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Abstract

Adam Gershowitz's article calling for post-trial plea bargaining in capital cases reasons that governors should commute sentences to life in prison, in exceptional cases, to limit the costs of protracted post-trial litigation over imposition of the death penalty. The commutation power, in his view, resembles pre-trial plea bargaining in that both the state and the criminal defendant can benefit—the state saves resources while the defendant gets off death row.

Gershowitz's article, therefore, affords a window into the increasing use of predictive analytics in deciding whether to bring or resolve litigation. Sifting through data on all prior capital cases can yield clues as to the likelihood of success or the length of litigation in future capital cases. Not surprisingly, the past can, to some extent, help us predict the future and thereby inform the governor's commutation decision.

Deployment of predictive analytics is more familiar in the private sector. The life insurance industry historically is predicated on actuarial science, and credit card companies rely on complex data to score riskiness of a loan or to detect fraud. Even sports teams follow a "Moneyball" approach to drafting and acquiring the best talent possible based on prior data.

Gershowitz's article presages the role that predictive analytics will play in the public sector, saving vast resources and limiting subjectivity in governmental decision-making. Reliance on prior data can help determine when the government should settle torts cases, pay Veterans claims, and subject those receiving disability to review to determine if their disability continues. Predictive analytics may also help the IRS streamline tax auditing and

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collection. On the other hand, unlike in private law, individuated decision-making may be required by the government either under the Constitution or legislative directives. Moreover, the government's consideration of historical factors correlated with protected categories such as race may result, on occasion, in discrimination when reliance on the prior data culminates in denial of a benefit or increased punishment. As with any other technological breakthrough, predictive analytics as applied to the public sector brings tremendous promise but concerns as well.

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Introduction

Adam Gershowitz's article calling for post-trial plea bargaining in capital cases persuasively argues that the costs of protracted post-trial litigation over imposition of the death penalty[1] can exceed the benefits of such litigation in upholding the integrity of the criminal justice system, regardless of one's moral views of the death penalty. Gershowitz relays that states are spending millions of dollars in litigation of capital cases that do not result in execution of those convicted, either because courts overturn the sentence or because the defendants die awaiting outcome of the lengthy litigation.[2] He argues that, when

1. Gershowtiz reports that there is an average of fifteen years between sentence and execution. Adam Gershowitz, *Post-Trial Plea Bargaining in Capital Cases: Using Conditional Clemency to Remove Weak Cases from Death Row*, 73 WASH. & LEE L. REV. 1359, 1361 n.4 (2016).

2. *Id.* at 1361.

indicators arise post-trial that litigation will be arduous and sap the resources of state litigators, governors should commute the death sentence to life in prison. Gershowitz uses the examples of a dissent on a state appellate court panel[3] or discrediting of an expert who earlier testified at the sentencing phase as signals to a governor that subsequent litigation would not be worth the cost.[4]

Plea bargaining post trial differs in several important respects from pre-trial plea bargaining. Principally, if the litigation only focuses on the capital sentencing hearing, then the defendant almost assuredly will accept a commutation to life in prison and, indeed, the Supreme Court in *Biddle v. Perovich*[5] held that the individual in such contexts has no choice but to accept the commutation, presumably on the ground that the defendant cannot insist upon his or her own death.[6] So, in much of the litigation over capital sentencing, the plea bargain analogy is inapt because the defendant is not relinquishing any rights. If the litigation instead focuses on the validity of some aspect of the conviction for the capital offense, then the analogy holds. The defendant's "chip" in that instance would be to agree to halt the ongoing litigation. Depending on risk aversion and likelihood of success, a defendant would consent to the commutation in exchange for dropping litigation that might result in a lesser sentence. From the governor's perspective, plea bargaining post trial differs as well, because a commutation to life in prison

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3. *Id.* at 1387.

4. *Id.* at 1388.

5. 274 U.S. 480 (1927).

6. *See id.* at 488 ("Supposing that Perovich did not accept the change, he could not have got himself hanged against the Executive order. Supposing that he did accept, he could not affect the judgment to be carried out."). In non-capital contexts, offenders remain free to reject offers of commutation, as Oscar Lopez Rivera, a former leader of the FALN—a Puerto Rican terrorist organization—demonstrated by rejecting President Clinton's offer to commute his sentence on the condition that he renounce terrorism. President Obama subsequently, and perhaps surprisingly, commuted his sentence without any condition. Charles Lane, *Forget Chelsea Manning. This is the Obama Pardon You Should be Mad About.*, WASH. POST. (Jan. 18, 2017), https://www.washingtonpost.com/opinions/forget-chelsea-manning-this-is-the-obama-pardon-you-should-be-mad-about/2017/01/ 18/1b3c8b6a-ddb0-11e6-ad42-f3375f271c9c_story.html?utm_term=.27ad7e6de5 bf (last visited Feb. 9, 2017) (on file with the Washington and Lee Law Review).

substantially reduces the potential, as in a typical plea bargain case, that a light sentence will result in the defendant offending again. Nonetheless, as Gershowitz notes, political costs still remain because of the potentially adverse public reaction.[7]

Yet, despite the imperfect analogy to plea bargaining, Gershowitz is correct that governors can use the commutation power to preserve litigation resources.[8] Gershowitz's article therefore affords a window into the increasing use of predictive analytics in deciding whether to bring or resolve litigation. Sifting through data on all prior capital cases can yield clues as to the likelihood of success or the length of litigation in future capital cases. Not surprisingly, the past can, to some extent, help us predict the future. Gershowitz's example of the dissenting judge can be calculated nationally in an effort to determine the number of years of litigation and ultimate outcome after a dissent in a death penalty case.[9] Similarly, governors can calculate the effect when an expert who testified at a sentencing hearing subsequently is discredited. The more factors that can be calculated, the more accurate the picture likely will be.[10] In the pretrial plea bargaining context prosecutors often can assess the likelihood of particular sentences based on the evidence they have amassed, including age of offender, crime charged, potential application of sentencing guidelines and past practices of judges before whom they are likely to appear. Reliance on such data will minimize the potential for inconsistent plea bargaining decisions from jurisdiction to jurisdiction and even from prosecutor to prosecutor.

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7. *See* Gershowitz, *supra* note 1, at 1371–72 (describing how politicians, particularly those with presidential aspirations, must maintain a reputation as "tough on crime"). In addition, the governor's frequent use of the commutation power might undermine the morale of the state's litigation team.

8. *See id.* at 1362 (noting that some states are spending millions of dollars in these capital cases). Gershowitz does not factor in the countervailing costs of incarceration for life.

9. *See id.* at 1387 ("So, how would governors know which cases to commute? . . . Governors could simply have their legal counsel read and analyze the dissenting opinions to see if they find the dissenting opinions convincing.").

10. Unless the system is too complex, in which relevant factors cannot be extracted. *See infra* Parts I–II (describing the difficulty of determining relevant factors in the current system).

Deployment of predictive analytics is more familiar in the private sector. The life insurance industry historically is predicated on actuarial science, and companies today rely on data harvested from their files recording what type of car was involved in a crash, how old were the drivers and passengers, what type of injury was reported, the jurisdiction in which the crash took place and so on to determine whether to settle and if so how much to offer. Bank and credit card companies rely on complex data to score riskiness of a loan or to detect fraud. Marketing firms mine date and look for patterns to predict the purchasing behavior of consumers. Indeed, "Moneyball" has captured the attention of the public.[11] Reliance on such data can be cost effective, while limiting subjectivity of the decision-maker.

Predictive analytics is also a familiar, if not fully examined, part of our national security strategy. Surveillance is predicated on the possibility that individuals who visit particular locales, call certain phone numbers and/or visit certain websites pose a risk to public safety. The No-Fly List is based on similar analytics.[12] Predictive policing aims analogously to prevent crimes before they happen.[13]

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11. Ken Krogue, *Brad Pitt, Oakland Athletics, and Moneyball: Still the Model for Change Management, Business Transformation and Predictive Analytics*, FORBES (July 15, 2014), http://www.forbes.com/sites/kenkrogue/2014/07/15/brad-pitt-oakland-athletics-and-moneyball-still-the-model-for-change-management-business-transformation-and-predictive-analytics/#620f36ac1753 (last visited Feb. 9, 2016) (on file with the Washington and Lee Law Review); Michael Schrage, *What a Minor League Moneyball Can Teach about Predictive Analytics*, HARV. BUS. REV. (May 26, 2016), https://hbr.org/2016/05/what-a-minor-league-moneyball-reveals-about-predictive-analytics (last visited Feb. 9, 2016) (on file with the Washington and Lee Law Review).

12. *See, e.g.*, Bruce Schneier, *No-Fly List Uses Predictive Assessments*, SCHNEIER ON SECURITY (Aug. 20, 2015), https://www.schneier.com/blog/archives/2015/08/no-fly_list_use.html (last visited Feb. 9, 2017) (noting that the U.S. government has admitted to its use of predictive assessments when deciding whether an individual should be on the no-fly list) (on file with the Washington and Lee Law Review).

13. *See, e.g.*, Mara Hvistendahl, *Can 'Predictive Policing' Prevent Crime Before it Happens?*, SCIENCE (Sept. 28, 2016), http://www.sciencemag.org/news/2016/09/can-predictive-policing-prevent-crime-it-happens (last visited Feb. 9, 2017) (describing how the new "predictive policing" program will use police car laptops to "display maps showing locations where crime is likely to occur, based on data-crunching algorithms developed by scientists . . .") (on file with the Washington and Lee Law Review).

Gershowitz's article presages the role that predictive analytics will play in more routine public sector contexts. In the pages that follow, I take tentative steps to chart the conditions under which the use of predictive analytics should be encouraged in public law.[14] As with any other technological breakthrough, predictive analytics as applied to legal decision-making brings tremendous promise but some concerns as well.

I. Sufficiency of Data

As the concept of quantitative legal prediction itself suggests, predictive analytics cannot work without sufficient information. For the No-Fly List, the data sifted was, reportedly, enormous,[15] and the data set for predictive policing is also robust.[16] Tax authorities can probe millions of records to create an algorithm to detect tax avoidance schemes. Consider, as well, a leading article that focuses on securities fraud litigation in the federal courts, assessing a variety of factors to determine the likelihood that a case will settle and the amount of that settlement.[17] The researchers examined 1200 cases and inputted data based on identity of the parties, the defendant's stock market performance, the circuit in which the case was filed, and the nature of the alleged wrongdoing, among other factors. The twelve hundred cases assured a significant enough data set to make successful prediction. The algorithm cannot function if the data points are too disparate. Certainly, the approximately 8,000 death sentences cited by Gershowitz present sufficient data from which to draw

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14. For a more sophisticated assessment in the legal services sector, see generally Daniel M. Katz, *Quantitative Legal Prediction–Or—How I Learned to Stop Worrying and Start Preparing for the Data-Driven Future of the Legal Services Industry*, 62 EMORY L.J. 909 (2013) (discussing the various technological advances that may push the legal services sector towards data driven analysis).

15. Schneier, *supra* note 12.

16. *See* Hvistendahl, *supra* note 13 ("[P]olice departments were catching up in data collection, making crime forecasting a 'real possibility rather than just a theoretical novelty,' . . . ."). .

17. *See generally* Blakeley B. McShane, Oliver Watson, Tom Baker and Sean Griffith, *Predicting Securities Fraud Settlements and Amounts: A Hierarchical Bayesian Model of Federal Securities Class Action Lawsuits*, 9 J. EMPIRICAL LEGAL STUD. 482 (2012).

factors such as duration of litigation and ultimate outcome.[18] Of the 8,000 individuals sentenced to death, Gershowtiz reports that less than twenty percent have been executed.[19]

On the other hand, there may be insufficient instances in the post-trial death sentence context in which an expert is disqualified or state appellate judge dissents to create a meaningful information set. The available data may not permit a governor to make a cost-benefit analysis of when to commute a death sentence in light of a prediction of litigation costs. Predictions do not work if the data points are too isolated. In contrast, insurance companies considering whether to settle cases arising out of car crashes have a cornucopia of information on which to rely, as do banks in considering whether to make a loan. Predictive analytics depends on sufficient data.

II. Relevance of Data Studied

Before 2016, every time that the National League won the seventh game of a World Series in a presidential election year, a Democrat was elected to the White House.[20] That being said, election campaigns would be foolish to rely on such data in campaigning. Many correlations exist that may not be predictive. Although the relevance of data may not be apparent from the outset, decision-makers must be able to focus on relevant data to make predictive analytics valuable.

One way to check against the use of irrelevant data in either public or private law is to ensure that the predictive analytics are constantly updated. Over time, relevant data likely will come to the fore. In the securities fraud litigation example, most, but not all, factors studied had predictive value,[21] while a study of social

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18. Gershowitz, *supra* note 1, at 1370–71.

19. *Id.*

20. *Sports Indicators of Election Favor Hillary Clinton, But. . . ,* POSTGAME, (Nov. 6, 2016), www.thepostgame.com/presidential-election-world-series-game-7-redskins (last visited Feb. 9, 2017) (on file with the Washington and Lee Law Review). At least that was true until the Cubs' recent stirring victory.

21. *See generally* McShane, *supra* note 17, at 499–501; *see also* Daniel M. Katz, Michael Bommarito & Josh Blackman, Predicting the Behavior of the United States Supreme Court: A General Approach 4–5 (Jan. 16, 2017) (on file with authors), https://arxiv.org/pdf/1612.03473.pdf.

security disability litigation in federal courts concluded that almost none of the many factors studied was salient.[22]

Moreover, some systems may be too complex to permit isolation of relevant data. We may not have developed the tools to select the variables that have predictive value in such complex systems. For instance, weather more than ten days out remains an enigma despite the best efforts of meteorologists.[23]

Post-trial plea bargaining takes place within a criminal justice system that comparatively is simple enough to permit drawing relevant data, and the factors of a dissenting judge and discredited expert are likely salient. Gershowitz notes in addition that litigation over capital sentencing has changed significantly over the past generation.[24] Only a constantly updating model will ensure that relevant factors are assessed. Unlike with long-term predictions about the weather, prior data should be relevant for predicting when best to plea bargain pre or post trial. For predictive analytics to succeed, we must be able to extract sufficient relevant data from the information available.[25]

Finally, to some extent, relevant data can only be ascertained if a baseline of accuracy exists so that a decision-maker can determine whether analytics based on the relevant factors lead to a sound prediction. With weather, we can measure success by comparing weather conditions to what was predicted based on different models; with life insurance companies, it is a simple matter to determine whether their risk assessment panned out. In public law contexts, however, it may be more difficult to agree on a benchmark because the political costs of agreeing to

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22. *See generally* Harold J. Krent & Scott Morris, *Inconsistency and Angst in District Court Resolution of Social Security Disability Appeals*, 67 HASTINGS L. J. 367 (2016).

23. *See* Katz, *supra* note 14, at 959–61 ("Even under fairly ideal conditions, weather is a hard prediction problem and our best success is obtained within small time windows around the given event.").

24. *See* Gershowitz, *supra* note 1, at 1363 n.15, 1366 n.27 (noting some of the specific ways the litigation has changed).

25. Supposedly, one of the failures of the Total Information Awareness project launched by Admiral Poindexter after 9/11 was the difficulty in identifying relevant data. *Q&A on the Pentagon's "Total Information Awareness" Program,* ACLU, https://www.aclu.org/other/qa-pentagons-total-information-awareness-program?redirect=cpredirect/15578 (last visited Feb. 9, 2017) (on file with the Washington and Lee Law Review).

sentences less than those approved by the jury or sentencing judge are so hard to measure. Moreover, in the context of post-trial plea bargaining, as in all settlements, the decision-maker never is sure what would have happened had the bargain not taken place.[26] At a minimum, however, greater consistency in decision-making can be assured, and a governor can assess over time the extent to which litigation costs have lessened.

III. No Right to an Individualized Determination

Although algorithms can be fashioned to create insurance markets and help with litigation costs, use of probabilistic data to assess eligibility for government benefits or leniency programs may be problematic.

For example, roughly two million applications for social security disability are filed each year. The agency must determine if each applicant is disabled based on a complicated grid that focuses on the applicant's continuing ability to perform gainful employment in the economy.[27] The agency must consider age, physical and psychological symptoms, interactivity of symptoms, employment history and so forth. Assessing whether an individual is disabled within the meaning of the Social Security Act is time consuming, expensive, and has led to widely disparate decisions across the country.[28] How attractive it would be instead to cull information from the Social Security Administration (SSA) or the National Institutes of Health to create an algorithm to determine the likelihood that someone with similar conditions and age can pursue gainful employment

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26. *See* Daniel Kahneman et al., *Noise: How to Overcome the High, Hidden Cost of Inconsistent Decision Making*, HARV. BUS. REV. (Oct. 2016), https://hbr.org/2016/10/noise (last visited Feb. 4, 2017) (discussing generally, not just in the legal context, how irrelevant information must be limited to produce decisions without wrong results) (on file with the Washington and Lee Law Review).

27. HAROLD J. KRENT & SCOTT MORRIS, ADMINISTRATIVE CONFERENCE OF THE UNITED STATES, ACHIEVING GREATER CONSISTENCY IN SOCIAL SECURITY DISABILITY ADJUDICATION: AN EMPIRICAL STUDY AND SUGGESTED REFORMS 1–3 (Apr. 3, 2013), https://www.acus.gov/sites/default/files/documents/Achieving_Greater_Consistency_Final_Report_4-3-2013_clean.pdf.

28. *Id*. at 14–33.

despite the setback(s). The algorithm could be tested on prior cases to determine whether it predicts disability effectively as measured by the rubrics established by the agency, or it could be tested against the assessment of experts. If the algorithm could predict disability with a ninety percent success rate, massive amounts of time and resources would be saved,[29] and greater consistency would be ensured. As it is, those who are denied disability can seek a de novo hearing before an Administrative Law Judge, and 800,000 do so every year with a forty percent or so success rate.[30] In comparison, determining disability with a ninety percent success rate at the outset would be outstanding.

But Congress has not directed that individuals be awarded disability on a probabilistic basis. Rather, the agency is to assess the particular characteristics and conditions of each claimant.[31] Predictive analytics cannot be the sole basis for a judgment when individualized determinations are required by law.

Use of predictive analytics to fast track eligibility poses a closer question—individuals receiving such benefits due to the algorithm would be advantaged in receiving benefits more quickly than others. When the algorithm did not predict disability, the claimant still would have the same opportunity as now to demonstrate disability before the agency through a written hearing, with presumably less wait time. Unless Congress were to direct that the agency assess disability on a first come first served basis, such fast tracking in the long run would save tremendous resources. Deployment of a probabilistic algorithm to determine disability is promising.

Consider, as well, if the agency used predictive analytics to determine which recipients of disability payments likely were to improve medically to the point where they could resume gainful

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29. An avenue of appeal would be available for those denied disability based on the algorithm and, presumably the appeals system would correct—to the extent consistent with prior practice—the error. Those erroneously granted disability might well lose disability through the Continuing Disability Review (CDR) process. *Infra* note 31.

30. Krent & Morris, *supra* note 22, at 14–23.

31. Due Process may mandate individuated treatment even if the legislature has not so directed. Criminal defendants, for instance, could not be convicted based on probabilistic notions alone; nor would *Matthews v. Eldridge*, 424 U.S. 319 (1976), permit dismissal of a governmental employee without a hearing based on factors specific to the particular case.

employment. The agency might single out those for Continuing Disability Review based on predictive data. Those selected for a hearing because of the algorithm thus would be more likely to lose disability earlier than others who had received disability at the same time. The agency follows a simplified form of this approach currently,[32] and a more sophisticated approach would be entirely consistent with the statutory scheme because the ultimate determination of disability would turn on the characteristics of the particular claimant.[33]

Use of predictive analytics in the post-trial plea bargaining context similarly would not prove problematic. Each individual has been sentenced based, at least in part, on his or her own conduct. To be sure, many defendants would receive the offer of a commutation based on factors external to their criminal conduct. Plea bargaining before trial itself, however, is based on factors unrelated to blameworthiness, such as the expense of prosecution, difficulty of obtaining evidence, and so forth.[34] Moreover, with the exception of the commutation from the death penalty when only the capital sentencing is challenged, the offender can refuse the offer.

IV. Potential for Discrimination

Even when individualized treatment is not mandated by the legislature, the use of predictive algorithms may result in

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32. The agency currently classifies beneficiaries into three categories—medical improvement not expected, medical improvement possible, and medical improvement expected—based on 1990s data and then prioritizes within the third category for full medical reviews. For an analysis of deficiencies in the acquisition and analysis of data, see Alexandra Constantin, et al., *Data-Driven Solutions for Improving the Continuing Disability Review Process*, *in* IDEAS TO STRENGTHEN THE SOCIAL SECURITY DISABILITY INSURANCE PROGRAM 142–50 (2016) [hereinafter IDEAS TO STRENGTHEN].

33. Congress could also fashion a transitional term of disability for those who are most likely to improve medically based on probabilistic data. *See, e.g.*, Kim Hildred, Pamela Mazerski, Harold J. Krent & Jennifer Christian, *Transitional Benefits for a Subset of the Social Security Disability Insurance Population*, *in* IDEAS TO STRENGTHEN, *supra* note 32, at 337.

34. Because of the focus on external factors, the potential for discrimination arises, although there have been no studies, of which I am aware, suggesting that plea bargaining has resulted in discrimination. *See also infra* notes 37–38 (addressing subjectivity in the clemency context).

discrimination against an individual, in essence disadvantaging him or her for being a member of a group. When the state bases predictive analytics on data correlated with gender, race, or other protected category, discrimination can occur.

A case in point lies in the evidence-based sentencing adopted by over twenty states.[35] That approach relies in part on data drawn from factors extrinsic to the individual's conduct, such as socioeconomic status and level of education, to estimate the chance of recidivism. To the extent such factors are linked with race, so will the predicted level of recidivism even when the prior conduct viewed in isolation does not so indicate. In other words, predictive data can "bake in" discrimination due to reliance on factors outside the individual's own past conduct, and judges may use such factors without realizing that they are thereby departing from a sentencing system based on moral dessert. Viewed another way, probabilities based on factors outside the individual's control can result in discrimination, even though subjective factors also may be determinative in the recidivism decisions reached by judges without the benefit of data. The risks of each must be considered in designing how best to reach recidivism predictions.

Indeed, ProPublica recently released a study of risk assessment for recidivism assigned to 7,000 people arrested in Broward County, Florida, in 2013–14.[36] The data revealed that race played a substantial factor in the recidivism projection, which then led to longer sentences for African Americans who committed similar offenses to whites. ProPublica tentatively concluded that the questions Florida law enforcement authorities asked about socio-economic and demographic conditions, such as whether a parent had been in jail or the number of people known to have used illegal drugs, play a substantial role in the sentences handed out. The study highlights the importance of transparency—the factors underlying predictive analytics can

35. *See* Sonja B. Starr, *Evidence-Based Sentencing and the Scientific Rationalization of Discrimination*, 66 STAN. L. REV. 803, 805 (2014) (examining the effects of evidence based sentencing).

36. Julia Angwin et al., *Machine Bias*, PROPUBLICA (May 23, 2016), www.propublic.org/article/machine-bias-risk-assessments-in-criminal-sentencing (last visited Feb. 9, 2017) (on file with the Washington and Lee Law Review).

shape the prediction and should in public law contexts be shared with the public when possible.[37] Although there has been no similar study of the net cast by the No-Fly List, few would be surprised if the list disproportionately targeted those with Middle Eastern backgrounds in comparison to others who posed a similar risk of violence based solely on their prior actions.

In the commutation context, subjective factors could conceivably result in discrimination. After all, the President's pardon power embraces discretion, and has so historically.[38] Discrimination based on race, gender, and other characteristics likely has entered into the calculus—even President Lincoln allegedly showed favoritism to residents of Kentucky.[39] But, in calling for greater use of the commutation power in death penalty cases, Gershowitz confines his analysis to situations in which litigation costs would be substantial, a relatively neutral criterion that is not likely to lead to discrimination.

Conclusion

Utilization of predictive analytics will burgeon with time. The benefits of quantitative legal prediction are many, and the potential savings to government bureaucracy and private business alike, huge. Governments as well as private businesses should be able to learn from the sine qua non of the insurance industry—data from the past can be mined to predict the future,

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37. The furor over the factors that led to placing individuals on the "no-fly list" is a case in point. Transparency argues strongly for disclosure of the factors, but disclosure of some might tip off potential terrorists. *See, e.g.*, Stephen Dinan, *FBI No-fly List Revealed 81,000 Names, but Fewer than 1,000 are Americans,* WASH. TIMES (June 20, 2016), http://www.washingtontimes.com/news/2016/jun/20/fbi-no-fly-list-revealed-81k-names-fewer-1k-us/ (last visited Feb. 9, 2017) (on file with the Washington and Lee Law Review).

38. *See, e.g.*, HAROLD J. KRENT, PRESIDENTIAL POWERS 189–94 (2005) (summarizing how presidents have granted clemency for different reasons).

39. *Id*. at 203; *see also* Lois Beckett & Robin Respaut, *Racial Disparity in Presidential Pardons: What Can Be Done?*, PROPUBLICA (Dec. 7, 2011), https://www.propublica.org/article/racial-disparity-in-presidential-pardons-what-can-be-done (last visited Feb. 9, 2017) (discussing the role race plays in the presidential pardons process) (on file with the Washington and Lee Law Review).

and subjectivity in decision-making, minimized. As long as there is sufficient relevant data, predictive analytics can help government decision-makers allocate scarce resources, as Gershowitz recommends, even though there may be insufficient data in the death penalty context he addresses.

That being said, two cautionary notes are appropriate in deploying predictive analytics in public law. Individuated decision-making may be required either under the Constitution or pertinent laws, thus preventing reliance on predictive analytics, even where it would be fiscally prudent to do so. Second, even where reliance on external data seems appropriate, consideration of those factors may result in discrimination. Thus, government actors must be careful if relying on characteristics more prevalent among protected groups than others when making predictions affecting individual rights. After all, predictive analytics is just a technologically more sophisticated way of describing profiling.