

## COMMENTARY

# FRAGMENTED USERS OF CRIME PREDICTIONS

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### INTRODUCTION

As Dean (and Judge) Guido Calabresi says, it is the duty of academics to offer half-baked ideas for others to perfect.<sup>1</sup> Henderson, Wolfers, and Zitzewitz, with their proposal to establish open markets for the prediction of crime, have created a gloriously half-baked idea.<sup>2</sup> My contribution in the kitchen must remain small in this brief comment. I explore a few implications stemming from one fact: the prediction market concept—an effort to coordinate decentralized *sources* of information—would operate in an exceptionally decentralized world of *users*, a world where the institutional users of crime predictions are fragmented among many different locations and levels of government.

I begin with a sketch of the changing data landscape in criminal justice and note how these changes have contributed to long-term centralization in the response to crime at the highest levels of government. I show how, despite this long-term trend, the social response to crime in the United States today still remains quite decentralized. Fragmented local institutions, especially police departments and prosecutors' offices, would find it difficult to use crime prediction markets. Instead, institutions at higher levels of government, such as state-level correctional authorities, would be best positioned to rely on prediction markets. They would use markets to overcome the greatest information challenge at the higher level: coordinating input from many incompatible sources. Finally, I close

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1. See Guido Calabresi, *The Exclusionary Rule*, 26 HARV. J.L. & PUB. POL'Y 111, 117 (2003) ("I present this half-baked idea playing the role of an academic, rather than that of a judge. Judges cannot afford half-baked ideas. Only academics can engage in such flights of fancy—a great blessing for judges and academics alike.").

2. M. Todd Henderson, Justin Wolfers & Eric Zitzewitz, *Predicting Crime*, 52 ARIZ. L. REV. 15 (2010).

by noting that a few actors at the local level—in particular, sentencing judges—combine features of fragmented and centralized users. The ability of local actors to use far-flung crime data poses the question of whether markets at the case level would be either appealing or possible.

### I. RECENT CENTRALIZED USES OF DATA

It is surprising how long it has taken the benefits of the Information Age to reach the criminal justice world. Police departments have produced crime reports since the nineteenth century, but only recently did they begin to use database techniques to analyze geographic and other trends in crimes.<sup>3</sup> Service providers in the private sector and in other governmental sectors took advantage of these tools a good deal earlier than the police. Similarly, word processing and computerized legal research arrived in prosecutors' offices and public defenders' offices long ago, but case management software and docket analysis tools took much longer to appear in many prosecutors' and public defenders' offices than in civil litigation offices.<sup>4</sup>

As criminal justice actors gain the power to compile and organize the mountains of data collected in unconnected paper files over the years, a pivotal moment presents itself. It is said that knowledge is power; the newfound power to organize data about criminal justice now makes it possible to shift power to the users at the center of the system. Until now, nobody could collect from a central vantage point the information needed to monitor the tremendous discretionary power that has always made actors at the bottom of the organizational pyramids so important.<sup>5</sup>

The centralized bureaucracies of criminal justice have employed this newly organized data to gain control of a few key sectors of the criminal justice system. The work of sentencing commissions at the state and federal level has been possible because of access to court dispositions and corrections data.<sup>6</sup> In larger prosecutors' offices, elected leaders have begun to use data about case processing and dispositions to monitor the work of line prosecutors. Statistics allow the office leadership to compare the output of one assistant district attorney

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3. See George Gascon, L.A. Police Dep't, CompStat Plus, [http://www.lapdonline.org/inside\\_the\\_lapd/content\\_basic\\_view/6364](http://www.lapdonline.org/inside_the_lapd/content_basic_view/6364) (describing CompStat crime mapping system in Los Angeles) (last visited Feb. 21, 2010).

4. See generally THOMAS MCKNIGHT STEELE, MATERIALS AND CASES ON LAW PRACTICE MANAGEMENT (2004) (detailing uses of case management software in civil litigation).

5. See generally MICHAEL LIPSKY, STREET-LEVEL BUREAUCRACY: DILEMMAS OF THE INDIVIDUAL IN PUBLIC SERVICES (1980) (describing impact of police discretion); SAMUEL WALKER, TAMING THE SYSTEM: THE CONTROL OF DISCRETION IN CRIMINAL JUSTICE, 1950-1990 (1993) (comparing impact of discretion at different levels of criminal justice).

6. See Kay A. Knapp, *The Sentencing Commission's Empirical Research*, in THE SENTENCING COMMISSION AND ITS GUIDELINES 107 (Andrew von Hirsch et al. eds., 1987).

to another. The numbers flag potential management issues, without requiring the chief prosecutor to re-evaluate each case file for herself.<sup>7</sup>

Users of centralized information at the higher levels of government, however, have also run into a major barrier in their use of this electronic data. The sources of their information are fragmented. For instance, when sentencing commissions try to match arrest records with corrections records for purposes of calculating a criminal history, they discover that law enforcement computers do not “talk” to state corrections department computers in the home state—let alone the computers from courts and corrections officials in other states. When corrections officials hope to measure the recidivism rates of non-prison programs, they cannot easily collect in one place all of the arrest records and other data points related to the offenders who cycle through a given program.

Henderson, Wolfers, and Zitzewitz bypass this problem of incompatible data through a market device. This is the genius of markets in many settings. The ability of a market to synchronize data from many sources will remain especially valuable in criminal justice for many years because the relevant data is so disjointed. Meaningful data come from some sources that never make it into recorded files, historical sources about the activities of individuals in different jurisdictions, and criminal justice programs and actors that record their output in different software over the years. A market for crime predictions could leapfrog an entire generation of data compatibility problems and speed up the centralization of criminal justice policy.

In a context where data coordination among different levels of government is the leading problem, a federal role seems apparent. In a comparable field—the collection and interpretation of public health data—the federal government plays a market-making role.<sup>8</sup> Henderson, Wolfers, and Zitzewitz invoke this tradition when they nominate the federal government to initiate experiments with the prediction market model.<sup>9</sup>

## II. USERS IN THICK AND THIN MARKETS

Because the coordination of information sources is the strength of the market idea, it may prove useful to state-level users of scattered information. Consider, for example, the efforts by state sentencing commissions to predict the number of prison beds that the state will need to operate in the future as judges and others apply existing (or proposed) sentencing rules. The ability to forecast the correction resources that the state will need down the road is key to the political credibility of commissions and the budgetary implications of their predictions can be enormous. To make these high-stakes predictions, commissions call together panels of experts who pore over statistics related to population trends in the state, sentencing habits of judges under current law, economic forecasts, and a multitude

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7. See Marc Miller & Ronald Wright, *The Black Box*, 94 IOWA L. REV. 125, 132 (2008); Ronald Wright & Marc Miller, *The Screening/Bargaining Tradeoff*, 55 STAN. L. REV. 29, 62 (2002).

8. See Marc L. Miller & Ronald F. Wright, “*The Wisdom We Have Lost*”: *Sentencing Information and Its Uses*, 58 STAN. L. REV. 361, 363 (2005).

9. See Henderson, Wolfers & Zitzewitz, *supra* note 1, at 59–60.

of other factors that affect crime rates in a state.<sup>10</sup> In this setting, which requires a panel of experts to forecast future crime rates based on many diverse sources of information, it is easy to believe that a prediction market could improve the results.

It seems reasonable that other state-level actors in the criminal justice system would benefit from such a prediction market. For example, state funding sources must sometimes allocate resources among local prosecutors, public defenders, and courtroom personnel. They therefore need to be able to predict changes in crime rates in one part of the state as compared to others. The feedback loop problem that Henderson, Wolfers, and Zitzewitz address comes into play here<sup>11</sup> because any action that state actors might take based on crime predictions could affect the crime rate. This problem is blunted, however, in the setting of public institutions. Public actors are subject to disclosure laws, making it easier—particularly at the highest levels of government—to predict their actions. Thus, bidders in a crime prediction market can anticipate from the outset the new policies that public actors will likely pursue, along with private sector responses to those anticipated policy changes.

While there is room for optimism when it comes to higher-level users of scattered information about crime, local users of predictions about local conditions face more difficult problems. One of the persistent realities of the American criminal justice system is that police departments and prosecutors' offices are fragmented. There are 2344 separate state prosecutors' offices in the country, each the ultimate authority about the enforcement of the criminal law within its own jurisdiction.<sup>12</sup> Remarkably, there are 17,876 state and local law enforcement agencies operating in the United States.<sup>13</sup> Only 6.1% of those agencies employ 100 or more full-time sworn officers.<sup>14</sup> Seventy-four percent of the agencies employ fewer than twenty-four officers.<sup>15</sup>

These markets are too small to offer reliable predictions of crime. As the authors note in their critique of New York City's use of Compstat data, the sources of information are "extremely localized and subject to the idiosyncrasies and biases of the individuals involved."<sup>16</sup> The prediction market for a small jurisdiction might depend on bids from only a handful of officers or observers. Thicker markets are "likely to yield more accurate forecasts."<sup>17</sup>

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10. See Ronald F. Wright & Susan P. Ellis, *A Progress Report on the North Carolina Sentencing and Policy Advisory Commission*, 28 WAKE FOREST L. REV. 421 (1993).

11. See Henderson, Wolfers & Zitzewitz, *supra* note 1, at 35–38.

12. See Steven W. Perry, *Prosecutors in State Courts, 2005*, BUREAU OF JUST. STAT. BULL., NCJ 213799 (U.S. Dep't. of Justice, Wash., D.C.), July 2006, at 1, available at <http://bjs.ojp.usdoj.gov/content/pub/pdf/psc05.pdf>.

13. See Brian A. Reaves, *Census of State and Local Law Enforcement Agencies, 2004*, BUREAU OF JUST. STAT. BULL., NCJ 212749 (U.S. Dep't. of Justice, Wash., D.C.), June 2007, at 1, available at <http://bjs.ojp.usdoj.gov/content/pub/pdf/cs1lea04.pdf>.

14. *Id.* at 2 tbl.2.

15. *Id.*

16. Henderson, Wolfers & Zitzewitz, *supra* note 1, at 30.

17. *Id.* at 55.

In addition to the small number of actors who might participate in prediction markets relevant to small jurisdictions, concerns about asymmetric information (in effect, insider trading) can destroy any incentive for anyone to participate in the market. If a few police officers take advantage of their knowledge of forthcoming department policies, they could drive away other bidders. Personnel laws or departmental rules on conflicts of interest or moonlighting might also limit the participation of police officers and other insider personnel. While property insurers might become reliable users of local predictions, they are not likely to add an important source of bidders for contracts, given the dispersion of clients in a small jurisdiction among several different insurers.

In short, local users of local information are not likely to generate the sort of reliable predictions that emerge from thick markets based on diverse and incompatible information sources. The fragmented reality of criminal justice in the United States will block a great majority of local police departments, prosecutors' offices, and other local institutions from using crime prediction markets.

Falling somewhere between local users of local information and statewide users of dispersed and incompatible information, consider the local user of dispersed information from rich but unlinked sources. A key example might be the sentencing judge who wants to learn about the recidivism rate of a particular non-prison program.<sup>18</sup> A market might predict the punishment's likely effects on a particular category of offenders. That prediction, in turn, might convince the judge to select one criminal sanction over another for an individual defendant who falls within that category.

If the program is small and operates on a distinctive model, very few bidders would have information about its track record or its methods of operation. Larger programs or those adopting a familiar model, however, might offer richer grounds for predictions. The relevant clues could be scattered across many incompatible data sources: graduates of the program might reside in many different states and a number of them might commit crimes and then get arrested, convicted, and sentenced in many different jurisdictions. Some might find employment or other ways to thrive after leaving the program. The success of the program also might depend on new operating procedures, facilities, or leadership. Sentencing judges currently have no way to learn about these diverse facts. Prediction markets might offer a realistic method to compile insights from these dispersed sources into a single bid about the recidivism rate for the program.

This use of markets could prove fruitful and an improvement over current intuitive predictions at sentencing. Nevertheless, it is unnerving. Ultimately, case-level sentencing amounts to something more than a prediction about the future. We expect someone—generally the judge—to take individual responsibility for sentencing choices.<sup>19</sup> The de-identified predictions of market bidders, even if they

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18. Cf. Michael Marcus, *MPC—The Root of the Problem: Just Deserts and Risk Assessment*, 61 FLA. L. REV. 751 (2009).

19. See generally KATE STITH & JOSÉ CABRANES, *FEAR OF JUDGING: SENTENCING GUIDELINES IN THE FEDERAL COURTS* (1998) (calling for restoration of central role for judicial choices in federal sentencing).

prove more accurate than the guesses of an individual judge, would not meet our expectations that a human being must articulate his or her own moral judgment at the case level.

### CONCLUSION

Henderson, Wolfers, and Zitzewitz have envisioned the sellers in their markets more carefully than the buyers of predictions. The majority of the potential users operate in fragmented local institutions, surrounded by thin markets that are not likely to generate reliable predictions. A smaller number of purchasers, especially those at the state level, could benefit enormously from the power of markets. In a criminal justice world that collects so much information but rarely connects the dots among the data points, the market's power to distill insights from various incompatible data sources will remain valuable for years to come.

Users of crime predictions are not just limited by the breadth and quality of the available market in the local jurisdiction. They are also limited by the complexity of the judgments expected of them. Certain criminal justice choices—sentencing and the selection of criminal charges are two examples that come to mind—call for an identified and accountable individual to collect facts and then to evaluate those facts in light of public morality. There is an element of factual prediction embedded in these choices, but the prediction is only a fragment of the overall task. If crime prediction markets become commonplace, users must not confuse a component from a holistic judgment. The unaccountable market prediction of the future must remain distinct from the accountable moral evaluation of the present.