

Deterrence

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The criminal justice system in a democratic society serves many vital social purposes. Among the most important is deterring crime. Going back to the pioneering work of the Enlightenment philosopher Cesare Beccaria, deterrence theorists have distinguished between the certainty and severity of punishment. Conventional wisdom, backed by considerable research evidence, is that the certainty of punishment, not its severity, is the more effective deterrent. Recent reviews of that evidence has led me to a refinement of the certainty principle—it is the certainty of apprehension not the severity of the ensuing consequences that is the more effective deterrent. This conclusion has several important implications for policy. First, it calls into question the effectiveness of over four decades of U.S. crime-control policy predicated on the premise that lengthy prison sentences are an effective deterrent to crime. Second, according to the revised certainty principle, crime-prevention policy should instead focus on bolstering the certainty of apprehension. Such policies mostly involve increasing police numbers or better use of the police by their strategic deployment in ways that heighten their presence in high-crime areas and/or reduce criminal opportunities at such places.

INTRODUCTION

The criminal justice system in a democratic society serves many vital social purposes. Among the most important is preventing crime. The system's activities may prevent crime by three mechanisms. One is incapacitation.¹ Convicted offenders are often punished with imprisonment. Incapacitation refers to the crimes averted by their physical isolation during the period of their incarceration. Two other mechanisms involve possible behavioral responses. The *threat* of punishment may discourage criminal acts. In economics, this effect is called deterrence, whereas in criminology, it is referred to as general deterrence. The second behavioral mechanism concerns the effect of the *actual experience* of punishment on reoffending. In criminology, this effect is termed

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1. See Shawn D. Bushway, "Incapacitation," in the present Volume.

specific deterrence. Note, however, that there are many sound reasons for suspecting that the experience of punishment might not have the chastening effect that is implied by the label but instead might increase, not decrease, future offending. However labeled, the primary focus of this chapter is research evidence on the crime-prevention effects of the threat of punishment, which will hereafter be referred to as deterrence.

A discussion of the policy implications of the research evidence on deterrence, however, requires consideration of the evidence on specific deterrence and incapacitation because the three are inextricably linked.² Incapacitation and specific deterrence (i.e., the effect of the experience of punishment) are the fallout of the failure of deterrence to prevent the crime from happening in the first place. More than 250 years ago, Cesare Beccaria observed “it is better to prevent crimes than punish them.”³ Crime prevention by incapacitation necessarily requires higher imprisonment rates and all the attendant social costs. Concerning specific deterrence, research has shown that the experience of punishment specifically as it relates to imprisonment does not have a chastening effect on future crime. My own review of this evidence has led my co-authors and me to the conclusion: “Compared with noncustodial sanctions, incarceration appears to have a null or mildly criminogenic effect on future criminal behavior.”⁴ By contrast, if crime can be deterred from occurring, there is no perpetrator to punish, and, as Beccaria points out, all the ensuing social costs attending imprisonment are thereby averted.⁵

Beccaria’s observation about the social value of preventing crime rather than punishing it is also a reminder of his conclusion: “One of the greatest curbs on crime is not the cruelty of punishments, but their infallibility.... The certainty of punishment even if moderate will always make a stronger impression.”⁶ Research conducted two centuries after this pronouncement generally supports Beccaria’s prediction. However, recent reviews of the

2. For a review of the evidence on specific deterrence, particularly as it relates to imprisonment, see Daniel S. Nagin, Francis T. Cullen & Cheryl Lero Jonson, *Imprisonment and Reoffending*, 38 CRIME & JUST. 115 (2009). For a review of the evidence on incapacitation, see Bushway, *supra* note 1.

3. CESARE BECCARIA, ON CRIMES AND PUNISHMENTS 93 (Henry Paolucci trans., 1963) (1964).

4. Nagin, Cullen & Jonson, *supra* note 2. While imprisoned, an individual may benefit from rehabilitation programs—see generally Francis T. Cullen, “Correctional Rehabilitation,” in the present Volume—but I know of no study that evaluates whether such benefits are sufficient to outweigh any negative effect of the overall prison experience.

5. BECCARIA, *supra* note 3.

6. *Id.* at 58.

deterrence literature by myself and co-authors⁷ have led me to a refinement of Beccaria's "certainty principle"—it is the certainty of apprehension, not the severity of the ensuing consequences, that is the more effective deterrent. The revised certainty principle has two important implications. First, it calls into question the effectiveness of over four decades of U.S. crime-control policy predicated on the premise that lengthy prison sentences are an effective deterrent to crime. For reasons that I will elaborate upon, lengthy prison sentences are also a very inefficient way of preventing crime by incapacitation. Second, according to the revised certainty principle, crime-prevention policy should instead focus on bolstering the certainty of apprehension. Such policies mostly involve increasing police numbers or better use of the police by their strategic deployment in ways that heighten their presence in high-crime areas and/or reduce criminal opportunities at such places.

I. THEORY OF DETERRENCE

Since Beccaria and the other co-founder of deterrence theory, Jeremy Bentham, three key concepts have underlaid theories about deterrence—the certainty, severity, and immediacy of punishment. Certainty refers to the probability of legal sanction given commission of crime; severity refers to the onerousness of the legal consequences if a sanction is imposed; and immediacy (a.k.a. celerity) refers to the lapse in time between commission of the crime and its punishment. Most modern theories of deterrence, whether originating from economics or from the rational-choice tradition in criminology, focus only on the certainty and severity of punishment. Immediacy has been given far less attention. In part, the inattention to immediacy reflects the difficulty of measuring it. However, another factor is that even in theory, the swiftness of punishment, except for the payment of a monetary fine, has an ambiguous incentive effect. While it is always advantageous to delay payment of a monetary fine, there is nothing irrational about a desire to get non-monetary punishment over with. Further complicating matters is that most non-monetary legal sanctions (e.g., imprisonment) are themselves experienced over time.

As discussed below, there is far more empirical support for the deterrent effect of changes in the certainty of punishment than changes in the severity of punishment. One explanation for the larger deterrent effectiveness of certainty compared to severity involves informal sanction costs such as censure by

7. Robert Apel & Daniel S. Nagin, *General Deterrence: A Review of Recent Evidence*, in *CRIME AND PUBLIC POLICY* (James Q. Wilson & Joan Petersilia eds., 2012); Steven N. Durlauf & Daniel S. Nagin, *Imprisonment and Crime: Can Both Be Reduced?*, 10 *CRIMINOLOGY & PUB. POL'Y* 13 (2011); Daniel S. Nagin, *Deterrence in the 21st Century: A Review of the Evidence*, 42 *CRIME & JUST.* 199 (2013).

friends and family and loss of social and economic standing. Informal costs may far exceed formal sanction costs and also may be more closely tied to the certainty of punishment than the severity of formal sanctions. Consequently, merely being arrested for committing a crime may trigger the imposition of informal sanctions regardless of the severity of the ensuing consequences. Williams and Hawkins use the term “fear of arrest” to label the deterrent effect of informal-sanction cost.⁸

The concept of fear of arrest is a reminder that the certainty of punishment is itself a product of a series of conditional probabilities associated with various stages of the criminal justice system—probability of apprehension, probability of conviction given apprehension, and so on. Each of these conditional probabilities has costs associated with them, and there is no reason in principle that equal changes in each should necessarily have the same deterrent effect. Stated differently, a 1% increase in probability of apprehension effect may have a very different deterrent effect than a 1% increase in the probability of imprisonment given conviction.

II. REVIEW OF THE EVIDENCE

A. DETERRENT EFFECT OF IMPRISONMENT

There have been two distinct waves of studies of the deterrent effect of imprisonment. Studies in the 1960s and 1970s, which were primarily cross-sectional analyses of states, examined the relationship of the state’s crime rate to the certainty of punishment, measured by the ratio of prison admissions to reported crimes, and the severity of punishment measured by median time served in prison. These studies suffered from a number of serious statistical flaws.⁹ One was that they confounded deterrent and incapacitation effects. The second was more fundamental. There are many good reasons for believing that crime rates and sanction levels mutually influence each other. Indeed, Becker’s classic economic theory of crime¹⁰ is predicated on their mutual (endogenous) determination. As a consequence, it was not possible to make a determination whether the associations between crime rates and sanction levels measured by these studies reflected the effect of sanction levels on crime or crime on sanction levels. Stated differently, it was not possible to distinguish cause from effect.

8. Kirk R. Williams & Richard Hawkins, *Perceptual Research on General Deterrence: A Critical Review*, 20 L. & Soc’y REV. 545 (1986).

9. ALFRED BLUMSTEIN ET AL., *DETERRENCE AND INCAPACITATION: ESTIMATING THE EFFECTS OF CRIMINAL SANCTIONS ON CRIME RATES* (1978).

10. Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968).

In response to these deficiencies, a second generation of studies emerged in the 1990s. Unlike the first-generation studies, second-generation studies had a longitudinal component in which data were analyzed not only across states but also over time. Another important difference is that the second-generation studies did not attempt to estimate certainty and severity effects separately. Instead, they examined the relationship between the crime rate and rate of imprisonment (prisoners per capita).

Durlauf and Nagin discuss at length the reasons why these studies provide little useful information on deterrence. One is that, like the earlier studies, they confound deterrent and incapacitation effects. Second, like the earlier studies, with the possible exception of Levitt¹¹ and Johnson and Raphael,¹² they do not resolve the identification problem resulting from the endogenous determination of crime rates and imprisonment rates. Third, all of these studies suffer from an important theoretical flaw. Prison population is not a policy variable; rather, it is an outcome of sanction policies dictating who goes to prison and for how long—namely, the certainty and severity of punishment. In all incentive-based theories of criminal behavior in the tradition of Bentham and Beccaria, including most importantly Becker's, the deterrence response to sanction threats is posed in terms of the certainty and severity of punishment, not the imprisonment rate. Therefore, to predict how changes in certainty and severity might affect the crime rate requires knowledge of the relationship of the crime rate to certainty and severity as separate entities, which is not provided by the literature relating the crime rate to the imprisonment rate.

I turn now to five studies that in my judgment report convincing evidence of the deterrent effect of incarceration. They also nicely illustrate diversity in the deterrent response to the threat of imprisonment. These studies are: Weisburd, Einat, and Kowalski,¹³ who studied the use of imprisonment to enforce fine payment and found a substantial deterrent effect; Helland and Tabarrok,¹⁴ who analyzed the deterrent effect of California's third-strike provision and found a moderate deterrent effect; Raphael and Ludwig,¹⁵ who examined the deterrent

11. Steven D. Levitt, *The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Legislation*, 111 Q. J. ECON. 319 (1996).

12. Rucker Johnson & Steven Raphael, *How Much Crime Reduction Does the Marginal Prisoner Buy?*, 55 J.L. & ECON. 275 (2012).

13. David Weisburd et al., *The Miracle of the Cells: An Experimental Study of Interventions To Increase Payment of Court-Ordered Financial Obligations*, 7 CRIMINOLOGY & PUB. POL'Y 9 (2008).

14. Eric Helland & Alexander Tabarrok, *Does Three Strikes Deter?: A Nonparametric Estimation*, 42 J. HUM. RESOURCES 309 (2007).

15. Steven Raphael & Jens Ludwig, *Prison Sentence Enhancements: The Case of Project Exile*, in *EVALUATING GUN POLICY: EFFECTS ON CRIME AND VIOLENCE* (Jens Ludwig & Philip J. Cook eds., 2003).

effect of prison-sentence enhancements for gun crimes and found no effect; and Lee and McCrary¹⁶ and Hjalmarsson,¹⁷ who examined the heightened threat of imprisonment that attends coming under the jurisdiction of the adult courts at the age of majority (i.e., the legal threshold for adulthood, often age 18) and found no deterrent effect.

Weisburd, Einat, and Kowalski¹⁸ reported on a randomized field trial of alternative strategies for incentivizing the payment of court-ordered fines. The most salient finding was that the imminent threat of incarceration provides a powerful incentive to pay delinquent fines, even when the incarceration is only for a short period. They called this effect “the miracle of the cells.” The miracle of the cells provides valuable perspective on the conclusion that the certainty rather than the severity of punishment is the more powerful deterrent. Consistent with the “certainty principle,” the common feature of treatment conditions involving incarceration is a high certainty of imprisonment for failure to pay the fine. However, the fact that the authors labeled the response the “miracle of the cells” and not the “miracle of certainty” is telling. Their choice of label is a reminder that certainty must result in a distasteful consequence in order for it to be a deterrent. The consequences need not be draconian, just sufficiently costly, to deter the prohibited behavior.

Helland and Tabarrok¹⁹ examined whether California’s “three strikes and you’re out” law deters offending among individuals previously convicted of strike-eligible offenses (certain serious and violent felonies). The future offending of individuals convicted of two previous strikable offenses was compared with that of individuals who had been convicted of only one strikable offense but who, in addition, had been tried for a second strikable offense but were ultimately convicted of a nonstrikable offense (which could be any felony). The study demonstrates that these two groups of individuals were comparable on many characteristics such as age, race, and time in prison. Even so, Helland and Tabarrok found that arrest rates were about 20% lower for the group with convictions for two strikable offenses. The authors attributed this reduction

16. David S. Lee & Justin McCrary, *The Deterrent Effect of Prison: Dynamic Theory and Evidence*, 38 *ADVANCES IN ECONOMETRICS* 73 (2017).

17. Randi Hjalmarsson, *Crime and Expected Punishment: Changes in Perceptions at the Age of Criminal Majority*, 11 *AM. L. & ECON. REV.* 209 (2009).

18. Weisburd et al., *supra* note 13.

19. Helland & Tabarrok, *supra* note 14.

to the greatly enhanced sentence that would have accompanied conviction for a third strike offense. Note, however, that their cost-benefit analysis found that the cost of 25 years or more of imprisonment accompanying conviction for the third-strike offense likely far exceeded the crime-avoidance benefits.

Raphael and Ludwig²⁰ examined the deterrent effect of sentence enhancements for gun crimes that formed the basis for a Richmond, Virginia, intervention called Project Exile. Perpetrators of gun crimes, specifically those with a felony record, were targets of federal prosecution that provided for far more-severe prison sentences for weapon use than Virginia state law. Based on an analysis involving comparisons of adult homicide arrest rates with juvenile homicide arrest rates within Richmond and comparisons of Richmond's gun homicide rate with other cities that had comparable pre-intervention homicide rate trends, Raphael and Ludwig concluded that the threat of enhanced sentence had no apparent deterrent effect.²¹

For most crimes, the certainty and severity of punishment increases markedly upon reaching the age of majority, when jurisdiction for criminal wrongdoing shifts from the juvenile to the adult court. In an extraordinarily careful analysis of individual-level crime histories from Florida, Lee and McCrary²² attempted to identify an abrupt decline in offending at age 18, the age of majority in Florida. Their point estimate of the discontinuous change was negative as predicted, but it was very small in magnitude and not even remotely close to statistical significance.

Another analysis of the effect of moving from the jurisdiction of the juvenile to adult courts by Hjalmarsson²³ used the 1997 National Longitudinal Survey of Youth to examine whether young males' perception of incarceration risk changed at the age of criminal majority. She found that, on average, subjective probabilities of being sent to jail for auto theft increased by 5.2 percentage points when youths reached the age of majority in their state of residence. While youths perceived an increase in incarceration risk, she found no convincing evidence of an effect on their self-reported criminal behavior.

These five exemplary studies have important implications for the relationship of sentence length to the crime rate. Figure 1 depicts two alternative forms of the deterrence response function relating crime rate to sentence length. Both are downward-sloping, which captures the idea that increases in severity deter

20. Raphael & Ludwig, *supra* note 15.

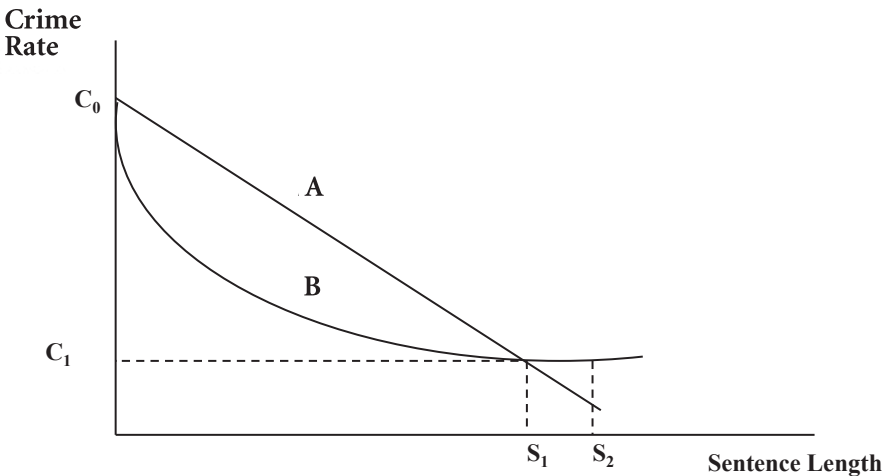
21. *Id.*

22. Lee & McCrary, *supra* note 16.

23. Hjalmarsson, *supra* note 17.

crime. Suppose the status-quo sentence length was S_1 . That would imply that the crime rate, C_1 , is the same for both forms of the response function relating crime rate to sentence length. The curves are also drawn so that they predict the same crime rate for a sentence length of zero. Thus, the absolute deterrent effect of the status-quo sanction level is the same for both curves. However, from a policy perspective, the absolute deterrent effect is not relevant for serious crime because nobody would recommend reducing sentence length to zero. Instead the policy relevant question is how much would crime change by incrementally changing the status quo sanction level, S_1 . Because the two curves have different shapes, they imply different responses to an incremental increase in sentence level to S_2 . The linear curve (A) is meant to depict a response function in which there is a material deterrent effect accompanying the increase to S_2 , whereas the non-linear curve (B) is meant to depict a small crime-reduction response due to diminishing deterrent returns with increasing sentence length. Stated differently, the non-linear curve captures what economists call “diminishing marginal returns,” which in this context means that there are diminishing marginal crime prevention returns resulting from increases in sentence length.

Figure 1: Crime Rate and Sentence Length



My reading of the evidence on the deterrent effect of sentence length is that it implies that the relationship between crime rate and sentence length more closely conforms to curve B than curve A. Raphael and Ludwig²⁴ found no evidence that

24. Raphael & Ludwig, *supra* note 15.

gun-crime enhancements deter; Lee and McCrary²⁵ and Hjalmarsson²⁶ found no evidence that the greater penalties that attend moving from the juvenile to the adult justice systems deter; and Helland and Tabarrok²⁷ found only a small deterrent effect from California's third-strike rule. As a consequence, the deterrent return to increasing an already long sentence appears to be small, possibly zero.

The fine-payment experiment also suggests that curve B, not curve A, more closely resembles what in medical jargon would be described as the "dose-response" relationship between crime and sentence length. While the study is not directed at the deterrence of criminal behavior, it does suggest that, unlike increments in long sentences, increments in short sentences do have a material deterrent effect on a crime-prone population.

B. DETERRENT EFFECT OF POLICING

The police may prevent crime through many possible mechanisms. Apprehension of active offenders is a necessary first step for their conviction and punishment. If the sanction involves imprisonment, crime may be prevented by the incapacitation of the apprehended offender. Many police tactics, such as rapid response to calls for service or post-crime investigation, are intended not only to capture the offender but to deter others by projecting a tangible threat of apprehension. Police may, however, deter without actually apprehending criminals—their very presence may deter a motivated offender from carrying out a contemplated criminal act.

Research on the deterrent effect of police has evolved in two distinct literatures. One has focused on the deterrent effect of the level of police numbers. The other has focused on the crime-prevention effectiveness of different strategies for deploying police. These two literatures are reviewed separately.

1. Studies of levels of police numbers and resources

Studies of the effect of police numbers and resources come in two forms. One is an analogue of the imprisonment-rate and crime-rate studies described in the prior section. These studies are based on panel datasets, usually of U.S. cities over the period around 1970 to 2000. They relate the rates of FBI Index Crimes (intentional homicide, rape, robbery, aggravated assault, burglary, and certain forms of theft) to the resources committed to policing as measured by police per capita or police expenditures per capita. Examples of this form

25. Lee & McCrary, *supra* note 16.

26. Hjalmarsson, *supra* note 17.

27. Helland & Tabarrok, *supra* note 14.

of study include Levitt²⁸ and Evans and Owens.²⁹ The second form of study is more targeted and analyzes the impact on crime that results from abrupt changes in the level of policing due, for example, to terror alerts. Both types of studies consistently find that greater police resources reduce crime.

In my view, the most convincing evidence comes from the abrupt-change type of study in circumstances where the regime change is clearly attributable to an event unrelated to the crime rate. For example, in September 1944, German soldiers occupying Denmark arrested the entire Danish police force. According to an account by Andenaes,³⁰ crime rates rose immediately but not uniformly. The frequency of street crimes like robbery, whose control depends heavily upon visible police presence, rose sharply. By contrast, crimes like fraud were less affected.³¹

Contemporary tests of the police-crime relationship based on abrupt decreases in police presence investigate the impact on crime of reductions in police presence and productivity as a result of large budget cuts or lawsuits following racial-profiling scandals.³² Such studies have examined the Cincinnati Police Department,³³ the New Jersey State Police,³⁴ and the Oregon State Police.³⁵ Each of these studies concludes that decreases in police presence and activity substantially increase crime. For example, Shi studied the fallout from an incident in Cincinnati in which a white police officer shot and killed an unarmed African-American suspect.³⁶ The incident was followed by rioting, heavy media attention, a federal civil-rights investigation, and the indictment of the officer in question. These events created an unofficial incentive for officers from the Cincinnati Police Department to curtail their use of arrest for misdemeanor crimes. Shi demonstrated measurable declines in police

28. Steven D. Levitt, *Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime*, 87 AM. ECON. REV. 270 (1997).

29. Williams N. Evans & Emily G. Owens, *COPS and Crime*, 91 J. PUB. ECON. 181 (2007).

30. JOHANNES ANDENAES, PUNISHMENT AND DETERRENCE (1974).

31. For other examples of crime increases following a collapse of police presence, see Lawrence W. Sherman & John E. Eck, *Policing for Crime Prevention*, in EVIDENCE-BASED CRIME PREVENTION (2003).

32. For a discussion of racial profiling, see David A. Harris, "Racial Profiling," in Volume 2 of the present Report.

33. Lan Shi, *The Limits of Oversight in Policing: Evidence from the 2001 Cincinnati Riot*, 93 J. PUB. ECON. 99 (2009).

34. Paul Heaton, *Understanding the Effects of Antiprofiling Policies*, 53 J.L. & ECON. 29 (2010).

35. Greg DeAngelo & Benjamin Hansen, *Life and Death in the Fast Lane: Police Enforcement and Roadway Safety* (Mar. 29 2010) (unpublished manuscript), http://benjaminhansen.yolasite.com/resources/Life_And_Death_5_29.pdf.

36. Shi, *supra* note 33.

productivity in the aftermath of the riot and also documented a substantial increase in criminal activity.

The ongoing threat of terrorism has also provided a number of unique opportunities to study the impact of police resource allocation in cities around the world, including the District of Columbia,³⁷ Buenos Aires,³⁸ Stockholm,³⁹ and London.⁴⁰ The Klick and Tabarrok study⁴¹ examined the effect on crime in the Mall area of Washington, D.C., of the color-coded alert system implemented in the aftermath of the September 11, 2001, terrorist attacks. The purpose of the alerts was to signal federal, state, and local law enforcement agencies to occasions when it might be prudent to divert resources to sensitive locations, such as the Mall. Klick and Tabarrok used daily police reports of crime for the period starting in March 2002 to July 2003, during which time the terrorism alert level rose from “elevated” (yellow) to “high” (orange) and back down to “elevated” on four occasions.⁴² During high alerts, anecdotal evidence suggested that police presence increased by 50 percent. Such increases were associated with statistically significant crime reductions

To summarize, studies of police presence consistently find that putting more police officers on the street has a substantial deterrent effect on serious crime. Yet these police manpower studies speak only to the number and allocation of police officers and not to what police officers actually do on the street beyond making arrests.

2. Police deployment and crime

Much research has examined the crime-prevention effectiveness of alternative strategies for deploying police resources. This research has largely been conducted by criminologists. Among this group of researchers, the preferred research designs are interrupted time series studies of the effect of

37. Jonathan Klick & Alexander Tabarrok, *Using Terror Alert Levels to Estimate the Effect of Police on Crime*, 48 J.L. & ECON. 267 (2005).

38. Rafael Di Tella & Ernesto Schargrodsky, *Do Police Reduce Crime? Estimates Using the Allocation of Police Forces after a Terrorist Attack*, 94 AM. ECON. REV. 115 (2004).

39. Panu Poutvaara & Mikael Priks, *Hooliganism in the Shadow of a Terrorist Attack and the Tsunami: Do Police Reduce Group Violence?* (2006) (unpublished manuscript).

40. Mirko Draca et al., *Panic on the Streets of London: Police, Crime and the July 2005 Terror Attacks*, 101 AM. ECON. REV. 2157 (2011).

41. Klick & Tabarrok, *supra* note 37.

42. *Id.*

targeted interventions and true randomized experiments. The discussion that follows draws heavily upon two excellent reviews of this research by Weisburd and Eck⁴³ and Braga.⁴⁴

For the most part, deployment strategies affect the certainty of punishment through their impact on the probability of apprehension. One way to increase apprehension risk is to mobilize police in a fashion that increases the probability that an offender is arrested after committing a crime. I have described police acting in this role as apprehension agents.⁴⁵ Strong evidence of a deterrent as opposed to an incapacitation effect resulting from the apprehension of criminals is limited. Studies of the effect of rapid response to calls for service⁴⁶ did not directly test for deterrence but found no evidence of improved apprehension effectiveness. This may be because most calls for service occur well after the crime, with the result that the perpetrator has fled the scene. Similarly, apprehension risk is probably not materially increased by improved investigations.⁴⁷

The second source of deterrence from police activities involves averting crime in the first place. In this circumstance, there is no apprehension because there is no offense. I have described police acting in this role as sentinels.⁴⁸ In my view, the sentinel role is the primary source of deterrence from policing. Thus, measures of apprehension risk based only on enforcement actions in response to crimes that actually occur, such as arrests per reported crime, are not valid measures of the apprehension risk represented by criminal opportunities not acted upon because the risk was deemed too high.⁴⁹

43. David Weisburd & John E. Eck, *What Can Police Do to Reduce Crime, Disorder, and Fear?*, 593 ANNALS AM. ACAD. POL. & SOC. SCI. 42 (2004).

44. ANTHONY ALAN BRAGA, POLICE ENFORCEMENT STRATEGIES TO PREVENT CRIME IN HOT SPOT AREAS (2008).

45. Daniel S. Nagin, *Deterrence in the 21st Century: A Review of the Evidence*, 42 CRIME & JUST. 199 (2013).

46. WILLIAM SPELMAN & D. K. BROWN, CALLING THE POLICE: A REPLICATION OF THE CITIZEN REPORTING COMPONENT OF THE KANSAS CITY RESPONSE TIME ANALYSIS (Police Executive Research Forum, 1981).

47. ANTHONY A. BRAGA ET AL., MOVING THE WORK OF CRIMINAL INVESTIGATORS TOWARDS CRIME CONTROL (2011), <http://www.hks.harvard.edu/content/download/67524/1242906/version/1/file/NPIP-MovingtheWorkofCriminalInvestigatorsTowa-03-11.pdf> [<http://perma.cc/RB9B-NUJC>]; JOHN E. ECK, HELPFUL HINTS FOR THE TRADITION-BOUND CHIEF (FRESH PERSPECTIVES) (1992); Jan M. Chaiken et al., *The Criminal Investigation Process: A Summary Report*, 3 POL'Y ANALYSIS 187 (1977).

48. Nagin, *supra* note 45.

49. Philip J. Cook, *The Clearance Rate as a Measure of Criminal Justice System Effectiveness*, 11 J. PUB. ECON. 135 (1979).

One example of sentinel-like police deployment strategies that have been shown to be effective in averting crime in the first place is “hot spots” policing. The idea of hot-spots policing stems from a striking empirical regularity uncovered by Sherman and colleagues,⁵⁰ who found that only 3% of addresses and intersections (“places,” as they were called) in Minneapolis produced 50% of all calls to the police. Twenty-five years later in a study in Seattle, Washington, Weisburd and colleagues⁵¹ reported that between 4% and 5% of street segments in the city accounted for 50% of crime incidents for each year over a 14-year period.

The first test of the effectiveness of concentrating police resources on crime hot spots was conducted by Sherman and Weisburd.⁵² In this randomized experiment, hot spots in the experimental group were subjected to, on average, a doubling of police patrol intensity compared to hot spots in the control group. Declines in total crime calls ranged from 6% to 13%. In another randomized experiment, Weisburd and Green⁵³ found that hot-spots policing was similarly effective in suppressing drug markets.

Braga’s informative review of hot-spots policing summarizes the findings from nine experimental or quasi-experimental evaluations.⁵⁴ The targets of the police actions varied. Some hot spots were generally high-crime locations, whereas others were characterized by specific crime problems like drug trafficking. All but two of the studies found evidence of significant reductions in crime. Further, no evidence was found of material crime displacement to immediately surrounding locations. On the contrary, some studies found evidence of crime reductions, not increases, in the surrounding locations—a “diffusion of crime-control benefits” to non-targeted locales. Note also that the findings from the previously described econometric studies of focused police actions—for example, in response to terror alert level—buttress the conclusion that the strategic targeting of police resources can be very effective in reducing crime.

A second example of a sentinel-like policing strategy is problem-oriented policing. Problem-oriented policing involves organizing residents and property owners to help police identify the sources of violent and property crime, and then targeting these problems with focused deterrence-based warnings to

50. Lawrence W. Sherman et al., *Hot Spots of Predatory Crime: Routine Activities and the Criminology of Place*, 27 *CRIMINOLOGY* 27 (1989).

51. Weisburd & Eck, *supra* note 43.

52. Lawrence W. Sherman & David Weisburd, *General Deterrent Effects of Police Patrol in Crime ‘Hot Spots’: A Randomized Study*, 12 *JUST. Q.* 625 (1995).

53. David Weisburd & Lorraine Green, *Policing Drug Hot Spots: The Jersey City Drug Market Analysis Experiment*, 12 *JUST. Q.* 711 (1995).

54. BRAGA, *supra* note 44.

repeat offenders, increased police, citizen and technological monitoring, and better control of physical and social disorders. It also involves orchestrated efforts between police and prosecutors to increase sanction costs.

One of the most highly publicized instances of problem-oriented policing is Boston's Operation Ceasefire.⁵⁵ The objective of the operation was to prevent inter-gang gun violence using two deterrence-based strategies. The first strategy was to target enforcement against suppliers of weapons to Boston's violent youth gangs. The second involved a more novel approach. The youth gangs themselves were assembled by the police on multiple occasions, in order to send the message that the response to any instance of serious violence would be "pulling every lever" legally available to punish gang members collectively. This included a salient severity-related dimension—vigorous prosecution for unrelated, nonviolent crimes such as drug dealing. Thus, the aim of Operation Ceasefire was to deter violent crime by increasing the certainty and severity of punishment, but only in targeted circumstances—specifically, if the gang members commit a violent crime.

Since Operation Ceasefire, the strategy of "pulling every lever" has been the centerpiece of field interventions in many large and small U.S. cities, including: Richmond, Virginia; Chicago, Illinois; Stockton, California; High Point, North Carolina; and Pittsburgh, Pennsylvania.⁵⁶ Independent evaluations have also been conducted of some of these interventions.⁵⁷ The conclusions of these evaluations are varied, but Cook's characterization of the much publicized High Point drug-market intervention seems apt: initial conclusions of eye-catching large effects have been replaced with far more modest assessments

55. DAVID M. KENNEDY ET AL., NAT'L INST. OF JUSTICE, U.S. DEP'T OF JUSTICE, REDUCING GUN VIOLENCE: THE BOSTON GUN PROJECT'S OPERATION CEASEFIRE (2001).

56. For an extended description of these interventions and the philosophy behind them, written by one of the architects of the "pulling every lever" strategy, see DAVID M. KENNEDY, DETERRENCE AND CRIME PREVENTION: RECONSIDERING THE PROSPECT OF SANCTION (2009).

57. See Philip J. Cook & Jens Ludwig, *Aiming for Evidence-Based Gun Policy*, 25 J. POL'Y ANALYSIS & MGMT. 691 (2006) (Boston); Steven Raphael & Jens Ludwig, *Prison Sentence Enhancements: The Case of Project Exile*, in EVALUATING GUN POLICY: EFFECTS ON CRIME AND VIOLENCE (Jens Ludwig & Philip J. Cook eds., 2003) (Richmond); Andrew V. Papachristos, Tracey L. Meares & Jeffrey Fagan, *Attention Felons: Evaluating Project Safe Neighborhoods in Chicago*, 4 J. EMPIRICAL LEGAL STUD. 223 (2007) (Chicago); Jeremy M. Wilson & Steven Chermak, *Community-Driven Violence Reduction Programs*, 10 CRIMINOLOGY & PUB. POL'Y 993 (2011) (Pittsburgh); Nicholas Corsaro et al., *The Impact of Drug Market Pulling Levers Policing on Neighborhood Violence: An Evaluation of the High Point Drug Market Intervention*, 11 CRIMINOLOGY & PUB. POL'Y 167 (2012) (High Point).

of effect sizes and cautions about the generalizability of the results.⁵⁸ Reuter and Pollack wondered whether a successful intervention in a small urban area such as High Point can be replicated in a large city such as Chicago.⁵⁹ Ferrier and Ludwig pointed out the difficulty understanding the mechanism that underlies a seemingly successful intervention that pulls many levers.⁶⁰ Despite concerns, these interventions illustrate the potential for combining elements of both certainty and severity enhancement to generate a targeted deterrent effect.

III. POLICY IMPLICATIONS

As noted in the introduction, an incarceration-based sanction policy that is designed to reduce crime by incapacitation will necessarily increase the rate of imprisonment. In contrast, if the crime-control policy also prevents crime by deterrence, it may be possible to reduce both imprisonment and crime—successful prevention by any mechanism, whether by deterrence or otherwise, has the virtue of averting not only crime but also the punishment of perpetrators. Hence, it is important to identify policies that decrease crime without having material impacts on imprisonment or, better yet, reduces it. Identification of such policies requires recognition of three important conclusions that have emerged from my recent reviews of the research evidence on general and specific deterrence.

First, there is little evidence that increases in the length of already long prison sentences yield general deterrent effects that are sufficient to justify their social and economic costs. Such severity-based deterrence measures include “three strikes and you’re out,” life without the possibility of parole, and other laws that mandate lengthy prison sentences.⁶¹ Further, while incapacitation is not the focus of this chapter,⁶² it is difficult to justify lengthy prison sentences on the basis of crime prevented by incapacitation. Aging is nature’s best cure for crime. A U.S. Bureau of Justice Statistics study found that released prisoners who were 40 years old or older had a three-year rearrest rate for

58. Phillip J. Cook, *The Impact of Drug Market Pulling Levers Policing on Neighborhood Violence: An Evaluation of the High Point Drug Market Intervention*, 11 CRIMINOLOGY & PUB. POL’Y 161 (2012).

59. Peter Reuter & Harold A. Pollack, *Good Markets Make Bad Neighbors: Regulating Open-Air Drug Markets*, 11 CRIMINOLOGY & PUB. POL’Y 211 (2012).

60. Megan Ferrier & Jens Ludwig, *Crime Policy and Informal Social Control*, 10 CRIMINOLOGY & PUB. POL’Y 1029 (2011).

61. For a discussion of such laws, see Erik Luna, “Mandatory Minimums,” in the present Volume.

62. See Bushway, *supra* note 1.

violent crimes 56% lower than their 24-year-old or younger counterparts.⁶³ Aging is a necessary accompaniment to serving a lengthy sentence and the age-crime linkage implies that recidivism risk declines with age.⁶⁴ The broad-based application of lengthy sentences in the United States is turning the nation's prisons into old-age homes.

Second, based on the earlier noted review of the experience of imprisonment on recidivism,⁶⁵ I have concluded that there is little evidence of a specific deterrent effect arising from the experience of imprisonment compared with the experience of noncustodial sanctions such as probation.⁶⁶ Instead, the evidence suggests that reoffending is either unaffected or increased.

Third, there is substantial evidence that increasing the visibility of the police by hiring more officers and allocating existing officers in ways that materially heighten the perceived risk of apprehension can deter crime. This evidence is consistent with the perceptual deterrence literature that surveys individuals on their sanction-risk perceptions and relates these perceptions to their actual or intended offending behavior.⁶⁷ This literature found that perceived certainty of punishment is associated with reduced self-reported or intended offending.⁶⁸

Thus, I conclude, as have many prior reviews of deterrence research, that evidence in support of the deterrent effect of various measures of the certainty of punishment is far more convincing and consistent than for the severity of punishment. However, as noted in the introduction, the certainty of punishment is conceptually and mathematically the product of a series of conditional probabilities—the probability of apprehension given commission of a crime, the probability of prosecution given apprehension, the probability of conviction given prosecution, and the probability of sanction given conviction. The evidence in support of certainty's deterrent effect pertains

63. MATTHEW R. DUROSE ET AL., BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, RECIDIVISM OF PRISONERS RELEASED IN 30 STATES IN 2005: PATTERNS FROM 2005 TO 2010 (2014), <http://www.bjs.gov/content/pub/pdf/rprts05p0510.pdf> [<http://perma.cc/ESQ5-8RAV>].

64. For a case study on this topic, see Michael Millemann, Rebecca Bowman-Rivas & Elizabeth Smith, "Releasing Older Prisoners," in the present Volume.

65. Nagin, Cullen & Jonson, *supra* note 2.

66. For a discussion of non-custodial sanctions, see Michael Tonry, "Community Punishments," in the present Volume.

67. Daniel S. Nagin, *Criminal Deterrence Research at the Outset of the Twenty-First Century*, 23 CRIME & JUST. 1 (1998).

68. *Id.*

almost exclusively to apprehension probability. Consequently, the conclusion that certainty, not severity, is the more effective deterrent is more precisely stated this way: The certainty of apprehension, and not the severity of the ensuing legal consequence, is the more effective deterrent.

RECOMMENDATIONS

This more precise statement has at least three important policy implications for criminal justice reform efforts:

1. **Lengthy prison sentences cannot be justified on the basis of crimes prevented by deterrence**, and as noted above, they are difficult to justify based on incapacitation benefits. Thus, the case for lengthy prison sentences must rest on retributive considerations.⁶⁹
2. **The empirical evidence from the policing and perceptual deterrence literature is silent on the deterrent effectiveness of policies that mandate incarceration after apprehension.** Such policies include mandatory minimum sentencing laws or sentencing guidelines that mandate incarceration. Thus, the revised certainty principle does not imply that policies mandating severe legal consequences have demonstrated deterrent effects.
3. **Crime prevention would be enhanced by shifting resources from imprisonment to policing** or, in periods of declining criminal justice system budgets, that policing should get a larger share of a smaller overall budget.

69. For a discussion of such considerations, see Jeffrie G. Murphy, "Retribution," in the present Volume.