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Trace C. Vardsveen

Tom R. Tyler

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ELEVATING TRUST IN PROSECUTORS: ENHANCING LEGITIMACY BY INCREASING TRANSPARENCY USING A PROCESS-TRACING APPROACH

Trace C. Vardsveen* and Tom R. Tyler**

The public's trust in legal authorities has declined precipitously in recent years, along with a slip in the perceived legitimacy of these authorities. Amidst growing debate about their Prosecutors are no exception. contributions to social ills like mass incarceration, prosecutors have faced mounting pressure for greater accountability in their decision-making. Studies on the police and courts provide insight into a possible solution. This body of work has long shown that a critical framework through which the public views legal authorities is the perceived fairness of their decisionmaking processes, including the provision of explanations these authorities provide for their legal decisions. Thus, accountability, legitimacy, and trust in the eves of the public rests, in part, on evaluating the fairness of decisionmaking processes, which itself requires the ability to distinguish between legal authorities' use of what the law and the public consider appropriate and inappropriate criteria when making legal decisions. Such evaluations can only occur when the factors that shape these decisions are known. Therefore, transparency in legal authorities' decision-making is core to the project of maintaining and building legitimacy and trust. However, as scholars have observed, prosecutorial decision-making largely occurs within a black box, rendering prosecutors' lack of transparency an obstacle to accountability, and in turn, legitimacy, and trust.

^{*} Postdoctoral Fellow in Law and Social Science, The Justice Collaboratory, and Lecturer in Law, Yale Law School. We sincerely thank Carissa Byrne Hessick, Steven Koh, Jennifer Laurin, Benjamin Levin, Lauren Ouziel, John Pfaff, Daniel Richman, and India Thusi for providing insightful and encouraging feedback on this work. Additionally, we thank Peter Angelica, Zenande Booi, Bennett Capers, Bruce Green, and Fordham Law School for making this symposium on "The Future of Prosecution" possible.

^{**} Macklin Fleming Professor of Law and Professor of Psychology, Yale Law School, and a Founding Director of The Justice Collaboratory.

In this Essay, we argue that an empirical methodology called "processtracing" can peer inside the black box of prosecutorial decision-making to help identify the factors that shape prosecutors' legal decisions, thus increasing transparency in their decision-making overall. As such, this methodology is helpful in several ways. First, it allows prosecutors to compare what factors actually drive their charging decisions to a normative legal framework so that they can adjust their behavior to better adhere to such standards. Second, it enables prosecutors to compare those factors with what the public considers to be important regarding prosecution. And third, it supplies prosecutors with a data-driven way to explain the reasoning behind their decisions to the public. Thus, prosecutors can highlight where their decision-making aligns with the public's views of prosecution to reinforce accountability, legitimacy, and trust. Where alignment with the public is weak, prosecutors can identify the legal factors influencing their decisions to promote accountability, legitimacy, and trust. Looking to the future of prosecution, a process-tracing approach provides a basis for a more nuanced, data-driven way to address prosecutorial reform — that is, reform grounded in the idea of building authentic trust between the public and legal authorities like prosecutors.

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INTRODUCTION

The American public's trust in legal authorities has declined precipitously in recent years, along with a slip in the perceived legitimacy of these authorities. Although this worrisome trend is most palpable in studies capturing public attitudes toward the police and courts,¹ prosecutors have found themselves increasingly thrust under the microscope of public and scholarly scrutiny as of late. Most notably, in addition to long-standing discussions about the nature and extent of prosecutorial misconduct,² there has been growing public and institutional debate over the effects of prosecutorial power on mass incarceration,³ police accountability,⁴ rampant racial disparities in criminal legal outcomes,⁵ and poverty,⁶ among other social plights plaguing the United States. As a result, prosecutors have faced

^{1.} For instance, a recent Gallup poll found that the proportion of U.S. adults expressing a "great deal" or "quite a lot" of confidence in the criminal legal system plummeted from a relative peak of 34% in 2004 to a valley of just 14% in 2022, with a drop of 10% occurring since 2020 alone. Drilling down into data on legal authorities themselves, this poll further revealed a slip in confidence in the police from a high of 64% in 2004 to a low of 45% in 2022, as well as for the U.S. Supreme Court from a summit of 58% in 1985 to a historic low of 25% in 2022, with a decline of 15% following 2020 for the latter. *See Confidence in Institutions*, GALLUP, https://news.gallup.com/poll/1597/confidence-institutions.aspx [https://perma.cc/C98J-Z884] (last visited Feb. 20, 2023).

^{2.} See, e.g., David Alan Sklansky, *The Problem with Prosecutors*, 1 ANN. REV. CRIMINOLOGY 451 (2018) (discussing at least seven observed problems with prosecutors' behavior); Bruce A. Green & Ellen Yaroshefsky, *Prosecutorial Accountability 2.0*, 92 NOTRE DAME L. REV. 51 (2016) (reviewing the history of the debate over prosecutorial misconduct).

^{3.} See, e.g., Rachel E. Barkow, Can Prosecutors End Mass Incarceration?, 119 MICH. L. REV. 1365 (2021); Shima Baradaran Baughman & Megan S. Wright, Prosecutors and Mass Incarceration, 94 S. CAL. L. REV. 1123 (2020); EMILY BAZELON, CHARGED: THE NEW MOVEMENT TO TRANSFORM AMERICAN PROSECUTION AND END MASS INCARCERATION (2019); Jeffrey Bellin, Reassessing Prosecutorial Power through the Lens of Mass Incarceration, 116 MICH L. REV. 835 (2018); Lissa Griffin and Ellen Yaroshefsky, Ministers of Justice and Mass Incarceration, 30 GEO. J. LEGAL ETHICS 301 (2017).

^{4.} See, e.g., Caleb J. Robertson, Restoring Public Confidence in the Criminal Justice System: Policing Prosecutions When Prosecutors Prosecute Police, 67 EMORY L.J. 853 (2018) (discussing the public's perception that prosecutors act in a biased way when it comes to prosecuting cases involving defendant police officers); A Crisis of Confidence in Prosecutors, N.Y. TIMES (Dec. 8, 2014), https://www.nytimes.com/2014/12/09/opinion/a-crisis-of-confidence-in-prosecutors.html [https://perma.cc/6F2G-V79W] (arguing that the disparity in indictments between cases involving defendant police officers and those not involving defendant officers has led, in part, to a decline in public confidence in prosecutors).

^{5.} See, e.g., PROGRESSIVE PROSECUTION: RACE AND REFORM IN CRIMINAL JUSTICE (Kim Taylor-Thompson & Anthony C. Thompson eds., 2022); Daniel Fryer, *Race, Reform, & Progressive Prosecution*, 110 J. CRIM. L. & CRIMINOLOGY 769 (2020); Angela J. Davis, *Reimagining Prosecution: A Growing Progressive Movement*, 3 UCLA CRIM. JUST. L. REV. 1 (2019).

^{6.} See, e.g., WENDY A. BACH, PROSECUTING POVERTY: CRIMINALIZING CARE (2022); Brie Diamond et al., Criminalizing Homelessness: Circumstances Surrounding Criminal Trespassing and People Experiencing Homelessness, 33 CRIM. JUST. POL'Y REV. 563 (2022).

mounting public pressure for greater accountability in their decision-making, raising the question of how best to go about that.

Studies on the police and courts provide insight into a possible solution.⁷ This body of work has long shown that a key framework through which the public views legal authorities is the perceived fairness of their decision-making processes, including the provision of explanations these authorities provide for their legal decisions. Thus, accountability, legitimacy, and trust in the eyes of the public rests, at least in part, on evaluating the fairness of decision-making processes, which itself requires the ability to distinguish between legal authorities' use of what the law and the public consider appropriate and inappropriate criteria when making legal decisions. Such evaluations can only occur when the factors that shape these decisions are known. Therefore, transparency in legal authorities' decision-making is core to the project of maintaining and building accountability, legitimacy, and trust.

Indeed, a rapidly expanding cohort of so-called "progressive prosecutors" have attempted to take up this project recently by advocating for⁸ or adopting⁹ a medley of progressive-minded measures. While these reform efforts have focused primarily on tempering the punitive excesses and discriminatory impact lingering from the "tough-on-crime" era,¹⁰ there have also been moderate efforts to increase transparency in prosecutors' decisions. For example, a handful of prominent prosecutors' offices across the U.S. have established online dashboards that make data on their policies,

^{7.} For detailed reviews of this literature, see TOM R. TYLER & CAROLINE NOBO, LEGITIMACY-BASED POLICING AND THE PROMOTION OF COMMUNITY VITALITY (2022); Tom R. Tyler, *Procedural Justice and Policing: A Rush to Judgment?*, 13 ANN. REV. L. & SOC. SCI. 29 (2017); Tom R. Tyler, *Enhancing Police Legitimacy*, 593 ANNALS AMERICAN ACAD. POL. & SOC. SCI. 84 (2004); TOM R. TYLER & YUEN J. HUO, TRUST IN THE LAW: ENCOURAGING PUBLIC COOPERATION WITH THE POLICE AND COURTS (2002).

^{8.} See, e.g., FAIR & JUST PROSECUTION, 21 PRINCIPLES FOR THE 21ST CENTURY PROSECUTOR (2018), https://www.fairandjustprosecution.org/staging/wp-content/uploads/2018/12/FJP 21Principles Interactive-w-destinations.pdf

[[]https://perma.cc/WH3B-4YV9] (outlining 21 principles that progressive prosecutors should promote); Letter from Roy Austin et al., Fair and Just Prosecution, to President Joseph Biden (Aug. 17, 2021), https://www.fairandjustprosecution.org/staging/wp-content/uploads/2021/08/FJP-Letter-21st-Century-Prosecution-Task-Force.pdf

[[]https://perma.cc/Y6HW-6NH9] (calling for a Presidential task force on prosecutorial reform).

^{9.} Among a rapidly growing cohort, some prominent examples include Kim Foxx (elected State's Attorney for Cook County, Illinois in 2016), Larry Krasner (elected District Attorney of Philadelphia, Pennsylvania in 2017), and Rachel Rollins (elected District Attorney of Suffolk County, Massachusetts in 2018).

^{10.} For example, many of these reforms involve expanding charging declination for select lower-level, non-violent offenses, promoting diversion and restorative justice programs, and reducing reliance on pretrial detention.

practices, and case dispositions publicly available.¹¹ But for reasons we discuss later in this Essay, these macro-level data on their own are inherently limited in answering important individual-level questions about *how* and *why* prosecutors make the decisions that they do. As such, they provide a restricted, albeit important, view of the larger picture of prosecutorial decision-making.

However, despite these reforms gaining traction in prosecutors' offices across the country, the issue of transparency in prosecutorial decisionmaking remains largely underexplored. Therefore, the current lack of transparency is an obstacle to enhancing accountability, legitimacy, and trust for prosecutors vis-à-vis the public. One major reason for this is the law itself, which grants broad discretionary power to prosecutors to carry out their duties while requiring minimal to no disclosure of the reasoning behind their decisions. Thus, the legal framework governing prosecutorial decision-making allows prosecutors to operate within what scholars have often described as a "black box."¹² Consequently, the processes driving prosecutors' decisions remain the least visible and most poorly understood among any actor in the criminal legal system, yet prosecutors' decisions are arguably the most important within this system.

Given the black box within which prosecutors currently operate, it is difficult to respond to public concerns about whether prosecutorial authority should be trusted, as well as to identify specific changes that should be made to prosecutorial policies and practices. Looking to the future of prosecution, what is needed is a clear understanding of how prosecutors actually make decisions at an individual level. As some scholars have astutely noted, "We need a way to crack open the 'black box' of prosecutorial discretion to understand how prosecutors make these life-changing decisions."¹³ We fervently echo this call and endeavor to take up its challenge. In this Essay, we propose a way to crack open what we call the *psychological* black box of prosecutorial discretion to indirectly observe the mental processes operating

^{11.} See, e.g., Colorado DA Dashboards, COLO. PROSECUTORIAL DASHBOARDS PROJECT, https://data.dacolorado.org [https://perma.cc/CR8V-QEUT] (last visited Mar. 25, 2023); Open Data, COOK CNTY. STATE'S ATTORNEY, https://www.cookcountystatesattorney.org/about/case-level-data [https://perma.cc/HXQ2-8M3A] (last visited Mar. 25, 2023); Public Data Dashboard, PHILA. DIST. ATTORNEY'S OFF., https://data.philadao.com [https://perma.cc/D9LN-DWPS] (last visited Mar. 25, 2023).

^{12.} See, e.g., Megan S. Wright, Shima Baradaran Baughman & Christopher Robertson, Inside the Black Box of Prosecutor Discretion, 55 U.C. DAVIS L. REV. 2133 (2022); Marc L. Miller & Ronald F. Wright, The Black Box, 94 IOWA L. REV. 125 (2008).

^{13.} Shima Baradaran Baughman, Christopher T. Robertson, & Megan S. Wright, *Cracking the Black Box*, INQUEST (Sept. 13, 2021), https://inquest.org/cracking-the-blackbox/ [https://perma.cc/LF84-8WFS].

when prosecutors are making legal decisions. In so doing, we focus on the "heart of the prosecutorial function:"¹⁴ the charging decision.

To that end, this Essay proceeds in several parts. In Part I, we provide an overview of the legal framework that both grants prosecutors their immense discretionary power to make charging decisions and establishes the theoretical guardrails constraining that power. We then raise the question of whether prosecutors actually adhere to this normative legal framework and turn to the small but growing empirical literature on charging practices to help find an answer. Although extensive reviews of the normative and descriptive features of prosecutorial discretion in charging decisions can be found elsewhere in the literature,¹⁵ discussion of these topics bear repeating to help contextualize and inform the empirical ideas we develop in subsequent parts of this Essay.¹⁶

In Part II, we describe the empirical methodology of "process-tracing."¹⁷ In its most basic form, this methodology involves presenting decisionmakers with various pieces of information and then assigning them the task of best using that information to make a specific decision. We argue that this methodology can be applied to prosecutors' charging decisions to ultimately reveal the various legally relevant and extra-legal factors influencing their decision-making at both conscious and unconscious levels — that is, it is a way to indirectly look inside the psychological black box of prosecutorial decision-making. In support of this claim, we outline an experimental process-tracing paradigm that combines an electronic case file management system and mouse-tracking software to map prosecutors' information search, acquisition, and use patterns across different types of criminal cases and under varying levels of discretion constraint when making charging decisions.¹⁸

^{14.} Bennett L. Gershman, *Prosecutorial Decisionmaking and Discretion in the Charging Function*, 62 HASTINGS L.J. 1259, 1260 (2011).

^{15.} See, e.g., R. MICHAEL CASSIDY & SUZANNE VALDEZ, PROSECUTORIAL ETHICS (3d ed. 2019); Cassia Spohn, *Reflections on the Exercise of Prosecutorial Discretion 50 Years after Publication of The Challenge of Crime in a Free Society*, 17 AM. Soc. CRIMINOLOGY 321 (2018).

^{16.} See infra Part I.

^{17.} Process-tracing is named after its primary methodological purpose — namely, tracing the psychological, or mental, processes of decision-makers. Note that the methodology of process-tracing as we discuss in this Essay should be distinguished from a related but distinct family of methods also called process-tracing, which other social science researchers like political scientists use to make within-case inferences about causal mechanisms operating in non-experimental, single-case research designs, often concerning qualitative or macro-scale data. *See* DEREK BEACH & RASMUS BRUN PEDERSEN, PROCESS-TRACING METHODS: FOUNDATIONS AND GUIDELINES (2d ed. 2019); PROCESS TRACING: FROM METAPHOR TO ANALYTIC TOOL (Andrew Bennett & Jeffery T. Checkel eds., 2014).

^{18.} See infra Part II.

In Part III, we discuss how the knowledge gained from this type of process-tracing approach can increase transparency in prosecutorial decision-making, and in turn, enhance accountability, legitimacy, and trust for prosecutors with respect to the public. We contend that processingtracing reveals both conscious and unconscious influences on prosecutors' decision-making, which allows them to do several key things. First, it allows prosecutors to compare what factors actually drive their charging decisions to a normative legal framework so that they can adjust their behavior to better adhere to such standards. Second, it enables prosecutors to compare those factors with what the public considers as important regarding prosecution. Third, it supplies prosecutors with a data-driven way to explain the reasoning behind their decisions to the public. Thus, prosecutors can highlight where their decision-making aligns with public views about prosecution to reinforce accountability, legitimacy, and trust. And where that alignment is weak, prosecutors can identify the legal factors influencing their decisions to promote accountability, legitimacy, and trust.¹⁹

Ultimately, we contend that addressing public discontent with the criminal legal system in general and prosecutors in particular requires bold, innovative, and collaborative solutions from scholars, practitioners, policymakers, and community members alike. The future of prosecution rests on the ability to maintain, if not increase, accountability, legitimacy, and trust in the eyes of the public. The empirical project we propose in this Essay is just one strategy among a larger constellation of approaches, that when working in combination, could help improve prosecutorial decision-making to better achieve prosecutors' goals and those of the public.²⁰

I. THE POWER OF PROSECUTORIAL DISCRETION

Discretionary power — or the exercise of choice within the bounds of one's authority — is an integral feature of the American criminal legal system. Indeed, the daily operation of this vast legal complex relies heavily upon the discretionary decisions of a host of legal authorities, among which prosecutors arguably play an outsized role.²¹ For this reason, scholars have long expressed concerns about the largely unconstrained and unreviewed discretionary power of prosecutors to make pivotal decisions throughout the lifespan of a criminal case, including the momentous choice to bring formal

^{19.} See infra Part III.

^{20.} See infra Conclusion.

^{21.} See Wright, Baughman, & Robertson, supra note 12, at 2138.

charges against an accused²² — a choice that some scholars have characterized as the most important in all of the criminal legal system.²³

However, despite these concerns and the recent shift toward prosecutorial reform to quell them, there is a relative paucity of empirical research on prosecutors' decision-making processes. Consequently, we have scant empirical evidence about how prosecutors actually wield their discretionary power to make specific legal decisions. To increase transparency in prosecutors' decision-making, and thereby, enhance their accountability, legitimacy, and trust in the eyes of the public, it is vital to understand from an empirical perspective what legally relevant and extra-legal factors drive prosecutors' decisions. To do this though, we first need to understand the normative legal framework that both grants prosecutors their discretionary power and theoretically constrains it. Then, we can leverage this framework as a basis for evaluating how prosecutors actually make charging decisions.

A. The Legal Framework Governing Prosecutors' Charging Decisions

Much of prosecutors' power regarding its charging function stems from the Supreme Court's jurisprudence. Indeed, the Court has repeatedly affirmed that prosecutors have broad discretion to make an array of charging decisions, including whether to bring charges at all. For example, the Court expressed in *Linda R. S. v. Richard D.* that a victim or other interested party has no ability to challenge a prosecutor's decision to decline prosecution.²⁴ Additionally, in cases like *Bordenkircher v. Hayes*,²⁵ the Court has supported the notion that prosecutors have immense discretion in the number and type

^{22.} See, e.g., Nicole Z. Fortier, Unfettered, Unchecked, Unopposed: The Need for Accountability and Limits, in CAN THEY DO THAT? UNDERSTANDING PROSECUTORIAL DISCRETION 25–44 (Melba V. Pearson ed., 2020); JOAN E. JACOBY & EDWARD C. RATLEDGE, THE POWER OF THE PROSECUTOR: GATEKEEPERS OF THE CRIMINAL JUSTICE SYSTEM (2016); ANGELA J. DAVIS, ARBITRARY JUSTICE: THE POWER OF THE AMERICAN PROSECUTOR (2007); Wayne R. LaFave, *The Prosecutors' Discretion in the United States*, 18 AM. J. COMP. L. 532 (1970); Richard Mills, *The Prosecutor: Charging and "Bargaining*," 1966 U. ILL. L. F. 511 (1966); Robert J. Jackson, *The Federal Prosecutor*, 31 J. CRIM. L. & CRIMINOLOGY 3, 3 (1940) (famously stating that, "[t]he prosecutor has more control over life, liberty, and reputation than any other person in American"). But for contrasting views about the extent of prosecutorial power, see Jeffrey Bellin, *Theories of Prosecution*, 108 CAL. L. REV. 1203, 1253 (2020); Jeffery Bellin, *The Prosecutors*, 94 N.Y.U. L. REV. 171, 212 (2019).

^{23.} See, e.g., Angela Davis, *The Power and Discretion of the American Prosecutor*, 49 ÉGALITÉ ET DISCRIMINATION 55, 56 (2005) ("Of the many duties and responsibilities of the prosecutor, the charging power is the most important and is the essence of her control over the entire system.").

^{24. 410} U.S. 614 (1973).

^{25. 434} U.S. 357, 364 (1978) ("So long as the prosecutor has probable cause to believe that the accused committed an offense defined by statute, the decision whether or not to prosecute, and what charge to file or bring before a grand jury, generally rests entirely in his discretion.").

of charges they bring so long as they have probable cause to do so. Thus, the Court has arguably established a presumption of legality regarding prosecutors' charging decisions — and other choices — that seeds and maintains the grounds for the predominantly unchecked and unreviewed black box nature of prosecutorial decision-making.

Yet, as unbridled as prosecutors' discretionary power appears, there is still a loose legal framework of constitutional constraints and ethical guidelines that theoretically governs their charging decisions. Notably, the Court has extended the Equal Protection guarantee of the Fifth and Fourteenth Amendments to charging practices, holding that prosecutors may not engage in "selective prosecution" based on constitutionally protected factors, such as race, religion, and any other arbitrary classification.²⁶ In a similar vein, the Court has extended the Due Process protection of the Fifth and Fourteenth Amendments to charging decisions, ruling that prosecutors may not engage in "vindictive prosecution" in retaliation for an accused exercising his or her constitutional or statutory rights, such as the right to appeal.²⁷

As general as these constitutional constraints are and as eroded as they have become over the decades, they do provide some basic guardrails around prosecutorial charging decisions. Therefore, they can provide one source of normative comparison for evaluating whether prosecutors rely on legally relevant or extra-legal factors when making charging decisions.

In contrast to these hard law constraints, looser ethical guidelines arguably hold the potential to structure prosecutors' decision-making in a more substantial way by providing specific factors on which prosecutors can focus. For instance, Section 4-2.4 of the National District Attorneys Association (NDAA) Standards for local and state prosecutors enumerates a set of factors prosecutors may consider when deciding to file charges, including: (1) the nature and severity of the offense; (2) the probability of conviction; (3) the characteristics of the accused that are relevant to his or

^{26.} See Oyler v. Boles, 368 U.S. 448, 506 (1962); United States v. Batchelder, 442 U.S. 114, 125 n.9 (1979). However, the Court has reigned in the practical effect of this constitutional protection over the years. See Wayte v. United States, 470 U.S. 598, 610 (1985) (stating that a defendant must prove both a discriminatory effect and discriminatory intent regarding charging decisions); United States v. Armstrong, 517 U.S. 456, 456 (1996) (finding that a defendant must make a threshold showing that the Government declined to prosecute similarly situated individuals of another race if claiming to have been singled out for prosecution based on race).

^{27.} See, e.g., Blackledge v. Perry, 417 U.S. 21, 28–29 (1974). However, the Court has also blunted the impact of this protection by substantially limiting its application in pre-trial contexts, particularly regarding the practice of charge or plea bargaining. See United States v. Goodwin, 457 U.S. 368, 369 (1982) (noting that the presumption of vindictiveness is not warranted when a defendant is indicted on a more severe felony charge after failed plea negotiations).

her culpability; (4) the potential deterrent value of prosecuting the accused; (5) the benefit to society of incapacitating the accused if convicted; (6) the willingness of the accused to cooperate with law enforcement; (7) the accused's level of culpability in committing the offense; (8) the status of the victim, including his or her age and level of vulnerability; (9) whether the accused held a position of trust at the time of the offense; (10) the costs of prosecution in relation to the seriousness of the offense; (11) the recommendation of participating law enforcement; (12) the impact of the offense on society or the community; and (13) any other aggravating or mitigating circumstances.²⁸

Furthermore, Section 4-3.2 of the NDAA standards provides additional guidance, suggesting that prosecutors should consider the availability and effectiveness of non-prosecution alternatives, such as diversion programs, to address the conduct at issue.²⁹ Moreover, Section 4-1.4 of these standards prohibits consideration of "[c]haracteristics of the accused that have been recognized as the basis for invidious discrimination, insofar as those factors are not pertinent to the elements or motive of the crime,"³⁰ thereby, enshrining the constitutional spirit of equal protection in the standards. The U.S. Justice Department Manual for federal prosecutors³¹ and the American Bar Association (ABA) Model Rules of Professional Conduct³² lay out similar guidelines. In fact, Rule 3.8(a) of the ABA's Model Rules also reinforces the Courts ruling in *Bordenkircher v. Hayes* by prohibiting the initiation or continuation of prosecution without probable cause.³³

In principle, this normative legal framework comprised of constitutional constraints and ethical guidelines — as skeletal as it is — should influence prosecutors' charging decisions from a descriptive perspective. Thus, this body of hard and soft law provides a clear basis for empirically testing and evaluating whether prosecutors employ their discretionary power in a legally appropriate or inappropriate manner. More specifically, if these rules and guidelines are having the intended effect of constraining prosecutorial decision-making, then we should observe only legally appropriate considerations driving charging decisions, and not extra-legal factors.

To date, unveiling what factors — whether legally relevant or extra-legal — actually drive prosecutors' decisions has proven to be a challenge. This is due, in part, to prosecutorial decision-making operating not within one

^{28.} NAT'L DIST. ATT'YS ASS'N, NATIONAL PROSECUTION STANDARDS, at Standard 4-2.4 (2009).

^{29.} Id. at Standard 4-3.2.

^{30.} Id. at Standard 4-1.4.

^{31.} U.S. Justice Dept. Manual for Federal Prosecutors §§ 9-27.230-.260 (2018).

^{32.} MODEL RULES OF PRO. CONDUCT r. 8.4 (AM. BAR ASS'N 2020). .

^{33.} Id. r. 3.8(a).

black box, but rather within two distinct yet connected types of black box. One type is what we characterize as a *structural* black box. This black box refers to all of the policies, norms, and social dynamics present within prosecutors' offices, but that which are largely hidden from the public's view. This is the type of black box that most scholars have discussed heretofore and at which the progressive prosecutor movement has largely targeted its reform efforts.³⁴ The other type of black box, which is more important for the purposes of this Essay, is what we call the *psychological* black box. This black box concerns all of a prosecutor's conscious and unconscious mental processes at play while making legal decisions.

While the progressive prosecutor movement has made strides in attempting to open up prosecutors' structural black box by advocating for the public release of data on prosecutors' office policies, practices, and case outcomes, this type of aggerated, macro-level data does not reveal sufficient information about what is going on beneath the veil of the second type of black box.³⁵ In other words, macro-level data can provide structural transparency about an organization but is limited in its ability to reveal *how* and *why* the actors within that organization behave in the ways that they do. To get at this deeper layer of transparency, we need a psychological methodology like process-tracing, which focuses on decision-makers' mental processes during decision tasks. But before we describe process-tracing in more detail, we turn next to the growing empirical literature on prosecutorial charging decisions to get a sense of how closely prosecutors adhere to the normative framework outlined above.

B. The Prior Empirical Work on Prosecutors' Charging Decisions

Unlike other actors operating in the criminal legal system, such as judges, law enforcement officers, and jurors, there is a dearth of research on prosecutors and their decision-making processes. This is due not only to the nature of prosecutors' black box decision-making, but also to prosecutors being a relatively inaccessible group of legal authorities without proxies that researchers can easily study — as is commonly the case with jury-eligible community members filling in for actual jurors in mock juror/jury studies.³⁶ Despite these obstacles, researchers have built up a small body of empirical

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^{34.} See, e.g., Miller & Wright, supra note 12.

^{35.} See, e.g., PRERNA JAGADEESH ET AL., A NEW GENERATION OF PROSECUTORS IS LEADING THE CHARGE TO REIMAGINE PUBLIC SAFETY (2021), https://www.filesforprogress.org/memos/new-generation-of-prosecutors-reimagine-public-safety.pdf [https://perma.cc/JT9V-DVX8].

^{36.} For a detailed review of the empirical juror and jury decision-making literature, see DENNIS J. DEVINE, JURY DECISION MAKING: THE STATE OF THE SCIENCE (2012).

work on prosecutors' charging decisions over the decades.³⁷ This literature provides some insight into whether prosecutors follow the normative legal framework — mostly the constitutional proscriptions on certain behaviors — theoretically constraining their decision-making.

For instance, studies have found that prosecutors frequently exercise their discretion to reject cases for prosecution,³⁸ which appears to be partially driven by the attempt to avoid uncertainty in cases where conviction at trial is unlikely or uncertain.³⁹ Additionally, these studies commonly show that prosecutors' charging decisions are impacted in the legally appropriate direction by the strength of evidence in a case,⁴⁰ the seriousness of the crime alleged,⁴¹ and assessments of the accused's culpability in committing that offense.⁴² Importantly, all of these factors are captured by current prosecutorial guidelines, such as the NDAA Standards, which bolsters support for them as a normative model to follow.⁴³ Thus, this string of studies suggests that some of the legally relevant factors outlined in the normative legal framework for prosecutor's charging practices do influence prosecutors' decision to file charges to some extent.

However, this same body of research also shows that extra-legal factors sometimes play a significant role in charging practices. For example, studies have found that the race of an accused and a victim can influence prosecutors' assessments of convictability, along with their charging practices. Specifically, there is evidence that prosecutors are more likely to file charges against minority group members, especially those who are Black

^{37.} See, e.g., Spohn, supra note 15.

^{38.} See, e.g., Cassia Spohn, Dawn Beichner & Erika Davis-Frenzel, Prosecutorial Justifications for Sexual Assault Case Rejection: Guarding the "Gateway to Justice," 48 Soc. PROBS. 206 (2001); Frank J. Remington, The Decision to Charge, the Decision to Convict on a Plea of Guilty, and the Impact of Sentence Structure on Prosecution Practices, in DISCRETION IN CRIMINAL JUSTICE: THE TENSION BETWEEN INDIVIDUALIZATION AND UNIFORMITY 73–134 (Lloyd E. Ohlin & Frank J. Remington eds., 1993).

^{39.} See, e.g., Celesta A. Albonetti, Prosecutorial Discretion: The Effects of Uncertainty, 21 L. & Soc. Rev. 291 (1987); Celesta A. Albonetti, Criminality, Prosecutorial Screening, and Uncertainty: Toward a Theory of Discretionary Decision Making in Felony Case Processings, 24 CRIMINOLOGY 623 (1986).

^{40.} See, e.g., Rodney F. Kingsnorth et al., Domestic Violence: The Role of Interracial/Ethnic Dyads in Criminal Court Processing, 17 J. CONTEMP. CRIM. JUST. 123 (2001); Rodney Kingsnorth, John Lopez, Jennifer Wentworth, & Debra Cummings, Adult Sexual Assault: The Role of Racial/Ethnic Composition in Prosecution and Sentencing, 26 J. CRIM. JUST. 359 (1998).

^{41.} See, e.g., Kris Henning & Feder Lynette, Criminal Prosecution of Domestic Violence Offenses: An Investigation of Factors Predictive of Court Outcomes, 32 CRIM. JUST. & BEHAV. 112 (2005); Celesta A. Albonetti, Charge Reduction: An Analysis of Prosecutorial Discretion in Burglary and Robbery Cases, 8 J. QUANTITATIVE CRIMINOLOGY 317 (1992).

^{42.} See, e.g., Janell Schmidt & Ellen Hochstedler Steury, *Prosecutorial Discretion in Filing Charges in Domestic Violence Cases*, 27 CRIMINOLOGY 487 (1989).

^{43.} See NAT'L DIST. ATT'YS ASS'N, supra note 28.

Nonetheless, the bulk of these studies are limited in several important ways. First, they rely predominately on archival, or macro-level, data gathered from governmental databases and prosecutors' offices.⁴⁷ As such, their findings are limited by what data is publicly available. This typically means that these studies empirically test more traditional input-and-output models of decision-making, which do not capture the mental processes (such as, the perceptions and judgments of prosecutors) operating in the middle of those inputs (such as, the evidence in a case) and the output (such as, the charging decision). Second, because these studies rely mostly on archival data, they are largely correlational in nature.⁴⁸ Thus, one cannot draw strong causal inferences about the relationships between the variables captured in them. And finally, many of these studies focus on specific offense types, such as child abuse, domestic violence, and sexual assault. In other words, they only capture a slice of the broader range of offenses prosecutors deal with on an everyday basis, such as property offenses.⁴⁹

^{44.} See, e.g., Cassia Spohn, John Gruhl, & Susan Welch, *The Impact of the Ethnicity and Gender of Defendants on the Decision to Reject or Dismiss Felony Charges*, 25 CRIMINOLOGY 175 (1987). However, other studies have not found an influence of race on charging practices in federal cases. *See, e.g.*, Lauren O'Neill Sheerer & Brian D. Johnson, *Criminal Prosecutions: Examining Prosecutorial Discretion and Charge Reductions in U.S. Federal District Courts*, 27 JUST. Q. 394 (2009).

^{45.} See, e.g., David C. Baldus & George Woodworth, Race Discrimination and the Legitimacy of Capital Punishment: Reflections on the Interaction of Fact and Perception, 53 DEPAUL L. REV. 1411 (2003).

^{46.} See, e.g., Kingsnorth et al., supra note 40.

^{47.} In particular, many of the studies found in the literature on prosecutorial decisionmaking use a non-experimental and non-survey-based methodology for collecting data. *See, e.g.*, Spohn et al., *supra* note 44, at 179 (detailing that their data came from the Patient-Reported Outcomes Measurement Information System (PROMIS) database provided by the Los Angeles County District Attorney's Office); O'Neill Sheerer et al., *supra* note 44, at 407 (noting that their data came from the Federal Justice Statistics Program, which collates data from multiple federal agencies, such as the Administrative Office of the United States Courts (AOUSC) and the United States Sentencing Commission (USSC)).

^{48.} See id. Additionally, for a detailed discussion of correlational, quasi-experimental, and experimental methodologies and their trade-offs, see WILLIAM R. SHADISH, THOMAS D. COOK, & DONALD T. CAMPBELL, EXPERIMENTAL AND QUASI-EXPERIMENTAL DESIGNS FOR GENERALIZED CAUSAL INFERENCE (2002).

^{49.} For an overview of the most commonly reported crimes in the United States as recorded by the Federal Bureau of Investigation and the Bureau of Justice Statistics, see John Gramlich, *What the Data Says (and Doesn't Say) about Crime in the United States*, PEW RSCH. CTR. (Nov. 20, 2020), https://www.pewresearch.org/short-reads/2020/11/20/facts-about-crime-in-the-u-s/ [https://perma.cc/R5X5-67G8].

However, more recent studies have attempted to overcome these limitations by employing increasingly sophisticated methodologies to drill down on factors that causally impact charging decisions. Notably, as part of a large-scale, multi-method study of prosecutorial discretion, Frederick and Stemen had a sample of prosecutors read ten case vignettes that varied offense seriousness, the strength of evidence, and the accused's race.⁵⁰ These prosecutors then made charging decisions for each case. Among other results, they found that prosecutors accepted a majority of the cases for prosecution and that the number and severity of charges recommended increased commensurate with offense seriousness and the strength of evidence.⁵¹ In contrast, the accused's race showed no effect on charging decisions.⁵²

In a similar experimental study, Robertson, Baughman, and Wright randomly assigned prosecutors to review case vignettes that varied an accused's race and class status.⁵³ These prosecutors also made charging decisions in the cases and indicated what punishment they would seek if ultimately deciding to proceed with prosecution. Consistent with Frederick and Stemen,⁵⁴ they found effects for neither race nor class status.⁵⁵ However, in a follow-up study, Wright, Baughman, and Robertson did find surprisingly severe charging behavior in cases involving less serious offenses that did not cause physical injury to the victim.⁵⁶ Notably, prosecutors used their discretion to recommend more charges than would be expected given that the accused's lack of criminal history and presentation of mental illness.⁵⁷

Together, these lines of empirical work — both correlational and experimental — paint a complicated picture of the role that legally relevant and extra-legal factors play in prosecutors' charging decisions. Though they provide a great deal of insight into prosecutors' charging practices and preferences, no research to date has investigated the psychological mechanisms driving charging decisions in a detailed way. While the structural black box has been breached to some degree, the psychological black box of prosecutorial decision-making remains to be cracked open. Moreover, no studies to date have examined whether prosecutors rely on

^{50.} See Bruce Frederick & Don Stemen, The Anatomy of Discretion: An Analysis of Prosecutorial Decision Making—Technical Report iii (2012).

^{51.} See id.

^{52.} See id.

^{53.} See Christopher Robertson, Shima Baradaran Baughman, & Megan S. Wright, *Race and Class: A Randomized Experiment with Prosecutors*, 16 J. EMPIRICAL LEGAL STUDS. 807, 818–20 (2019).

^{54.} See FREDERICK & STEMEN, supra note 50.

^{55.} See Robertson, Baughman & Wright, supra note 53, at 843-45.

^{56.} See Wright, Baughman & Robertson, supra note 12, at 2201-02.

^{57.} See id.

legally appropriate criteria to a greater or lesser degree under different levels of discretion constraint — that is, when charging factors are merely recommended as guidelines versus being mandated for consideration.

To help fill these gaps, we turn next to exploring a process-tracing approach to peer deeper into the psychological black box of prosecutors' decision-making processes. Importantly, we want to note that such an investigation need not be viewed through the negative lens of reducing prosecutorial power, but rather should be seen as an opportunity to understand the psychological processes underlying prosecutors' decisions so as to temper unwanted outcomes and promote desirable ones. Processtracing as a methodology provides the transparency to do that. Furthermore, it allows for the comparison between how prosecutors actually make charging decisions and how the public views those decisions.

II. SHINING A LIGHT INTO THE BLACK BOX OF PROSECUTORIAL DISCRETION

So how, specifically, do we crack open the psychological black box of prosecutors' minds to see what is influencing their decision-making? Unfortunately, we cannot observe the contents of prosecutors' minds directly. However, there are various methodologies that we can use to gather indirect evidence of their mental processes and then compare that evidence to standards, such a normative legal framework or public sentiments. We explore two of these methodologies below, arguing for the adoption of one method (process-tracing) over the sole use of the other (introspection and self-report).

A. Process-Tracing as Means to Peer Inside Prosecutors' Decision-Making Processes

One traditional way to gather indirect evidence about decision-makers' thought processes is simply to ask them *how* and *why* they made specific decisions. For instance, one might merely ask prosecutors to explain their reasoning for bringing charges in one case and not in another. And in response, those prosecutors might describe how they appropriately weighed the evidence in that case against the severity of the alleged offense, along with the probability of conviction at trial. While such introspective and self-

report-based techniques are convenient and useful in many ways,⁵⁸ they have at least two major limitations for our purposes.⁵⁹

First, psychological research has demonstrated that people — whether lay or expert — are frequently inaccurate in predicting and explaining their behavior. For example, in addition to work showing that various cognitive biases unconsciously influence people's judgments and decisions,⁶⁰ there is a wealth of studies revealing that people have difficulty assessing the weight they give to different factors in their decision-making.⁶¹ This finding does not necessarily imply that people make decisions poorly, simply that they have trouble accurately identifying the bases for their decisions.⁶² As a result, psychologists have long been suspicious of introspection and selfreport-based techniques. Importantly, psycho-legal research has shown that legal actors, such as judges and jurors, are no exception.⁶³ Thus,

^{58.} As an example, researchers can use introspective and self-report techniques to assess what individuals believe about themselves (*e.g.*, how they perceive their body and identity), which cannot be captured fully by other observational techniques. Additionally, introspection and self-report-based techniques can be combined with other methodologies, such process-tracing, to get a more complete picture of individuals' mental processes (*e.g.* by comparing what people self-report to how they perform on process-tracing measures).

^{59.} See, e.g., Christoph Engel & Rima-Maria Rahal, *Eye-Tracking as a Method for Legal Research* 4 (Max Planck Inst. for Rsch. on Collective Goods, Working Paper No. 7, 2022) ("Despite the obvious appeal of such an easy-to-implement way to measure cognitive processes, there are notable drawbacks to this method, which may render convincing interpretations of the responses difficult or even impossible.").

^{60.} See, e.g., DANIEL KAHNEMAN, THINKING, FAST AND SLOW (2011) (reviewing a host of cognitive heuristics and biases through the lens of a dual-process theory of information processing). For concerns raised about cognitive biases at play in prosecutorial decision-making, see Alafair S. Burke, *Neutralizing Cognitive Bias: An Invitation to Prosecutors*, N.Y.U. J.L. & LIBERTY 512 (2007); Alafair S. Burke, *Prosecutorial Passion, Cognitive Bias, and Plea Bargaining*, 91 MARQUETTE L. REV. 183 (2007); Alafair S. Burke, *Improving Prosecutorial Decision Making: Some Lessons of Cognitive Science*, 47 WM. & MARY L. REV. 1587 (2006).

^{61.} See, e.g., Timothy D. Wilson, Knowing When to Ask: Introspection and the Adaptive Unconscious, 10 J. CONSCIOUSNESS STUD. 131 (2002) (discussing the conditions under which introspection is accurate and predictive); Richard E. Nisbett & Timothy D. Wilson, *Telling More Than We Can Know: Verbal Reports on Mental Processes*, 84 PSYCH. REV. 231 (1977) (reviewing evidence about the accuracy and predictive value of introspective reports).

^{62.} This recognition predates the recent literature on implicit biases, which further complicates arguments by raising issues about how to assess the motivations underlying actions.

^{63.} See, e.g., Trace C. Vardsveen & Richard L. Wiener, Public Support for Sentencing Reform: A Policy-Capturing Experiment, 27 J. EXPERIMENTAL PSYCH.: APPLIED 430 (2021) (finding that retributive-related information influenced people's sentencing decisions despite claiming support for consequentialist reasonings for criminal punishment); Eyal Peer & Eyal Gamliel, Heuristics and Biases in Judicial Decisions, 49 CT. REV.: J. AM. JUDGES ASS'N 114 (2013) (reviewing different cognitive biases exhibited by judges in their decision-making); Kevin M. Carlsmith, On Justifying Punishment: The Discrepancy Between Words and Actions, 21 SOC. JUST. RSCH. 119 (2008) (showing a mismatch between actual and stated motives for criminal punishment).

extrapolating to prosecutors, it is reasonable to speculate that they too would be susceptible to the limitations of introspection when asked to report on their decision-making processes.

Second, self-report-based techniques are particularly vulnerable to social desirability; that is, people may report what they think the researcher or society wants to hear rather than what they genuinely believe.⁶⁴ Thus, social desirability is especially concerning regarding explicit biases, as people may intentionally mask their prejudices by purporting to use socially acceptable or legally condoned criteria when making decisions.⁶⁵ A particularly pernicious example of this occurs when prosecutors and defense attorneys use peremptory challenges in a racially discriminatory way despite the Supreme Court holding the practice unconstitutional in *Batson v. Kentucky*.⁶⁶ In the case of peremptory challenges, attorneys may be making decisions based on race even though they claim otherwise when asked to explain their choices.⁶⁷ Similarly, there is the worry that prosecutors may report relying on legally appropriate criteria when making charging decisions but are actually predicating those decisions on extra-legal factors.

In contrast to introspection and self-report techniques, another way to indirectly probe decision-makers' minds are what psychologists call process-tracing methods. These methods are a constellation of empirical techniques that researchers use to collect time-dependent, pre-decisional data from which they can then make inferences about the underlying psychological processes operating during a decision-making task.⁶⁸ These techniques

^{64.} *See, e.g.*, Ronald R. Holden & Jennifer Passey, *Social Desirability, in* HANDBOOK OF INDIVIDUAL DIFFERENCES IN SOCIAL BEHAVIOR 441, 441–44 (Mark R. Leary & Rick H. Hoyle eds., 2009).

^{65.} See id.

^{66. 476} U.S. 79 (1986). For a review of discriminatory use of peremptory challenges, see Whitney DeCamp & Elise DeCamp, *It's Still about Race: Peremptory Challenge Use on Black Prospective Jurors*, 57 J. RSCH. CRIME & DELINQUENCY 3 (2020); Alafair S. Burke, *Prosecutors and Peremptories*, 97 IOWA L. REV. 1467 (2012); David C. Baldus et al., *The Use of Peremptory Challenges in Capital Murder Trials: A Legal and Empirical Analysis*, 3 U. PA. J. CONST. L. 3 (2001).

^{67.} See, e.g., Decamp & Decamp, supra note 66.

^{68.} For reviews of the historical development and current state of process-tracing methods in psychology, see A HANDBOOK OF PROCESS TRACING METHODS (Michael Schulte-Mecklenbeck, Anton Kühberger, & Joseph G. Johnson eds., 2d ed. 2019); Michael Schulte-Mecklenbeck et al., *Process-Tracing Methods in Decision-Making: On Growing Up in the 70s*, 25 CURRENT DIRECTIONS IN PSYCH. SCI. 442 (2017); Anton Kühberger, Michael Schulte-Mecklenbeck, & Rob Ranyard, *Introduction: Windows for Understanding the Mind, in* A HANDBOOK OF PROCESS TRACING METHODS FOR DECISION RESEARCH: A CRITICAL REVIEW AND USER'S GUIDE (Anton Kühberger, Michael Schulte-Mecklenbeck, & Rob Ranyard eds., 2011).

range from basic information boards to eye-tracking to neuroimaging.⁶⁹ In other words, process-tracing methods are a systematic way to indirectly map what is occurring inside of the minds of decision-makers in the time leading up to a specific decision. Because these techniques do not rely on introspection or self-report, they do not suffer from the latter techniques' limitations.⁷⁰ Moreover, because process-tracing measures are primarily observational in nature, researchers are able to collect data about decision-makers' cognitive processes as they unfold, while leaving those processes largely undisturbed by intrusive questions.⁷¹

Fundamentally, process-tracing methodology involves presenting decision-makers with various pieces of information and then instructing them to best use that information to make a specific decision. Process-tracing techniques, such as those noted above, then measure various behaviors and physiological reactions theorized to reveal the underlying mental processes at play during decision-making. These techniques include how the decision-makers attend to specific pieces of information, how they use that information to reach their decision, and how long it takes them to make that decision. In this sense, process-tracing methods are akin to implicit association measures like the widely used Implicit Association Test (IAT),⁷² though they capture a wider range of psychological phenomena than response latency, including attentional processes and information acquisition.⁷³

Unlike prior empirical work on prosecutors' charging practices, processtracing methods offer the advantage of capturing the relationships between exogenous inputs (variables external to a decision-maker, such as the types of evidence present in a case), psychological mechanisms (variables internal to the decision-maker, such as attention paid to the evidence), and a decision output (such as choosing to file charges or not) in a way that theoretically maps the decision-making processes over time.⁷⁴ For example, process-

74. For an overview of how process-tracing can be used to develop and test different decision-making models, see Franco-Watkins, Hayden K. Hickey, & Joseph G. Johnson,

^{69.} See Schulte-Mecklenbeck et al., *supra* note 68, at 443–45 (providing a taxonomy of process-tracing techniques).

^{70.} See Engel & Rahal, supra note 59, at 4-6.

^{71.} Id. at 6.

^{72.} The Implicit Association Test (IAT) attempts to reveal how people assess information at a subconscious level by measuring reaction times when pairing sets of stimuli, and then using those reaction times to predict conscious behavior. For a review of implicit association measures and their predictive validity, see JENNIFER L. EBERHARDT, BIASED: UNCOVERING THE HIDDEN PREJUDICE THAT SHAPES WHAT WE SEE, THINK, AND DO (2020); MAHZARIN R. BANAJI & ANTHONY G. GREENWALD, BLINDSPOT: HIDDEN BIASES OF GOOD PEOPLE (2016); LAURIE A. RUDMAN, IMPLICIT MEASURES FOR SOCIAL AND PERSONALITY PSYCHOLOGY (2011).

^{73.} For an overview of what process-tracing methods can reveal about mental processes, see, e.g., Kühberger et al., *supra* note 68.

tracing would permit testing of a simplified decision-making model in which the strength of evidence in a criminal case (an exogenous input) affects the attention prosecutors pay to that evidence, along with their judgments about the accused's guilt (psychological mechanisms), which in turn, drive prosecutors' decision to file charges or not (the output). Thus, the core function of process-tracing methods is to examine not just *what* decision is made, and *which* exogenous factors predict it — as the prior empirical work has done — but also *how* and *why* that decision is made at the individual level.⁷⁵ As such, process-tracing methods are an ideal tool to peer inside the psychological black box of prosecutorial decision-making.

Among the diverse array of process-tracing techniques, one set is ideally suited to probe the psychological processes involved in prosecutors' charging decisions: *movement-based* measures. These measures employ interactive techniques, such as information boards and mouse-tracking technology,⁷⁶ which can be used to capture data on prosecutors' information search, acquisition, and use patterns while making a hypothetical charging decision. Information boards are simply analog or digital layouts of information presented to decision-makers. The purpose of these boards is to trace which specific pieces of information decision-makers review and in what order prior to a decision task. Psychologists have used information boards for decades to gather data on information search, selection, and use patterns across a variety of contexts,⁷⁷ including the criminal legal domain.⁷⁸

Comparing Process Tracing Paradigms: Tracking Attention via Mouse and Eye Movements, in A HANDBOOK OF PROCESS TRACING METHODS, supra note 68; Ulrich Hoffrage & Nils Reisen, Using Multiple Methods to Elicit Choices and to Identify Strategies, in A HANDBOOK OF PROCESS TRACING METHODS, supra note 68.

^{75.} See, e.g., Kühberger et al., supra note 68.

^{76.} See, e.g., Schulte-Mecklenbeck et al., supra note 68.

^{77.} See, e.g., John W. Payne & James R. Bettman, Information Displays and Preference Reversals, 42 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 1 (1988); John W. Payne, James R. Bettman, & Eric J. Johnson, Adaptive Strategy Selection in Decision Making, 14 J. EXPERIMENTAL PSYCH.: LEARNING MEMORY & COGNITION 534 (1988); John W. Payne & Myron L. Braunstein, Risky Choice: An Examination of Information Acquisition Behavior, 6 MEMORY & COGNITION 554 (1978); John W. Payne, Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis, 16 ORGANIZATIONAL BEHAV. & HUM. PERFORMANCE 366 (1976).

^{78.} See, e.g., Kevin M. Carlsmith, *The Roles of Retribution and Utility in Determining Punishment*, 42 J. EXPERIMENTAL SOC. PSYCH. 437 (2006) (using an analog information board to trace which pieces of information participants selected and then used to make sentencing decisions).

A technological extension of information boards is mouse-tracking, which uses special software like MouselabWEB⁷⁹ or MouseTracker⁸⁰ to trace the movements of decision-makers' mouse cursor across a bounded digital interface filled with various pieces of information. Mouse-tracking approaches extend the measurement capabilities of information boards in that they can map not only which pieces of information decision-makers select out of a range of options, but they can also measure the time spent interacting with those pieces of information before arriving at a decision. Moreover, in recording the movements of decision-makers' mouse, this technology can reveal whether decision-makers are attending to specific pieces of information without actually selecting that information.

To illustrate how this technology works, consider Figure 1 adapted from a recent analysis of the logistics and effectiveness of mouse-tracking studies.⁸¹ Figure 1 shows the hypothetical results of a decision-maker's mouse trajectory when asked to categorize a "Whale" as either a "Mammal" or "Fish" by selecting the appropriate category on a digital board. The arrow at the bottom of the board in Figure 1 represents the starting position of the mouse cursor. The curved trajectory denoted by the thick dotted black line indicates that the decision-maker initially moved toward the inappropriate category of "Fish" but then redirected toward the appropriate category of "Mammal." The dots show the decision-maker's mouse trajectory over time.

^{79.} Martijn C. Willemsen & Eric J. Johnson, *MouselabWEB: Monitoring Information Acquisition Processes on the Web*, MOUSELABWEB, https://www.mouselabweb.org. [https://perma.cc/2X3R-TNFT] (last visited Mar. 26, 2023).

^{80.} Jon B. Freeman, MOUSETRACKER, http://www.mousetracker.org [https://perma.cc/8A94-AQCT] (last visited Mar. 26, 2023).

^{81.} Pascal J. Kieslich et al., *Design Factors in Mouse-Tracking: What Makes a Difference*?, 52 BEHAV. RSCH. METHODS 317, 318 (2020).

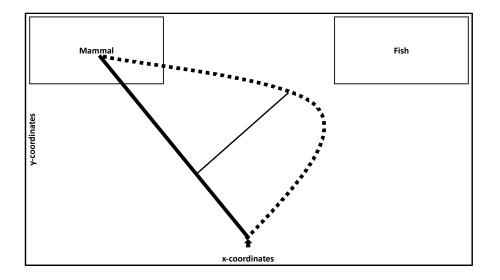
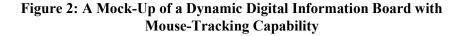


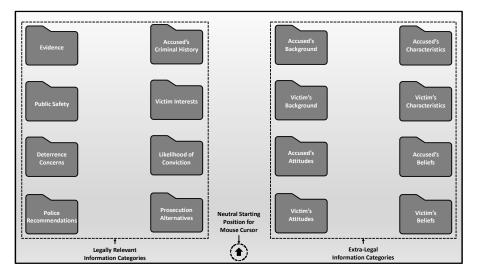
Figure 1: An Example of Mouse Trajectory Data Adapted from Kieslich, Schoemann, Grage, Hepp, and Scherbaum (2020)⁸²

Had the decision-maker moved the mouse directly toward the appropriate category of "Mammal," the trajectory would have followed the optimal linear path denoted by the thick solid black line. The thin black line between the decision-maker's actual mouse trajectory and the optimal trajectory indicates the distance between the decision-maker's actual path and the optimal path to the appropriate target. Thus, the decision-maker's actual mouse trajectory can be systematically compared to the optimal linear path toward appropriate information. Greater deviations from that optimal path suggest increased consideration of targets other than the appropriate one.

We argue that this same idea can be extended to trace prosecutors' information search, acquisition, and use patterns across digital case files. To test this idea, we have recently adapted open-source mouse-tracking software to include a more dynamic digital information board that resembles the desktop of a computer with folders of legally relevant and extra-legal information pertaining to hypothetical criminal cases. Figure 2 shows a barebones mock-up of this interface for illustrative purposes, which contains folders of legally relevant and extra-legal information that the current normative legal framework (for example, the NDAA charging guidelines) deems appropriate and inappropriate. However, these folders of information can be rearranged and given other descriptors as needed.

82. See id.





Using this type of dynamic digital information board, we can assess what pieces of legally relevant and extra-legal information prosecutors attend to and in what order before making a charging decision, along with what pieces of information they actually select to review and how much time they spend on that information. For instance, as Figure 3 illustrates, a prosecutor might decide to review legally relevant evidence in a hypothetical case by clicking on the "Evidence" folder, but not before their attention drifted to the folder containing extra-legal information about the accused's demographic characteristics. We can compare then these mouse movements over time with the optimal pathway to an appropriate target folder.

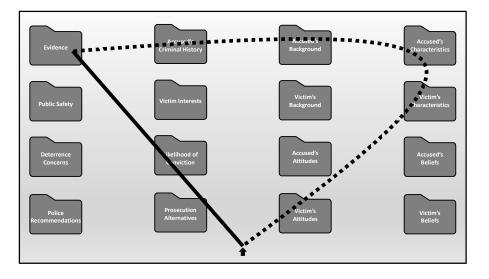
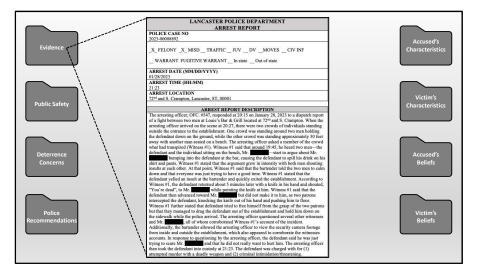


Figure 3: An Example of Mouse Trajectory Data on the Dynamic Digital Information Board

After clicking on a particular folder, case-specific information pops up to review. Figure 4 displays just one example of what the "Evidence" folder could contain — an ostensible excerpt from a police report in the case. After reviewing this information, a prosecutor can simply click out of open folder and return to the board to review other information before moving on to make a charging decision in that hypothetical case. In this way, we can keep track of which pieces of information a prosecutor reviews, in what order, and for how long, thus providing insight into the cognitive processes at play while mauling over case information prior to making a charging decision.

Figure 4: An Example of an Ostensible Excerpt from a Police Report Contained in the Evidence Folder on the Dynamic Digital Information Board



B. A Proposal to Employ Process-Tracing to Examine Prosecutors' Charging Decisions

In this section, we briefly outline an empirical project to demonstrate more fully how we can use a process-tracing approach to look into the minds of prosecutors as they consider various pieces of information before making a hypothetical charging decision across several case files. We propose that using a dynamic digital information board with mouse-tracking capability can reveal prosecutors' information search, acquisition, and use patterns when making charging decisions across different offense types and under different levels of discretion constraint. The project we lay out here focuses specifically on the NDAA factors to calibrate the legally appropriate factors available to prosecutors to review.⁸³ This is because the NDAA factors are often front-and-center in prosecutors' legal training and embodied in the policies of many prosecutors' offices.

Importantly, we recognize that prosecutors are typically trained to look at all of the information available to them to determine what is relevant and useful in a case and what is not. With this in mind, we can examine with a process-tracing approach not only *what* information prosecutors consider in reviewing a hypothetical case, but also the *order* in which prosecutors consider it and the amount of *time* prosecutors spend reviewing each piece

^{83.} See NAT'L DIST. ATT'YS ASS'N, supra note 28.

of information. Thus, variation across all these process-tracing measures can theoretically predict prosecutors behavior even when prosecutors consider all the information contained on the digital board — legally appropriate and inappropriate alike.

To that end, we propose a study that attempts to answer the following questions: (1) to what extent do prosecutors rely on the legally relevant factors as outlined in the current normative legal framework, such as the NDAA charging factors;⁸⁴ (2) do prosecutors rely on the normative legal framework to a greater degree when their discretion is highly constrained — that is, when they are mandated to consider the factors in their charging calculus; (3) how does the type of offense alleged influence which factors prosecutors rely on; and (4) how do prosecutors' decision-making processes align with the public's views about prosecution in the same cases?

To investigate these questions, we propose to recruit samples of prosecutors and community members to complete a process-tracing study involving a series of hypothetical criminal case files. We would divide this study into two phases. In the first phase, both prosecutors and community members would complete a battery of individual differences measures capturing information about their views of the criminal legal system in general and of prosecution in particular. For instance, both sets of respondents would complete meaures assessing their self-reported prosecutorial priorties and punitive attitudes.⁸⁵ Both samples would also fill out a basic demographic questionnaire during this first phase. The purpose of this initial phase is to collect information about prosecutors and the public that we would want to include in a statistical analysis, so as to control for their unique relationship with charging decisions or see how they interact with other factors.

In the second phase, prosecutors and community members would complete the experimental portion of the study. Using a survey link, we would direct all respondents to the dynamic digital information board, where they would read an initial set of study instructions before continuing to the experimental part of the study itself. After reading these instructions, respondents would complete an initial training trial with the digital information board and then three experimental trials corresponding to the counter-balanced presentation of case files concerning an alleged theft, sexual assault, and homicide. The initial training trial would involve an

^{84.} See id.

^{85.} See Ryan C. Meldrum, Don Steven, & Besiki Luka Kutateladze, Progressive and Traditional Orientations to Prosecution: An Empirical Assessment in Four Prosecutorial Offices, 48 CRIM. JUST. & BEHAV. 354 (2021) (developing and validating a measure capturing prosecutorial priorities and punitive attitudes).

alleged drug offense that does not meet the threshold of probable cause to bring charges.

This training trail serves two purposes. First, it provides respondents with an opportunity to learn how to navigate the digital information board, so as to reduce respondent error in using the technology that could artificially drive variance in the outcome measures. Second, it gives a baseline performance measure for whether respondents would bring charges in a case that does not have sufficient probable cause to proceed. As such, there is a correct legal answer for this practice trial — namely, that there is no evidentiary basis for proceeding with prosecution. In contrast, the cases for the subsequent three experimental trials would all meet this threshold of probable cause. Thus, whether respondents ultimately indicate that they would bring charges in the experimental trials is a function of their legitimate discretion, training, goals, and values.

Additionally, before completing these four trials, respondents would read a separate set of randomly assigned instructions corresponding to a discretion constraint manipulation. Half of the respondents would read instructions telling them to use as much or as little of the case file information as they need to make a charging decision, and to spend as much or as little time reviewing that information as necessary (the control condition corresponding to low discretion constraint). This control condition allows respondents to make charging decisions using nearly unfettered discretion to see what they would do left to their own devices. In other words, the instructions allow respondents to use any of the information contained on the digital board, including extra-legal information. This setup allows us to examine whether respondents default to using legally appropriate information when making charging decisions even when not explicitly mandated to do so.

The other half of the respondents would read instructions mandating they consider the NDAA factors when reviewing the case file information to make their charging decision (the high discretion constraint condition).⁸⁶ This instruction constrains their discretion to search out and use only legally relevant information as outlined by the NDAA. These respondents would also be told to spend as much or as little time reviewing the relevant information as they need to make their decision. Importantly, respondents would be in the same control or high discretion constraint condition for all four trials (that is, the initial training trial and the three experimental trials) and would receive the same instructions at the beginning of each trial as a reminder.

With our process-tracing approach, we would collect data in real-time on respondents' behavior while reviewing the case files, unencumbered by

^{86.} See NAT'L DIST. ATT'YS ASS'N, supra note 28.

direct questioning of respondents. This would provide an unintrusive observation of respondents' decision-making processes. Furthermore, to capture data on respondents' attention to legally appropriate and inappropriate information, we would use four different process-tracing measures.

First, we would map the trajectory of respondents' mouse movements ("mouse trajectory data") to reveal their information search flow. These data would indicate whether respondents initially moved their mouse toward extra-legal information before shifting toward legally relevant information to review. In the aggregate, these data can reveal general patterns of information search and selection across the four trials within respondents over time, as well as between respondents in the control and high discretion constraint conditions. Overall, we predict that respondents in the high discretion constraint condition will have increased mouse movements toward legally appropriate information, as compared to those in the control condition (that is, having more discretion), because their discretion to review such information is more constrained, and thus, less susceptible to social and cognitive biases.

Second, we would also log which categories of information respondents actually select to review ("information selection data"). These data would provide information about (1) whether respondents review legally appropriate and/or inappropriate information more overall, (2) which specific categories of information participants review, and (3) how many pieces of legally relevant and extra-legal information they review in total. We anticipate that respondents in the high discretion constraint condition will select and review more legally appropriate information than those in the control condition (the condition granting more discretion).

Third, we would also measure the order in which categories of information are selected for review ("information selection order data"). These data reveal implicitly which categories of information respondents are prioritizing in terms of review order. We hypothesize that respondents in the high discretion constraint condition will select more legally appropriate information first than those in the control condition (again, those with more discretion).

And lastly, we would capture information about how long participants spend reviewing specific categories or pieces of information ("duration data"). Combined with the information selection order data, these data would further reveal which categories of information are implicitly of most important to respondents. We predict that respondents in the high discretion constraint condition will spend more time reviewing legally appropriate information than those in the control condition (those with more unfettered discretion). Together, all these measurements provide a metric of prosecutors' and community members' attention to legally appropriate and inappropriate information for each of the four criminal case files that they review. We then propose to use these process-tracing measures to predict both prosecutors' and community members' charging decisions across these different hypothetical cases to uncover their conscious and unconscious preferences regarding them.

III. HARNESSING PROCESS-TRACING TO INCREASE TRANSPARENCY, LEGITIMACY, AND TRUST

So, how can we use this type of process-tracing approach and the information obtained from it to address concerns about prosecutorial accountability, legitimacy, and trust? In other words, what do we gain practically from adopting such an empirical approach? In this Part, we discuss how process-tracing can be used to increase transparency in prosecutorial decision-making, which in turn, can enhance accountability, legitimacy, and trust for prosecutors in the eyes of the public.

A. Implications for Prosecutors

As we have noted, the current legal framework governing prosecutors grants them immense discretionary power, which maintains both a structural and psychological black box of decision-making.⁸⁷ This black box presents a significant issue of transparency in *how* and *why* prosecutors make the decisions that they do.⁸⁸ Robust transparency for prosecutors requires going beyond current progressive measures that attempt to pry open the structural black box of prosecutorial decision-making — measures like making prosecutors' office charging policies, practices, and outcomes publicly available. While these reform efforts are a necessary and laudable part of increasing transparency, they are not sufficient because they do not tell us what is going on within the psychological black box of prosecutors' minds when making decisions. And it is at the individual-level of psychological processes that we can better understand when prosecutors adhere to and swing away from normative legal models and public expectations.

For example, despite *claiming* to follow specific normative legal standards, how are prosecutors to *know* whether they actually adhere to them or not? And if prosecutors themselves do not know what is driving their decisions, then how are they to be transparent with the public about their performance as legal authorities? Moreover, if prosecutors cannot accurately

^{87.} See supra Section I.A.

^{88.} See id.

isions to the public, then how is the public

articulate the bases for their decisions to the public, then how is the public to trust them?

Even if prosecutors' office data indicate desirable outcomes are being achieved, those data largely capture exogenous inputs and a decision output. They tend not to provide insight into what is going on with decision-making in the middle of those variables. It could be the case that prosecutors are reaching desirable outcomes by relying on inappropriate factors and biased judgments. It could also be the case that the aggregated office-level data masks deviations from normative standards by disparate swaths of prosecutors or even specific groups of them (such as, new versus seasoned prosecutors). As such, understanding the psychological mechanisms underlying prosecutors' decision-making is vital to a project of increasing transparency and crafting targeted interventions to bring prosecutors into line with normative standards and other expectations.

Fortunately, process-tracing provides a methodology to capture the psychological mechanisms involved in prosecutors' (and the public's) decision-making processes. As we have detailed, process-tracing methods do this by assessing overt behaviors thought to reveal mental processes, including how decision-makers attend to specific pieces of information presented to them, how they use that information in arriving at a decision, and how long it takes them to make that decision.⁸⁹ The utility of these measures goes beyond their mere descriptive value. They can be used to predict variance in prosecutors' decisions - whether hypothetical or actual decisions.⁹⁰ Similar to implicit association measures, process-tracing techniques can reveal hidden preferences. In harnessing this powerful methodology, prosecutors can better understand their own decision-making by uncovering reliance on certain pieces of information over others. In other words, process-tracing can increase transparency to prosecutors themselves regarding what factors they rely on when making legal decisions.

Importantly, the same legal framework that maintains prosecutors' discretionary power also provides a set of normative models, as loose as they are, by which to compare prosecutors' actual decision-making. Process-tracing, thus, provides prosecutors with an ongoing metric against which they can evaluate and adjust their decision-making to better adhere to these normative models. For instance, process-tracing can provide information

^{89.} See supra Section II.B.

^{90.} Although we propose to use these process-tracing measures to predict charging decisions in the hypothetical criminal cases outlined in this Essay, these process-tracing measures can also be used to predict prosecutors' actual charging decisions if we — or other future researchers — have access to individual-level charging data from prosecutors' offices. Thus, the same data analytic strategy proposed here to predict hypothetical charging decisions could be applied to predict actual charging decisions.

about whether prosecutors attend more closely to legally relevant factors (such as, the strength of evidence) or inappropriate factors (such as, the race of an accused and a victim) while making charging decisions. Using statistical techniques, we can determine whether seeking out, attending to, and using information related to legally relevant factors is more predictive of charging decisions than extra-legal factors. As such, processing-tracing can ultimately equip prosecutors with knowledge about where they adhere to and deviate from specific normative legal models like the constitutional constraints set by the Supreme Court and the charging factors laid out in the NDAA guidelines.⁹¹ Such knowledge provides prosecutors with data-driven feedback that they can use to adjust their decision-making as needed. Thus, our process-tracing approach could be incorporated into prosecutors' training to make them more aware of how they are performing relative to a normative framework.

B. Implications for the Public

Another reason that knowing how prosecutors make decisions is important is that it provides a way to compare public views about what is appropriate to the factors that prosecutors use in their decision-making. However, for the same reasons that prosecutors may not know what is actually driving their legal decisions, the public may not have the best insight into their actual sentiments about a legal topic. Like prosecutors, they may claim one thing and behave differently when given the chance to act. Therefore, to understand the public's view about prosecutorial decisionmaking, we need to reveal their hidden preferences about prosecutorial practices — what is sometimes called policy-capturing.⁹² This is why we propose, as part of our empirical project, to have a sample of community members complete the same process-tracing study as a sample of prosecutors.

As we know from the empirical literature on legitimacy within the legal system, the process by which legal authorities make decisions deeply matters to the public, not just the outcomes of the decision-making.⁹³ Specifically, this work shows that accountability and perceptions of legitimacy are key factors that can build trust in legal authorities.⁹⁴ Transparency is one major pipeline feeding all of these important assessments. However, maintaining and increasing accountability, legitimacy, and trust requires that the public

^{91.} See NAT'L DIST. ATT'YS ASS'N, supra note 28.

^{92.} See Vardsveen & Wiener, supra note 63. Additionally, for an overview of policycapturing approaches, see RAY W. COOKSEY, JUDGMENT ANALYSIS: THEORY, METHODS, AND APPLICATIONS (1996).

^{93.} See Tyler & NOBO, supra note 7; Tyler & HUO, supra note 7.

^{94.} See Tyler & Nobo, supra note 7.

believes that legal authorities are considering legally appropriate and reasonable factors when making decisions. With process-tracing, we can directly compare the public's conscious and unconscious preferences with those of prosecutors. Such a comparison sheds light on where the public and prosecutors converge and diverge regarding their views of prosecution, thus increasing transparency between both sets of these stakeholders in the criminal legal system. Prosecutors can then highlight convergence with public views and preferences where it exists, thus reinforcing accountability, legitimacy, and trust. And where there is divergence, prosecutors can explain their approaches and educate the public to promote accountability, legitimacy, and trust. Furthermore, prosecutors can draw the public's attention to where their decision-making converges with normative legal models, so as to reinforce their adherence to appropriate factors.

The process of recognizing and drawing upon public views for a discussion about prosecutorial decision-making has an additional benefit though: voice. Studies on the police and courts also show that the very act of giving the public voice by gathering public views and addressing them is repeatedly shown to be a legitimacy building tool.⁹⁵ Studies have demonstrated this most clearly in work with victims, where giving victims voice (for example in impact and sentencing statements or in parole hearings) promotes trust and confidence in the legal system. Our proposed decision-making research would provide a basis for demonstrating that public views are being considered in matters of prosecution while helping prosecutors recognize where their decision-making diverges from what the public values.

Looking to the future, we view such an alignment between prosecutors and the public as a crucial reform effort for maintaining and increasing accountability, legitimacy, and trust in prosecution, as it encourages prosecutors to explain and build upon their decision-making in terms of a shared consensus about appropriateness. One future of prosecution holds fast to the current black box nature of prosecutorial decision-making. Some prosecutors and policymakers may see this model of decision-making as advantageous because it permits prosecutors to make decisions in one way while explaining their choices in another way. However, another future of prosecutors and the public. This latter model holds the promise of enhancing accountability and legitimacy, thereby building authentic trust between prosecutors as legal authorities and the public. Process-tracing provides one basis for making this more transparent model of prosecution possible.

95. See id.

CONCLUSION

Along with legal authorities in general, the public's perceived legitimacy of and trust in prosecutors have waned in recent years.⁹⁶ As a result, prosecutors have faced mounting public pressure for greater accountability in their decision-making.97 Accountability, legitimacy, and trust for prosecutors in the eyes of the public rests, to a large degree, on evaluating the fairness of decision-making processes, which itself requires the ability to distinguish prosecutors' use of what the law and the public view as appropriate and inappropriate criteria when making legal decisions.⁹⁸ These evaluations can only occur when the factors that shape these decisions are known by both prosecutors themselves and the public. Therefore. transparency in prosecutors' decision-making is crucial to the project of maintaining and building accountability, legitimacy, and trust. Yet. prosecutorial decision-making predominantly occurs within structural and psychological black boxes, rendering prosecutors' lack of transparency an obstacle to this project.

We argue that an empirical methodology called process-tracing can peer inside the psychological black box of prosecutorial decision-making to help identify the factors that shape prosecutors' legal decisions, thus increasing transparency in their decision-making overall. As we have outlined, this approach has several major advantages. First, it allows prosecutors to compare what factors actually drive their charging decisions to a normative legal framework so that they can adjust their behavior to better adhere to such standards. Second, it enables prosecutors to compare those factors with what the public considers to be important regarding prosecution and adjust their decision-making to these public views when so desired. And third, it supplies prosecutors with a data-driven way to explain the reasoning behind their decisions to the public. Together, these abilities can maintain and even enhance prosecutors' accountability, legitimacy, and trust vis-à-vis the public.

Amidst fervent discussion about prosecutorial reform, it is vital to understand from an empirical perspective what factors actually influence prosecutorial decision-making. We contend that to discuss, design, and deploy prosecutorial reforms in a manner that speaks to both prosecutors' and the public's views of prosecution, we need to first understand the psychological processes operating when prosecutors wield their discretionary power. Such an investigation need not necessarily be viewed through the negative optics of reducing prosecutorial power but rather should

^{96.} See supra note 1-6 and accompanying text.

^{97.} See id.

^{98.} See id.

The future of prosecution rests on the ability to maintain, if not increase, accountability, legitimacy, and trust in the eyes of the public. The empirical project we propose in this Essay is just one approach among a larger set of strategies, that when working in combination, could help improve prosecutorial decision-making to better achieve prosecutors' goals and those of the public. Without empirical investigation of the sort proposed here, the forces influencing prosecutorial decision-making will remain largely hidden from both prosecutors' and the public's view, and thus, will remain resistant to change. Our approach would shed light on some of the psychological mechanisms driving prosecutors' charging decisions, which could ultimately help prosecutors make more informed and legally appropriate decisions that align with public sentiments, thereby building authentic trust with the public.

parties.