressed on. In the 1990s he argued, with some logic but without quantitative evidence, that on balance wrongful convictions may be more common in homicide prosecutions, especially where the death penalty is sought, given the unwillingness of prosecutors to drop homicide cases.[43] These articles, written when the innocence movement was just beginning to coalesce and wrongful conviction data were scattered, displayed Gross's liberal critique of capital punishment and, more relevant, anticipated his later work, which provided critical data for the innocence movement in the form of an exoneration list.[44] That work became a foundation for the National Registry of Exonerations.

On the other end of the ideological spectrum is conservative scholar Paul Cassell,[45] who, in addition to co-authoring the critique of the

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CRIMINOLOGY 761 (2007); Marvin Zalman, *The Anti-Blackstonians*, 48 SETON HALL L. REV. 1319 (2018); Marvin Zalman, *Edwin Borchard's Innocence Project: The Origin and Legacy of His Wrongful Conviction Scholarship*, 1 WRONGFUL CONVICTION L. REV. 124 (2020). Recently, Lara Bazelon wrote that "[t]here is a select but significant class of prosecutors who are innocence deniers," Lara Bazelon, *Ending Innocence Denying*, 47 HOFSTRA L. REV. 393, 396 (2018).

42. Gross, *Loss*, *supra* note 22, at 449. Gross's liberal credentials include work as a criminal defense attorney in San Francisco; an attorney with the United Farm Workers Union in California and the Wounded Knee Legal Defense Committee in Nebraska and South Dakota; a cooperating attorney with the NAACP Legal Defense and Educational Fund Inc. in New York and the National Jury Project in Oakland, California; Gross, Samuel R, University of Michigan Faculty Biographies, https://www.law.umich.edu/FacultyBio/Pages/FacultyBio.aspx? FacID=srgross.

43. Samuel R. Gross, *The Risks of Death: Why Erroneous Convictions are Common in Capital Cases*, 44 *Buff. L. Rev.* 469 (1996) [hereinafter Gross, *Risks*]; Samuel R. Gross, *Lost Lives: Miscarriages of Justice in Capital Cases*, 61 LAW & CONTEMP. PROBS. 125 (1998).

44. Gross et al., *supra* note 6.

45. Cassell's early professional history reflects a conservative background. He served as a law clerk to then-Judge Antonin Scalia on the United States Court of Appeals for the DC Circuit; law clerk for Chief Justice Warren E. Burger; associate deputy attorney general in the U.S. Department of Justice and Assistant U.S. Attorney for the Eastern District of Virginia during the Reagan administration; and was appointed to a federal district court judgeship by President George W. Bush. Paul G. Cassell, Wikipedia, https://en.wikipedia.org/wiki/Paul G. Cassell#Biography.

Bedau-Radelet study, argued early on that the risk of executing an innocent person was "too small to be a significant factor in the debate over the death penalty."[46] He later called the execution of the innocent "an urban legend,"[47] mirroring the classic notion of Judge Learned Hand, who in 1923 referred to the conviction of the innocent as "an unreal dream."[48] As the innocence movement developed and wrongful conviction denial became virtually impossible, Cassell softened his position and began writing as an innocence skeptic, a label he later adopted.[49] Two of his articles in the late 1990s, part of his attack on *Miranda*,[50] challenged the growing research on false confessions. He argued that scholars describing false confessions and urging interrogation reforms were improperly relying on anecdotal evidence instead of generating empirically valid knowledge about the statistical risk of false confessions and wrongful convictions.[51] He calculated a false confession/false conviction rate of 0.001% by multiplying (1) an estimated number of annual convictions by (2) Huff et al.'s generalized 0.5% wrongful conviction rate by (3) an estimate of voluntary versus police-induced false confessions.[52] Cassell's estimate is shaky, at best. Richard Leo and Richard Ofshe, leading interrogation scholars, critiqued the study by explaining that the number of interrogations and confessions is not known, that many false confessions go unreported, that the estimate of wrongful convictions taken from Huff et al.'s research is speculative, and more. They ultimately suggested that "Cassell's quantification scheme is merely a rhetorical device to permit

46. Markman & Cassell, *supra* note 27, at 121.

47. Paul G. Cassell, *We're Not Executing the Innocent*, WALL STREET J. (June 16, 2000) https://www.wsj.com/articles/SB961116188606389139; quoted in Morris B. Hoffman, *The Myth of Factual Innocence*, 82 CHI.-KENT L. REV. 663, 669 (2007).

48. *United States v. Garsson*, 291 F. 646, 649 (1923).

49. Paul G. Cassell, *Freeing the Guilty Without Protecting the Innocent: Some Skeptical Observations on Proposed New 'Innocence' Procedures*, 56 N.Y.L. SCH. L. REV. 1063 (2011/2012) [hereinafter Cassell, *Skeptical*].

50. Miranda v. Arizona, 384 U.S. 436 (1966).

51. Paul G. Cassell, *Protecting the Innocent from False Confessions and Lost Confessions—and from Miranda*, 88 J. CRIM. L. & CRIMINOLOGY 497, 506–12 (1998) [hereinafter Cassell, *Protecting*]; Paul G. Cassell, *The Guilty and the 'Innocent': An Examination of Alleged Cases of Wrongful Conviction from False Confessions*, 22 HARV. J.L. & PUB. POL'Y 523, 524 (1999).

52. Cassell, *Protecting*, *supra* note 49, at 513–25.

him to argue for the superiority of his policy preferences."[53] We find Leo and Ofshe's critique persuasive. Nevertheless, Cassell pressed on and became a leading voice for innocence skepticism.[54]

The interplay of ideology and scholarship is not restricted to Gross and Cassell, nor is it limited to wrongful conviction studies. Indeed, all who write about innocence in the criminal legal system (or about other legal or social topics), including ourselves, are influenced by ideological preferences.[55] Like any cognitive bias, such predilections can lead to a "fast" conclusion that can be checked, tempered, or reversed by "thinking slow."[56] Thus, while scholars, including scientists, are sometimes drawn to problems and conclusions by ideological predilections, such biases may be mitigated through the application of clear and reasonable logic, a sound understanding of disciplinary traditions and methodological constraints, and most importantly, critical evaluation by the relevant scholarly communities. In short, despite their individual preferences, researchers can and do produce theoretically sound scholarship and valid science. Still, we suggest that these considerations be kept in mind in the review of wrongful conviction rate estimates that follows.

II. MEASURING INNOCENCE: COUNTS, CORRELATES, AND RATES

Three ways of "measuring" innocence include "counting exonerations, estimating the incidence [rate] of wrongful conviction, and measuring the correlates of wrongful convictions in known exoneration cases."[57] For the innocence movement's reform agenda, the first and last—counting exonerations and examining correlates of wrongful convictions—are arguably the most important.

53. Richard A. Leo & Richard J. Ofshe, *Using the Innocent to Scapegoat Miranda: Another Reply to Paul Cassell*, 88 J. Crim. L. & Criminology 557, 562 (1998).

54. Cassell, *Skeptical*, *supra* note 49.

55. As one of us recently wrote, "every person necessarily 'carries' an ideology or political preference," Marvin Zalman, *A Brief reply to Professor Cassell*, 48 Seton Hall L. Rev. 1493, 1494 (2018).

56. Daniel Kahneman, Thinking, Fast and Slow (2011).

57. Zalman, *Measuring*, *supra* note 3, at 3047.

Exoneration counts are essentially catalogues of narratives, which may be the most effective way to communicate information about wrongful convictions and spur support for policy change.[58] From Borchard's catalogue of sixty-five cases, to compilations from the Innocence Project and the Death Penalty Information Center beginning in the 1990s, to the development of the National Registry of Exonerations in 2012,[59] case narratives and compilations have sparked interest in wrongful convictions both inside and outside the academy.[60]

Studies of wrongful conviction correlates and contributors—the most common type innocence research—are critical to the innocence movement's reform agenda. For example, social scientists, especially psychologists, have developed extensive bodies of literature on eyewitness identifications[61] and interrogations,[62] which have produced evidence-based policy suggestions for improving the accuracy of the criminal legal process. Other scholars have examined issues such as the use of criminal informants and forensic errors, which have generated suggestions for reforms that have been embraced by the innocence movement.[63]

Still, the search for a wrongful conviction rate remains a part of innocence advocacy and scholarship, whether implicitly or explicitly, and may be influential to some degree in garnering support and promoting reform.[64] Thus, although we do not necessarily agree that it is the "most

58. *See generally*, Norris & Mullinix, *Framing Innocence*, *supra* note 2.

59. Borchard, *supra* note 18; Innocence Project, https://www.innocenceproject.org/; Death Penalty Information Center, Innocence, https://deathpenaltyinfo.org/policy-issues/innocence; NRE, *supra* note 3.

60. Norris, *supra* note 2.

61. Wells et al. (1998), *supra* note 34; Wells et al. (2020), *supra* note 34.

62. *E.g.*, Kassin et al., *supra* note 34; Christian A. Meissner et al., *Accusatorial and Information-Gathering Interrogation Methods and Their Effects on True and False Confessions: A Meta-Analytic Review*, 10 J. Experimental Criminology 459 (2014).

63. Alexandra Natapoff, *Beyond Unreliable: How Snitches Contribute to Wrongful Convictions*, 37 Golden Gate U. L. Rev. 107 (2006); Cole, *supra* note 25.

64. For example, one study that compared the effects of wrongful conviction numbers and narratives on public opinion found that the presentation of numbers significantly reduced respondents' support for the death penalty (although the narrative had an even larger effect) and trust in the criminal justice system generally. The study did not explicitly provide a rate of wrongful conviction, but suggests that factual and/or statistical information may be effective at altering some attitudes and thus in promoting reform efforts. *See* Norris & Mullinix, *Framing Innocence*, *supra* note 2, 317–24.

important question about false convictions,"[65] we believe it to be worthy of discussion and analysis.

A. A Methodological Note

This is a review-of-research article, stimulated by interest in the rate question for reasons explained above.[66] We believe it is the first comprehensive review of wrongful conviction rate estimates, although several previous articles and chapters have explored aspects of this matter.[67] Research reviews, which generally examine current substantive, theoretical, and methodological aspects of a topic, have become common in medicine and science.[68] Reviews that summarize findings, often seen as meta-analyses or systematic reviews in the social sciences, are now accepted as a form of primary research which adhere to certain methodological parameters.[69] However, these terms and the rigorous standards applied to such reviews are not applicable to this review of wrongful conviction rate research.

Review studies have become critical guides to evidence-based practices and policies in many disciplines.[70] Studies in the social sciences and medical research that aim to answer specific questions with practical or policy implications often produce differing results due to natural response

65. Gross, *Convicting*, *supra* note 10, at 176.

66. See text and notes at notes 11–14 *supra*.

67. Samuel Gross, *How Many False Convictions Are There? How many Exonerations are There?*, in WRONGFUL CONVICTIONS & MISCARRIAGES OF JUSTICE: CAUSES AND REMEDIES IN NORTH AMERICAN AND EUROPEAN CRIMINAL JUSTICE SYSTEMS 45–59 (C. R. Huff & M. Killias eds., 2013); Friedman, *supra* note 12; Zalman, *Measuring*, *supra* note 3.

68. Mark Newman & David Gough, *Systematic Reviews in Educational Research: Methodology, Perspectives and Application*, *in* SYSTEMATIC REVIEWS IN EDUCATIONAL RESEARCH: METHODOLOGY, PERSPECTIVES AND APPLICATION 3 (Olaf Zawacki-Richter, Michael Kerres, Svenja Bedenlier, Melissa Bond, & Katja Buntins eds., 2020). In medicine, review studies have been traced back to the eighteenth century; Joerg J. Meerpohl et al., *Scientific Value of Systematic Reviews: Survey of Editors of Core Clinical Journals*, PLoS ONE 7(5): e35732, doi:10.1371/journal.pone.0035732 (2012).

69. Newman & Gough, *supra* note 68; a narrow majority of medical journal editors who were surveyed considered systematic reviews to be original research, Meerpohl, *supra* note 68.

70. The medical journal, SYSTEMATIC REVIEWS, true to its title, publishes systematic reviews of medical research. Methodological textbooks guide scholars and students into the conduct of systematic reviews; *see* DAVID GOUGH, SANDY OLIVER, & JAMES THOMAS, AN INTRODUCTION TO SYSTEMATIC REVIEWS (2nd ed. 2017); MARK PETTICREW & HELEN ROBERTS, SYSTEMATIC REVIEWS IN THE SOCIAL SCIENCES: A PRACTICAL GUIDE (2006).

variations among samples (e.g., responses to medications, to educational methods, and the like) and random error. Thus, researchers may compare results of studies with similar methodologies in order to observe a center-point and range.[71] Data from studies using comparable methodologies may be pooled, and researchers may perform meta-analyses, a methodology that increases statistical power and produces more precise or robust results than any single study.[72] In addition to systematic reviews and meta-analyses, the most formal and rigorous type of review study, researchers might also conduct scoping reviews (overviews of a broad field), rapid reviews (time-limited), evidence maps (visual presentation of a field), or realist reviews (exploring causal issues).[73]

Generally, scientific reviews seek objectivity by clearly stating a "set of clinically relevant questions and pre-defined criteria for study inclusion" and then including "all potentially relevant studies."[74] Systematic reviews are deemed preferable to "classical narrative reviews" when applied to controlled medical trials or experimental studies with comparable methodologies in order to "determine whether a particular type of treatment produces a particular type of effect."[75] Such reviews may be applicable to studies of wrongful conviction correlates in the fields of experimental psychology and forensic science,[76] but are not suited to reviewing the studies included in this article.

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71. For example, newspapers and newscasts often report on multiple economic or meteorological forecasts showing readers and viewers the average and range of predicted economic outcomes or storm tracks.

72. "In 25 years, meta-analysis has grown from an unheard of preoccupation of a very small group of statisticians working on problems of research integration in education and psychotherapy to a minor academic industry, as well as a commercial endeavor," Gene V. Glass, Meta-Analysis at 25 (Jan. 2000), http://www.gvglass.info/papers/meta25.html. As with any scientific methodology, meta-analysis has its own complications and controversies.

73. David Moher et al., *Editorial: All in the Family: Systematic Reviews, Rapid Reviews, Scoping Reviews, Realist Reviews, and More*, 4 SYSTEMATIC REV. 183 (2015), doi:10.1186/s13643-015-0163-7. These techniques raise a host of methodological questions and debates, *see* Meerpohl, *supra* note 68.

74. Meerpohl, *supra* note 68, at 1.

75. Martyn Hammersley, *Reflections on the Methodological Approach of Systematic Reviews*, *in* SYSTEMATIC REVIEWS IN EDUCATIONAL RESEARCH: METHODOLOGY, PERSPECTIVES AND APPLICATION 28 (Olaf Zawacki-Richter, Michael Kerres, Svenja Bedenlier, Melissa Bond, & Katja Buntins eds., 2020).

76. *See* Glinda S. Cooper & Vanessa Meterko, *Cognitive Bias Research in Forensic Science: A Systematic Review*, 297 FORENSIC SCIENCE INT'L 35 (2019); Samantha K. Brooks & Neil

The rate estimates we review below include surveys of criminal justice officials, self-report studies of convicted individuals, analyses of discrete and open-ended case datasets employing methods ranging from advanced statistical techniques to long division, and one explicitly qualitative analysis. These variations in approach and methodological technique do not allow for data-pooling. This, along with the lack of explicit theoretical bases, make direct comparisons impossible. The idea of applying systematic or other scientific review techniques is confounded by the fact that many of the studies are embedded in law review articles that weave analyses into discursive narratives.

Despite these limitations, there is value compiling and comparing research on the wrongful conviction rate question. We are confident that virtually every study exploring wrongful conviction rates in the U.S. is included. Given the various kinds of rate studies, we categorize them by type of study and evaluate their strengths and limits. Then, in Part III, we review key issues that are not adequately explored in the existing rate studies.

B. Evaluating Wrongful Conviction Rate Estimates

Estimating a wrongful conviction rate is extremely difficult, if not impossible. Indeed, the "dark figure of innocence"[77] may never be illuminated. Wrongful convictions are, by their very definition, invisible, known only years or decades later, when revealed by exoneration.[78] Furthermore, criminal appeals and post-conviction proceedings are arduous, and unreliably assess guilt or innocence, as they are designed to evaluate procedural matters.[79] Many exonerations are thus fortuitous, dependent on the

Greenberg, *Psychological Impact of Being Wrongfully Accused of Criminal Offences: A Systematic Literature Review*, 61 MED. SCI. & L. 44 (2021); Nancy K. Steblay et al., *Seventy-two Tests of the Sequential Lineup Superiority Effect: A Meta-analysis and Policy Discussion*, 17 PSYCHOL., PUB. POL'Y & L. 99 (2011); Karen J. Saywitz et al., *Effects of Interviewer Support on Children's Memory and Suggestibility: Systematic Review and Meta-Analyses of Experimental Research*, 20 TRAUMA, VIOLENCE, & ABUSE 22 (2019).

77. Bedau & Radelet, *supra* note 26, at 87.

78. Gross, *Convicting*, *supra* note 10, at 175; Samuel R. Gross & Barbara O'Brien, *Frequency and Predictors of False Conviction: Why We Know So Little, and New Data on Capital Cases*, 5 J. EMPIRICAL LEGAL STUD. 927, 928–29 (2008). Among the first 2,645 exonerations in the NRE, *supra* note 3, the average number of years lost per case was 8.9.

79. Justin Brooks et al., *If Hindsight Is 20/20, Our Justice System Should Not Be Blind to New Evidence of Innocence: A Survey of Post-Conviction New Evidence Statutes and a Proposed*

defendant's persistence, family support, successful public campaigns, later confessions from the true perpetrator, the chance discovery of exculpatory evidence, or other factors external to the justice system. Exoneration numbers may also be suppressed because of the relative scarcity of innocence organizations, the decline of local investigative news reporting to uncover cases, and prosecutors offering pleas to innocent prisoners in return for time served.[80] These institutional factors make it likely that known exonerations are a "tiny fraction of innocent defendants."[81]

The non-representativeness of known exonerations, over-weighted as they are by criminal homicides and sexual assaults, suggests that large numbers of wrongful convictions among crimes like robbery and burglary, and especially among misdemeanors, are overlooked.[82] Even if wrongful conviction rates are higher for homicide and sexual assault cases—an unproven hypothesis—the paucity of innocence organizations, the barriers to their accepting cases, the legal challenges to winning exonerations, and the triage process that directs the attention of lawyers to death penalty and lengthy-prison-sentence cases all suggest that wrongful convictions are significantly undercounted.

Ultimately, the empirical challenge in estimating a general wrongful conviction rate comes from the lack of both the proper numerator (all wrongful convictions) and proper denominator (all criminal convictions). No state or federal government maintains an official exoneration list, and no law requires governments or courts to systematically track exonerations. Thus, the closest we have to a numerator is the NRE, which is far from

Model, 79 ALB. L. REV. 1045 (2015/2016); Brandon L. Garrett, *Judging Innocence*, 108 COLUM. L. REV. 55 (2008) [hereinafter Garrett, *Judging*]; BRANDON L. GARRETT, CONVICTING THE INNOCENT: WHERE CRIMINAL PROSECUTIONS GO WRONG 178–240 (2011); James S. Liebman et al., *Capital Attrition: Error Rates in Capital Cases, 1973–1995*, 78 TEX. L. REV. 1839 (2000).

80. John H. Blume & Rebecca K. Helm, *The Unexonerated: Factually Innocent Defendants Who Plead Guilty*, 100 CORNELL L. REV. 157 (2014); Samuel R. Gross, *What We Think, What We Know and What We Think We Know About False Convictions*, 14 OHIO ST. J. CRIM. L. 753, 758–63 (2017); Rob Warden, *The Role of the Media and Public Opinion on Innocence Reform: Past and Future*, *in* WRONGFUL CONVICTION AND CRIMINAL JUSTICE REFORM: MAKING JUSTICE 39–55 (Marvin Zalman & Julia Carrano eds., 2014).

81. Gross, *supra* note 57, at 767.

82. ALEXANDRA NATAPOFF, PUNISHMENT WITHOUT CRIME: HOW OUR MASSIVE MISDEMEANOR SYSTEM TRAPS THE INNOCENT AND MAKES AMERICA MORE UNEQUAL (2018); Samuel R. Gross, *Errors in Misdemeanor Adjudication*, 98 BOSTON U. L. REV. 999 (2018).

exhaustive and likely only includes a small portion of all wrongful convictions, for the reasons discussed above.[83] Furthermore, the denominator, all criminal convictions, is difficult to access in a way that is helpful for research purposes. Although courts keep official records, they are scattered and inconsistent across jurisdictions, especially in misdemeanor cases,[84] and are often incomplete. Even if they were readily available, the most appropriate denominator is debatable, given the limitations on the numerator (as discussed above) and the time elapsed—often multiple decades—between conviction and exoneration.

Despite these challenges, scholars have attempted to estimate specific or general felony wrongful conviction rates. This literature is diverse, so direct comparisons among studies is challenging, if not impossible. We believe it better to be inclusive. Therefore, we review all writings of which we are aware that estimated a wrongful conviction rate, including one prominent piece of non-scholarly writing, and scholarship that utilizes a variety of methods, was published across disciplines, and may be agenda-driven.

The rate research we evaluate is grouped into five categories. The first are those based on discrete samples of known wrongful convictions. Second are studies drawn from less discrete samples or intended to apply globally. Third are self-report studies of people in prison. Fourth are estimates of justice system officials. And, finally, one qualitative estimate is based in part on then-existing quantitative scholarship.

C. Studies Based on Discrete Case Samples

We discuss eight articles in this section. Four were published in peer-reviewed scientific journals,[85] two in law journals,[86] and two were issued as Urban Institute reports.[87] It is worth noting that two of these articles are

83. See note and text at note 5, *supra*.

84. Natapoff, *supra* note 82, at 39–54, 251–63.

85. Gross & O'Brien, *supra* note 78; Samuel R. Gross et al., *Rate of False Conviction of Criminal Defendants Who Are Sentenced to Death*, 111 PROC. NAT'L ACAD. SCI. 7230 (2014) [hereinafter Gross et al., *Rate*]; Tony G. Poveda, *Estimating Wrongful Convictions*, 18 JUST. Q. 689 (2001); Bruce D. Spencer, *Estimating the Accuracy of Jury Verdicts*, 4 J. EMPIRICAL LEGAL STUD. 305 (2007).

86. Daniel H. Benson et al., *Executing the Innocent*, 3 ALA. CIV. RIGHTS. & CIV. LIBERTIES L. REV. 2 (2013); Risinger, *supra* note 41.

87. JOHN ROMAN ET AL., POST-CONVICTION DNA TESTING AND WRONGFUL CONVICTION (2012) https://www.urban.org/research/publication/post-conviction-dna-testing-

not "rate studies" per se, but rather attempt to calculate probabilities of an innocent person being convicted and/or executed.[88] These works vary in methodology but are unified by an understanding that exoneration lists undercount wrongful convictions and that a comprehensive census is impossible. With one exception,[89] they seem to agree that making any estimate requires a sound research strategy in which the numerator is drawn from a set of known or likely errors, and the denominator from a discrete set that includes cases not identified as wrongful convictions.[90]

The earliest study, by criminologist Tony Poveda, used two methods, one based on official statistics and one using the self-reports of people in prison (the latter is discussed in Section II.E). For the former, he drew upon an atypical 1989 report, which found that of 33 convicted people released in New York because of substantive error, "seven (21.2%) were acquitted after a new trial or after" prosecutorial dismissal.[91] He then applied this rate to a list of court-ordered prison releases from the New York Department of Correctional Services (DOCS). Of the 199 people released in 1995, "24 (12.1%) had been convicted of murder." Assuming "that only 21.2 percent of these court-ordered [murder] discharges represent substantive errors, then only five discharges represent wrongful murder convictions."[92] In other words, five was his numerator. Poveda then reasoned that "murder commitments" to DOCS, rather than court-ordered releases from custody for all reasons, is the proper denominator for calculating a wrongful conviction rate. Utilizing an independent study of the median time from conviction to reversal in New York State, he reckoned that people discharged in 1995 were incarcerated in 1992, when 357 murder commitments were made. If five of those 357 were wrongfully convicted, the error rate for homicides in New York was ***1.4 percent***.[93]

Two estimates in Urban Institute (UI) reports are based on the same set of cases. Roman et al. examined a cohort of 634 Virginia sexual assault and/

and-wrongful-conviction; KELLY WALSH ET AL., ESTIMATING THE PREVALENCE OF WRONGFUL CONVICTION (2017), https://www.ncjrs.gov/pdffiles1/nij/grants/251115.pdf.

88. Benson et al., *supra* note 86; Spencer, *supra* note 85.

89. Spencer, *supra* note 85.

90. Risinger, *supra* note 41.

91. Poveda, *supra* note 85, at 696.

92. *Id.*, at 697.

93. *Id.* at 697.

or homicide cases from 1973 to 1987 that resulted in 715 convictions.[94] These cases were ABO analyzed by one state crime lab serologist who, unlike her peers, preserved biological evidence. DNA testing, which became available after these Virginia cases were investigated and prosecuted, was performed on the cases in this unbiased sample. Determinate outcomes were produced for 250 of these convicted offenders; 38 of the 715 convicted offenders (5%) were eliminated as the source of DNA evidence, and their elimination was supported by exculpatory evidence. However, the authors noted that less than 10 percent of non-sexual-assault homicides led to a determinate result, and thus the findings for sexual assault cases are "better supported by the data."[95]

Of the 422 sexual assault convictions in the Roman et al. sample, 227 yielded determinate results. Of these, DNA tests eliminated 33 convicted persons as the source of the biological evidence, and the elimination was supported by exonerating evidence. Thus, exoneration was supported in 8 percent of all sexual assault convictions retested (33/422) and 15 percent (33/227) of those in which a determinate result was obtained. Although they are careful to note that this is "not a range" but rather "estimates for two different policy questions,"[96] they ask, "where between ***8 and 15 percent*** is the real rate of wrongful convictions?" and suggest that the answer likely lies "somewhere between the two extremes."[97]

A second UI study by Walsh et al. reviewed courthouse data "to determine if the new information influenced whether the DNA evidence supported exoneration in cases with exculpatory DNA evidence."[98] There were 231 sexual assault convictions that yielded a determinate DNA test result. The authors concluded that 29 of them (12.6%) were exculpatory and supportive of exoneration. Then, "applying inverse probability weights, the rate can be corrected to ***11.6 percent***," which the authors suggest "may be considered an upper bound on the rate of wrongful conviction" for the total sample.[99] The authors then compared the conviction and dismissal rates in Virginia to those of other states in the mid-1980s, and

94. Roman et al., *supra* note 87.
95. *Id.* at 57.
96. *Id.* at 57 n.45.
97. *Id.* at 57 (emphasis added).
98. Walsh et al., *supra* note 87, at 8.
99. *Id.* at 10 (emphasis in original).

a statistical similarity provided a limited basis for suggesting that Virginia estimates may be similar to (or lower than) other states.[100]

Several estimates have focused specifically on capital cases. Risinger examined capital rape-murder cases from 1982 to 1989. The numerator was eleven rape-murder defendants sentenced to death who were exonerated with DNA evidence during that time. Outliers convicted in 1979 and 1992 were dropped because they would bring in a larger number of denominator cases, "clearly" creating "a statistically unwarranted result."[101] To account for the chance of an incorrect DNA exoneration, the numerator was reduced somewhat arbitrarily to 10.5, producing a more conservative estimate. The denominator was derived by multiplying the proportion of rape-murder cases on select death penalty lists—21.45 percent—by the 2,235 death sentences imposed during the reference period (.2145 × 2235 = 479). This figure was then adjusted downward by one-third to indicate the proportion of cases found by the Innocence Project to have no usable DNA, yielding a denominator of 319 cases.[102] This yielded a capital rape-murder wrongful conviction rate of ***3.3 percent*** (10.5/319), which Risinger suggested was a "floor." He noted that a ceiling rate in rape-murder cases could be 5 percent, reasoning that guilt in some of the reference set cases (from which the denominator was drawn) is so apparent that DNA testing is not used, thus inflating the impact of the DNA analyses on exonerating wrongfully convicted rape-murder defendants. He warned against inferring a "global" wrongful conviction rate from this sample because it is possible or likely that wrongful conviction rates are "substructured," in that they differ across crimes. Risinger did, however, suggest that rates might be similar for other capital convictions or non-capital homicide cases.[103]

Two additional studies led by Samuel Gross examined death penalty cases. Gross and O'Brien note that after the Supreme Court decided *Furman v. Georgia*, between 1973 and 2004, 7,534 defendants were sentenced to death across the U.S. During that time period, the Death Penalty Information Center identified 111 capital exonerations, for a 1.5 percent exoneration rate (111/7534).[104] However, this figure is misleading. Those

100. *Id.* at 10–11.
101. Risinger, *supra* note 41, at 773 n.21.
102. *Id.* at 774–78.
103. *Id.* at 780–88.
104. Gross & O'Brien, *supra* note 78.

sentenced to death may be executed, die of other causes, have their sentences commuted to life, or be exonerated. The chances of exoneration for the first three groups differ, as extraordinary efforts are made to exonerate those still on death row. Additionally, the exoneration process is lengthy. As 95 percent of death row exonerees were cleared within twenty years of their conviction, the proper denominator is the 2,394 people sentenced to death from 1973 through 1984 because, "[b]y 2004, the process of identifying exonerations for these 20- [to] 30-year-old death sentences was largely complete."[105] The 54 exonerations in that set of cases generated an exoneration rate of ***2.3 percent*** (54/2394). The same exoneration rate was calculated for death sentences and exonerations from 1973 through 1989.[106]

It is important to note that Gross and O'Brien's calculations are *exoneration* rates and not *wrongful conviction* rates. The actual rate of wrongful capital conviction may be higher if some innocent death row prisoners or those with commuted sentences were unable to secure exoneration or did not participate in the arduous process altogether, or because they were executed or died from other causes. Although some among the exonerated may not have been innocent, Gross and O'Brien concluded that the probability of innocence is so high for most capital exonerees and the number of misclassifications so low, that the 2.3 percent capital exoneration rate is a good proxy for false death sentences imposed on the actually innocent.

The logic of this study was extended by Gross et al., who estimated the exoneration rate for those sentenced to death between 1973 to 2014 by separately calculating exoneration rates for those on death row or under-threat-of-execution, and for those with commuted sentences.[107] Applying statistical methods to account for changes in the number of people in these groups at different times during the study period (e.g., survival analysis, with Cox proportional hazards model and Kaplan-Meier estimates), Gross et al. found "that death sentenced defendants who are no longer under threat of execution had a rate of exoneration approximately one-eighth of that for defendants who remained on death row,"[108] and that "the cumulative probability of exoneration for death-sentenced defendants who remained under threat of execution for 21.4 y[ears] was 4.1% (with a 95%

105. *Id.* at 945.
106. *Id.*
107. Gross et al., *Rate*, *supra* note 85.
108. *Id.* at 7232.

Table 1. Summary–Rate Studies Based on Discrete Samples of Known Errors

Author(s)	*Sample Jurisdiction*	*Sample Cases*	*Rate Estimate*	*Case Inclusion Criteria*
Poveda (2001) (*see* note 85)	New York	Murders, 1992 (released in 1995)	1.4%	Wrongful conviction based on acquittal after a new trial or prosecutorial dismissal
Roman et al. (2012) (*see* note 87)	Virginia	Sexual assaults, 1973–1987	8–15%	Exculpatory DNA and supporting evidence of innocence
Walsh et al. (2017) (*see* note 87)	Virginia	Sexual assaults, 1973–1987	11.6%	Exculpatory DNA and supporting evidence of innocence
Risinger (2007) (*see* note 41)	National	Capital rape-murders, 1982–1989	3.3%	Exonerations based on DNA evidence
Gross & O'Brien (2008) (*see* note 78)	National	Capital cases, 1973–1989*	2.3%	Exonerations
Gross et al., *Rate* (2014) (*see* note 85)	National	Capital cases, 1973–2014	4.1%	Exonerations

* Gross and O'Brien's first analysis included cases through 1983, which was later extended to 1989.

confidence interval of 2.8–5.2%)."[109] Considering the net effects of misclassification, Gross et al. conclude that this ***4.1 percent*** figure is a conservative proxy for "the rate of false conviction among death-sentenced defendants."[110] Gross et al. could not estimate the number of wrongfully convicted who were executed, but speculated that although the "number is comparatively low . . . it is all but certain that several of the 1,320 defendants executed since 1977 were innocent."[111]

Two additional articles are worthy of discussion here. They are not "rate studies" in the same way as those described above, but rather, they calculate error probabilities.

Benson et al. examined Texas capital cases since 1972, classifying cases as "wrongful convictions," "exonerations," and defendants who are "actually

109. *Id.* at 7233.
110. *Id.* at 7234
111. *Id.* at 7234–35.

innocent."[112] There were thirty-four "wrongful convictions" among those the Texas Department of Criminal Justice listed as "no longer on death row."[113] Of those, twelve had been "exonerated," and among them the authors identified ten as "actually innocent."[114] Dividing those who were deemed "actually innocent" by the 1,071 people sentenced to death in Texas since 1972 yielded "a .009337 probability that someone sentenced to death in Texas is actually innocent."[115] Using this probability and the fact that there had been 486 executions since death penalty reinstatement, Benson et al. calculated a .98952 probability that an innocent person had already been executed. That is, "There is a ***99% probability*** that Texas has executed an innocent person."[116]

Spencer is unique in that he did not rely on known wrongful convictions or legally established exonerations.[117] Rather, he estimated the probability of errors in jury verdicts based on judge-jury agreement in a convenience sample of 290 trials from four state jurisdictions in 2000–2001 taken from a National Center for State Courts study, suggesting that error rates can be calculated in decisions (verdicts) without knowing the ground truth. Measuring judge-jury agreement without and with estimates of the "correct or *true* (but unobserved) state of a case"[118] resulted in estimated rates of correct decisions by juries ranging from 0.83 to 0.85, and by judges ranging from 0.87 to 0.88. Spencer estimated "the conditional probability" of a Type I error (convicting a not-guilty defendant, or a "wrongful conviction" as used in this article) at 0.25 and of a Type II error (acquitting

112. Benson et al., *supra* note 86, at 6–10. Broadly, they discuss "wrongful convictions" as those cases in which there was some type of error made, regardless of whether it led to exoneration; the number of these cases is "very large," *id*. at 8. One step further along Benson et al.'s spectrum is exonerations, which "are the few cases out of the many, many wrongful convictions that are rectified and in which defendants are granted some type of relief." They note that they "do not take exoneration as an indication of actual innocence," *id*. at 9. They focus on the more conservative cases in which the convicted person is "actually innocent," for which they claim to have relied upon "complete exoneration by DNA" and other indicators, such as a prosecutor's declaration of innocence and others, *id*. at 9–10.

113. *Id*. at 10.

114. *Id*. at 10–11.

115. *Id*. at 11.

116. *Id*. at 12 (emphasis in original).

117. Spencer, *supra* note 85.

118. *Id*. at 318 (emphasis original)

a truly guilty defendant) at 0.14.[119] The findings were not meant to be generalizable and "are no basis for action other than future studies."[120] Spencer thus provides statistical support for the notion that wrongful convictions occur in non-capital jury verdicts at rates worthy of concern. Overall, without identifying specific errors in the verdicts examined, more than 10 percent of all criminal verdicts in his sample were factually inaccurate; 25 percent of innocent defendants were convicted, and 14 percent of factually guilty defendants were acquitted.[121]

In sum, the rate studies based on the eight discrete case samples—examining the most serious criminal offenses—suggest wrongful conviction rates ranging from ***1.4 to 15 percent***. These findings do not necessarily extrapolate to lesser felonies, misdemeanors, or violations. None of the authors of the discrete sample estimates expressed negative views toward addressing wrongful conviction as a problem or toward the innocence movement; rather, they ranged from neutral to explicitly supportive. Two were explicit in their liberal views, aligning with the classic perspective of *innocence believers* as discussed earlier,[122] and two were co-authored by Samuel Gross, whose liberal views were previously described.

D. Studies Based on Less Discrete Samples

We discuss six articles in this section. Five of them were law review publications in which the rate analyses were embedded in long, discursive articles.[123] The other, Joshua Marquis's estimate, appeared in a newspaper opinion article.[124] All six were generally critical toward innocence concerns, raising many issues that express a more conservative *innocence skepticism*.

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119. Judges were estimated to have higher rates of Type I but lower rates of Type II errors. This finding is based on an estimate of jury verdicts being "incorrect 15 percent of the time" and the "estimated number of defendants who were not guilty [at] around 28 percent," *id.* at 327.

120. *Id.*

121. *Id.*

122. Benson et al., *supra* note 86; Risinger, *supra* note 41.

123. Allen & Laudan, *supra* note 39; Cassell, *Rate Estimates*, *supra* note 11; Cassell, *Overstating*, *supra* note 10; Hoffman, *supra* note 47; Thomas, *supra* note 11.

124. Joshua Marquis, *The Innocent and the Shammed*, N.Y. TIMES, Jan. 26, 2006 [hereinafter Marquis, *Innocent*], http://www.nytimes.com/2006/01/26/opinion/the-innocent-and-the-shammed.html.

Marquis, an elected prosecutor, had expressed innocence skepticism in a law review article dismissive of wrongful convictions accounts.[125] In a newspaper op-ed[126] he criticized Gross et al.'s catalogue of 340 known exonerations from 1989 through 2003.[127] Marquis calculated a wrongful conviction rate by cavalierly inflating the number of exonerations to 4,000 "innocent prisoners" as a numerator, and dividing it by a denominator of all 15 million felony convictions from 1989 to 2003, resulting in an "error rate [of] ***0.027 percent***—or . . . a success rate of 99.973 percent."[128] Marquis's optimistic estimate is unmoored and fails the most rudimentary logic and empirical review. He mixes the apples of an arbitrary, concocted numerator—exonerations drawn mostly from homicides and rapes, which constitute less than 2 percent of all felony convictions—with the oranges of a more fully inclusive denominator based on prison sentences for all kinds of felonies. He also ignores the often significant time delay between convictions and exonerations.

A review of measurement scholarship would not typically include a legal practitioner's quick calculation in an opinion piece. However, Marquis's estimate was repeated verbatim by Justice Antonin Scalia in *Kansas v. Marsh*[129] and supported by Scalia's former law clerk, Paul Cassell,[130] arguably the most prominent innocence skeptic. It also has remained influential; Marquis's basic error has been replicated by other skeptics in more elaborate forms.[131]

Building upon Marquis's folly, Hoffman asserted that wrongful conviction is a "myth" insofar as its frequency, as a proportion of all convictions, is overstated. He chastised "innocence projects across the country" for jumping "to the unsupportable conclusion that the system is in chaos and that innocent defendants are being convicted at an alarmingly high, even if never mentioned, rate."[132] He sought to rectify this by generating upper- and lower-bounds for wrongful conviction rates.

125. Marquis, *Myth*, *supra* note 41.

126. Marquis, *Innocent*, *supra* note 124.

127. Gross et al., *supra* note 6.

128. Marquis, *Innocent*, *supra* note 124, at para. 7 (emphasis added).

129. Kansas v. Marsh, 548 U.S. 163 (2006).

130. Cassell, *Overstating*, *supra* note 10, at 816.

131. Allen & Laudan, *supra* note 39; Cassell, *Overstating*, *supra* note 10; Cassell, *Rate Estimates*, *supra* note 11; Hoffman, *supra* note 47.

132. Hoffman, *supra* note 47, at 671.

Hoffman's upper-bound was derived from the fact that only about 5 percent of convictions occur via trial, while 95 percent result from guilty pleas. Assuming that 20 percent of trial convictions (1-in-5) and 1 percent of guilty pleas (1-in-100) involve innocent defendants, he calculated an upper-bound wrongful conviction rate of 1.95 percent.[133] The calculation was based on an assumption about the trial error rate and an expression of doubt (without empirical support) that the false guilty plea rate is as high as 1 percent, suggesting that he believed this upper-bound to be fanciful.

Hoffman then estimated a lower-bound error rate. He asserted that about 500 wrongful convictions had been identified between 1989 and 2003, his numerator. He divided 500 by 1.5 million, his estimate for the number of accurate trial convictions during the same time period. This yields a 0.033 percent error rate, which he then multiplied by 5 percent (the percentage of convictions occurring via trial) to yield a lower-bound error rate of 0.0016 percent (0.033×0.05). This lower-bound calculation follows a similar obvious error as Marquis, described above—a highly incomplete and unrepresentative numerator divided by a more complete (and, in Hoffman's case, assumed) denominator.[134]

Ultimately, Hoffman's calculations provide an exceedingly small and unrealistic lower-bound, and a somewhat reasonable upper-bound. And although he acknowledged that the "real wrongful conviction rate" is unknown, he believed enough in his assumptions to assert that it lies somewhere between ***0.0016 and 1.95 percent***.[135]

Allen and Laudan[136] calculate a wrongful conviction rate within a lengthy argument claiming that excessive concern with wrongful convictions will increase violent crime and death, treating the Blackstone ratio—that "it is better that ten guilty persons escape, than that one innocent suffer"[137]—as an operational justice system rule rather than a moral

133. According to Hoffman's calculations, the 1-in-5 wrongful trial convictions represents 1% of all convictions. Then, the 1-in-100 innocent pleas is multiplied by 95% (the proportion of all convictions occurring via plea bargaining), which results in 0.95%. The 1% (trials) and the 0.95% (pleas) are then added to total a 1.95% overall wrongful conviction rate, Hoffman, *supra* note 47, at 672–73.

134. *Id.* at 673.

135. *Id.*

136. Allen & Laudan, *supra* note 39.

137. William Blackstone, Commentaries on the Laws of England, Volume Iv, of Public Laws 358 ([1769] 1979).

principle.[138] They challenged Risinger's 3.3–5 percent estimate for wrongful capital rape-murder convictions because it was based only on trial verdicts, arguing that even a minuscule rate of false positive "plea cases would swamp the trial cases, resulting in a much lower error rate for convictions of rape-murder."[139] They also argued that Risinger was wrong to suggest that the rate could be extrapolated to rape, capital murder, and brutal murder convictions. Oddly and inconsistently, however, Allen and Laudan did extrapolate a general felony wrongful conviction rate from homicide, rape, and a few other cases, basing their analysis, in part, on 200 exonerations studied by Garrett.[140]

Allen and Laudan's estimate is built on assumptions that the error rate in rape trials is 5 percent, and that the ratio of pleas to trials in Garrett's DNA exoneration sample—9 out of 200 cases, or a ratio of 9 pleas to 191 trials—reflects the ratio among all wrongful convictions.[141] Without providing an explicit calculation, they appear to adjust Risinger's numerator of 10.5, adjust his denominator by borrowing from Garrett's study a "ratio of pleas to trial convictions [of] 84/16," and apply a weighted average to produce a ***0.84 percent*** error rate, or fewer than one error for every 100 convictions.[142] Risinger, in reply to Allen and Laudan, deconstructed this calculation at some length, noting that "they do not very clearly define the reference set of cases represented by these data," imply at some points that their results apply globally to all felonies, and make unwarranted assumptions about a plea bargain-to-trial ratio that represents a snapshot of fast-moving exoneration data.[143]

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138. See Zalman, *Anti-Blackstonians*, *supra* note 41.

139. Allen & Laudan, *supra* note 39, at 71.

140. Garrett, *Judging*, *supra* note 79.

141. Allen & Laudan, *supra* note 39, utilizing data from Garrett, *Judging*, *supra* note 79.

142. Allen & Laudan, *supra* note 39, at 71. Not assessed herein is other work by Laudan that assumed a wrongful conviction rate of 3% and raised a host of innocence skepticism arguments: LARRY LAUDAN, THE LAW'S FLAWS: RETHINKING TRIAL AND ERRORS? (2016); Larry Laudan, *Different Strokes for Different Folks: Fixing the Error Patterns in Criminal Prosecutions by 'Empiricizing' the Rules of Criminal Law and Taking False Acquittals Seriously*, 48 SETON HALL L. REV. 1243 (2018). For critiques, see Keith A. Findley, *Reducing Error in the Criminal Justice System*, 48 SETON HALL L. REV. 1265 (2018); Roger Koppl, *Comment on Laudan*, 48 SETON HALL L. REV. 1255 (2018); and Zalman, *Anti-Blackstonians*, *supra* note 41. For a supportive critique, see Paul G. Cassell, *Tradeoffs between Wrongful Convictions and Wrongful Acquittals: Understanding and Avoiding the Risks*, 48 SETON HALL L. REV. 1435 (2018).

143. D. Michael Risinger, *Tragic Consequences of* Deadly Dilemmas: *A Response to Allen and Laudan*, 40 SETON HALL L. REV. 991, 992–97 (2010).

The last three studies we include in this set were published in one issue of the *Arizona Law Review* and included an initial calculation by Cassell,[144] a different estimate by Thomas,[145] and a downward-reworking of Thomas's estimate by Cassell.[146]

Cassell's first estimate was based on a "component parts" analysis borrowed from Allen and Laudan, who derive a wrongful conviction rate estimate by multiplying (1) the wrongful conviction rate at trial, (2) the ratio of wrongful convictions in guilty pleas to trials, and (3) the overall ratio of wrongful convictions resulting from trial versus plea.[147]

Cassell applied numbers to these component parts based not on solid empirical data, but rather on minimalist assumptions that are in line with his innocence skepticism. He reduced Allen and Laudan's 5 percent trial error rate to 0.5 percent, based on circuitous reasoning that includes the "backing out of cases" in 2018 because of system improvements generated by DNA profiling.[148] For the ratio of wrongful convictions in guilty pleas versus trials, Cassell relied on available data from the NRE. At the time of his writing, 17 percent of NRE cases involved a plea conviction. Recognizing that the NRE figure might undercount the known ratio, he took a "conservative approach" and "increase[d] the 17% figure to 20% to guard against the possibility of underrepresentation."[149] For the third component (the overall ratio of trials to pleas), Cassell relied on the oft-reported figure that about 5 percent of convictions are the result of trials. The resulting estimate generated is thus .0000657 (.005 × (20/80) × (5/95)), or 0.00657 percent. In other words, there are "0.66 wrongful convictions out of [every] 10,000 guilty pleas."[150]

Cassell then utilizes "a weighted average to calculate the overall wrongful conviction rate," coming up with a .00031 [(.0000657 × 95/5 + .0050)/(100/5)] error rate, "or .031%, or 3.1 out of every 10,000 violent crime

144. Cassell, *Overstating*, *supra* note 10.

145. Thomas, *supra* note 11.

146. Cassell, *Rate Estimates*, *supra* note 11.

147. Cassell, *Overstating*, *supra* note 10, at 824–25; Cassell utilizes adjectives for tendentious effect, writing, e.g., that multiplying these figures produces a "straightforward weighted average." It is not clear how a straightforward weighted average differs from a weighted average.

148. *Id.* at 842–44.

149. *Id.* at 846.

150. *Id.* at 847.

convictions."[151] Cassell admits this estimate is imprecise, and "[t]o avoid any suggestion of false precision, the wrongful conviction rate might be stated as a range, running from 50% below to 100% above," suggesting an error rate range of ***0.016–0.062 percent***.[152] This estimated range utilizes little concrete empirical data and instead relies largely on assumptions. And although Cassell claims that his article estimates a rate of wrongful conviction for violent crime in order to avoid Risinger's extrapolation concern, the data for his hypothetical and assumption-driven rate estimate appears to make it global.

In the second *Arizona Law Review* article, Thomas used data from the North Carolina Innocence Inquiry Commission (NCIIC), an agency that reviews innocence claims from state-convicted petitioners. From 2007 to 2016, the NCIIC had 1,946 claims filed and closed.[153] Approximately 23 percent of those claims were procedural or otherwise did not claim "complete factual innocence,"[154] leaving 1,498 claims of potentially innocent prisoners. Thomas used evidence from two innocence organizations showing that some proportion of inmates claiming innocence ultimately have their guilt confirmed through DNA testing, which led to an estimate that 75 percent of the NCIIC claims pool was likely guilty.[155] This yielded 375 innocent claimants (.25 × 1498), to which he added 10 percent of innocent claimants who were assumed to have not filed claims (375/0.9), a largely unfounded assumption. This yielded a numerator of 417. The denominator was an estimated 160,000 North Carolina defendants who served prison sentences for felonies in the ten-year timeframe, yielding an estimated error rate of about one-fourth of 1 percent, and Thomas offers a bounded range of ***0.125–0.5 percent***. He admitted that his calculation was "only an estimate" that might differ if other assumptions are made, and that his methodology was less precise than Risinger's, but noted that it is the only estimate "based on formal claims of innocence."[156] Thomas's

151. *Id.*

152. *Id.*

153. Ten inmates were exonerated during this time, Thomas, *supra* note 11, at 871–72.

154. Thomas, *supra* note 11, at 873.

155. By Thomas's own admission, this estimate is really an assumption, as different advocates working for different innocence organizations offered wildly different estimates regarding proportions of results that come back confirming innocence versus those that are inconclusive. Thus, as Thomas wrote, "We are shooting in the dark here," *id.* at 874.

156. *Id.* at 877.

statewide estimate does not include felony convictions that did not result in prison sentences, although non-prisoners could file claims with the NCIIC but cannot receive compensation, an omission that seems to significantly undercount wrongful convictions.[157]

Cassell formally replied to Thomas and extended the analysis.[158] Based on his "sense that Thomas's final number . . . is too high,"[159] he recalculated Thomas's 0.25 percent estimate for North Carolina downward.[160] He reduced the numerator from 417 to 147 "innocents" by assuming that 90 percent of NCIIC claimants were guilty, including those who were rejected for filing incomplete questionnaires, and inflating the denominator from 160,000 to 320,000 by including the assumed number of North Carolina defendants given sentences less than prison. With these new figures, Cassell calculates an error rate in North Carolina of ***0.045 percent***, a five-fold reduction of Thomas's estimate.[161]

Finally, Cassell provided a jurisdiction-specific wrongful conviction rate for Utah of 0.033 percent, with a range of ***0.017–0.066 percent***.[162] This estimate is developed through eight pages of meandering discussion[163] in which Cassell derives a numerator from 7 or 8 publicly announced exonerations and a denominator from fuzzy statements about the number of prisoners (that is not explicitly provided) that produced this range.[164] He did indicate that his estimate, which is stated in a precise number, is only a sketchy figure: "To be clear, this Reply makes no suggestion of having definitely proven that Utah's wrongful conviction rate falls with [*sic*] the range."[165]

All of the articles described in this section contain serious methodological flaws, and the authors offered many cautions about their conclusions. Thomas, especially, cautions that his estimate may not actually capture the North Carolina wrongful conviction rate for prison sentences[166] and

157. *Id.* at 866–76, 871, 875–77.
158. Cassell, *Rate Estimates*, *supra* note 11.
159. *Id.* at 892.
160. *Id.* at 893–900.
161. *Id.*
162. *Id.* at 900–08.
163. *Id.* at 900–07.
164. *Id.* at 905–08.
165. *Id.* at 907.
166. Thomas, *supra* note 11, at 879, 884.

Table 2. Summary–Rate Studies Based on Less Discrete Samples

Author(s)	*Sample Jurisdiction*	*Rate Estimate*	*Notional (n) or Actual (a) Case Inclusions*
Marquis, *Innocent* (2006) (*see* note 124)	National	0.027%	All felony convictions (n)
Hoffman, *Myth* (2007) (*see* note 47)	National	0.0016–1.95%	All felony convictions (n)
Allen & Laudan (2008) (*see* note 39)	National	0.84%	All violent convictions (n)
Cassell, *Overstating* (2018) (*see* note 10)	National	0.016–0.062%	All violent felony convictions (n)
Thomas (2018) (*see* note 11)	North Carolina	0.125–0.5%	160,000 felons sentenced to prison, 2006–2016 (a)
Cassell, *Rate Estimates* (2018) (*see* note 11)	North Carolina	0.045%	320,000 convicted felons, 2006–2016 (a)
Cassell, *Rate Estimates* (2018) (*see* note 11)	Utah	0.017–0.066%	All felony convictions, 2008–2018 (a)

observes that some of the figures used by Allen and Laudan and by Cassell are "plucked from the air."[167] He opines, in speculation about the NCIIC's exoneration rate, that all of his assumptions "are contestable" and is willing to entertain "an error rate in processing of North Carolina felony cases of 0.06%–1%," concluding that the "reality probably lies somewhere between" his lower numbers and the 1 percent upper-bound.[168]

We would go further in issuing cautions about the rate estimates offered in these studies. All of them make assumptions that are not validated (nor inherently logical, for instance, about the rate of innocent pleas, which we discuss in Part III), and ignore things that appear to be true based on known wrongful convictions, such as the likely "substructuring" issues and the time delay we have already discussed. These major limitations call into question the "empirical" analyses that result in astoundingly low wrongful conviction rate estimates. This is perhaps part of the reason these analyses

167. *Id.* at 881.
168. *Id.* at 884.

have appeared exclusively in law reviews rather than being subjected to the peer-review process of social science journals.

Given the lack of precise data and the many assumptions that go into these non-discrete estimates, they appear to be examples of false precision. Furthermore, they express the shifting conservative ideology of innocence skeptics. Articles in the 2000s were quite hostile to the innocence movement,[169] but by the late 2010s, that attitude seems to have changed slightly, as both Thomas and Cassell acknowledge the valuable work of innocence projects and the NCIIC.[170] Still, they remain skeptical about the rate of wrongful conviction in the United States, concluding that their calculations are substantially lower than "some mainstream estimates,"[171] some of which purportedly "are less grounded in empirical evidence."[172]

Both Cassell and Thomas also agree in their belief that "the wrongful conviction rate in this country today is noticeably lower than it was several decades ago."[173] They offer two justifications for this ungrounded assertion. Thomas notes, first, that the system has improved as a result of the innocence movement's influence, and second, that error rates among plea bargains—the method by which criminal convictions overwhelmingly are obtained in the U.S.—are very low.[174] Neither of these guesses (nor their conclusions) are supported by evidence, and the second point reflects the legal community's faith that guilty pleas accurately reflect guilt, a matter we explore later.

In sum, the rate estimates based on less discrete samples and applied to a wide range of offenses in an entire state or nationally are mostly less than one-half of one percent. Hoffman's range includes both the lowest (0.0016%) and highest (1.95%) values in this set—the only ones to venture below one-one-hundredth of 1 percent and above 1 percent—but acknowledged that nobody knew where in this range the "real wrongful conviction rate lie[s]."[175] Aside from Hoffman, only Allen and Laudan ventured above

169. Allen & Laudan, *supra* note 39, at 85.

170. Thomas, *supra* note 11; Cassell, *Rate Estimates*, *supra* note 11, at 902.

171. Thomas, *supra* note 11, at 866.

172. Cassell, *Rate Estimates*, *supra* note 11, at 909.

173. Cassell, *Overstating*, *supra* note 10, at 836–37; Cassell, *Rate Estimates*, *supra* note 11, at 909.

174. Thomas, *supra* note 11.

175. Hoffman, *supra* note 47, at 673.

one-half of 1 percent. They calculated an estimated error rate of 0.84 percent, commenting, "It is hard to imagine conducting a criminal justice system that makes substantially fewer errors."[176] Apparently, however, lower rates were imaginable among other skeptics. Such low rates—even 0.84 percent or any other estimate below 1 percent—require an extraordinary amount of confidence in the criminal legal process, both in design and function. Given the many complexities of the justice apparatus, and the fact that it was designed and run by human beings who are flawed in myriad ways, it is a normative challenge at best, and a massive leap of faith at worst, to believe that the system errs with such low frequency.

E. Self-Report Studies

Two studies rely on self-reported data in estimating a wrongful conviction rate. Self-report methods shed light on covert activities and expand our understanding of crime and the justice system. Such studies are legion in medicine and psychology and have been extremely valuable in exploring many hidden issues related to crime and delinquency. Indeed, there is a parallel between the so-called "dark-figure of crime"[177] and the challenge of ascertaining a rate of wrongful conviction. Almost from the time that official statistics were first used to estimate criminality in the nineteenth century, it was apparent that far more crime was regularly committed than was reported to police or captured in court records. Addressing this gap has been a preoccupation of crime measurement for well over a century.[178] By the late twentieth century major advances in measuring crime included improvements in reporting crime to the police, victimization surveys, and self-report studies.[179] Although each method of measurement has methodological challenges, self-reported data help illuminate crime rates and

176. Allen & Laudan, *supra* note 39, at 71.

177. The "dark figure" notion has been prevalent in criminology for decades. *See generally, e.g.*, Albert D. Biderman & Albert J. Reiss, Jr., *On Exploring the "Dark Figure" of Crime*, 374 Annals Am. Acad. Pol. & Soc. Sci. 1 (1967). Interestingly, the same language has been used in regard to wrongful convictions, with scholars noting the "dark figure of innocence," Bedau & Radelet, *supra* note 26, at 83.

178. Hermann Mannheim, Comparative Criminology 99–102 (1965).

179. Robert M. Figlio, *Measurement in Criminology and Criminal Justice: A Brief 20-year Retrospective*, *in* Measuring Crime: Large-Scale, Long-Range Efforts 209, 220 (Doris Layton MacKenzie, Phyllis Jo Baunach, & Roy R. Roberg eds., 1990).

trends,[180] delinquency,[181] and rates of false admissions,[182] among many other topics.[183]

The first use of self-reported data to estimate a wrongful conviction rate was by Poveda, who reviewed a late-1970s RAND survey that included more than 2,000 convicted males in prisons and jails in three states (California, Michigan, and Texas). He explored two questions: (1) "What charge(s) were you *convicted* of that you are serving time for *now*?" and (2) "For these convictions, what crimes, if any, do you think you really did?" The second question included an option for "Did *no* crime."[184] Poveda dropped those with missing data and limited his analysis only to those incarcerated in prison (N=1,282). He found "that 197 of the 1,282 prison inmates . . . claimed that they did *not* commit the crime for which they had been convicted and imprisoned."[185] This error rate of ***15.4 percent*** did not vary widely between states. Rates did vary by offense type, however; convicted rapists claimed innocence at the highest rate (37.7%) and those convicted of drug possession provided the lowest rate (5.2%).[186]

More recently, Loeffler, Hyatt, and Ridgeway, applying a far more sophisticated and carefully constructed methodology than the RAND study, used data from the 2015–2016 Criminal Justice Experience Survey administered in Pennsylvania.[187] It asked respondents in the intake unit of the Pennsylvania prison system to list their most recent convictions, note which of those they actually committed, and answer follow-up questions about whether and why respondents thought they were rightfully or wrongfully convicted. Analyzing responses from more than 2,500 male prisoners and using statistical adjustments to estimate implausible

180. *E.g.*, James P. Lynch & Lynn A. Addington, Understanding Crime Statistics: Revisiting the Divergence of the NCVS and UCR (2006); Marvin Krohn et al., *The Development and Impact of Self-Report Measures on Crime and Delinquency*, 26 J. Quant. Criminology 509 (2010).

181. David P. Farrington et al., *Comparing Delinquency Careers in Court Records and Self-Reports*, 41 Criminology 933 (2003).

182. Allison D. Redlich et al., *Self-reported False Confessions and False Guilty Pleas among Offenders with Mental Illness*, 34 Law & Hum. Behav. 79 (2010).

183. For a discussion of the self-report method in this context, see Loeffler et al., *supra* note 11.

184. Poveda, *supra* note 85, at 699 (emphasis original).

185. *Id.* at 701 (emphasis original).

186. *Id.*

187. Loeffler et al., *supra* note 11.

Table 3. Summary–Rate Studies Based on Self-Reported Data

Author(s)	*Time Period*	*Sample Jurisdiction(s)*	*Rate Estimate*
Poveda (2001) (*see* note 85)	1970s	California, Michigan, and Texas	15.4%
Loeffler et al. (2019) (*see* note 11)	2015–2016	Pennsylvania	6%

responses, they concluded that ***6 percent*** made "consistent and plausible" claims of innocence.[188] Their substantive findings were similar to the RAND survey, in that self-report error rates varied between crime types, with the lowest rates for DUI and theft and the highest rate for rape (the latter finding being consistent with Poveda's earlier self-report findings).

These self-report studies provide an interesting and alternative approach to the estimates discussed earlier, which rely on collections of known cases. Of course, all self-reported data carry with them the possibility of flawed responses. Yet, comparing self-reported crime information with official data generally suggests that many respondents are mostly accurate in the answers they provide, and the results put to rest the notion that most people in prison claim that they are innocent. Importantly, the studies by both Poveda and Loeffler et al. suggest that reports from incarcerated individuals may highlight procedural issues. For instance, Poveda suggested that some respondents "questioned the state's classification of the crime they had committed,"[189] and Loeffler et al. noted that some "indicate that procedural weaknesses with the administration of justice occurred in their cases."[190] However, the overall results "suggest that prisoners themselves are very often willing to self-report the correctness of their convictions."[191] Thus, with rigorous design and careful analysis, the use of self-reported data is a promising path forward for wrongful conviction rate research.

F. Estimates of Officials and Defense Lawyers

The first of three rate estimates of justice officials was previously described (in Part I) and contains one of the earliest discussions of the rate question.

188. *Id.* at 261.
189. Poveda, *supra* note 85, at 702.
190. Loeffler et al., *supra* note 11, at 280.
191. *Id.*

Huff, Rattner, and Sagarin surveyed officials at a time when rate research was virtually nonexistent. Their sample of lawyers, judges, and law enforcement officials provided categorical estimates of wrongful convictions, ranging from "[l]ess than 1%" to "6–10%." Combining these results along with their own case database, Huff and colleagues did not provide a precise estimate of a wrongful conviction rate, but rather expressed confidence in a conservative estimate of about ***0.5 percent***.[192]

Ramsey and Frank, noting a great expansion of interest in and research about wrongful conviction in the two decades since Huff et al.'s work, conducted an updated replication survey of nearly 800 Ohio practitioners, including police, prosecutors, defense attorneys, and judges. Overall, respondents generally believed that wrongful convictions were exceedingly rare in felonies in their own jurisdictions (across all groups, the modal category was "Less than .5%"), but slightly higher in felony cases across the United States, ***1–3 percent***. Unsurprisingly, police and prosecutors generally suggested the lowest rates, while defense attorneys suggested the highest rates.[193]

The following year, Zalman, Smith, and Kiger replicated Ramsey and Frank's study in Michigan, a neighboring non-death-penalty state, and found similar results. Across 467 responses, practitioners generally believed that wrongful convictions rarely occurred in their own jurisdictions (ca. 0.5%), but the modal response category for errors across the United States overall was ***1–3 percent***. Interestingly, in the full sample, nearly 19 percent of responses chose a rate category above 10 percent for errors across the United States.[194]

Because these surveys report subjective perceptions of officials based on their experience and general opinions, they have been fairly criticized as inadequate estimates of wrongful conviction rates.[195] However, aside from offering rates, they provide valuable information about practitioners' perceived opinions on legal system errors, which are important in the policy

192. Huff et al., *supra* note 20.

193. Robert J. Ramsey & James Frank, *Wrongful Conviction: Perception of Criminal Justice Professionals Regarding the Frequency of Wrongful Conviction and the Extent of System Errors*, 53 CRIME & DELINQ. 436 (2007).

194. Marvin Zalman et al., *Officials' Estimates of the Incidence of 'Actual Innocence' Convictions*, 25 JUST. Q. 72 (2008).

195. Jon B. Gould & Richard A. Leo, *One-Hundred Years Later: Wrongful Convictions After a Century of Research*, 100 J. CRIM. L. & CRIMINOLOGY 825, 833 (2010).

Table 4. Summary–Rate Studies Based on Official Estimates

Author(s)	*Time Period*	*Sample Jurisdiction*	*Subjective Rate Estimate*
Huff et al. (1986) (*see* note 20)	1980s	State Attorneys General (National) and Ohio practitioners	0.5%
Ramsey & Frank (2007) (*see* note 193)	2006	Ohio	1–3%
Zalman et al. (2008) (*see* note 194)	2007	Michigan	1–3%

arena. The surveys displayed consistent differences among respondents' opinions, with defense attorneys reporting the highest rates of perceived error, and police and prosecutors reporting the lowest, and this component of practitioner surveys was analyzed separately and has been cited as a barrier to reform in subsequent policy-related analysis.[196] Similar research explores error estimates of forensic examiners.[197]

G. Qualitative Estimate

Finally, a qualitative rate estimate by Zalman[198] assumed that a general wrongful conviction rate should be lower than existing quantitative rates based on death sentences.[199] When Zalman's article was published, the highest rate estimate in death penalty cases was 2.8 percent,[200] a rate that was later superseded with an estimate of 4.1 percent (which included a 95% confidence interval of 2.8–5.2%) that used more advanced statistical

196. Brad Smith et al., *How Justice System Officials View Wrongful Convictions*, 57 CRIME & DELINQ. 663 (2009), cited in Nancy King, *Judicial Review: Appeals and Postconviction Proceedings*, *in* EXAMINING WRONGFUL CONVICTIONS: STEPPING BACK, MOVING FORWARD 217, 228 (Allison D. Redlich, James R. Acker, Robert J. Norris, & Catherine L. Bonventre eds., 2014).

197. Daniel C. Murrie et al., *Perceptions and Estimates of Error Rates in Forensic Science: A Survey of Forensic Analysts*," 302 FORENSIC SCI. INT'L (2019), https://doi.org/10.1016/j.forsciint.2019.109887.

198. Marvin Zalman, *Qualitatively Estimating the Incidence of Wrongful Convictions*, 48 CRIM. L. BULL. 221 (2012).

199. *See* Gross, *Risks*, *supra* note 43; Gross & O'Brien, *supra* note 78; Risinger, *supra* note 41.

200. See Gross & O'Brien, *supra* note 78.

analyses.[201] Although it is clear that a qualitative estimate more openly draws on a scholar's predilections and overall views of his or her area of expertise,[202] Zalman's qualitative estimate of the wrongful conviction rate took into account fingerprint error,[203] broad evidence of a seriously fragmented and flawed criminal justice system, and a journalist's systematic survey of California appellate cases showing high rates of error among prosecutors, defense attorneys, and judges.[204] Borrowing from national intelligence estimation approaches,[205] Zalman offered a then *plausible* wrongful felony conviction rate of ***0.5–1 percent*** based on available information.

III. PLEA BARGAINING AND WRONGFUL CONVICTIONS

The estimates we have reviewed generally miss or misunderstand what is arguably the most important piece of the criminal legal picture in the United States: guilty pleas. More than 90 percent of convictions in the U.S. are the result of pleas,[206] yet as of this writing, only 20 percent of

201. *See* Gross et al., *Rate*, *supra* note 85.

202. Cassell dismissed the qualitative estimate as "ultimately rest[ing] on little more than [the author's] own subjective sense of what the right figure is in this area," and then erroneously attributed criticism of practitioners' rate estimates to the qualitative estimate, Cassell, *Overstating*, *supra* note 10, at 823.

203. Simon A. Cole, *More than Zero: Accounting for Error in Latent Fingerprint Identification*, 97 J. CRIM. L. & CRIMINOLOGY 985 (2005).

204. "Flaws Exposed in California County's Courts," *NPR Morning Edition* (Jan. 26, 2006), https://www.npr.org/templates/story/story.php? storyId=5172759, discussing the original investigation by reporter Rick Tulsky, then of the *San Jose Mercury News*.

205. Zalman, *supra* note 199, at 258–61.

206. As reported by the U.S. Sentencing Commission, more than 97% of federal convictions occurred via plea; Sourcebook of Federal Sentencing Statistics at 60, Fig. 5 (2018) https://www.ussc.gov/sites/default/files/pdf/research-and-publications/annual-reports-and-sourcebooks/2019/2019-Annual-Report-and-Sourcebook.pdf. Similarly, a 2019 PEW study found that only 2% of federal criminal defendants go to trial, John Gramlich, *Only 2% of federal criminal defendants go to trial, and most who do are found guilty*, PEW RES. CTR. (June 11, 2019) https://www.pewresearch.org/fact-tank/2019/06/11/only-2-of-federal-criminal-defendants-go-to-trial-and-most-who-do-are-found-guilty/. State cases are slightly harder to unpack, but according to the National Center for State Courts, plea rates in the jurisdictions for which data are available are mostly 90% or higher, National Center for State Courts (n.d.), http://popup.ncsc.org/CSP/CSP_Intro.aspx. For example, a recent report found that as of 2019, pleas accounted for 96% of felony convictions and 99% of

known exonerations involve defendants who pled guilty.[207] Broadly speaking, there may be two general explanations for this wide disparity. The first is that innocent defendants rarely plead guilty, or at least do so at much lower rates than those at which innocents are wrongly convicted at trial. The second explanation is that the rate at which innocents plead may approach or even exceed the rate of false trial convictions, but innocent plea cases are much less likely to be uncovered and result in exoneration, therefore skewing the overall figures. These explanations are not necessarily mutually exclusive, but warrant individual discussions.

The first argument—that innocent defendants rarely plead guilty—seems the preferred one among some legal scholars and commentators. In particular, innocence skeptics tend to express a high degree of confidence in the American system of plea bargaining. For instance, Hoffman assumed a 1 percent error rate for both trials and pleas.[208] Allen and Laudan, while noting that in terms of hard numbers, even a very small proportion of innocent pleas would produce a larger number of wrongful convictions than trial errors, assumed that the 9-to-191 ratio found in Garrett's work on DNA exoneration cases holds true for all wrongful convictions.[209] Cassell adopted a similar assumption using NRE cases (17% pleas at the time), and then arbitrarily inflated the figure by a few percentage points.[210] These assumed figures are based on fortuitous plea-to-trial wrongful conviction ratios and hinge on a level of confidence in the accuracy of plea bargaining that may be unwarranted, driven more by assumptions about the criminal legal process and ideological preferences rather than empirical evidence.

The assumption that trial error rates may be higher than plea error rates is not the sole domain of innocence skeptics. Indeed, innocence believers have expressed some level of agreement with this notion, though their arguments tend to be more tempered and analytically grounded. For instance, Gross and O'Brien note that "it is entirely possible that most

misdemeanor convictions. *See* TCR Staff, *Plea Bargaining 'Weakens Integrity' of Judicial Process: Report*, THE CRIME REPORT (Mar. 26, 2021), https://thecrimereport.org/2021/03/26/plea-bargaining-weakens-integrity-of-judicial-process-report/.

207. According to the NRE dataset, as of August 5, 2021, 589 of 2,836 (20.7%) of known exonerations involved convictions via plea. *See* exonerationregistry.org.

208. Hoffman, *supra* 47, at 672 n.44.

209. Allen & Laudan, *supra* note 39, referencing Garrett, *Judging*, *supra* note 79.

210. Cassell, *Overstating*, *supra* note 10, at 845.

wrongful convictions—like 90 percent or more of all criminal convictions—are based on negotiated guilty pleas to comparatively light charges."[211] However, although "the overwhelming majority of rape convictions are obtained by guilty pleas," their data include false rape convictions mostly obtained via trials.[212] They thus argue that the *rates* of wrongful rape convictions based on pleas are likely lower than such errors at trial, suggesting the cases that go to trial are "systematically different" than those in which someone pleads guilty. The authors, however, explicitly state this notion rests on assumptions, "but no hard data."[213]

On the other hand, the second explanation for the low proportion of plea cases among known exonerations suggests that innocents do, in fact, plead guilty with some regularity, but that exonerations in such cases are relatively rare compared to trial convictions. That is, pleas may have the same or higher *wrongful conviction rates* than trials, but significantly lower *exoneration rates*. There are a number of reasons to believe this may be the case.

A. Wrongful Plea Convictions

To understand how and why wrongful convictions occur via plea bargaining, we look to the design of the practice itself. Plea bargaining is inherently coercive, to some degree, and as with suspects under interrogation,[214] some defendants may be particularly susceptible to coercion. Leo, in describing similarities between interrogations and plea bargaining, noted that both are premised "on creating resignation, fear, and the perception that the only way to mitigate punishment is by accepting the state's deal."[215] Indeed, plea bargaining essentially involves the government buying the defendant's right to trial for some price, and everyone—prosecutors, defense attorneys,

211. Gross & O'Brien, *supra* note 78, at 930.

212. *Id.*, at 939.

213. *Id.* at 939 n.26. An asserted empirical basis for an "innocence effect" by Gazal-Ayal and Tor assumes the existence of innocent defendants' pleas and is not informative of the magnitude of that effect, only that guilty plea rates are likely lower for innocent than for guilty defendants, Oren Gazal-Ayal & Avishalom Tor, *The Innocence Effect*, 62 DUKE L.J. 339 (2012).

214. Saul M. Kassin et al., *Police-Induced Confessions: Risk Factors and Recommendations*, 34 LAW & HUM. BEHAV. 3 (2010).

215. RICHARD A. LEO, POLICE INTERROGATION AND AMERICAN JUSTICE 31 (2008).

judges, and defendants—have incentives to negotiate and settle cases through pleas as opposed to trials.[216]

Thus, the likelihood of factually inaccurate convictions being obtained via plea bargaining is baked into the practice itself. In fact, Alschuler describes plea bargaining as "a nearly perfect system for convicting the innocent" and notes that "[c]onvicting defendants who would be acquitted at trial is one of the principal goals of plea bargaining."[217] This argument may be supported by one of the leading theoretical explanations of plea bargaining, *the shadow of trial model* (SOT model), which suggests that plea decisions are based on the expected outcomes at trial.[218] That is, plea decisions are rational calculations based on what those involved in the process expect to occur at trial. To offer a simplistic example, if the crime charged carries an expected sentence (if convicted at trial) of ten years, and the defendant believes there to be a 50 percent chance that they will be convicted at trial, then pleading to a sentence of five years or less represents a "rational" decision.[219] The two factors that might drive down a plea offer, then, would be a lower trial sentence or a lower probability of conviction at trial. If we assume that the probability of conviction decreases as evidence against the defendant becomes weaker—a logical assumption if conviction decisions are based on legal factors, as intended—then this suggests that prosecutors may be likely to offer the "best deals" in the weakest cases—those in which they lack evidence and may be most likely to lose at trial. It is possible, if not likely, that such "weak" cases are those most likely to involve innocent defendants. Of course, this premise is based on theoretical assumptions, but there is some support for the SOT model, at least in the aggregate.[220] Furthermore, Alschuler supports this idea using the example

216. *See generally* Allison D. Redlich et al., *The Psychology of Defendant Plea Decision-Making*, 72 Am. Psychologist 339 (2017).

217. Albert W. Alschuler, *A Nearly Perfect System for Convicting the Innocent*, 79 Alb. L. Rev. 919, 919–20 (2015/2016).

218. Regarding the *SOT model* or *shadow model*, see generally, Stephanos Bibas, *Plea Bargaining Outside the Shadow of Trial*, 117 Harv. L. Rev. 2463 (2004).

219. Shawn D. Bushway et al., *An Explicit Test of "Bargaining in the Shadow of Trial,"* 52 Criminology 723 (2014).

220. There is some discrepancy in the findings of tests of the shadow model in the aggregate and at the individual level. For more, see generally, Shawn D. Bushway & Allison D. Redlich, *Is Plea Bargaining in the 'Shadow of the Trial' a Mirage?*, 28 J. Quantitative Criminology 437 (2012); Bushway et al., *supra* note 219; Kevin Petersen et al., *Diverging from the Shadows: Explaining Individual Deviation from Plea Bargaining in the "Shadow of*

above (10-year trial sentence × 50% chance of conviction = 5-year expected sentence):

> An offer of five years . . . would leave a risk-neutral defendant indifferent between pleading guilty and standing trial, and the prosecutor hopes to avoid a trial. He does not want the defendant to be indifferent. The prosecutor therefore engages in costs bargaining as well as odds bargaining. He tailors his final offer, not to balance, but to overbalance the defendant's chances of acquittal. This prosecutor may offer four years in exchange for a plea—or two or three.[221]

Indeed, prosecutors long ago suggested that they would "reduce to almost anything rather than lose," and that "'[t]he only time [they] make a deal is when there is a weakness in the case.'"[222] Furthermore, the shadow model might also speak to prosecutorial over-charging; that is, charging higher than is reasonable to increase the expected trial value and thus incentivize the acceptance of a plea deal. Although we cannot speak to this directly, studies from outside of the innocence context have found that defendants report that the crimes to which they pled guilty more closely resemble those they actually committed, rather than those with which they were charged,[223] suggesting they perhaps were over-charged to begin with.

Additionally, psychologists have used a variety of methods to examine false guilty pleas empirically. This research has uncovered a number of reasons why defendants (both innocent and guilty) may choose to plead rather than go to trial, including pressure from others, risk aversion or avoidance, and time pressures, both in terms of the timing of a "good deal" and pressures associated with pre-trial incarceration, an important but largely understudied issue in the miscarriages of justice literature.[224]

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the Trial," J. EXPERIMENTAL CRIMINOLOGY (2020), https://doi.org/10.1007/s11292-020-09449-4.

221. Alschuler, *supra* note 217, at 920.

222. Albert W. Alschuler, *The Prosecutor's Role in Plea Bargaining*, 36 U. CHI. L. REV. 50, 59 (1968), quoting an unnamed Chicago prosecutor and an unnamed State's Attorney from Illinois.

223. Tina M. Zottoli et al., *Plea Discounts, Time-pressures and False Guilty Pleas in Youth and Adults Who Pleaded Guilty to Felonies in New York City*, 22 PSYCHOL., PUB. POL'Y, & L. 250 (2016).

224. For a review, see Miko M. Wilford & Annmarie Khairalla, *Innocence and Plea Bargaining*, *in* A SYSTEM OF PLEAS: SOCIAL SCIENCE'S CONTRIBUTIONS TO THE REAL LEGAL SYSTEM 132–50 (Vanessa Edkins & Allison Redlich eds., 2019); see also Stephanos

As with the rate of wrongful trial convictions, one thing the extant literature cannot determine with certainty is the rate at which innocent defendants plead guilty. Laboratory studies and simulations have yielded a wide range of false plea rates. A review of the literature by Wilford and Khairalla noted that innocent (i.e., false) plea rates using various methods have generally ranged from about 20 percent up to about 50 percent, whereas guilty (i.e., true) plea rates have ranged from about 70 to 90 percent.[225] However, it is important to note that the purpose of such studies is not to determine an actual rate of false guilty pleas that exists in the real world. Rather, they are generally designed to understand experimental treatment effects; that is, they manipulate various factors to better understand some of the mechanisms underlying plea decisions. It is plausible, if not likely, that these causal mechanisms hold across scenarios and transfer into the real world, regardless of the specific rates that are identified.[226] Still, the rates at which "innocents" in simulation studies are willing to accept plea deals, or more importantly the ratio of true-to-false admissions of guilt in such studies, suggests that the exceptional confidence in plea bargaining held by innocence skeptics is unwarranted. Innocents may plead guilty at significantly lower rates than guilty defendants, yet those rates may still be uncomfortably high—and much higher than the rate at which innocents are convicted at trial.

In addition to laboratory studies, several scholars have examined self-reported false guilty pleas. A survey by Zottoli and colleagues found that 19

Bibas, *Plea Bargaining's Role in Wrongful Convictions*, *in* EXAMINING WRONGFUL CONVICTIONS: STEPPING BACK, MOVING FORWARD 157–67 (Allison D. Redlich, James R. Acker, Robert J. Norris, & Catherine L. Bonventre eds., 2014); Elsa Euvrard & Chloe Leclerc, *Pre-trial Detention and Guilty Pleas: Inducement or Coercion*, 19 PUNISHMENT & SOCIETY 525 (2017); Candace McCoy, *Plea Bargaining as Coercion: The Trial Penalty and Plea Bargaining Reform*, 50 CRIM. L.Q. 67 (2005); Allison D. Redlich, *False Confessions and False Guilty Pleas: Similarities and Differences*, *in* INTERROGATIONS AND CONFESSIONS: CURRENT RESEARCH, PRACTICE AND POLICY 49–66 (G. Daniel Lassiter & Christian Meissner eds., 2010); Redlich et al., *supra* note 182; Jodi L. Viljoen et al., *Legal Decisions of Preadolescent and Adolescent Defendants: Predictors of Confessions, Pleas, Communication with Attorneys, and Appeals*, 29 LAW & HUM. BEHAV. 253 (2005); Zottoli et al., *supra* note 223.

225. Wilford & Khairalla, *supra* note 224.

226. It is also worth noting that one might normatively argue that plea rates (both true and false) found in laboratory studies actually underestimate their prevalence in the real world, as participants in laboratory studies are not faced with the greater, tangible, and stress-inducing consequences faced by actual criminal defendants.

percent of adults and 26 percent of juveniles who pled guilty said they were innocent.[227] Furthermore, Viljoen et al. found a self-report rate of 6 percent among juveniles,[228] and Redlich et al. found self-report false plea rates ranging from 27 to 41 percent among defendants suffering from mental illness.[229] Of course, as with all self-report estimates (as discussed earlier), these numbers may not represent real-world truths. However, they give us something with which to work, and highlight issues in need of further attention. For example, some defendants may be more susceptible to the coercion involved in plea bargaining, as is the case with police interrogations. Certain populations—such as juveniles or those suffering from mental illness or developmental disabilities—are particularly vulnerable to coercive interrogation techniques and thus more likely to falsely confess.[230] It is possible, perhaps likely, that a similar pattern would hold for false guilty pleas.[231]

Finally, it is worth noting that the United States allows for pleas without an admission of guilt, either through no-contest or *Alford* pleas. Using data collected by the Bureau of Justice Statistics, Redlich and Özdoğru estimated that at any given time, there may be more than 76,000 people in prison who entered *Alford* pleas and therefore claimed to be innocent.[232] While an innocent defendant taking such a route may not be categorized as a "wrongful conviction" in the traditional sense, as they do not match the criteria for exoneration as discussed earlier, such scenarios are worth bearing in mind when considering the coercive nature of plea bargaining and the likelihood of innocents accepting convictions via plea.[233]

Regardless of the specific causal mechanism, the structure and dynamics of criminal justice in the United States is designed such that pleading guilty is a realistic, and arguably the most rational and beneficial, way out for

227. Zottoli et al., *supra* note 223.

228. Viljoen et al., *supra* note 224.

229. Redlich et al., *Self-Report*, *supra* note 182.

230. Kassin et al., *supra* note 34.

231. Redlich et al., *Self-Report*, *supra* note 182.

232. Allison D. Redlich & Asil Ali Özdoğru, *Alford Pleas in the Age of Innocence*, 27 Behav. Science. & L. 467 (2009).

233. Even an *Alford*-plea supporter who is sanguine about the inevitability of wrongful convictions asserts that "it is incredibly unlikely that all 100,000 currently incarcerated defendants who accepted *Alford* pleas are guilty." *See* Michael Conklin, *The* Alford *Plea Turns Fifty: Why It Deserves Another Fifty Years*, 54 Creighton L. Rev. 1, 11 n.77 (2020).

many defendants, *be they innocent or guilty*. It is certain that some innocent defendants falsely plead guilty. As previously noted, approximately 20 percent of known exonerations (as of this writing) involved a plea, although pleas account for more than 90 percent of all convictions in the United States. If, in fact, innocent defendants accept pleas at or above the rate at which they are convicted at trial, why, then, is there such a disparity between plea convictions and plea exonerations?

B. Plea Exonerations

There are a number of likely reasons why there are relatively few plea cases among known exonerations. Some of these explanations derive from normative logic, while others stem from complex legal procedures and practical limitations.

First, the notion of an innocent person pleading guilty is counterintuitive. Simply put, if our anecdotal experiences are any indication, many individuals, be they students or members of the general public, struggle to rationalize and fully comprehend the fact that an innocent person would plead guilty and accept a punishment for a crime they did not commit. This skepticism, common among laypersons, may be persistent among legal commentators and practitioners as well.[234] As described earlier, innocence skeptics, and likely some innocence believers, continue to show a high degree of (arguably misplaced) confidence in the American system of plea bargaining as a diagnostic tool for determining guilt and innocence.[235]

Even if it is possible to move beyond people's skepticism that false guilty pleas exist, legal hurdles may reduce the likelihood of such innocents securing exoneration. For example, although a guilty plea is not necessarily an automatic waiver of appeal,[236] waiver of appellate rights is often

234. It is worth noting here that Albert Alschuler's critique of plea bargaining begins by suggesting that basic law school criminal law courses are ill-informed about the processual dynamics that produce plea bargains, and presents the question of whether plea bargaining increases the number wrongful convictions as seemingly "unanswerable," although, in his estimation, "in fact the answer is easy." Alschuler, *supra* note 217, at 919.

235. *See* DAN SIMON, IN DOUBT: THE PSYCHOLOGY OF THE CRIMINAL JUSTICE PROCESS (2012).

236. Class v. United States, 538 U.S. __, 138 S. Ct. 798, 200 L. Ed.2d 37 (2018).

a condition of plea agreements, which some have argued is coercive.[237] Certainly, appeals are a primary method to secure exoneration, so such restrictions limit the likelihood of discovering and overturning errors in many plea cases. Furthermore, even if defendants who plead guilty are able to pursue appellate claims, the appellate system in the United States is not well-designed to discover or establish factual accuracy.[238] As Brooks and colleagues stated, "The constitution only requires fair trials, not ones that get the right result."[239]

Once beyond disbelief, skepticism, and legal hurdles, innocents face a bevy of practical challenges that limit their ability to secure exoneration after pleading guilty. Gross and O'Brien noted the likelihood that the majority of wrongful convictions occur in cases in which defendants plead "to comparatively light charges."[240] If this is true, and the punishments faced by those who falsely plead guilty are relatively light in terms of the length of incarceration sentences, then such defendants are highly unlikely to have their cases reinvestigated by innocence organizations, some of which restrict the cases they accept based on sentence length or time remaining on the sentence.[241] There is also a question of motivation to pursue exoneration. Wrongfully convicted individuals who served a short sentence may be less motivated to reinvestigate the case, simply desiring to put the episode behind them, or defense attorneys may be less inclined to work on such cases knowing that other innocents are languishing in prison

237. Alexandra W. Reimelt, *An Unjust Bargain: Plea Bargains and Waiver of the Right to Appeal*, 51 B.C.L. Rev. 871 (2010).

238. Garrett, *Judging*, *supra* note 79.

239. Brooks, *supra* note 79, at 1053.

240. Gross & O'Brien, *supra* note 78, at 930.

241. This is not a critique of the processes or eligibility criteria used by innocence organizations. Case reviews are lengthy and innocence organizations have limited staffs and budgets. As a result, these organizations review only a small percentage of cases submitted; Steven A. Krieger, *Why Our Justice System Convicts Innocent People, and the Challenges Faced by Innocence Projects Trying to Exonerate Them*, 14 New Crim. L. Rev. 333, 364–88 (2011). Some innocence organizations will not take a case unless there are several years remaining on a sentence (e.g., California Innocence Project requires 3 years; Mid-Atlantic Innocence Project, substantial time left on sentence; Midwest Innocence Project, 7 years or more years; Oklahoma Innocence Project, minimum 8 to 10 years left to serve; many other innocence organizations have such requirements, while some have no sentence limit; see Innocence Network, Members https://innocencenetwork.org/members/).

or, in the most serious of cases, facing death sentences.[242] These issues are understandable—reinvestigations and appellate battles take time and require a tremendous level of effort—but by definition lead to selection bias and limit the types of cases that are likely to result in exoneration.[243]

Even if an organization or individual wishes to reinvestigate a guilty plea case, there is likely to be far less, if anything, with which to work. Plea cases often have little or no physical evidence to find, limited paper trails, and/or few official records; for a variety of reasons, less is available in plea cases than those that go to trial.[244] In such cases, securing the information necessary to win an exoneration is truly a herculean task. In addition, the reliability of any existing evidence may be difficult to assess without the benefits of a trial,[245] as pleas eschew the institutional safeguards of the adversarial process. As Redlich stated, "in the wrongful conviction cases that went to trial, the safeguards meant to identify the causal factors (e.g., eyewitness misidentification, false confessions) failed. However, in wrongful conviction cases that culminated in a plea bargain, the causal factors never had the opportunity to undergo scrutiny or challenge."[246]

It also is important to note that the problem of wrongful plea convictions is inseparable from the even-less-well-understood issue of wrongful misdemeanor convictions. Among known exonerations, serious felonies are highly overrepresented.[247] The majority of wrongful conviction research emphasizes felony convictions either explicitly or implicitly, and as we

242. Allison D. Redlich, *The Susceptibility of Juveniles to False Confessions and False Guilty Pleas*, 62 RUTGERS L. REV. 943 (2010).

243. There are many other potential reasons why wrongful convictions are suppressed or remain undiscovered, whether convicted via plea or trial. For instance, those on parole or probation may not be willing to risk incarceration for claiming innocence, or agreements leading to exoneration may hinge on a lack of publicity. We do not purport to describe all potential scenarios here, merely to highlight the fact that, in all likelihood, known exonerations almost certainly undercount and are unrepresentative of all wrongful convictions, and these issues may be exacerbated in plea cases.

244. Bibas, *supra* note 218; U.S. v. Ruiz, 536 U.S. 622 (2002).

245. DONALD J. NEWMAN, CONVICTION: THE DETERMINATION OF GUILT OR INNOCENCE WITHOUT TRIAL (1966).

246. Redlich et al., *Self-Report*, *supra* note 182, at 56.

247. As of February 22, 2020, 73.2% (1874/2559) of NRE, *supra* note 3, exonerations were for crimes of violence, including murder, manslaughter, attempted murder, child sexual abuse, sexual assault, arson, kidnapping and robbery. As of February 28, 2020, 3.6% (93/2565) of NRE exonerations were misdemeanors.

described in a previous section, the most empirically sound rate estimates have focused on specific subsets of serious cases or people incarcerated in prisons. However, millions of people in the United States are processed each year for minor or petty offenses, many of whom have inadequate or no defense counsel and almost all of whom plead guilty, often to comparatively light jail or community sentences.[248] Research has shown that misdemeanor plea hearings are on average three minutes long,[249] and significantly shorter than felony plea hearings.[250] It is impossible to know how many wrongful convictions this system produces, but the number is likely significant.[251]

The emphasis on wrongful convictions in serious cases is understandable, to some degree. In addition to legal and practical hurdles, misdemeanor cases are subject to the challenges associated with perceived consequence and urgency, as discussed above. If an innocent defendant's life is on the line in a murder case or they are threatened with a decades-long sentence for sexual assault, the consequences of an erroneous conviction are obvious and visceral. If, on the other hand, a defendant experiences a months-long period of pre-trial incarceration and ultimately agrees to a plea deal with a sentence of time served, there may be less urgency to uncover and overturn the injustice. However, if we are to truly understand wrongful convictions, we must learn more about those in lower-level offenses and those secured through plea negotiations, the primary mechanism of convictions in the U.S.

In *Lafler v. Cooper*, Supreme Court Justice Anthony Kennedy wrote that the United States has "a system of pleas, not a system of trials."[252] Despite this truth, innocence scholars have focused primarily on trial convictions, though our understanding of wrongful plea convictions is growing. In Borchard's collection of cases published in the 1930s, only three people

248. NATAPOFF, *supra* note 82.

249. Alisa Smith & Sean Maddan, *Three-minute Justice: Haste and Waste in Florida's Misdemeanor Courts* (Washington, DC: National Association of Criminal Defense Lawyers, 2011.). https://www.nacdl.org/getattachment/eb3f8d52-d844-487c-bbf2-5090f5ca4be3/three-minute-justice-haste-and-waste-in-florida-s-misdemeanor-courts.pdf.

250. Amy Dezember, et al., *Understanding Misdemeanor Guilty Pleas: The Use of Judicial Plea Colloquies to Examine Plea Validity*, Paper presented at the American Psychology Law Society conference, Portland, OR (2019).

251. See Natapoff, *supra* note 82; Gross, *supra* note 82.

252. Lafler v. Cooper, 566 U.S. 156, 170 (2012).

had pled guilty;[253] now, approximately 1-in-5 known exonerations involved a guilty plea, and more than half of those plea exonerations have occurred since 2015, suggesting an increasing awareness of and ability to identify wrongful plea convictions. Perhaps this means the disparity between the 20 percent of known exonerations and the 95 percent of convictions that involve pleas will continue to shrink, and we will continue to learn more about false guilty pleas. As it stands, however, the rate literature has largely failed to account for what is possibly the largest source of wrongful convictions.

IV. DISCUSSION AND CONCLUSION

We began this paper by asking: What is the rate of wrongful conviction in the United States? We agree with others that precisely calculating such a rate is impossible. However, the estimates that appear the most empirically sound seem to suggest that the rate, at least among certain types of felonies, may reasonably fall in the range of 3 to 6 percent.[254] Furthermore, we are fairly confident that the exceedingly low rate estimates (less than 1%) produced by innocence skeptics almost certainly underestimate wrongful convictions, perhaps by a large degree.[255] Such estimates not only contain serious methodological flaws, ungrounded assumptions, and logical fallacies, they also display a high—and in our view, unwarranted—level of confidence in the criminal process. The normative challenges associated with such low estimates are many, and include what is perhaps the most obvious—that human beings and social institutions are flawed. The notion that an apparatus as complex and dynamic as the American criminal legal system, which is designed and run by human beings, only errs in a fraction of 1 percent of the millions of cases it processes, requires tremendous confidence. This is a leap of faith we are not willing to take.

253. BORCHARD, *supra* note 18.

254. *See, e.g.*, Gross et al., *Rate*, *supra* note 85; Loeffler et al., *supra* note 11; Risinger, *supra* note 41. Importantly, the reports produced by the Urban Institute (Roman et al., *supra* note 87; Walsh et al., *supra* note 87) are well-done and exceptionally valuable. However, we hesitate to claim with confidence that the wrongful conviction rate in sexual assault cases is 8–15%.

255. *E.g.*, Allen & Laudan, *supra* note 39; Cassell, *Overstating*, *supra* note 10; Thomas, *supra* note 11; Cassell, *Rate Estimates*, *supra* note 11; Marquis, *Innocent*, *supra* note 124.

Of course, we are influenced in these views by our ideological positions, as are those whose work we critique. However, the data compiled by organizations such as the NRE, as well as the vast bodies of empirical social science research and critical legal literature, provide ample evidence that the American criminal legal system is flawed in myriad ways, and that the low rate estimates produced by innocence skeptics are more likely the artifacts of an idealized system than an empirical reality.

Regardless, we must also consider the importance of the rate question. We suggested earlier that any discussion of the rate question only makes sense in the context of the innocence movement. At the time of this writing, the movement appears alive and well. Exonerations continue to pile up, the advocacy network continues its work, reforms continue to be advanced at all levels of policy and practice, and the public is becoming increasingly aware of wrongful convictions as it permeates media and popular culture.[256] However, it is likely that the fervor of the innocence movement is somewhat removed from the rate issue; rather, it is more likely driven by the stories of the wrongly convicted, powerful narratives that prompt changes in attitudes and opinions.[257] To this end, it is fair to question whether the rate question is, in fact, the "most important question about false convictions."[258] This is not to dissuade researchers from exploring the issue further; it is an interesting and worthwhile empirical exercise. However, in the context of the innocence movement, which seeks to rectify errors and improve the system to prevent injustice, the specific rate of error may be of limited importance.

What is certain is that, even if we are optimistic about the accuracy of a "reasonable rate" of wrongful conviction, the size of the U.S. criminal legal system ensures that tens- or hundreds-of-thousands of innocents are affected. For example, if we assume only a 1 percent wrongful conviction rate—that is, our system gets it right 99 percent of the time, which we would argue is extraordinarily optimistic—there would be more than 20,000 innocent people incarcerated and more than 40,000 innocent people under community supervision in the United States.[259] And this

256. Norris et al., *supra* note 36.

257. *See generally*, Norris & Mullinix, *Framing Innocence*, *supra* note 2.

258. Gross, *Convicting supra* note 10, at 176.

259. In 2020, there were nearly 2.3 million people confined in the United States, Wendy Sawyer & Peter Wagner, *Mass Incarceration: The Whole Pie 2020*, Prison Pol'y Initiative (Mar. 24, 2020), Prisonpolicy.org/reports/pie2020.html; and at the start of 2016, there were

is to say nothing of the numbers of new wrongful convictions each year, the effects of such errors on those affected and others around them,[260] or the harm generated by the failure to capture the true perpetrators.[261]

Ultimately, it is beyond dispute that wrongful convictions occur, and that their consequences are widespread and severe. And so long as the innocence movement continues to grow and the stories of the wrongly convicted reach policymakers, practitioners, and the public, the momentum is likely to continue, regardless of the specific rate of error.

more than 4.5 million adults under community supervision, Danielle Kaeble, *Probation and Parole in the United States, 2016* (2018), bjs.gov/content/pub/pdf/ppus16.pdf.

260. Thompson & Baumgartner, *supra* note 7.

261. James R. Acker, *The Flipside Injustice of Wrongful Convictions: When the Guilty Go Free*, 76 ALB. L. REV. 1629 (2012/2013); Frank R. Baumgartner et al., *The Mayhem of Wrongful Liberty: Documenting the Crimes of True Perpetrators in Cases of Wrongful Incarceration*, 81 ALB. L. REV. 1263 (2017/2018); Robert J. Norris, *The Criminal Costs of Wrongful Convictions: Can We Reduce Crime by Protecting the Innocent?*, 19 CRIMINOLOGY & PUB. POL'Y 367 (2020).