
The Criminal Justice System Creates Incentives for False Convictions

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The American criminal justice system creates incentives for false conviction. For example, many public crime labs are funded in part per conviction. We show that the number of false convictions per year in the American criminal justice system should be considered “high.” We examine the incentives of police, forensic scientists, prosecutors, and public defenders in the U.S. Police, prosecutors, and forensic scientists often have an incentive to garner convictions with little incentive to convict the right person. These incentives create what economists call a “multitask problem” that seems to be resulting in a needlessly high rate of false convictions. Public defenders lack the resources and incentives needed to provide a vigorous defense for their clients. Corrective measures are discussed, along with a call for more research.

Keywords: criminal justice, forensic science, multitask problem, false convictions

Except in the few cases where evidence is consciously suppressed or manufactured, bad faith is not necessarily attributable to the police or prosecution; it is the environment in which they live, with an indiscriminating public clamor for them to stamp out crime and make short shrift of suspects, which often serves to induce them to pin a crime upon a person accused.—

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

Introduction

Police, prosecutors, and forensic scientists often have an incentive to

convict *someone*, with little or no incentive to convict the *right someone*. Public defenders often lack sufficient resources and incentives to mount a vigorous defense and cannot, therefore, be viewed as adequate counterweight to the inappropriate incentives available to police, forensic scientists, and prosecutors. As we explain below, the American criminal justice system thereby creates incentives for false conviction.

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The rate of false convictions in the U.S. is hard to estimate. It seems to be relatively low, but with about 1 million felony convictions per year, even a low *rate* of false conviction can produce a high *number* of false convictions. Michael Risinger estimates that the rate of false convictions for rape-murders in the 1980s was not less than 3.3%.¹ If that rate applied to all felony convictions today, the U.S. would have at least 33,000 false felony convictions per year. The number of false convictions could be reduced by structural changes that strengthen the incentive of criminal justice professionals to discriminate between the innocent and the guilty. Incentives matter even when the actors are sincerely motivated to achieve justice. Thus, improved outcomes require structural changes rather than policies meant to "get tough" with overt cheaters and frauds.

William Stuntz reports: "The overwhelming majority of criminal convictions, more than 95 percent, are by guilty plea, and most of those are the consequence of plea bargains."² An unknown fraction of such convictions are "false convictions" in the sense that an innocent person has accepted a plea bargain to avoid the risk of false conviction on more serious charges. As Rachel Barkow notes, "Prosecutors have an interest in making the consequences of convictions harsh because that gives them greater bargaining leverage to obtain pleas."³ Our discussion of incentives in the American criminal justice system applies equally to false convictions in the narrower sense of cases that have gone to trial and the broader sense of cases in which innocent persons have for some reason pled guilty to the charges or to lesser charges.

In what follows, we review evidence that false convictions are probably not rare events or flukes. This conclusion motivates attention to the incentives of criminal justice professionals. We examine the relevant incentives of criminal justice professionals in light of the "multitask problem" of organizational economics, which is explained. We review evidence suggesting that people can respond to incentives without knowing it. In other words, "bad apples" are not the only ones whose actions may be skewed by inappropriate incentives. Finally, we make suggestions about how to improve the incentives of criminal justice professionals through structural changes.

We want to stress that this review of incentives in the criminal justice system is neither complete nor comprehensive.⁴ We do address important incentives that affect criminal justice professionals ranging from uniformed officers to forensic scientists to prosecutors and public defenders. We believe our survey is broad enough to suggest the likely value of structural change and the desirability of further scholarly work on incentives in the criminal justice system. We want to encourage the study of how incentive systems might be improved through well-designed structural change. We also have adopted the perspective that criminal justice professionals are neither more nor less responsive to incentives than other professionals, and we develop this point in the section entitled "Incentives Matter."

Most of the inappropriate incentives we identify here are familiar to at least some parts of the scholarly community. We are not aware of any previous work, however, that reckons with the fact that many crime

labs are funded in part *per conviction*.⁵ In at least 14 states, state law requires that public crime labs be funded in part through court-assessed fees payable by the defendant upon conviction.⁶ In effect, then, the crime lab gets a kind of bonus for each conviction. As we argue below, such court-assessed fees create an inappropriate incentive to generate findings that support conviction.⁷

We assume that criminal justice professionals respond to the same incentives as do people in other areas of human action, in the same ways, and to the same degree. This insight is a truism: criminal justice professionals are human beings, not angels. The disciplined pursuit of this common-sense observation, however, helps us to reach conclusions about the criminal justice system that might be surprising or counter-intuitive.

False Convictions are a Problem

A. The Logic of Technique Absorption Explains Why it Is Hard to Estimate the Rate of False Convictions

Many competent observers think false convictions are relatively common, while other competent observers view them as relatively rare. If they are relatively common, then non-incremental change in the American criminal justice system might be appropriate and desirable. If they are relatively rare, then such changes might not be appropriate or desirable. Though not the focus of the current research, the death penalty is a particularly charged issue in this connection. Many opponents of the death penalty argue (among other things) that the risk of executing an innocent person is too high. Supporters of the death penalty generally (perhaps universally) view that risk as low.

It is not easy to estimate the rate of false convictions. The difficulty is explained by the "logic of technique absorption," as we call it. The criminal justice system is our nearly exclusive method of determining guilt and innocence. To estimate the error rate of the system, we need a

technique to measure guilt or innocence that is external to the system. But if we had a regular and reliable external technique for judging guilt and innocence, we would likely incorporate it into the criminal justice system. Once the technique is absorbed it can no longer serve as an external measure of the system's error rate.⁸

Technique absorption is a good thing. It would probably not improve the criminal justice system to exclude techniques capable of improving the system's ability to discriminate between the guilty and the innocent.⁹ Nevertheless, the logic of technique absorption puts the system in the position similar to that of baseball umpire Bill Klem, who quipped, "It ain't nothing until I call it!"¹⁰ In principle, a ball is fair or foul depending on which side of the line it is on. In practice, it is fair or foul according to how the umpire calls it. It is much the same with criminal justice. In principle, a person is guilty or not guilty depending on whether he did it. In practice, we have no choice but to ask the criminal justice system to call it.

B. Examples of Possible False Convictions Have Produced Conflicting Interpretations

The logic of technique absorption makes it hard to resolve differences of opinion about the rate of false convictions. Samuel Gross and his constituents published a list of 340 exonerations in the U.S. from 1989 to 2003. Their list is conservative because they do not count "mass exonerations" such as those from the Los Angeles Police Department's (LAPD) Rampart scandal, which we discuss below, or about 70 cases in which convicted childcare sex abuse defendants seemed to have been wrongly convicted. They say, "Any plausible guess at the total number of miscarriages of justice in America in the last fifteen years must be in the thousands, perhaps tens of thousands."¹¹ Joshua Marquis, then district attorney of Oregon's Clatsop County, drew a very different conclusion from the same facts. He acknowledged that the 340 cases documented by Gross and his colleagues may be only a fraction of the number of false convictions. For the sake of argument, he assumes that Gross et al. underestimated the number of false convictions by a factor of about 10, bringing the number to 4,000 false convictions for the 15-year period in question. "During that same 15 years, there were more than 15 million felony convictions across the country. That would make the error rate .027 percent—or, to put it another way, a success rate of 99.973 percent."¹²

Supreme Court Justice Scalia quoted the Marquis op-ed favorably in the capital case *Kansas v. Marsh* (2006). Scalia dismisses the possibility of false executions in the U.S. and

states, "as far as anyone can determine (and many are looking), none of the cases included in the 0.27% error rate for American verdicts involved a capital defendant erroneously executed."¹³ One of Scalia's comments reflects the logic of absorption:

*Remarkably avoiding any claim of erroneous executions, the dissent focuses on the large number of non-executed "exonerees" paraded by various professors. It speaks as though exoneration came about through the operation of some outside force to correct the mistakes of our legal system, rather than as a consequence of the functioning of our legal system. Reversals of an erroneous conviction on appeal or on habeas, or the pardoning of an innocent condemnee through executive branch clemency, demonstrates not the failure of the system but its success. Those devices are part and parcel of the multiple assurances that are applied before a death sentence is carried out.*¹⁴

Since Scalia wrote his dissent in *Kansas v. Marsh*, increasing attention has been drawn to a clear case of wrongful execution. Cameron Todd Willingham was convicted in 1991 of the arson murder of his three young children based in large part on now-discredited fire investigation techniques.¹⁵ The evidence in this case seems to show rather unambiguously that Willingham was wrongly convicted and wrongly executed.¹⁶

Although Justice Scalia stated in his opinion, "But with regard to the punishment of death in the current American system, th[e] possibility [of false conviction] has been reduced to an insignificant minimum,"¹⁷ Steve Mills and Maurice Possley have chronicled the fact that Willingham was likely wrongly convicted well before the ruling in *Kansas v. Marsh*.¹⁸ Scalia's argument that no one had found a case of wrongful conviction in spite of much searching may now

appear to be grounded more in optimism than fact. In fact, Scalia's claim may have been optimistic even apart from the Willingham case. As of 22 September 2011, the Death Penalty Information Center (DPIC) lists nine executions in the U.S. since 1976, including that of Willingham, in which there was "strong evidence of innocence."¹⁹ There does seem to be significant doubt attached to these cases and, while these cases are not the focus of this essay, the execution of an innocent person is perhaps the most grievous consequence of a false conviction.

C. Michael Risinger's Estimate of the Rate of False Convictions and Supporting Evidence

In his 2007 study, "Innocents Convicted: An Empirically Justified Factual Wrongful Conviction Rate," Michael Risinger leveraged the logic of technique absorption to estimate the rate of false convictions for rape-murders in the U.S. by looking exclusively at DNA exonerations. DNA testing has now been "absorbed" by the system. But for convictions in the period that Risinger examined, 1982–89, DNA was not part of the system. Thus, DNA typing provides an external test of truth for some cases in this period. Using this external test, Risinger was able to craft a sound estimate of the minimum factual rate of false convictions for rape-murders in the U.S., which he found to be 3–5%.²⁰

By considering the period 1982–89, Risinger was able to consider cases that were tried before DNA typing was commonplace, but recent enough that DNA exonerations were possible. By considering only DNA exonerations,²¹ Risinger took a very

conservative and cautious view of what counts as an "exoneration." In spite of this and other conservative assumptions built into his analysis, Risinger's point estimate was 3.3%.²² Risinger's estimate might overstate the rate of false convictions in general or even the rate for rape-murders in the 1980s, yet given the conservative nature of his estimates it seems more likely that Risinger's estimate is too low. Risinger gives reasons to fear that the introduction of DNA technology may not have substantially reduced the rate of false convictions in rape-murders.²³

Risinger cautions against extrapolating his estimate to "other crimes and other times."²⁴ He suspects that the rate of false conviction will vary greatly across crime and time such that "few if any of the subsets have distributions near the average."²⁵ He nevertheless considers the "implications of a 3–5% factual wrongful conviction rate" for judicial reform.²⁶ He thus uses his figure as a benchmark for thinking about false convictions, and we will do the same.

It might seem that we should be favorably impressed if 95–97% of convictions are sound. As we have noted, however, this high rate of success will nevertheless produce tens of thousands of false convictions when there are over a million felony convictions per year. Stuntz argues, "If the same error rate exists in noncapital cases as in the cases Risinger studied, the justice system wrongfully convicts somewhere between 30,000 and 60,000 'felons' per year."²⁷ Thus, the evidence seems to support the statement made by Gross and his fellow authors that we quoted earlier: "Any plausible guess at the total number of miscarriages of justice in America in the last fifteen

years must be in the thousands, perhaps tens of thousands." The evidence would seem to suggest that Justice Scalia's confidence in a relatively low rate of wrongful convictions was mistaken.

We have other evidence suggesting a relatively high rate of false convictions. In 1999 a scandal broke over the Community Resources Against Street Hoodlums (CRASH) unit of the Rampart division of the LAPD. A group of "Rampart CRASH officers had routinely lied in arrest reports, shot and killed or wounded unarmed suspects and innocent bystanders, planted guns on suspects after shooting them, fabricated evidence, and framed innocent defendants." The Rampart scandal led to the exoneration of at least 100 persons who had been wrongly convicted.²⁸ Anna Gorman suggests a number closer to 150.²⁹ The number of such exonerations is lower than the number of false convictions in part because some judges have refused to reverse the convictions of wrongly convicted individuals who have served their time. Such refusals seem to be based at least in part on strict legal reasoning. It is not clear that habeas relief, for example, can be granted to someone no longer in custody. There may also be some concern that reversing such convictions will invite a flood of spurious motions for relief.³⁰

Gross and his fellow authors report that Governor Perry pardoned 35 persons in Tulia, Texas, after it emerged that the "corrupt" undercover narcotics agent responsible for their convictions "had systematically lied about these cases, and charged the defendants with drug sales that had never occurred." They "were convicted of drug offenses in Tulia,

Texas, on the uncorroborated word of a single dishonest undercover narcotics agent."³⁰

Gross et al. also note the 2002 "Dallas Sheetrock Scandal," wherein "at least eighty defendants in Dallas, Texas, were falsely charged with possession of quantities of 'cocaine' that turned out, when finally analyzed, to consist of powdered gypsum, the primary constituent of the building product Sheetrock."³¹

In May and June 2003 prosecutors in Cole County, Missouri, asked for the release of 18 persons convicted in cases brought by a sheriff's deputy who seems to have perjured himself by claiming to have witnessed drug transactions at which he was not present.³²

McCabe and Purves created shadow juries to hear criminal cases in three British courts. The shadow juries heard the same evidence as the real juries and deliberated independently. Shadow juries were present in 30 cases. In one of them the real jury was hung. Five of the shadow juries were hung, but the researchers took the majority vote if at least 8 of the 12 shadow jurors agreed, leaving only one hung shadow jury. Thus, two cases were eliminated from the study. In 7 of the remaining 28 cases the shadow jury and the real jury reached different verdicts. Thus, the average overall error rate of the two types of juries in this study cannot have been less than one in eight, or 12.5%.³³ This figure is an average overall error rate for the study and not a rate of false convictions. It could be that in all seven cases the defendant was in fact guilty, so that none of the mistaken verdicts represent the potential for false conviction. Of course the opposite possibility seems no less possible.

If we assume the truth is in the middle, we reach a minimum average false conviction rate for the real and shadow juries of the study equal to 6.25%, which is almost twice Rinsinger's minimum factual rate. This calculation helps to suggest that Rinsinger's number is probably not exaggerated, that it may be a good benchmark for all types of crimes, and that the true rate of false felony convictions for the American criminal justice system as a whole may well be higher than 3.3%.

When analyzing the criminal justice system, or any human system, it is important to consider the incentives facing each different type of actor. We respect this principle in daily life, though not always consistently. Knowing that the doctor who

advises us to get surgery will profit from performing the operation, for example, we seek a second opinion. The doctor's role is to provide objective medical advice. But because doctors are humans they fulfill the role imperfectly, and deviations from the ideal are influenced by incentives. Roger Koppl reviews evidence that incentives skew even honest errors.³⁴ Thus, in considering the "incentives" of participants in the criminal justice system we will consider not only how incentives may cause someone to lie, cheat, or otherwise self-consciously deviate from ideal behavior. We will also consider how incentives may induce unconscious bias and cause even honest errors to be skewed toward false convictions.

Improper Incentives Contribute to the Problem

A. Incentives Matter

Incentives matter because people tend to do what is in their interest. The tendency to do what is in your interest can be stronger in some individuals, weaker in others. For example, some students will cheat on a test if given the opportunity, others will not. The tendency is stronger in some contexts, weaker in others. For example, students are (presumably) less likely to cheat in a small school with a respected honor code than in a large, anonymous institution with distant and detached faculty. Sometimes what is in my interest may be a good thing for others, as in the ideal of a free market. If you build a better mousetrap and sell it, you profit by helping your customers rid their homes of vermin. Finally, we sometimes have

an incentive to behave in ways that are not "selfish" in any egoistic or hedonistic sense. Parental love, for example, creates an incentive for self-sacrifice. Thus, although we sometimes have an incentive to do bad things, the term "incentive" should not necessarily invoke negative qualities such as "selfish" or "dishonest." Sometimes the word "bias" is used to describe or identify incentives. Parents are biased in favor of their own children, which is to say that they have an incentive to favor them.

Incentives matter. Sometimes this humble fact is ignored. We ignore the role of incentives when we neglect to model an actor in the system. If we do not explicitly model the incentives of physicians, for example, we may well adopt an inappropriate model of

them as godlike healers. While we may hope and expect that most physicians are conscientious, we should remember that even conscientious physicians may respond to incentives that do not align perfectly with the interests of their patients. Anxiety about malpractice, for example, may induce a physician to run a diagnostic test that is not in the patient's best interest. The test may carry a small health risk that is not adequately rewarded by the remote prospect that it will produce valuable information. As we shall argue, something similar is true for actors in the criminal justice system. If we do not explicitly model their incentives, we may overlook ways in which their choices may be skewed by incentives.

Some of the literature on criminal justice includes arguments to the effect that this or that group of professionals does not respond to incentives. For example, in spite of a large literature on the universality of observer effects, Bruce Budowle and his coauthors argue, "we believe that bias is not a serious pervasive concern" in forensic science.³⁵ We have noted that the tendency to do what is in your interest can be stronger in some individuals, weaker in others. The tendency is not utterly absent from any group of humans, however. Moreover, unless we have a special reason not to, we should presume that the tendency is about the same for any large group of people defined by a profession or similar criterion. Special considerations may suggest that members of a given group are less responsive to incentives or more responsive. But such special considerations must be articulated explicitly if we are to deviate from our default assumption that people in different

categories of life respond to the same incentives as others and in about the same way. These different categories include occupation, age, gender, socio-economic status, religious affiliation, geography, income, and party affiliation.

*B. Incentives Skew even Honest Errors*³⁶

It may seem obviously wrong to say that incentives skew honest errors when we would expect incentives to result in some type of calculation by an actor. And yet a large literature on "observer effects" establishes the fact unambiguously. We tend to see what we expect to see³⁷ and what we hope to see.³⁸ Risinger and his coauthors write, "where an observer has strong motivation to see something, perhaps a motivation springing from hope or anger, reinforced by role-defined desires, that something has an increased likelihood of being 'seen.'"³⁹ Incentives ("motivation" and "hope") can skew honest errors because they influence perception. When scholars speak of "unconscious bias" they generally refer to "observer effects."⁴⁰

The notion that incentives skew honest error has ancient roots. Julius Caesar said "men generally believe quite freely that which they want to be true."⁴¹ If we can believe what we want to be true and if our passions calculate, then we are at greater risk of honestly believing self-serving falsehoods than other falsehoods. But then self-serving honest errors are more likely than other honest errors. In other words, incentives skew even honest errors.

The literature on "observer effects" shows how our hopes and expectations can sometimes induce errors in our observations.⁴² Risinger and his

coauthors quote Ulrich Neisser: "we cannot perceive unless we anticipate, but we must not see only what we anticipate."⁴³ Observer effects are pervasive and enhanced by "desire and motivation."⁴⁴

James Pichert and Richard Anderson offer a classic study that illustrates nicely how incentives influence errors.⁴⁵ They had their subjects read a story about two boys playing in a house. The story contained information about the house such as the presence of a leaky roof and the parents' rule to keep a side door unlocked at all times. Subjects were instructed to read the story from either the perspective of a burglar or that of a realtor. Subjects had better recall of details relating to their assigned role rather than the opposite role. In later studies, these same authors and Larry Shirey found that when subjects were asked to switch roles in a second recall task, their memory improved for details relevant to the new role and degraded for details irrelevant to the old role.⁴⁶ This effect was noted whether the second memory task was performed with a delay of 5 or 10 minutes or a delay of about 2 weeks.⁴⁷

These studies have, of course, multiple implications, including implications regarding cognition and memory. We are emphasizing one set of implications – those relating to incentives – only because our paper concerns the link between incentives and outcomes. It is worth noting, we think, that these studies seem to show that incentives influence not only one's choices, but also how one frames a choice problem. They show, therefore, that the psychological mechanisms linking incentives to outcomes can be subtle and, perhaps, somewhat unexpected.

Context can create expectations that help to skew errors in a self-serving direction. In one study, Itiel Dror and David Charlton had experienced fingerprint examiners reexamine evidence from cases they had decided in the past.⁴⁸ The evidence was presented in the ordinary course of work as real case evidence. The real case information was stripped away, however, and replaced with either no supporting information, or supporting information that suggested a match when the earlier decision had been an exclusion (being told, for example, that the "suspect confessed to the crime"), or an exclusion when the earlier decision had been a match (being told, for example, that the "suspect was in police custody at the time of the crime"). A pair of experienced experts confirmed that the original decision was correct in each case. This determination by experienced experts participating as experimenters creates the presumption that the subject examiners' original judgments were correct for those pairs of fingerprints used in the study. Dror and Charlton found that from 48 experimental trials, the fingerprint experts changed their past decisions on six pairs of fingerprints. The six inconsistent decisions (12%) included two from the 24 control trials that did not have any contextual manipulation. The fingerprint experts changed four of their past decisions from the 24 experimental trials that included the contextual manipulation. Thus, biasing context seems to have induced inconsistent decisions in 16.6% of the cases with contextual manipulation.⁴⁹

When incentives skew honest error, the erring person knows, presumably, what her incentives are. For example, a doctor testing her

proposed cure knows very well what she hopes to find. She hopes to find evidence that the cure is working. This hope may cause her to see signs of improvement in her patients even though she sincerely wishes to be objective and self-critical. If she did not know what to hope for, she might be less likely to see improvement when there is none. Indeed, that is why double-blind studies "blind" not only the patient, but also the researcher. It is done to reduce or eliminate one source of observer effects. The doctor in our example makes mistakes, but her errors are "honest" because she does not know that those consciously known incentives have altered her perceptions. Even if she knows it, the error may be "honest" if she underestimates the effect and therefore fails to fully compensate for it. She may mistakenly believe, for example, that spending extra time with her patients will keep her from making self-serving errors.

There are many ways in which incentives may cause observational errors. The fingerprint examiner may not notice dissimilarities between a known and unknown print, for example. A good example is the research scientist who must search for deviations from experimental protocol before accepting the data generated by an experimental trial. The research scientist in this example has a result that seems dubious. Maybe something went wrong with the experiment; maybe a research assistant did not follow the experimental protocol, or the data was not recorded correctly, or somebody made a calculation error. The more disconcerting the tentative results of the experiment are to the scientist, the harder she will look for a reason to scrap the

results and try again. If the experiment had worked out as she expected, however, she might have been less diligent about reviewing the outcome. The scientist may not realize that her search for errors is less careful when she gets the "right" results. If it is more careful in that case, however, her results will be biased in spite of her conscious desire to be unbiased.

Something similar is true for a police investigator who may be more skillful in inventing reasons to doubt the alibis of her preferred suspects. If she does not perceive this asymmetry in her behavior, then her errors will be perfectly honest on the one hand but biased by incentives on the other.

The errors of police officers, forensic scientists, and prosecutors may all be biased by incentives. The number of mechanisms linking incentives to honest errors is indefinitely large, and these mechanisms are diverse and dissimilar. At the same time, of course, there is a risk that incentives will lead to fraud, falsification, or fabrication. Finally, there is the great middle ground between perfectly honest error and willful fraud. Human cognition seems to be plastic enough to create degrees of consciousness regarding the bias in one's errors. Thus, for the rest of the paper we will generally ignore the distinction between honest errors on the one hand and willful fraud and the like on the other hand. We will consider all deviations from correct outcomes to be "errors." Incentives tend to produce and to skew "errors" thus defined, whether such "errors" are willful, honest, or somewhere in-between.

C. The Multitask Problem

In a classic contribution to organization economics, Bengt Holmstrom and Paul Milgrom identified the "multitask problem," which can arise in the context of the "principal-agent problem" of economic theory. Generally, when certain tasks relevant to an activity or job are rewarded, other tasks that are not rewarded will be neglected.⁵⁰

You are an "agent" when you are commissioned to act in someone else's interests. That other person is the "principal." You are an "agent" for your employer, for example. A tort lawyer is an "agent" for his or her client; a factory worker is an agent for the factory owner. Economists have long recognized a "principal-agent problem." The canonical model is that of Stephen Ross who framed the problem from the perspective of the principal.⁵¹ How do you get the agent to do what you want when you cannot observe everything about the agent's choices and actions? You might "monitor" the agent. The boss, for example, may pop in to see if the employee is working or napping. But it may be costly or even impossible to observe all the agent's choices. Effort is hard to observe. How do you know, for example, whether your tort lawyer really worked for as many hours as you were billed?

Instead of trying to monitor *inputs* such as hours worked or intensity of effort, the principal might monitor *outputs* such as the number of parts produced or the size of a tort award. If outcomes are clearly observable, then you might be able to induce the right outcome by giving the agent a cut of the action. That is, you can link the agent's pay to outcomes. Thus,

tort lawyers typically charge a contingent fee; they work on commission. The same solution to the principal-agent problem is applied when factory workers are paid at piece rates. More generally, according to the theory, the principal should link the agent's pay or fees to measurable outcomes when they are observable.⁵² Doing so aligns the agent's incentives with the principal's desires.

In economics, the standard solution to the principal-agent problem is to look for "high-powered incentives." The idea is to leverage the agent's self-interest to produce a good outcome. Paying the worker per piece will inspire a greater effort. Paying the tort lawyer a contingency fee ensures that he or she has the same desire for a big win as you do. This standard result of the economist's benchmark principal-agent model—cut the agent in on the action—is fine as long as outcomes are observable. The multitask problem arises when outcomes are not fully observable. The multitask problem arises when the principal can observe *some* outcomes but not others. In that case, the use of strong (or "high-powered") incentives can backfire. Strong incentives can be applied only to the observable dimensions of the agent's output. The agent focuses on observable dimensions and ignores the rest of the job. Singers who are paid by the decibel will sing loudly and off-key. If outcomes have measured and unmeasured dimensions and if the measured outcomes are rewarded and unmeasured ignored, then agents will have an incentive to improve measured outcomes and neglect unmeasured outcomes. If the unmeasured dimension matters to the principal, the use of strong incentives

to motivate performance will backfire.

Holmstrom and Milgrom provide an example that is still timely today. They note the "current controversy over the issue of incentive pay for teachers based on their students' test scores." Proponents hope that

these incentives will lead teachers to work harder at teaching and to take greater interest in their students' success.

*Opponents counter that . . . teachers would sacrifice such activities as . . . refining students' oral and written communication skills in order to teach the narrowly defined skills that are tested on standardized exams.*⁵³

Citing Putka (1991), they note a case in which "a ninth-grade teacher . . . was caught having passed answers . . . to students . . . in order to improve her performance rating."⁵⁴

More recently, a major cheating scandal in Atlanta has emerged. The scandal is notable for its structural similarity to the New York City Police Department (NYPD) COMPSTAT scandal that we will discuss below. Atlanta Public Schools (APS) personnel from high levels, possibly including the superintendent, down to principals and teachers were involved in activities such as erasing and correcting mistakes on student

answer sheets.⁵⁵ The cheating seems to have been driven by powerful incentives imposed from without. The federal No Child Left Behind Act, which required states to establish objective outcomes measures, may have added to the pressure. But the cheating began at least as far back as 2001, shortly before the federal act came into effect.

The schools were under pressure to achieve performance targets as measured by student test results. "Because the targets rose each time a school attained them, the pressure ratcheted up in classrooms each year. Cheating one year created a need for more cheating the next."⁵⁶ By the time the scandal broke in 2011 the cheating had grown into a vigorously enforced system. At least some teachers were afraid to resist the pressure to cheat. "'APS is run like the mob,' one teacher told investigators, saying she cheated because she feared retaliation if she didn't."⁵⁷ According to a news article by Heather Vogell, a state report on the scandal said, "APS became such a 'data-driven' system, with unreasonable and excessive pressure to meet targets, that [the system's superintendent] Beverly Hall and her senior cabinet lost sight of conducting tests with integrity."⁵⁸

The Importance of Discretion

The multitask problem arises because it is costly or impossible for the principal to monitor all relevant aspects of the agent's actions. The agent may act one way or another without the principal knowing. In this basic sense, the agent has discretion. It is this discretion that gives incentives their scope in which to operate. As

our discussion of "honest error" may suggest, discretion gives scope to incentives both when the agent is scrupulously honest and when she is not.

The police officer who extracts a false confession may do so in a way that violates policy. Or she may innocently believe the false confession

to be true. In either case, she would be less likely to extract a false confession without the incentive to do so.

The forensic scientist who declares a match when the evidence is ambiguous has discretion. If the evidence is unambiguous, then is it (by definition) clear whether the examiner should declare a match. It is generally only an unscrupulous forensic examiner who declares a match when the evidence points unambiguously to exclusion. In either case, the discretion to declare a match or an exclusion would create a far smaller risk of false conviction without incentives to produce them.

Prosecutors have discretion over many things including whom they charge and what charges to file. Unscrupulous prosecutors such as Michael Nifong have illegitimate discretion over many more things, including what evidence to disclose to defense counsel.⁵⁹ In either case, the discretion of prosecutors would cre-

ate a relatively low risk of false conviction in the absence of incentives to produce them.

The discretion enjoyed by criminal justice professionals may tend to weaken the "rule of law" as characterized by Albert V. Dicey, Richard Fallon, and others.⁶⁰ In his classic description of the rule of law, Dicey writes:

*It means, in the first place, the absolute supremacy or predominance of regular law as opposed to the influence of arbitrary power, and excludes the existence of arbitrariness, of prerogative, or even of wide discretionary authority on the part of the government.*⁶¹

It is not obvious at what point the discretion of criminal justice professionals is wide enough to compromise the rule of law. It seems clear, however, that we should not join such discretion to the sort of inappropriate incentives we chronicle below.⁶²

Criminal Justice Professionals Have Improper Incentives

A. Incentives of Police

It is relatively easy to observe whether the work of a police officer (or other law-enforcement officer) has led to a case being cleared. It is relatively difficult to observe whether a police officer's work led to a false arrest or false conviction. Thus, one-sided incentives to clear cases would create a multitask problem in policing. Unfortunately, the police have a strong incentive to clear cases.

It is well established that the crime clearance is a standard measure of police efficiency⁶³ even though some scholars have questioned the legitimacy of using crime clearance rates

as an indicator of effective policing.⁶⁴ There is also variation in how to effectively measure cleared crimes—should it be arrests made, actual convictions, or some other criterion? Although policing scholars note that the police serve many functions,⁶⁵ their performance is often measured by reduction in crime rates, number of arrests, response time and crime clearance rates.⁶⁶ In many cases these goals are linked to high-powered incentives, which then creates a multitask problem.

In the context of the FBI, R. A. Posner has expressed support for the use of strong incentives. The "outputs"

of criminal investigation, "number of arrests, prosecutions, convictions, length of sentences, and amount of property recovered" are, Posner says, "relatively hard to manipulate (at least legally)" and can therefore be "feasibly measured. FBI agents can thus be motivated by 'high-powered' incentives, that is by basing promotion and other career benefits on objectively measured, individual performance at the field-office level."⁶⁷ This argument neglects the multitask problem. Posner quickly made a partial concession to this point, saying that

*a weakness in the use of arrests, convictions, and sentences as criteria for evaluating the performance of law enforcement personnel is that it is difficult to weigh the criteria by the probability that the arrest, conviction, or sentence in a particular case was unlawful and may have imposed heavy costs on an innocent person. This problem amplifies the social costs of the conflict of interest of the crime labs and undermines the objectivity of the performance criteria used by law enforcement agencies.*⁶⁸

When police investigators have strong incentives to clear cases, they have weaker incentives to discriminate between the guilty and the innocent. Such skewed incentives create the risk of false arrest and conviction. A vital aspect of the proper function of law enforcement is to discriminate between the guilty and the innocent. But the police can clear cases by arresting persons who are poor, uneducated, or mentally weak. Such persons may be less able to mount a vigorous defense and more likely to make a false confession. (We discuss false confessions below.) It would be comforting to imagine that the problem is only that a few "rogue cops" or "bad

apples" may willfully prey on weak victims. As we have noted, however, even honest errors may be skewed by incentives. Thus, "high-powered incentives" to make arrests and to clear cases create the risk that even the most scrupulous and conscientious law enforcement officers will act in ways that needlessly increase the risk of false arrest and conviction.

The system of computer-driven statistics used by the New York City Police Department, COMPSTAT, creates strong incentives for reducing reported crime rates, as well as arrests and case clearings. Unfortunately, in at least one precinct, these incentives seem to have produced results similar to those we saw earlier with the Atlanta Public Schools. COMPSTAT, or Compare Statistics, provides up-to-date computerized crime statistics for all precincts in New York City. With the development of COMPSTAT, police managers face extraordinary pressures of accountability for their precinct performance, in that they must report crime statistics for their precincts at weekly COMPSTAT meetings where their performance is scrutinized by NYPD management who expect commanders to meet numerical targets.

Implementation of COMPSTAT in its first few years seemed to coincide with a major decline in serious crime, but sometimes the numbers do lie. Numerous press reports from the *New York Times*, *Village Voice*, and other newspapers⁶⁹ as well as New York City's own Patrolmen Benevolent Association have alleged that New York City police officers intentionally "fudge" the numbers to keep the officially recorded serious crime rate low.⁷⁰ Reports indicate that police officers manipulate the statistics by intentionally downgrading

felonies to misdemeanors, undervaluing property to keep crimes from reaching the felony level, purposely not filing reports, encouraging victims not to file complaints, and so on.⁷¹ As recently as 2009, some NYPD "precinct bosses threaten street cops if they don't make their quotas of arrests and stop-and-frisks, but also tell them not to take certain robbery reports in order to manipulate crime statistics."⁷² Indeed, this was just one of the allegations brought to the surface in the bombshell release of audio recordings made by Adrian Schoolcraft, eight-year veteran of the NYPD at the time, in 2010. Schoolcraft, who made audio recordings of all work-related events occurring at his precinct between 1 June 2008 and 31 October 2009, claimed that he was concerned about the quality of police service being delivered to the public. The audio recordings made by Schoolcraft revealed a systematic orientation, stemming from top management bosses, to keep official crime statistics down. The pressure to keep these numbers down is made clear by one officer, who explains to Schoolcraft how robberies are typically downgraded to lower-level crimes. He says:

A lot of 61s—if it's a robbery, they'll make it a petty larceny. I saw a 61, at T/P/O [time and place of occurrence], a civilian punched in the face, menaced with a gun, and his wallet removed, and they wrote "lost property."⁷³

This is just one example of the practices used to skew the statistics.

In fact, the 81st Precinct of Bedford-Stuyvesant had adopted a policy, not sanctioned by the NYPD's official policy, that police officers would not take a complaint from a victim unless the victim would come

to the stationhouse in person. If the victim could not come to the stationhouse, then no report was filed and no crime was documented. Schoolcraft also recorded his eventual meeting with the Quality Assurance Division (QAD), which is similar to Internal Affairs. At the end of this meeting, a supervisor explains to Schoolcraft the pressures faced by managers to lower the crime statistics. He states, "the mayor's looking for it, the police commissioner is looking for it... every commanding officer wants to show it."⁷⁴ Just three weeks after his meeting with investigators from the QAD, upper-level police managers had Schoolcraft committed to a mental institution for six days, claiming that he was mentally unstable.⁷⁵ Committing Schoolcraft to an institution seems an obvious and unsuccessful attempt to both discredit and silence Schoolcraft, who revealed the systematic manipulation of crime statistics in one precinct of the New York City Police Department.

Similar computer-driven policing strategies have been implemented in other cities with comparable reports of statistical manipulation.⁷⁶ COMPSTAT systems can be found internationally as well. For example, the United Kingdom implemented a numbers-driven accountability approach similar to COMPSTAT. Unsurprisingly, press reports have described problems such as undercounting of crime and manipulation of crime-category classification, with one report concluding that the police department recording policy "was designed to have the effect of artificially reducing recorded crime to a more politically acceptable level."⁷⁷ In sum, the accountability structure inherent in statistics-driven policing creates an

incentive for police departments to keep reported crime levels low, especially for more serious offenses. Although measures of citizen satisfaction and perceptions of safety are also used as performance indicators,⁷⁸ reported crime levels have become strong measures of departmental efficiency.

We have seen how systems such as COMPSTAT simultaneously create incentives to under-report crimes and incentives that lead to false arrest and conviction, i.e., they misrepresent how much serious crime there is while encouraging actions that may result in the wrong people being convicted for the crimes that are reported. These incentives are strangely consistent in at least one sense. They both tend to deflect the hand of justice from striking those guilty of serious crimes. The Schoolcraft scandal provides an alarming example of how these incentives affect behaviors in practice. On the one hand, there was underreporting of violent crime. On the other hand, officers were encouraged to stop and frisk passers-by, which created opportunities to arrest people for crimes such as possession of a controlled substance and disorderly conduct. The overall effect is to make justice more random and less steady, orderly, and sure.

The pressure to clear cases creates an incentive to under-report crimes. It can also affect collection of key evidence. Eyewitness identification, confession, and forensic evidence all share a common thread—they are typically regarded as the most persuasive types of evidence in a criminal case.⁷⁹ During the last 20 years, forensic evidence—and, more specifically, DNA evidence—has become an important part of criminal investigations. In addition to helping police

investigators, DNA evidence has come to play an integral role in aiding offenders who raise claims of wrongful convictions. The Innocence Project, founded by Barry C. Scheck and Peter J. Neufeld in 1992, is the lead organization dedicated to exonerating wrongfully convicted individuals through the use of DNA evidence. Prior to forensic evidence (scientific evidence collected and analyzed for use in legal proceedings), confession and eyewitness identification evidence, when available, typically exerted the most influence in criminal cases. This type of evidence still has a strong impact on the police investigation and on prosecutors, to whom this type of evidence represents a solid chance of a conviction.

To illustrate this point, we consider how police treat confessions by individuals suspected of crimes. The police are charged with investigating crimes and making arrests based on the evidence, and, while confessions are considered evidence, they are often extracted based on the presumption that a suspect is guilty.⁸⁰ To put this phenomenon into the proper context, it is important to understand the concept of “tunnel vision” in the criminal justice process, whereby one suspect becomes the selected focus of an investigation. According to Dianne Martin, this is the inclination to “focus on a suspect, select and filter the evidence that will ‘build a case’ for conviction, while ignoring or suppressing evidence that points away from guilt.”⁸¹

Tunnel vision begins at early stages of case processing and may involve a hunch or feeling about a suspect,⁸² but it becomes ever more salient when police conduct what is known as the pre-interrogation interview, or “Behavioral Analysis

Interview," to determine deception on the part of a suspect.⁸³ This process involves a focus on behavioral cues that indicate deception. Of course, police are trained to assess various behavioral cues to assist in their determinations.⁸⁴ However, research has shown that various cues police are trained to look for, such as suspect fidgeting and avoiding eye contact by the suspect, are not necessarily reliable cues and may not be correct indicators of deception at all.⁸⁵ An additional consideration is the confidence police feel in the accuracy of their assessments. An extant body of literature has addressed this issue, often finding that trained law enforcement personnel are not much better, if at all, at detecting deception than the layperson.⁸⁶ Nevertheless, the goal of the pre-interrogation is to determine a suspect's guilt.

This fact distinguishes police interviews from interrogations. An interview is designed to obtain information that leads to fact-finding and ultimately the truth, whereas an interrogation is designed to elicit a confession of guilt.⁸⁷ The confession, as police are made aware, is one of the best pieces of evidence used by the prosecutor in the courtroom, thereby making the confession an important goal of investigation.⁸⁸ Unfortunately, the interrogation, designed as a psychologically coercive and manipulative technique, leads not only the guilty to confess, but also the innocent. The existence of false confessions due to psychologically coercive police interrogations is well documented.⁸⁹ The fallibility of eyewitness identification evidence has also been documented extensively.⁹⁰

The police conduct eyewitness identification procedures, otherwise

known as line-ups. In a simultaneous line-up, traditionally used by police departments, several line-up members, including the suspect, are shown to a witness all at once.⁹¹ A variety of factors are linked to mistaken eyewitness identification errors, usually falling under system variables or estimator variables. Estimator variables are those not controlled by our criminal justice system, such as environmental conditions during the criminal event, stress experienced by a witness, and impact of cross-race identification on the witness. System variables are those controlled by the legal system, including the line-up presentation method used with witnesses, line-up instructions provided by the police, and techniques employed by investigators who interview witnesses.⁹² Similar to the confession, the police use the line-up to establish guilt but the procedures used to administer line-ups can influence witnesses. All of these factors lead to a high rate of mistaken eyewitness identifications, and eyewitness testimony is responsible for more wrongful convictions than any other type of evidence.⁹³

The fallibility of eyewitness testimony, then, is well understood.⁹⁴ Police line-ups, for example, invite error if not properly structured.⁹⁵ Eyewitnesses are more likely to misidentify a person perceived to have a different "race."⁹⁶ Fallibility may lead to false convictions when police are consciously or unconsciously motivated to maximize convictions.

The problems associated with confession evidence and eyewitness identification evidence are therefore twofold: that evidence widely thought of as reliable is fallible, and that police investigations are used to

confirm suspect guilt rather than obtain the truth.

B. Incentives of Forensic Scientists⁹⁷

It is relatively easy to observe whether a forensic scientist's work supports the police or prosecution theory in a case. It is relatively difficult to observe whether a forensic scientist's work includes errors. Thus, one-sided incentives to help secure convictions would create a multitask problem in forensic science. Unfortunately, forensic scientists do often have an incentive to produce results that support the police or prosecution theory.⁹⁸ It might seem hard to act on this incentive without openly cheating by, say, falsifying scientific data. But the incentives of forensic scientist can and do influence the content of their scientific analyses even when they do not try to cheat.⁹⁹ Three underappreciated facts help to explain why.

First, forensic science depends greatly on subjective judgment. Even fingerprint examination and DNA typing often involve subjective judgment.¹⁰⁰ Second, as an important study by the National Academy of Sciences notes, "Most forensic science methods, programs, and evidence are within the regulatory province of state and local law enforcement entities or are covered by statutes and rules governing state judicial proceedings."¹⁰¹ (We will follow common practice by referring to this report as the "NAS report.") This tends to produce in crime labs an incentive similar to that of the police to find evidence inculcating police suspects. "Forensic scientists who sit administratively in law enforcement agencies or prosecutors' offices, or who are hired by those units, are

subject to a general risk of bias."¹⁰²

Third, forensic evidence is generally examined by one crime lab only, creating a kind of monopoly on the examination and interpretation of such evidence.

According to the NAS report, the decision to declare a "match" is subjective in many forensic-science disciplines. (The NAS report discusses the variety of terms used to describe what is commonly thought of as "matching."¹⁰³) These disciplines include "impression evidence" such as shoeprints and tire tracks, tool marks and firearms identification (the latter commonly called "ballistics"), traditional hair microscopy, the handwriting comparisons of questioned document examiners, bloodstain pattern analysis, and fingerprint examinations.

Forensic scientists do not challenge the notion that most disciplines are subjective. R. G. Nichols, for example, views subjective judgment as a scientific method in firearms and tool mark identification. The standard techniques of his discipline are "rooted in firm scientific foundations" and "critically studied according to the precepts of the scientific method," he says. And yet "the interpretation of individualization/identification is subjective in nature... and based on the examiner's training and experience."¹⁰⁴

It may be surprising that fingerprint examination is largely a subjective enterprise. The subjective element is modest, perhaps inconsequential, when the two images being compared are both clear and distinct. (Typically, one is a rolled print taken in a police station and the other a latent print, which is a print that is not visible to the human eye, lifted from the crime scene.) But most latent prints are not clear and distinct.

Figure 1 illustrates. The clear and distinct image on the left is a rolled print taken from Brandon Mayfield by law enforcement officers. The unclear and indistinct image on the right is latent print taken from the scene of the 2004 Madrid train bombing. In 2004, the FBI declared a “100 percent match” of Mayfield to the latent lifted from the Madrid crime scene. The Spanish authorities objected to this identification. They seem to have been correct as the FBI later withdrew its identification and released Mayfield.¹⁰⁵ The Mayfield error is one of a growing list of known false positive fingerprint errors.¹⁰⁶

The NAS excludes “nuclear DNA analysis” from its list of subjective disciplines. However, “DNA tests sometimes produce ambiguous results that are subject to multiple interpretations” and “[w]hen interpreting ambiguous results . . . human analysts rely heavily on subjective judgments to distinguish signal from noise, explain anomalies, and account for discrepancies.”¹⁰⁷ Subjective judgment is more likely to enter when more than one person has contributed to the DNA sample, or the sample is contaminated, degraded, or very small.

Figure 2 illustrates unambiguous DNA evidence. The biological sample is prepared and run through a genetic analyzer, which produces data that is represented as an electropherogram—a graphic representation of the results—which is then interpreted by a forensic scientist. As Figure 2 reveals, an electropherogram is a squiggly line. The figure shows only 3 loci, whereas most standard tests in the U.S. examine 13 loci. In an article on psychological aspects of forensic identification evidence, from where Figures 2 and 3 are drawn, William Thompson and Simon Cole explain:

*As can be seen, the profile of Suspect 3 corresponds completely to that of the crime scene sample, hence it is a match that indicates Suspect 3 is a possible source of the blood at the crime scene. Suspects 1, 2, and 4 are eliminated as possible sources because one or more of their alleles differs from the crime sample.*¹⁰⁸

Figure 3 illustrates some of the ambiguities that can enter DNA profiling when the crime-scene sample is degraded, mixed, or small. The figure, Thompson and Cole explain, shows a comparison between the DNA profile of a saliva sample from the skin of a

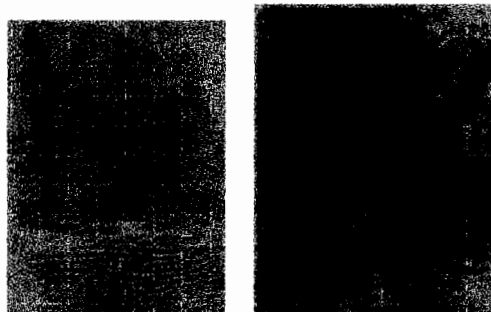


Figure 1 Ambiguous and Unambiguous Fingerprint Images.

The clear and distinct image on the left is a rolled print taken from a suspect by law enforcement officers. The unclear and indistinct image on the right is latent print taken from a crime scene by law enforcement officers. FBI examiners declared a “100 percent match” between them.

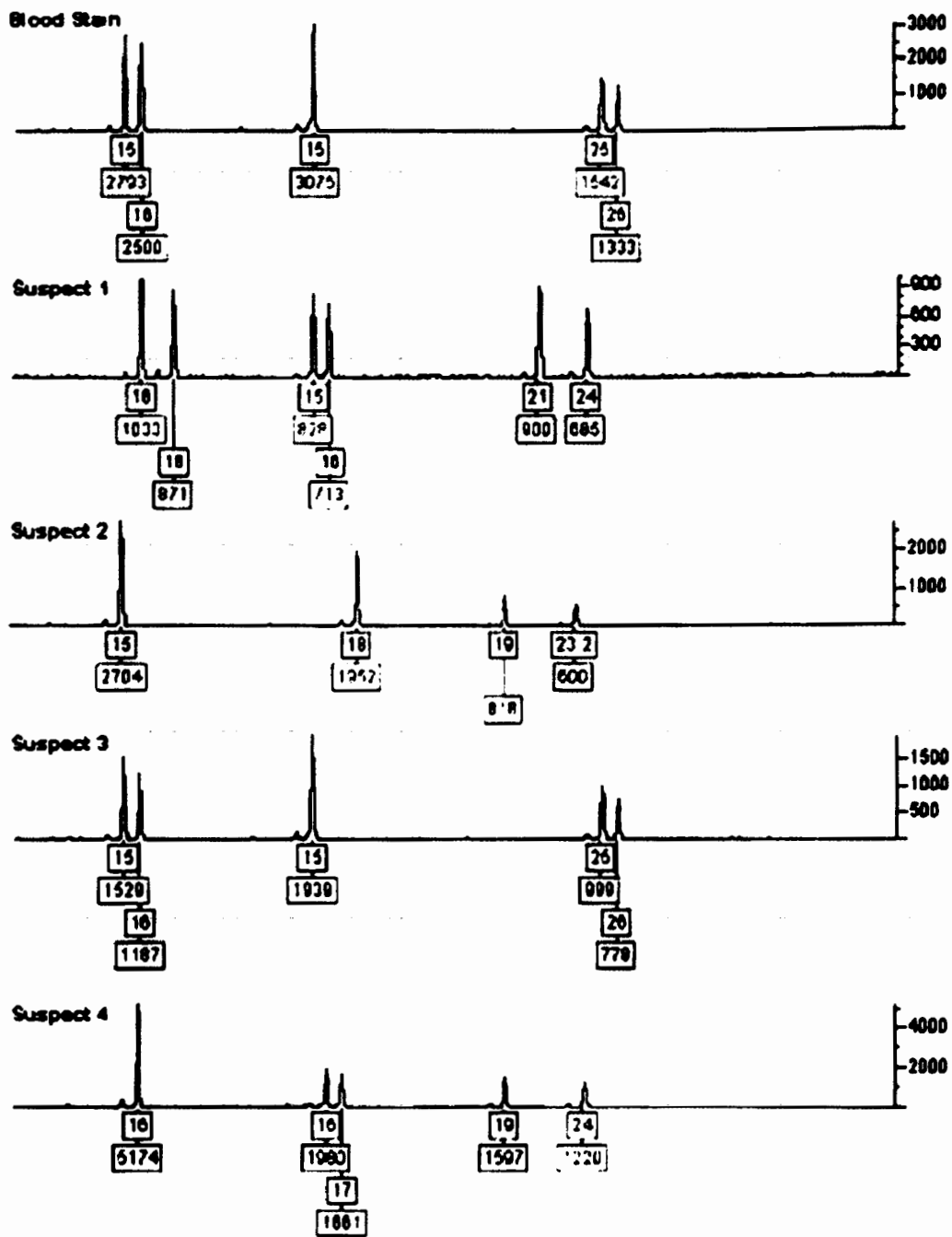


Figure 2 Unambiguous DNA Evidence.

The electropherogram of the crime scene evidence is clear and distinct. It matches suspect 3, who is included as a possible source. Suspects 1, 2, and 4 are clearly excluded.

sexual assault victim and the profile of a suspect. Experts differed over whether these two profiles match. For example, some experts thought the peak labeled "12" at locus "D3S1358" was a true allele, others thought it was merely noise in the system.

Thompson and Cole continue:

The experts also differed over whether the peak labeled "OL allele" at locus "FGA" was a spurious anomaly that could be safely ignored, or whether it might be hiding

another allele. When interpreting ambiguous results like those shown in [Figure 3] human analysts rely heavily on subjective judgments to distinguish signal from noise, explain anomalies, and account for discrepancies.¹⁰⁹

The subjectivity of forensic science matters in part because of the twofold monopoly in forensic science. First, evidence is typically examined by one crime lab only.¹¹⁰ In this sense, the crime lab receiving a bit of evidence has a monopoly on examination of that evidence. Second, that same lab will normally be the only one to offer an interpretation of the results of the examination it performs. No other experts in forensic science will be asked to judge what the evidence means. Typically, only the prosecution will have expert witnesses testifying on forensic evidence, as most defendants are indigent and do not have funds to obtain expert witnesses.¹¹¹ Monopoly in examinations may allow errors and even fraud to go undetected. Mono-

poly in interpretation may allow false interpretations to go unchallenged and alternative hypotheses to go unexamined. If forensic scientists have any biases or incentives toward conviction, the subjectivity of forensic science and the monopoly status of the crime lab will give such incentives scope to operate. Organizing crime labs under law enforcement creates such biases and incentives.

We noted above that most crime labs are governed by the police, creating a risk of bias. The National Academy of Sciences 2009 report states, "Forensic scientists who sit administratively in law enforcement agencies or prosecutors' offices, or who are hired by those units, are subject to a general risk of bias."¹¹² John Kelly and Philip Wearne quote an illustrative comment of "one lab veteran" at the FBI: "People say we're tainted for the prosecution. Hell, that's what we do! We get our evidence and present it for the prosecution."¹¹³ Evan Hodge, a former

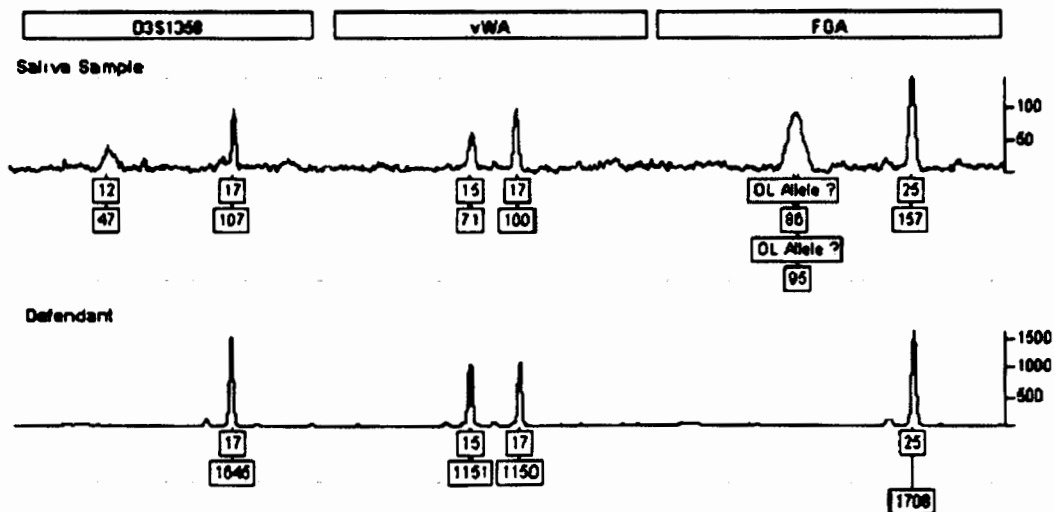


Figure 3 Ambiguous DNA Evidence. The electropherogram of the crime scene evidence is not clear and distinct. It is not clear whether the suspect should be included or excluded as a possible source.

Firearms-Toolmarks Unit chief at the FBI laboratory, wrote an article on "Guarding Against Error" that may help to suggest how bias can be a specific cause of error. As Kelly and Wearne retell Hodge's story, a police inspector took

a 1911A1-model .45-caliber pistol to a lab for confirmation that it was a murder weapon. "We know this guy shot the victim and this is the gun he used," the examiner was told. "All we want you to do is confirm what we already know so we can get the scumbag off the street. We will wait. How quick can you do it?" The examiner gave them their instant identification. The suspect confessed and led the police to a second pistol, also a .45, also a 1911A1 model, which lab tests demonstrated was the real murder weapon.

"We all do this (give in to investigative pressure) to one extent or another," Evan Hodge admits, arguing that the only solution is to remove the sources of it from the laboratory completely.¹¹⁴

The important FBI fingerprint expert Bruce Budowle and his co-authors report, "a latent print examiner tends to approach the comparison to 'make an ident,' rather than to attempt to exclude."¹¹⁵ This quoted statement is surprising. The authors do not seem to recognize that it expresses a strong and inappropriate bias. Nor was the article just one, perhaps aberrant, opinion that happened to get in print. The opening paragraph says:

In response to the misidentification of a latent print, senior management of the FBI Laboratory tasked a three-member review committee to evaluate the fundamental basis for the science of friction ridge skin impression pattern analysis and to recommend research to be considered to test, where necessary, the hypotheses that form the bases of this discipline.¹¹⁶

Thus, the statement must be viewed as authoritative.

Funding crime labs through court-assessed fees creates another channel for bias to enter crime lab analyses. In jurisdictions with this practice the crime lab receives a sum of money for each conviction of a given type. Ray Wickenheiser says, "Collection of court costs is the only stable source of funding for the Acadiana Crime Lab. \$10 is received for each guilty plea or verdict from each speeding ticket, and \$50 from each DWI (Driving While Impaired) and drug offense."¹¹⁷ In Broward County, Florida, "Monies deposited in the Trust Fund are principally court costs assessed upon conviction of driving or boating under the influence (\$50) or selling, manufacturing, delivery, or possession of a controlled substance (\$100)."¹¹⁸

Several state statutory schemes require defendants to pay crime laboratory fees upon conviction. North Carolina General Statutes require, "[f]or the services of" the state or local crime lab, that judges in criminal cases assess a \$600 fee to be charged "upon conviction" and remitted to the law enforcement agency containing the lab whenever that lab "performed DNA analysis of the crime, tests of bodily fluids of the defendant for the presence of alcohol or controlled substances, or analysis of any controlled substance possessed by the defendant or the defendant's agent."¹¹⁹ Illinois crime labs receive fees upon convictions for sex offenses, controlled substance offenses, and those involving driving under the influence.¹²⁰ Mississippi statutes require crime laboratory fees for various conviction types, including arson, aiding suicide, and driving while intoxicated.¹²¹ Similar provisions

exist in Alabama, New Mexico, Kentucky, New Jersey, Virginia, and, until recently, Michigan.¹²²

Other states have broadened the scope even further. Washington statutes require a \$100 crime lab fee for any conviction that involves lab analysis.¹²³ Kansas statutes require offenders "to pay a separate court cost of \$400 for every individual offense if forensic science or laboratory services or forensic computer examination services are provided in connection with the investigation."¹²⁴ In addition to those already listed, the following states also require crime lab fees in connection with various conviction types: Arizona, California, Missouri, Tennessee, and Wisconsin.¹²⁵

Glen Whitman and Roger Koppl point out that "the very choice to submit a suspect's sample to the lab makes the lab more inclined (than it would be otherwise) to announce a match, indicating that the suspect is guilty."¹²⁶ The forensic scientist must evaluate ambiguous evidence, but give, generally, a binary judgment that the evidence does or does not match. Whitman and Koppl explain why the probabilities given in DNA testimony are not usually an exception to this binary nature of forensic-science testimony.¹²⁷ In this situation, even the most rational scientist must *choose* what to say. The choice will usually be influenced by scientific analysis done in the crime lab. But if the evidence is ambiguous, as it often is, then two other factors matter even for perfectly rational forensic scientists. The scientist is more likely to inculcate the defendant (1) the higher the forensic scientist's "prior" probability of guilt, which is the probability before the forensic evidence is examined, and (2) the weaker the scientist's desire is to avoid convicting

the innocent relative to her desire to convict the guilty.

C. Incentives of Prosecutors

It is relatively difficult to observe whether a prosecutor's work produced a false conviction. Thus, one-sided incentives to convict would create a multitask problem in the prosecution of crimes. Unfortunately, prosecutors have strong incentives to produce convictions.

Police incentives are clear in that they are held to performance measures of efficiency. (As discussed earlier, police incentives include crime rates, number of arrests, response time, and crime clearance rates.) The police are also held accountable to the prosecutors who must build their cases based on the evidence provided by the police. Prosecutors face even stronger incentives when it comes to clearing cases. The prosecutor should act as the "minister of justice," ensuring that justice is ultimately served. As the American Bar Association (ABA) notes, "A prosecutor has the responsibility of a minister of justice and not simply that of an advocate."¹²⁸ The prosecutor has a constitutional duty to act as "neutral and detached magistrate."¹²⁹ Much like the police, however, prosecutor performance is often measured by conviction rates.¹³⁰

The strong value placed on convictions and the pressures faced by prosecutors to secure confessions is linked to a concept known as "conviction psychology," whereby the goal of obtaining convictions outweighs the goal of seeing that justice is served.¹³¹ Tunnel vision also plays an important part in this process. Tunnel vision is evident in the various stages of a police investigation

but it also extends to the prosecution of a case. Prosecutors receive evidence from police supporting a suspect's guilt but they don't always see all of the evidence, at times missing refuting evidence or information about other suspects. Convinced of a suspect's guilt, the prosecutor uses this evidence to secure a conviction against the presumably guilty defendant, whether via a guilty plea or, in rare cases, trial. To the prosecutor, therefore, the conviction typically represents justice.¹³²

Addressing this issue in a larger context, retired Supreme Court Justice John Paul Stevens has discussed the skewed incentive structure of the prosecutor's office. In his 2 May 2011 speech to the Equal Justice Initiative, an organization that provides representation for indigent offenders who have been treated unjustly by the criminal justice system, Justice Stevens criticized the Court for its decision to overturn a jury's \$14 million award to a man who spent 14 years on death row because prosecutors repeatedly failed to turn over evidence that would have exonerated him (*Connick v. Thompson*, No. 09-571 [March 29, 2011]). Stevens stated that the problem is inherent in a criminal justice system where judges and prosecutors are elected on tough-on-crime platforms. The pressure to obtain convictions becomes paramount in the crime control platform strongly advocated by Richard Nixon and "creates a problem of imbalanced incentives that ought to be addressed on the state and national level."¹³³ Indeed, researchers on this topic have come to similar conclusions. According to Jane Moriarity, "protecting the innocent from conviction does not stand on equal footing with convicting the guilty—it is

doubtful that any elected prosecutor campaigned on the notion of cases he did not prosecute."¹³⁴ In addition to these political pressures, financial incentives exacerbate the problem.

The general incentive to convict may create a specific incentive to overcharge. Earlier, we quoted Barkow saying, "Prosecutors have an interest in making the consequences of convictions harsh because that gives them greater bargaining leverage to obtain pleas." It seems reasonable to suggest that overcharging may be a tool to help prosecutors secure convictions through plea bargains.

Research has described the importance of convictions in determining promotions for prosecutors.¹³⁵ Indeed, according to Daniel Medwed, although prosecutors do not receive money per conviction, "inducements are implicit in a system where promotions are contingent on one's ability to garner convictions."¹³⁶ However, it isn't completely true that prosecutors aren't rewarded financially per conviction. In 2010, one district attorney in Colorado decided to award bonuses to prosecutors based on their number of convictions. More specifically, District Attorney Carol Chambers implemented a system of financial rewards whereby prosecutors who take at least five cases per year to trial and secure a 70% felony conviction rate are rewarded with monetary bonuses.¹³⁷ A financial-based incentive structure such as this one provides an even stronger impetus for prosecutors to win cases.

D. Incentives of Defense Counsel

The resources and incentives of public defenders do not provide sufficient counterweight to the pro-conviction

incentives of police, forensic scientists, and prosecutors. There is a sharp asymmetry between the duties of prosecutors in criminal cases and those of defense counsel. As we have noted, a prosecutor has a constitutional duty to act as "neutral and detached magistrate." The Supreme Court has said:

*The United States Attorney is the representative not of an ordinary party to a controversy, but of a sovereignty whose obligation to govern impartially is as compelling as its obligation to govern at all; and whose interest, therefore, in a criminal prosecution is not that it shall win a case, but that justice shall be done. As such, he is in a peculiar and very definite sense the servant of the law, the twofold aim of which is that guilt shall not escape or innocence suffer.*¹³⁸

The constitutional duty of defense counsel, by contrast, is entirely one-sided. Defense counsel has a constitutional duty of "vigorous and effective advocacy" for its client.¹³⁹ Thus, any public defender has a duty to mount a vigorous defense for each of his or her clients. Far from supporting this goal, however, the incentives of public defenders tend to encourage plea bargaining and a less than vigorous defense.

The indigent defendant has a constitutional right to free representation in criminal proceedings.¹⁴⁰ However, methods of providing this fundamental representation to indigent clients vary by jurisdiction. Three systems are currently used: public defender programs, contract defense programs, and assigned counsel programs. Lacking in all three systems is an incentive to provide the best defense possible for the indigent defendant and present in all three is a strong incentive to plea bargain.

However, the remaining incentives vary. We will examine the incentive structure of all three systems.

Public defender programs provide free lawyers to defendants in their jurisdictions who cannot afford representation in criminal proceedings. We assume that most criminal defendants want to be exonerated or, at best, to be faced with the least punitive criminal sanction. We also believe, as Steven Schulhofer and David Friedman posit, that most defenders are concerned with protecting the rights of indigent criminal defendants.¹⁴¹ However, there are conflicts between individual and institutional incentives for public defenders. To place this argument in the proper context, we should first consider where public defender resources come from.

Most public defender organizations are funded by their adversary—the state. Therefore, Chief Defenders must often prioritize their resources to accommodate the concerns of the court and the government, which provide the funding to run public defender organizations. Perhaps this clarifies the tension between individual and institutional incentives. For example, as Schulhofer and Friedman point out, the public defender who wishes to distinguish herself by building a strong reputation, possibly to pave the way to another career, is often met with systematic resistance to spending time and resources on cases.¹⁴² Institutional concerns create an incentive to move cases through the system expeditiously and conserve resources—not an incentive to serve justice. Indeed, the effects of high caseloads coupled with budgetary considerations were documented long ago in a notable study of the

Legal Aid Society of New York. Michael McConville and Chester Mirsky found that the increasing workloads of the 1970s and reduced staff led to a strong emphasis on moving cases through the system quickly through guilty pleas.¹⁴³ Schulhofer and Friedman point out those public defenders that exercise their adversarial role and put forth full efforts are even met at times with punishment, as was the case with an Atlanta public defender who was demoted because she filed a motion requesting the court to assign her no more than six cases daily.¹⁴⁴

Skewed incentives are also problematic within a contract defense program. Contract defense programs, less commonly used, comprise lawyers and law firms who handle indigent criminal cases in exchange for a fee. To further clarify, these attorneys are paid either a global fee, which is an annual payment for handling all cases of a specific class, or an individual fee, which is a fee per each case. In this system, lawyers and law firms have a seemingly strong incentive to avoid a defense that requires anything beyond the minimum service. As Schulhofer and Friedman state, the system of global and individual fees creates a "powerful disincentive to invest time and resources in his indigent cases."¹⁴⁵ This is a for-profit business, meaning that any money saved by cutting corners is money in the pockets of the attorneys. In his analysis of legal disparities in capital punishment in Texas, Scott Phillips also describes the conflict caused by a flat fee payment system. Citing the American Bar Association (1992), Phillips notes that "the possible effect of such rates is to discourage lawyers from doing more than what

is minimally necessary to qualify for the flat payment."¹⁴⁶

Furthermore, monetary incentives are problematic in assigned counsel programs. In an assigned counsel program, the judge presiding over a criminal case appoints a lawyer to handle an indigent client's defense on a case-by-case basis. Almost all members admitted to the State's Bar are required to participate in the assigned counsel system, though some jurisdictions require members to have a certain number of years and experience in criminal courts. Hence, the problem—many attorneys don't want to serve as assigned counsel in indigent cases. They are paid flat fees, which usually have very low caps on fee maximums, or hourly wages, which are often quite low and historically have not been enough to cover basic overhead costs, such as rent, secretarial needs, and other operational costs.¹⁴⁷ The financial incentive produced by this system is therefore twofold: low rates and fee caps disincentivize maximum case efforts by attorneys assigned to these cases and, less commonly, higher hourly rates and jurisdictions with no fee caps will incentivize just the opposite—maximum efforts to lengthen litigation.¹⁴⁸

Phillips directs attention to an additional financial conflict inherent to the appointed counsel system. According to Phillips, the defense has to balance the goal of providing a vigorous defense with their concerns of future income.¹⁴⁹ He is referring to defense counsel's relationship with judges, who make the ultimate decisions on whom to appoint to a criminal case. Concerned about insuring steady work, defense attorneys in this system have to stay in the good graces of criminal court

judges. As one defense attorney explained, "An attorney who files a lot of motions and asks a lot of questions creates a problem for the judges. You tick off the judge and don't get any more appointments."¹⁵⁰

The present system of indigent defense provides few incentives for defense attorneys to fully advocate for the best interests of their clients. In their discussion of the benefits of a free-market approach to defense lawyering for indigent criminal defendants, Schulhofer and Friedman suggest that better incentives are

needed to align the interests of the indigent defendant and his client.¹⁵¹ In the wider context, it appears that flawed incentives exist systemically in our existing criminal justice system so that the goal of justice has somehow gotten lost. Unfortunately, the incentives of public defenders do not always encourage them to mount a vigorous defense. Weak incentives often combine with thin resources to make it even less likely that good lawyering can compensate for flaws elsewhere in the system.

We Need Structural Change

We have identified misaligned incentives in the criminal justice system. As we noted in our introduction, our survey is neither complete nor comprehensive. We have shown, however, that the problem is real, systemic, and important. It is a structural problem. Structural problems require structural solutions. Many changes have been proposed including taping suspect interviews,¹⁵² a voucher system for indigent defense,¹⁵³ enhancing the defense right to expertise,¹⁵⁴ separating crime labs from law enforcement,¹⁵⁵ eliminating the snitch system,¹⁵⁶ "sequential unmasking" in forensic testing,¹⁵⁷ redundant forensic-science testing,¹⁵⁸ and privatization of crime labs.¹⁵⁹ Suggestions for reform in policing include changing the perception of the police as a branch of criminal justice to an agency of the municipal government, similar to the innovation in Charlotte-Mecklenburg, North Carolina,¹⁶⁰ and broadening measures of police performance to account for all dimensions of

policing.¹⁶¹ To counter the strong emphasis placed on convictions, Medwed suggests the implementation of prosecutorial innocence units, organized similarly to other specialized units such as sex crimes and cyber crimes, to facilitate the exoneration and release of those wrongfully convicted.¹⁶²

These proposals and others should be considered. It seems fair to say, however, that there has been inadequate research on the topic. We do not fully understand what structural changes would best align the incentives of criminal justice professionals with the overarching goal of justice. Thus more research is required.

Researchers should consider not only what reforms might improve the system, but what obstacles might exist to implementing such reforms. Barkow provides a good example. She notes gloomily that "the current politics of criminal law make big changes tough to envision" in part because "prosecutorial and law enforcement... powers will fight any

efforts that they see as undermining their ability to win cases."¹⁶³ Nor is there complete agreement on the basics of reform.

The dominant view on forensic-science reform, for example, seems to favor use of oversight and hierarchy.¹⁶⁴ Cole explicitly favors "a 'hierarchical' model in which a 'knowledge elite' of researchers exerts control over practitioners."¹⁶⁵ In this scenario the knowledge elite decides what is acceptable practice and practitioners are to follow instructions rather than using their own judgment about what makes sense in a given case.

Koppl has challenged Cole's proposal, partly on the grounds that "hierarchy does not eliminate discretion."¹⁶⁶ He has proposed random redundant testing to help ensure that no lab has a secure monopoly on the evaluation of evidence in its jurisdiction. In his 2005 study, Koppl outlines his suite of forensic science reforms. In a more recent article, Koppl argues, "A defense right to forensic expertise is the single best way to reduce the incidence of false and misleading forensic science testimony."¹⁶⁷ Cowan and Koppl explain why competition among experts creates incentives for the disclosure of information, including information on the strengths and weaknesses of the forensic-science evidence presented in court. This approach accepts the unfortunate fact that experts may be biased and seeks to leverage such bias to generate improved overall outcomes.¹⁶⁸ "Although it is important to attempt to reduce bias," Koppl explains, all measures to do so "are incomplete. The remaining biases should also be leveraged by pitting one expert against the other. We need checks and balances."¹⁶⁹

In crafting proposals for structural change, we should bear in mind the political catechism of James Madison:

*The interest of the man must be connected with the constitutional rights of the place. It may be a reflection on human nature, that such devices should be necessary to control the abuses of government. But what is government itself, but the greatest of all reflections on human nature? If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary.*¹⁷⁰

Many structural features of the American criminal justice system today seem to have been designed for divine creatures, not humans. We need to design a system that can be run by human beings for human beings. We need a criminal justice system for humans, not angels.

In *McNabb v. United States* (1943), the Supreme Court recognized the necessity of structural safeguards against error in the criminal justice system:

*A democratic society, in which respect for the dignity of all men is central, naturally guards against the misuse of the law enforcement process. Zeal in tracking down crime is not in itself an assurance of soberness of judgment. Disinterestedness in law enforcement does not alone prevent disregard of cherished liberties. Experience has therefore counseled that safeguards must be provided against the dangers of the overzealous as well as the despotic. The awful instruments of the criminal law cannot be entrusted to a single functionary. The complicated process of criminal justice is therefore divided into different parts, responsibility for which is separately vested in the various participants upon whom the criminal law relies for its vindication.*¹⁷¹

In this statement Justice Frankfurter recognizes that criminal justice personnel are human beings and not

divine creatures. Even the most conscientious actor may be led into error by "zeal." To reduce the risk of injustice, the system is "divided into different parts" with responsibility for distinct pieces resting with distinct persons. We have examined here how, in effect, poorly designed incen-

tives may misdirect the human zeal of criminal justice personnel and create injustices in spite of the divisions within the system. We must study these incentives scientifically and revise them judiciously if the criminal law is to have what Frankfurter called "its vindication."

Notes

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1. Michael Risinger, "Innocents Convicted: An Empirically Justified Factual Wrongful Conviction Rate," *Journal of Criminal Law and Criminology* 97 (2007): 761-806.

2. William J. Stuntz, *The Collapse of American Criminal Justice* (Cambridge, MA: Belknap Press of Harvard University Press, 2011), 7.

3. Rachel Barkow, "Prosecutorial Administration," *New York University Public Law and Legal Theory Working Papers*, Paper 345 (New York: New York University School of Law, 2012), 37-8.

4. We do not address, for example, the incentives of judges or the incentives created by civil and criminal forfeiture or by federal grants to law enforcement agencies. Nor do we consider the role of jurors, who are important actors in the system, but not criminal-justice professionals. We might note in passing, however, that juries and jury deliberations do not seem to offer a significant counterweight to the pro-conviction bias we identify in this paper. The literature on the "CSI effect," for example, seems to suggest that the effect tends to be pro-prosecution on net. See Deborah R. Baskin and Ira B. Sommers, "Crime-Show-Viewing Habits and Public Attitudes Toward Forensic Evidence: The 'CSI Effect' Revisited," *Justice System Journal* 31, no. 1 (2010): 97-113; Simon

Cole, "More Than Zero: Accounting for Error in Latent Fingerprint Identification," *Journal of Criminal Law & Criminology* 95 (2005): 985-1078; Kimberlianne Podlas, "'The CSI Effect': Exposing the Media Myth," *Fordham Intellectual Property, Media & Entertainment Law Journal* 429 (2006): 429-65.

5. We were alerted to the issue by Wickenheiser's business analysis of the Acadiana Crime Lab, in which he remarks, "Collection of court costs is the only stable source of funding for the Acadiana Crime Lab." Ray Wickenheiser, "The Business Case for Using Forensic DNA Technology to Solve and Prevent Crime," *Journal of Biolaw and Business* 7 (2004): 3.

6. As we will note, a fifteenth state, North Carolina, sends lab fees to the law enforcement agency containing the lab without specifying that they go to the lab.

7. These court-assessed fees are an example of legal financial obligations (LFOs), which have been criticized for being inappropriately burdensome and for making the re-entry of convicted persons back into society more difficult. See Rebekah Diller, *The Hidden Costs of Florida's Criminal Justice Fees* (New York: Brennan Center for Justice at New York University School of Law, 2010). The literature on LFOs does not seem to include studies of the incentives they may provide to generate convictions.

8. The logic of technique absorption describes what happened with DNA typing. The correctness of some convictions reached in the years prior to DNA typing could be (imperfectly) tested with DNA

typing. But the technique was fairly quickly absorbed by the system and absorption probably made the system better. (Independent DNA analysis has been used, however, as an external measure to identify false convictions based on mistaken DNA analysis.)

9 Sam Peltzman, "The Effects of Automobile Safety Regulations," *Journal of Political Economy* 83 (1975): 677-726. It might seem obvious that technique absorption could only improve the system. But we do not think we can exclude the possibility that behavioral phenomena such as "compensating behavior" may wipe out most or all of the benefits of absorbing a given technique. As long as criminal-justice professionals have discretion and the incentive to produce convictions independently of guilt, there is a risk of false conviction. It seems too optimistic to hope for a technological cure for an institutional problem. See also <http://thinkmarkets.wordpress.com/2008/12/06/the-technical-obsolescence-of-forensic-fraud/>.

10 Bruce Weber, *As They See 'em: A Fan's Travels in the Land of Umpires* (New York: Scribner, 2009), 26.

11 Samuel R. Gross et al., "Exonerations in the United States: 1989 Through 2003," *Journal of Criminal Law and Criminology* 95 (2005): 551.

12 Joshua Marquis, "The Innocent and the Shamed," *The New York Times*, January 26, 2006.

13 *Kansas v. Marsh*, 548 U.S. 163: 198 (2006).

14 *Ibid.*

15 Steve Mills and Maurice M. Possley, "Texas Man Executed on Disproved Forensics: Fire that Killed His 3 Children Could Have Been Accidental," *Chicago Tribune*, December 9, 2004, <http://www.chicagotribune.com>; *Willingham v. State*, 897 S.W.2d. 351 (Tex.Crim. App. 1995); David Grann, "Trial by Fire," *The New Yorker*, September 7, 2009, http://www.newyorker.com/reporting/2009/09/07/090907fa_fact_grann?currentPage=all.

16 Beyler, Craig L. "Analysis of the Fire Investigation Methods and Procedures Used in the Criminal Arson Cases Against

Ernest Ray Willis and Cameron Todd Willingham," 17 August 2009 at p. 51. Beyler's report can be found as Exhibit 7 to Report of the Texas Forensic Science Commission: Willingham/Willis Investigation, Apr. 14, 2011, available at <http://www.fsc.state.tx.us/documents/FINALpdf>; Gerald Hurst, "Ex Parte Report of Dr. Gerald Hurst for Cameron Todd Willingham in the District Court, 366th Judicial District, Navarro County, Texas" (2004).

17 *Kansas v. Marsh*, 199.

18 Mills and Possley, "Texas Man Executed on Disproved Forensics."

19 Death Penalty Information Center, <http://www.deathpenaltyinfo.org/executed-possibly-innocent> (accessed September 22, 2011).

20 Risinger, "Innocents Convicted," 761-806.

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22 Risinger, "Innocents Convicted," 785.

23 *Ibid.*, 785.

24 *Ibid.*, 783.

25 *Ibid.*, 784.

26 *Ibid.*, 780 2.

27 Stuntz, *Collapse of American Criminal Justice*, 317, n.2.

28 Gross et al., "Exonerations in the United States," 534.

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- 31 Ibid., 534–5.
- 32 "Deputy Pleads Innocent to Perjury Charges," June 26, 2003, Associated Press. Editorial, "Are They Learning?" *The New York Times Sunday Review*, July 16, 2011, http://www.nytimes.com/2011/07/17/opinion/sunday/17sun2.html?_r=2.
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