U.S. Department of Justice
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National Institute of Justice

National Institute of Justice

Research Report

Two Views on Imprisonment Policies:

Lethal Violence and the Overreach of American Imprisonment

Supply Side Imprisonment Policy

Presentations From the
1996 Annual Research and
Evaluation Conference
Washington, D.C.

From the Director

Each year, the National Institute of Justice sponsors—in collaboration with other bureaus of the Office of Justice Programs—a national conference on research and evaluation. NIJ invites to the conference respected researchers who are asked to share their assessment of the knowledge base on core topics; NIJ then publishes the presentations to make the debates widely available to policymakers, practitioners, and researchers nationwide. The 1996 conference, jointly sponsored by NIJ, the Bureau of Justice Assistance, and the Office of Juvenile Justice and Delinquency Prevention, focused on two themes that reflect crucial national concerns: crime prevention and sentencing policies.

Because of the far-reaching consequences of sentencing policies on the Nation's correctional systems, NIJ sought the views of two prominent scholars on the merits of current sentencing and imprisonment policies. Their lectures, presented here, reflect the intense national debate over these issues and offer readers carefully reasoned arguments for opposing interpretations of what research and experience indicate for the future of public policy in this arena.

This report presents a debate on a topic of considerable consequence—philosophical, practical, and fiscal—for public policy. NIJ anticipates that the views presented here will spark further debate as part of our national dialogue on effective crime prevention and control policies for the coming years.

Jeremy Travis
Director
National Institute of Justice

Two Views on Imprisonment Policies:

Lethal Violence and the Overreach of American Imprisonment

by Franklin E. Zimring
With the Collaboration of Gordon Hawkins

and

Supply Side Imprisonment Policy

by Michael K. Block

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U.S. Department of Justice
Office of Justice Programs
633 Indiana Avenue N.W.
Washington, DC 20531

Janet Reno
Attorney General
U.S. Department of Justice

John C. Dwyer
Acting Associate Attorney General

Laurie Robinson
Assistant Attorney General

Jeremy Travis
Director, National Institute of Justice

Justice Information Center
World Wide Web Site
http://www.ncjrs.org

Franklin E. Zimring is Professor of Law and Director of the Earl Warren Legal Institute at the University of California. Michael K. Block is Professor of Economics and Law, University of Arizona; President of the Goldwater Institute; and Senior Research Fellow, Progress and Freedom Foundation, Washington, D.C.

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Contents

Lethal Violence and the Overreach of American Imprisonment

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The purpose of this paper is to provide a brief summary of my views on two of what [NIJ Director] Jeremy Travis has called "core topics" for the plenary session:

1. What are the differential merits of incarceration as a sanction with respect to property, violent, and drug offenses?

2. Does current sentencing policy confine too many or too few offenders in the United States?

My answers to these two questions are linked. The serious problem in the United States is not crime but lethal violence. We have about the same rate of theft and burglary as other developed nations in the 1990s but very high rates of those offenses that put life in jeopardy. At current levels, property crime is not a serious problem in a wealthy nation that has insurance and other loss-spreading devices. Life-threatening violence creates fear because government and insurance can do little to ameliorate the harm that life-threatening assault and rape produce. Life-threatening violence should be a special priority for criminal sanctions, and prison should be mainly reserved for these most serious threats.

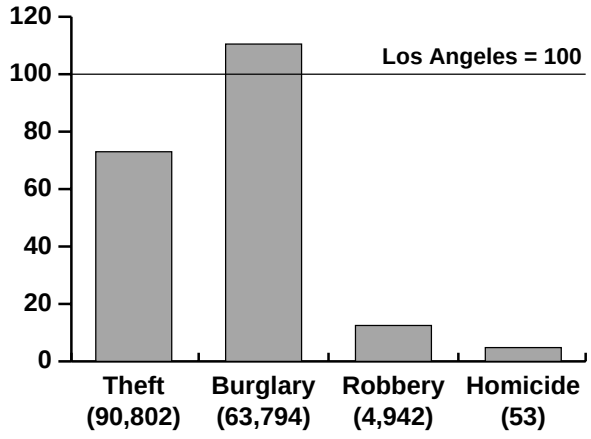
Instead, the huge escalation in rates of imprisonment during the past two decades has reduced the share of prison population represented by persons convicted of violent crimes. No matter what the question in American criminal justice, prison has been the answer. From an incapacitation standpoint, this does not reduce the prevention of violence. But the system's sense of proportionality and the moral and educative emphasis on violence as particularly disapproved have suffered as a wider variety of offenses are routinely sanctioned with prison. And deterrent incentives to avoid life-threatening violence are reduced when property crime routinely leads to prison.

So American criminal justice systems are overimprisoning in a quantitative and a qualitative sense. Restoring the proper priority to life-threatening violence will mostly require nonprison sanctions for auto thieves and housebreakers.

The following two sections outline the evidence on crime and lethal violence and show how broadening the range of prison offenses has shifted the focus of penal policy away from appropriate priority.

Most Americans believe they are the victims of crime far more often than the citizens of other developed nations. With one important exception,

Figure 1. Sydney Crime Volume Compared to Los Angeles, 1992



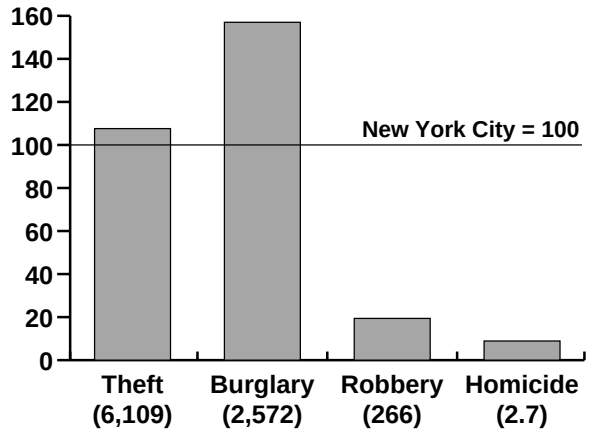
Note: Numbers in parentheses refer to the actual number of crimes committed in 1992.
Sources: U.S. Department of Justice, Federal Bureau of Investigation, *Uniform Crime Reports, 1992*; New South Wales Bureau of Criminal Statistics, 1992.

this is not the case. Figure 1 shows police statistics for Los Angeles and Sydney, Australia.

The two cities have similar levels of nonviolent property crimes but vastly different levels of robbery and criminal homicide. In Sydney, victims are angry about housebreaking but not terrified. Fear is the more common reaction in Los Angeles. Living in a city with 20 times the homicide rate, the citizens of Los Angeles have a specific worry the citizens of Sydney do not have.

Figure 2 shows crime rate comparisons for New York City and London.

Figure 2. London Crime Rates (per 100,000) Compared to New York City, 1990



Note: Numbers in parentheses refer to the number of crimes per 100,000 population.
Sources: U.S. Department of Justice, Federal Bureau of Investigation, *Uniform Crime Reports, 1990*; United Kingdom Home Office, 1990.

Rates of nonviolent theft offenses were higher in London than in New York in 1990. Because larceny and burglary are high-volume offenses, this meant that the aggregate rate of what we call "index felonies" was higher in London in 1990 than in New York. There were more crimes and more criminals in London, but the homicide rate was more than 10 times higher in New York.

Gordon Hawkins and I sought out data on the homicides that resulted from victims of robbery and burglary being killed by the offender in these two cities in 1992. A total of 212,000 incidents in London caused 7 deaths. But the 191,000 burglaries and robberies in New York caused 378 victim deaths, a total 54 times as great as in London.

A series of new victimization surveys asking the same question in many different countries confirms that U.S. crime rates are not much higher than crime rates in other industrial nations. Rates of theft, burglary, and even nonaggravated assault reported in the United States are rarely more than 30 percent above those of many Western nations (Zimring and Hawkins, 1997, at chapter 3). But the rates of killing are 4 to 18 times those of other developed countries (Zimring and Hawkins, 1997, at figure 1.5 and chapter 3).

Figures 3 and 4 show comparative rates of property and violent crimes for several nations surveyed, as reported by van Dijk and Mayhew.

The United States is clustered with five other nations in property offense victimization, ranging from Spain to Poland. Further, 11 of the 17 other countries in figure 3 are within 30 percent of the U.S. property crime rate.

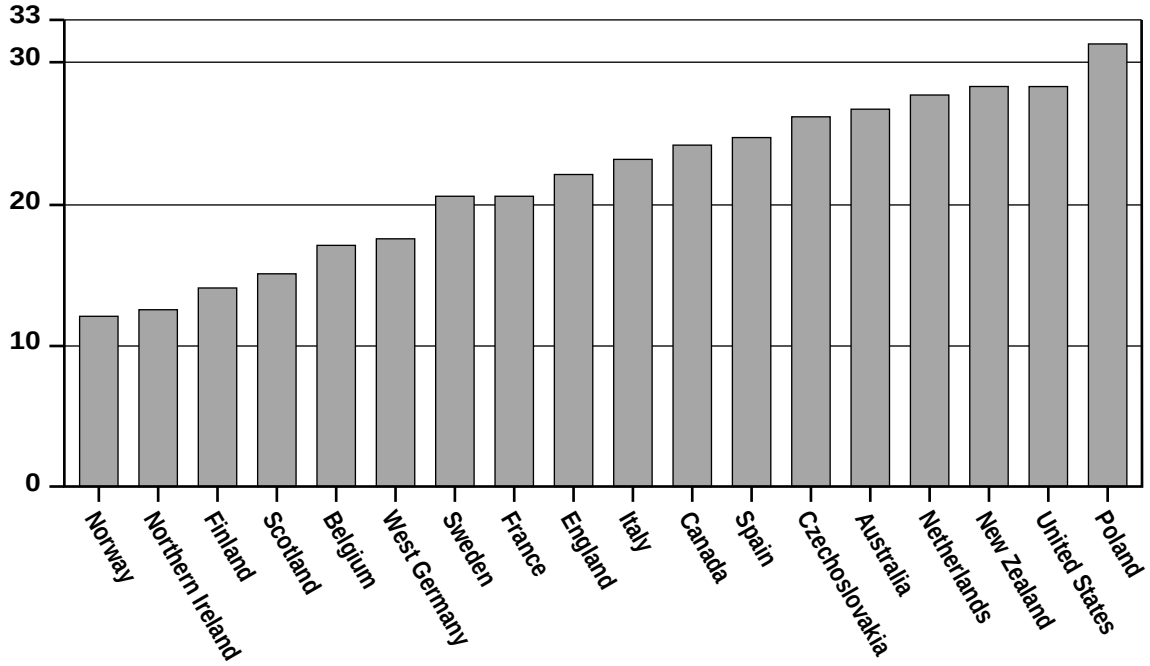
Figure 4 provides parallel data for offenses of violence.

For offenses of violence, the United States ranks second to Australia but has a rate close to the rates reported by Canada, Poland, and New Zealand. Eight of the seventeen nations have violent crime rates within 30 percent of the U.S. rate. The U.S. rate for lethal violence is a high multiple of rates in other developed countries.

Why Fear Lethal Violence?

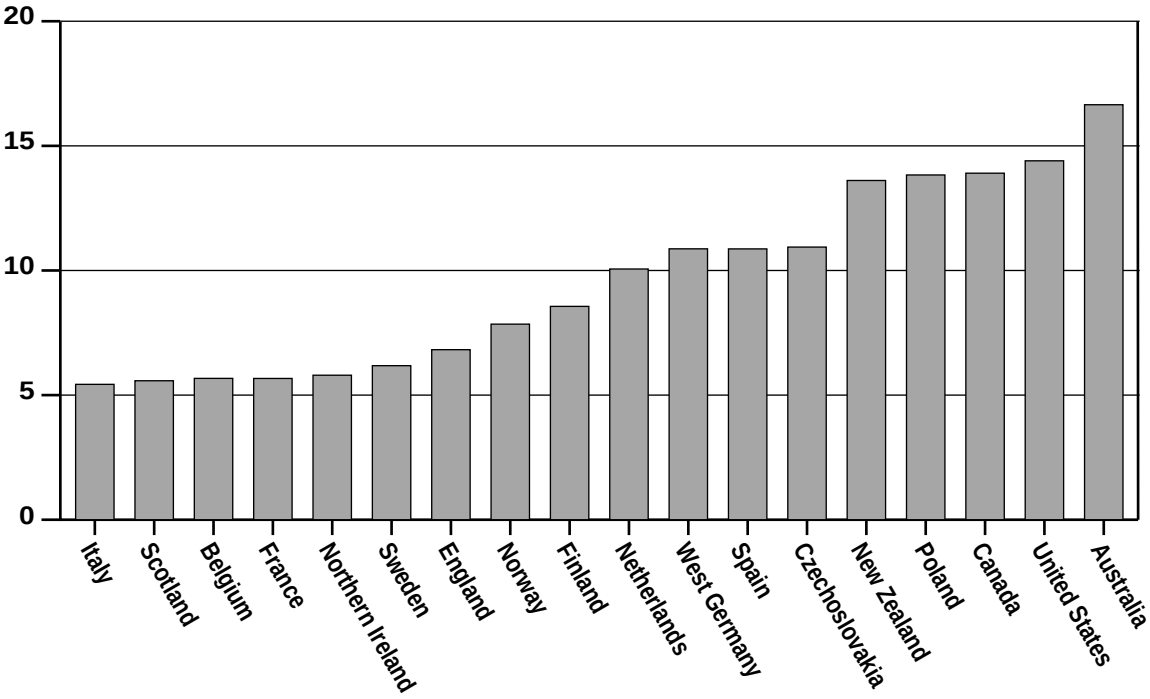
The offender who kills his victim takes something from that victim and the victim's family that cannot be given back. By contrast, a compensation program can make the victim whole in the theft of the person's BMW with insurance or other loss-spreading devices. So interests in life and bodily security are not just more important than property interests; they also cannot be compensated in a

Figure 3. One-Year Victimization Rates for All Property Offenses, 18 Countries, 1988–1991



Source: van Dijk and Mayhew, 1992.

Figure 4. One-Year Victimization Rates for All Violent Offenses, 18 Countries, 1988–1991



Source: van Dijk and Mayhew, 1992.

truly commensurate fashion. When modern states make property hard to steal and when they facilitate insurance, they all but guarantee that lethal violence will be the citizen's major worry about crime, even in settings where homicide is low. In the United States, however, where rates are quite high, the fear of lethal violence is debilitating.

The rational response of a criminal justice system to the special importance of lethal violence would be to make the prevention of serious violence the dominant priority in criminal justice. Because prison is our most serious available criminal sanction, such a focus would create a strong link between life-threatening violence and the available sanction of greatest seriousness. That has not, however, been the trend in American criminal justice lately, as the next section demonstrates.

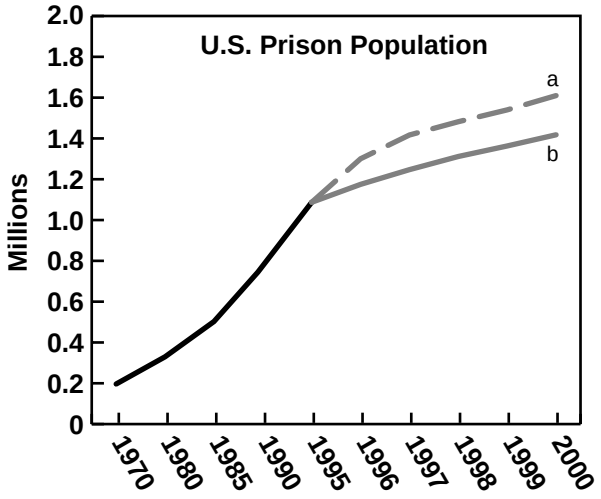
U.S. Imprisonment Rates

We begin our discussion of U.S imprisonment rates in familiar statistical territory, with data about rates of imprisonment per 100,000 population. Figure 5 comes from *The Economist* (June 8, 1996) and shows levels of American imprisonment and trends over time.

The data in figure 5 support the now familiar litany of the grandiose levels of imprisonment in America. As *The Economist* puts it, "America now imprisons seven times as many people (proportionately) as does the average European country largely as a result of get-tough-on-crime laws."

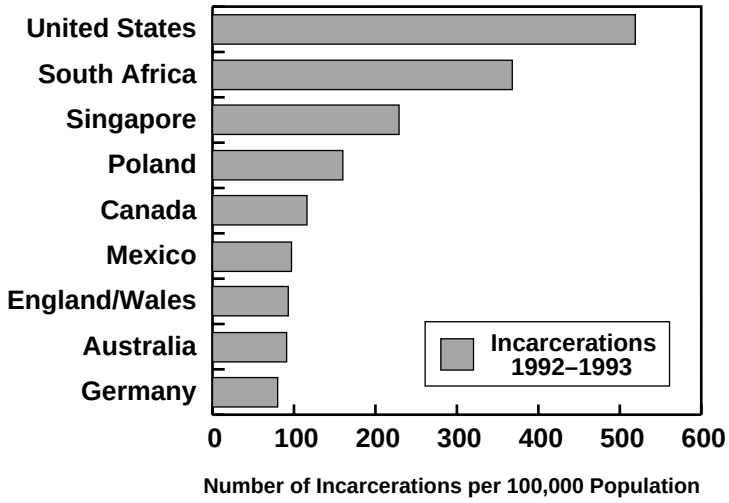
Even more impressive than the current level of American imprisonment is the rapidity with which levels of imprisonment have risen in recent years. There were more than five times as many people in prison in the United States in 1996 as there were in 1973. The growth in American imprisonment has been greater and more sustained during the past two decades than in any prior period (Zimring and Hawkins, 1991).

Figure 5. Levels of Imprisonment



[a]Projected 1996–2000 prison population assumes all States adopt "truth in sentencing" laws, which would lead to further increases in prison population.
[b]This projected 1996–2000 prison population assumes States do not adopt "truth in sentencing" laws.

Source: Jones and Austin, 1995.



Source: Mauer, 1994.

This discussion adds two new twists to the familiar complaints about high rates of imprisonment in the United States. The first additional item we would add to the data on imprisonment rates and comparison countries is the information about reported crime rates provided in figures 3 and 4. It would be one thing if America's sevenfold advantage in rates of imprisonment paralleled a sevenfold higher crime rate. But this is clearly not the case for the most common forms of index crime. It appears that the English have just as many thieves as can be found in American cities and a larger number of burglaries. Thus, rates of common crime do not begin to explain the large difference in American rates of imprisonment.

But what about the large difference among American rates of homicide, life-threatening assault, and robbery? The much larger rate of lethal violence in the United States probably explains one-quarter to one-third of the difference in rates of imprisonment between the United States and other countries. The reason lethal violence differences do not explain a larger proportion of the difference in imprisonment is that serious-violence offenders represent a modest and declining share of the American prison population. Prior to the huge expansion in American imprisonment, the concentration of violent offenders in American prisons was much more substantial than in current circumstances.

In California, for example, about 60 percent of all prisoners in 1979 reached the prison system because they were convicted of violent crimes. That was the distribution of offenders in a prison system with an inmate population under 25,000. For the 80,000 prison spaces added to the penal system during the next decade, the concentration of violent offenders was much smaller. If the 1979 population is held constant and if the criminal records of the offenders occupying additional capacity are separately analyzed, only 27 percent of the new space has been allocated to persons convicted of offenses of violence.

So if lethal violence is the problem, the mechanism of imprisonment has become less efficient as the prison population has expanded. This was to be expected because the most serious offenses produce imprisonment decisions even when prison populations are relatively low. The system is not inclined to put Charles Manson or Willie Horton on probation in any event. Adding dramatically to prison numbers means pushing into prison many more people at the margin between prison and nonprison sanctions. Expanding prison numbers means imprisoning larger numbers of housebreakers and car thieves to join the armed robbers already incarcerated under prior policy. Sure enough, as the rates of imprisonment mushroomed in California during the 1980s, the number of burglars in prison grew more than three times as fast as the number of convicted robbers, and the number of car thieves grew six times as fast (Zimring and Hawkins, 1992:39). There can be no doubt that one natural result of sharp increases in imprisonment is the watering of the stock by increasing the proportionate share of less serious offenders behind bars.

Does this massive addition to a prison population of offenders not convicted of violent crimes reduce the capacity of the system to prevent violence? There are three functions of imprisonment as a criminal sanction to be considered separately in addressing this question: (1) incapacitation, (2) the educative or moralizing function of the threat of imprisonment, and (3) general deterrence. Considering only incapacitation, the imprisonment of large numbers of nonviolent offenders does not reduce the amount of violence prevented by incapacitation as long as there are no practical upper limits on the amount of prison space available in the criminal justice system. If extra nonviolent offenders are imprisoned but no violent offenders avoid imprisonment as a result, the net amount of violence prevented by imprisonment will probably be larger as a result of the prison expansion. Thus, the prison system in California, which held more than 100,000 prisoners in 1991, probably prevented a larger number of life-threatening acts of violence than the prison system of fewer than 25,000 a decade before. How many

extra acts of life-threatening violence were prevented is not known, however, and there are indications that the number was relatively small (Zimring and Hawkins, 1995, at chapter 6; Cohen and Canela-Cacho, 1994). But even if the marginal returns from extra imprisonment are very low, the absolute number of violent offenses prevented should increase.

If the amount of prison capacity available for incapacitation is limited, using that limited capacity for those convicted of nonviolent offenses can reduce the amount of life-threatening violence prevented if future life-threatening violence is more common among persons already convicted of violent offenses. So a huge increase in imprisonment risk for thieves and drug sellers would reduce the net amount of violence prevented by imprisonment if nonviolent and violent offenders are in a zero-sum competition for scarce prison space. But if the scale of imprisonment can be expanded indefinitely, even a large increase in the proportion of nonviolent offenders imprisoned will not lead to a palpable reduction in deaths and injuries prevented.

The period 1980–94 appears to have been a time when additional prison space for nonviolent and drug offenders could be provided without diminution of the penal resources available for persons convicted of life-threatening violence. In the more crowded and resource-competitive conditions of the late 1990s, however, the prospects for prison expansion may not be unlimited, and locking up a large proportion of those without previous records of violence could reduce the amount of violent crime restrained by penal confinement.

The American criminal justice system may already be shooting itself in the foot with respect to the educative and moralizing influence of criminal punishments generally and imprisonment specifically. When 60 percent of a prison population is serving time because of a conviction for violent crime, the criminal justice system is drawing a clear boundary between serious violence and other types of crime. That is an environment where armed robbery and housebreaking are regarded as very different types of crime. Vastly expanding the imprisonment of housebreakers and car thieves blurs the distinction between crimes that involve the risk of injury to the victim and those that do not.

There are a number of indicators that the educative and moralizing influence of criminal sanctions can be a significant influence on the behavior of potential criminals. In areas as diverse as drunk driving and domestic violence, changes in criminal justice policy that emphasized the seriousness of driving after drinking and willful domestic injury played a major role in reducing death rates from automobile accidents and intimate homicide. Blurring the distinction between robbery and burglary in American criminal justice is unwise because the risk of death in the average robbery is 50 times as great as in the average burglary in the United States (Zimring and Hawkins, 1997, at chapter 4).

And an imprisonment policy that treats the robber and the burglar in a similar fashion mutes more than the educative and moralizing influence of the criminal law. Reducing the difference in the threat of punishment for armed robbery and housebreaking reduces the incentive for the potential criminal to choose the less serious of the two methods of obtaining property. Thus, a large increase in imprisonment that reduces the gap between burglary and robbery may produce more armed robbery as a result of the smaller gap between the burglary and robbery punishment, even if the threatened punishment for robbers is expanded. To the extent that the *relative* magnitude of punishment threats influences the choice of crime, general crackdowns on criminality could produce higher rates of lethal violence. Indeed, if a general crackdown on crime has to deter 50 additional burglaries for every burglar it converts to robbery to break even on crime victim deaths, the impact of such a policy on the death rate from crime may well be undesirable.

There is one other casualty worthy of mention when a war on crime greatly extends the range of

offenses to be punished with imprisonment, and that is the sense that the punishments meted out by the system are proportionate to the seriousness of the crimes committed (Allen, 1996:43–46). The diverse offenses found in a modern penal code involve not only many different kinds of harm but also substantially different degrees of social cost. Policies that tend to homogenize punishments and spread them evenly over offending populations are not only problematic because potential offenders may miss important differences in culpability—this is the earlier point about the educative and moralizing influence of punishment—but also misleading because citizens and those who enforce the law may regard all criminal harms as morally indistinguishable.

The principal recent misadventure in American criminal justice that tended in this direction was the "War on Drugs" in the mid-1980s. Making prison the presumptive punishment for an ever-widening list of offenses is a significant symptom of a diminished sense of penal proportion. In this sense, too, large increases in imprisonment obscure the moral differences between different types of crime.

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Supply Side Imprisonment Policy

by Michael K. Block

My hypothesis about how imprisonment affects public safety is quite straightforward. I am one of those few but growing number of academics who believe that threatening and, not too infrequently, actually imposing noticeable prison sentences helps to control crime. Moreover, I think the empirical evidence, such as it is, supports this position.

I am convinced that there are too many prisoners and prisons in the United States today not because we overuse imprisonment but, quite the contrary, because in major part in the past we have not been willing enough to imprison serious offenders. There are too many prisoners because there are too many criminals committing too many crimes, and we find ourselves in this predicament at the turn of the century because, for most of the last half of the 20th century, sentencing practices have not been harsh enough.

This is by no means the conventional wisdom among my colleagues. More common is the assertion that we overuse imprisonment. The unflattering comparison of the ratio of prisoners to population in the United States with the ratios in other major industrial powers is adduced as evidence of our wrongheadedness on this score.[1] Even if one ignored the empirical evidence on the disincentive effects of imprisonment, the ratio of prisoners to population would not be particularly informative. Only if the propensity to commit crime and the costs of controlling crime were similar in all of the industrial nations would this comparison of per capita imprisonment be relevant. Casual empiricism suggests that this precondition is not even roughly satisfied. Why this is the case is not well understood, but even a brief treatment of the issue is well beyond the scope of this paper.

It is also quite conventional to argue that we have tried getting tough on criminals and have failed. The refrain here is that the ratio of prisoners to population has increased dramatically since 1980, but the crime rate, particularly the violent crime rate, has not fallen appreciably. In actuality, violent crime is down quite substantially of late, but, again, this comparison of ratios of prisoners to population only makes sense to the extent that the propensity to commit crime—or, in the vernacular, the "criminal element"—has remained relatively stable over time. The empirical evidence suggests that this is not the case. Moreover, if we focus on the more relevant ratio of imprisonment to crime, the trends since 1980 are not unambiguously upward.[2]

Instead of comparing per capita imprisonment across countries or even over time, a more reliable comparison to judge imprisonment policy would be one between the costs and benefits of changing that policy. As shown in the work that follows, such a comparison generally indicates that our imprisonment policy has not been harsh enough and that the threat of additional imprisonment would reduce crime and might actually reduce the number of individuals in prison.

Crime and Punishment in Modern America

Table 1–1 shows that it is possible to gain some appreciation for the actual magnitude of the crime problem and the scale of our response in terms of arrests and imprisonment. According to the most recent National Crime Victimization Survey, almost 35 million index crimes (homicide, rape, robbery, assault, burglary, auto theft, and larceny) were committed in 1994.[3] According to the Federal Bureau of Investigation (FBI), about 14 million of these crimes were reported to them by police departments around the country. In terms of arrests, these same police departments made almost 3 million arrests for index crimes in 1994. Table 1–2 reveals that only about 1 in 5 reported crimes (or about 1 in 12 actual victimizations) are cleared by an arrest.

Table 1–1. Crime and Punishment for Index Crimes: 1994

Crime Type[a]	Victimization	Reported Crimes	Cleared by Arrest	Arrests	Convictions (Felony)	Imprisonment (NJRP/BJS)[b]
Homicide	n/a	23,310	14,918	22,100	12,319	11,457
Rape	168,000	102,100	53,092	36,610	20,276	13,788
Robbery	1,299,000	618,820	148,517	172,290	51,573	38,164
Aggravated Assault	2,478,000	1,119,950	627,172	547,760	63,683	28,021
Violent Crime	3,945,000	1,864,180	843,699	778,760	147,851	91,430
Burglary	5,482,000	2,712,200	352,586	396,100	107,087	55,685
Auto Theft	1,764,000	1,539,100	215,474	200,200	19,586	8,030
Larceny	23,765,000	7,876,300	1,575,260	1,514,500	100,328	38,125
Property Crime	31,011,000	12,127,600	2,143,320	2,110,800	227,002	101,840
Total	**34,956,000**	**13,991,780**	**2,987,019**	**2,889,560**	**374,853**	**193,270**

[a]FBI Index Crimes only.
[b]National Judicial Reporting Program/Bureau of Justice Statistics.
Sources: See appendix.

Table 1–2. Arrest, Conviction, and Imprisonment Risk for Index Crimes: 1994

	Arrest Risk[a]				Probability of Imprisonment	
Crime Type	Victmizations	Reported Crimes	Conviction Risk[b]	Imprisonment Risk (NJRP/BJS)[c]	Victimizations	Reported Crimes
Homicide	n/a	64.00	55.74	93.00	n/a	0.332
Rape	31.60	52.00	55.38	68.00	0.119	0.196
Robbery	11.43	24.00	29.93	74.00	0.025	0.053
Aggravated Assault	25.31	56.00	11.63	44.00	0.013	0.029
Violent Crime	21.39	45.26	18.99	61.84	0.025	0.053
Burglary	6.43	13.00	27.04	52.00	0.009	0.018
Auto Theft	12.22	14.00	9.78	41.00	0.005	0.006
Larceny	6.63	20.00	6.62	38.00	0.002	0.005
Property Crime	6.91	17.67	10.75	44.86	0.003	0.009
Total	**8.55**	**21.35**	**12.97**	**51.56**	**0.006**	**0.014**

[a]Crimes cleared by arrest per 100 crimes of this type.
[b]Number of felony convictions for this type of crime per 100 arrestees whose most serious arrest is for this type of crime.
[c]Number of felony defendants sent to prison for this type of crime per 100 felony convictions for this type of crime.

What is perhaps most striking about the data presented in tables 1–1 and 1–2 is the enormous falloff between arrests and convictions. While there were almost 3 million arrests for index crimes in 1994, there were only about 375,000 felony convictions for such crimes in State courts during the same year. Only about 13 percent of the arrests for index crimes actually ended in a conviction for a felony. Even for crimes like murder and rape, the ratio of convictions to arrests was remarkably low—only slightly over 55 percent in both cases. Undoubtedly, plea agreements muddy the water here. A number of those arrested for one crime were convicted of or pled guilty to another. When we look at the violent crime category as a whole, fewer than 1 in 5 of those arrested for a violent crime were actually convicted of a violent crime.

Table 1–3. Conviction Risk for Those Charged With Index Crimes

Charge	Homicide	Rape	Robbery	Aggravated Assault	Violent Crime	Property Crime	Other[a]	Overall Conviction Risk
Homicide	***55.7***		0.7	8.6		4.3	2.1	71.5
Rape		***55.4***	0.2	20.0		0.9	14.3	90.8
Robbery			***29.9***	1.3		5.5	5.5	42.1
Aggravated Assault				***10.4***		1.4	5.3	17.1
Violent Crime					***18.1***	2.6	6.9	27.6
Property Crime					0.1[b]	***9.8***	3.6	13.5
Total								***17.3***

Boldface italics denote the number of defendants convicted as charged per 100 defendants charged with the same crime.
[a]Misdemeanors and unknown dispositions.
[b]These are burglaries that end in conviction for a minor violent crime and are not considered in the analysis below.
Sources: See appendix.

To account for convictions and pleas to a lesser offense and to obtain a more precise idea of conviction probabilities, data from the National Pretrial Reporting Program were used to estimate the likelihood that an offender arrested for a specific crime was convicted of any crime (table 1–3). According to table 1–3, when we use this additional information, the conviction risk for murder reached a more respectable 71.5 percent. (The conviction risk for rape in this table is quite unreliable because of the differences in definitions of the crime between data sources.) However, even when all conviction offenses are accounted for, the overall conviction risk for violent crimes as a group is still quite modest (27.6 percent) and for all index crimes as a group it is even less impressive (17.3 percent). If an offender is arrested, and this is by no means a high-probability event, the likelihood of actually being convicted of the crime that he/she was arrested for (or, for that matter, any crime) is remarkably low.

Given the fact that the likelihood of being arrested and convicted for an index crime serious enough to be reported to and by the police is only about 3 percent or 4 percent, the consequences after conviction are enormously important in determining the expected punishment.[4] The "Imprisonment Risk" column in table 1–2 contains my estimate of the likelihood of being sent to prison after conviction for an index crime. The likelihood of an offender convicted of an index crime being sentenced to prison is about 52 percent. For an offender convicted of a violent crime, the offender's chance of being sent to prison is estimated to be about 63 percent. Of course, these ratios misstate the likelihood of imprisonment for an offender arrested for a specific crime to the extent they ignore the real possibility that he/she may be convicted of a less serious crime than that for which he/she was arrested. As is clear in table 1–3, this is a common occurrence. In table 1–4 the estimates of imprisonment risk are recalculated to reflect the conviction outcomes in table 1–3. This recalculation, as expected, substantially lowers all of the imprisonment risks.

Using my estimates of arrest, conviction, and imprisonment risks, the probability of imprisonment was calculated for the various index crimes. This is presented in the last columns of tables 1–2 and 1–4. What is obvious from the calculations in the two tables is just how hard it is to get into prison in the United States. Only about 1 in 100 index crimes reported to the police actually result in imprisonment for an index crime. Even for violent crimes, only about 5 in 100 such crimes result in imprisonment. The ratio varies from 1 in 3 for murder to about 3 in 100 for aggravated assault. Overall, the likelihood of going to prison for committing an index crime is surprisingly low.

Table 1–4. Arrest, Conviction, and Imprisonment Risk for Those Charged With Index Crimes: 1994

Charge Crime Type	Arrest Risk[a]		Conviction Risk[b]	Imprisonment Risk (NJRP/BJS)	Probability of Imprisonment[c]	
	Victimization	Reported Crime			Victimization	Reported Crime
Homicide	n/a	64.00	71.47	81.25	n/a	0.372
Rape	31.60	52.00	90.79	51.76	0.148	0.244
Robbery	11.43	24.00	42.07	59.69	0.029	0.060
Aggravated Assault	25.31	56.00	17.10	30.43	0.013	0.029
Violent Crime	21.39	45.26	27.63	44.83	0.026	0.056
Property Crime	6.91	17.67	13.50	32.94	0.003	0.008
Total	**8.55**	**21.35**	**17.31**	**35.92**	**0.005**	**0.013**

[a]Crimes cleared by arrest per 100 crimes of this type.
[b]Number of felony convictions per 100 defendants charged with this type of crime.
[c]Number of felony defendants sent to prison per 100 defendants charged with this type of crime and convicted of some felony.

And this does not change appreciably when convictions for lesser offenses are considered (table 1–4). As I will argue below, increasing the probability of imprisonment for these crimes by even modest amounts will pay handsome dividends.

Although it is true that imprisonment is not the only possibility for incarceration after conviction (the individual could be sent to a county jail), and that incarceration is not the only form of punishment, imprisonment is clearly the most severe sanction. Even when jail time is given for an index offense, it tends to be much shorter than a prison term. And although probation, especially the more recent intensive probation programs, imposes some punishment, it is usually not comparable to prison. Because prison is still by far the most severe form of punishment that is used on a regular basis, it is of special interest to those interested in the disincentive effect of punishment.[5]

Up to this point, I have concentrated on the likelihood of being punished for committing a serious crime. However, in analyzing the disincentive effect of imprisonment policy, it is also important to consider the severity of the punishment. As noted above, the most severe punishment regularly imposed is prison. As a practical matter, the only method of increasing the severity of a prison sentence is to increase its length. Given the propensity of most offenders to think only over the short term, this turn of events is quite unfortunate. Recent jurisprudence on the rights of prisoners and the standards of confinement appear to leave policymakers with only the weakest instrument (sentence length) for increasing the severity of punishment. Policy initiatives aimed at increasing the unpleasantness of prison life would likely be a cost-effective method of fighting crime.

In table 1–5 average time served and "to be served" is displayed for index crimes in 1992. The time-served data in the first column are the average or mean time served by offenders convicted of the specific index crime and released in 1992. For example, the 71.5 months shown for homicide in the first column is the average time served by all offenders (including parole violators) who were released in 1992. The "to be served" column is the Bureau of Justice Statistics' estimate of the average time that will be served to first release of those convicted of these specific index offenses in 1992. (I did not attempt to adjust time-to-be-served estimates for any expected "add on" for parole violations because of the changes in imprisonment policy, including elimination of parole, that have been sweeping the country.) Columns 3 and 4 show the same information adjusted for the fact that not all those charged with a specific crime actually get convicted of that crime. These entries

reflect the average time served of those charged with the specific index crime and convicted and sent to prison for some crime.

What is quite apparent in table 1–5 is how the length of prison sentences has been increasing in recent years, especially for some violent crimes. The average prison time just to first release for those convicted of murder in 1992 is almost 70 percent longer than the time served by all those released in 1992 who were convicted of murder. For index crimes as a whole, time to be served in 1992 was 31 percent longer than the time actually served for those released in 1992.

Notwithstanding the recent trend of increasing sentence length, imprisonment is still very rare relative to crime. This is illustrated in tables 1–6 and 1–7. The "probability of imprisonment" (table 1–2) and the average "time to be served" estimates (table 1–5) are combined to get expected months per criminal and reported crime.

Reported index crimes, which are arguably the most serious crimes, have an expected sentence of

Table 1–5. Mean Prison Time Served: 1992

Conviction/Charge	Months of Prison Time—Conviction		Months of Prison Time—Charge	
	Served	To Be Served	Served	To Be Served
Homicide	71.5	120.0	66.8	111.2
Rape	65.5	91.0	58.0	81.0
Robbery	45.7	54.0	42.9	51.1
Aggravated Assault	27.9	41.0	27.3	39.4
Violent Crime	46.5	63.8	44.1	60.1
Burglary	27.4	31.0	n/a	n/a
Auto Theft	17.5	30.0	n/a	n/a
Larceny	16.7	21.0	n/a	n/a
Property Crime	22.6	27.2	22.6	27.2
Total	**33.9**	**44.5**	**33.9**	**44.5**

Sources: See appendix.

Table 1–6. Expected Months in Prison per Criminal (Reported Crime)

Crime	Expected Months in Prison by Conviction	Expected Months in Prison by Charge
Homicide	39.8	41.3
Rape	17.8	19.8
Robbery	2.9	3.1
Aggravated Assault	1.2	1.1
Violent Crime	3.4	3.4
Burglary	0.6	n/a
Auto Theft	0.2	n/a
Larceny	0.1	n/a
Property Crime	0.2	0.2
Index Crime	**0.6**	**0.6**

Table 1–7. Expected Months in Prison per Reported Crime

Crime	Expected Months in Prison by Conviction	Expected Months in Prison by Charge
Homicide	59.0	61.9
Rape	12.3	13.7
Robbery	3.3	3.8
Aggravated Assault	1.0	1.1
Violent Crime	3.1	3.1
Burglary	0.6	n/a
Auto Theft	0.2	n/a
Larceny	0.1	n/a
Property Crime	0.2	0.2
Index Crime	**0.6**	**0.6**

18 prison days. In other words, if all of the prison time given out in a year for index crime is totaled, it averages out to 18 prison days for every reported index crime. What this means is that a criminal committing a number of index crimes can expect to spend 18 days in prison for every crime he/she commits. This overall average for all index crimes hides a good deal of variation. Performing the expected prison time calculation by type of crime produces averages that vary from nearly 40 months for every murderer to 3 days for every petty thief. Nevertheless, it is clear from the results reported in tables 1–6 and 1–7 that very little prison time is delivered relative to the volume of serious crime.

Is Imprisonment an Effective Crime Control Strategy?

Over the past several decades, a number of efforts have been made to quantify the deterrent effects of both the severity and certainty of punishment. In the mid-1980s Lewis (1986) reviewed most of the econometric evidence on the deterrent effect of increases in the length of imprisonment published up to that time. His review and analysis of the literature were clearly supportive of the hypothesis that an increase in the length of prison terms reduces crime. His results, which are reproduced in table 2–1, suggest that longer prison sentences have a deterrent effect and that these effects are statistically significant at high levels of confidence for many crimes and categories of crimes.

The studies that Lewis (1986) summarized all derive their estimates of the deterrent effect of imprisonment by attempting to statistically control for nondeterrence-related changes in the environment. Most include some control for changes in demographic factors over time or differences between areas at a point in time. Some studies attempt to control for changes (or variations) in economic conditions over time or between different areas at the same time. The elasticities that result from these studies are intended to provide information on how crime rates would change if only deterrent variables, such as the likelihood and severity of punishment, change. To the extent that other factors are also changing, crime rates will reflect changes in both deterrent levels and demographic and economic variables.

Lewis finds that in the studies he reviewed, the mean elasticity of sentence length (for index crimes) was -0.468. Translated from "econo-speak," this means that, on average, a 10-percent increase in the sentence length for index crimes is estimated to result in a 4.68-percent decrease in such crimes. For homicide he finds that, on aver-

Table 2–1. Average Estimated Elasticity of Sentence Length by Type of Crime

Crime Type	Number of Studies	Number of Separate Data Sets	Mean Elasticity Estimate	Mean | t |
Homicide	4	4	-0.205	1.625
Rape	3	2	-0.700	1.306
Robbery	8	9	-0.471	1.955
Aggravated Assault	3	4	-0.604	1.834
Violent Crime	4	4	-0.193	1.400
Burglary	6	7	-0.336	1.87
Auto Theft	5	4	-0.283	1.203
Larceny	7	8	-0.244	1.722
Property Crime	4	5	-0.393	1.892
Index Crime	**3**	**3**	**-0.468**	**2.137**

Source: Lewis, 1986, table 2, p. 50.

age, the studies he reviewed suggest that a 10-percent increase in sentence length will result in a 2-percent decrease in the murder rate, a 7-percent decrease in the rate for rape, about a 4.7-percent decline in the robbery rate, and a 6-percent decrease in the rate for aggravated assault.

Because there is nothing like the Lewis (1986) survey currently available for the econometric estimates of the likelihood of imprisonment, Block and Herbert (1994) adopted his methodology to assess the effectiveness of increasing the certainty of imprisonment. The same approach was used to prepare a similar but much abridged study for this report. To produce estimates of the deterrent effect of the certainty of imprisonment comparable to Lewis' findings on the deterrent effect of the length of imprisonment, the elasticity-averaging technique employed by Lewis was also used in this study. Most of the articles included in Lewis' study are also included here. The exceptions to this rule were two articles in which it was unclear how the data were included in Lewis' study. The present study also includes three additional articles not included in Lewis' survey.

The actual calculation of the certainty elasticity estimates parallels the method used by Lewis. First, if any given article contained more than one estimate of a single elasticity for a particular crime, an unweighted average of those elasticities was calculated. Second, across articles, an unweighted average of elasticities derived from a common data set was calculated so that there is only one estimate for each type of crime per data set. Finally, for each type of crime, the estimated elasticity of certainty was calculated by taking the average of the elasticities estimated from each data set.

Increasing the certainty of punishment may involve increasing one or a number of different probabilities: It may invoke increasing the probability of arrest, conviction, or imprisonment. Estimates for all these elasticities are included in Block and Herbert (1994). However, since the aim of the present analysis is to demonstrate the power of increasing imprisonment as a method of controlling future offense rates, subsequent analysis will focus on the probability of imprisonment. Estimates for these elasticities appear in table 2–2. For additional details on the individual empirical studies used as a base for table 2–2, see Block and Herbert (1994).[6]

In table 2–3 Lewis' (1986) estimates of sentence length elasticities were contrasted with my estimates of the certainty elasticities. Overall, the results suggest the existence of deterrent effects for both severity and certainty. However, with the exception of larceny, it appears that for most crimes there is a greater deterrent effect for an increase in the likelihood of imprisonment than for an increase in sentence length. Moreover, the

Table 2–2. Average Estimated Elasticity of Likelihood of Imprisonment by Type of Crime

Crime Type	Number of Studies	Number of Separate Data Sets	Mean Elasticity Estimate	Mean | t |
Homicide	4	3	-0.527	1.337
Rape	3	2	-1.553	2.202
Robbery	5	4	-1.383	2.536
Aggravated Assault	5	4	-0.638	2.059
Violent Crime	1	1	-0.676	4.302
Burglary	5	4	-0.353	2.195
Auto Theft	3	2	-0.476	3.114
Larceny	5	4	-0.026	2.050
Property Crime	2	2	-0.597	3.035
Index Crime	**4**	**3**	**-0.484**	**2.118**

Table 2–3. Comparison of Mean Elasticities of Sentence Length and Likelihood of Imprisonment

Crime Type	Mean Elasticity of Sentence Length	Mean Elasticity of Likelihood of Imprisonment
Homicide	-0.205	-0.527
Rape	-0.700	-1.553
Robbery	-0.471	-1.383
Aggravated Assault	-0.604	-0.638
Violent Crime	-0.193	-0.676
Burglary	-0.336	-0.353
Auto Theft	-0.283	-0.476
Larceny	-0.244	-0.026
Property Crime	-0.393	-0.597
Index Crime	**-0.468**	**-0.484**

Sources: Lewis, 1986; Block and Herbert, 1994.

results of both analyses (with the exception of murder in Lewis' analysis) indicate that the effects of the severity and certainty of punishment are greater for individual violent crimes than for individual property crimes.

The findings comport well with conventional wisdom (it is reassuring that such "wisdom" is not always wrong) and is buttressed by my experimental findings on deterrence. In a series of economic experiments that included monetary payoffs and penalties, convincing evidence was obtained that prisoners are much more powerfully deterred from criminal acts by an increase in the likelihood that the penalty will be imposed than by an increase in the severity of the penalty.[7]

More Cops, More Prosecutors, More Prisons?

In the last several years, a number of econometric studies have appeared that concentrate on directly measuring the impact on crime rates of increasing the prison population and suppress the distinction between the certainty and severity of punishment. The most recent of these studies, "The Effect of Prison Population Size on Crime Rates," was authored by Levitt and appeared in the May 1996 *Quarterly Journal of Economics*. Using a somewhat different approach than the econometric studies of deterrence summarized above, Levitt finds that a 10-percent increase in the prison population leads to between a 3-percent and 4-percent decline in index crimes. This is roughly comparable to the findings shown in table 2–3. Levitt's estimates are significantly higher than the elasticities obtained by Marvell and Moody (1994) in their study—summarized in "Prison Population Growth and Crime Reduction" in the *Journal of Quantitative Criminology*—that also directly addressed the impact of imprisonment on crime. It should be noted, however, that Marvell and Moody did not employ as sophisticated an estimating technique as Levitt, who used information on prison litigation to obtain more reliable estimates of the impact of imprisonment on crime.

Although the results of these studies are comforting because they both suggest that imprisonment works to control crime, and the implication of Levitt's estimate is that additional imprisonment is likely to be warranted, the blending of the deterrent effects of certainty and severity has a cost. Specifically, these studies—relating increases in the prison population to crime rates—are not very informative about what is the most effective way to increase the prison population.

In the short run, prison populations will increase as a consequence of changes in either the likelihood of imprisonment or the length of prison sentences. One relevant question that previous studies addressed but that more recent studies do not is whether one of these approaches is better than the other.

The implication of comparing the empirical estimates of the elasticities in table 2–3 is that change in the certainty of imprisonment is a more effective approach to controlling crime, especially violent crime. However, when comparing the efficacy of increases in the certainty of imprisonment with the increases in the length of prison terms, the point has traditionally been made that increases in certainty may be even more expensive than increases in prison terms. Even if increases in certainty are more powerful than increases in severity, cost considerations may be offsetting. Whatever the merits of this argument in general, and clearly there is a strong presumption in its favor, in the current environment it is unlikely to be true.

Although increasing arrest rates and conviction rates may be resource consuming, they are not the only, or, for that matter, the most direct, method of increasing the probability of imprisonment. With the likelihood of being sentenced to prison after conviction at only about 52 percent for index crimes and 62 percent for violent crimes, changes in sentencing practices could deliver a fairly substantial increase in the likelihood of imprisonment with costs comparable to simple increases in sentence length. The quickest and least expensive way to increase the certainty of imprisonment is simply to change sentencing policy.

Costs and Benefits of Changes in Imprisonment Policies

One clear way to illustrate the relative attractiveness of increases in sentence length (average time served) and imprisonment risk is to present these alternatives in a cost-benefit framework. To that end, tables 3–1, 3–2, 3–3, and 3–4 present a cost-benefit analysis for both a 5-percent increase in the average time served and a 5-percent increase in imprisonment risk. The benefits are the crimes averted, and they are valued at the total costs that each type of crime imposes on victims. These estimates are those used by Levitt (1996) and include both estimates of the pecuniary and nonpecuniary losses resulting from each of the index crimes. The costs of changing either of these imprisonment policies (length of time served and sentencing practices) are basically the costs associated with adding additional prisoners. To err on the conservative side, an estimate of the full cost of imprisonment of $2,765 per month per prisoner was used.

Because the monthly cost of other common sentencing outcomes such as probation or jail are not zero, the appropriate cost for the analysis of increasing imprisonment risk should be the net cost, or the difference between the cost of other options such as probation or jail and prison. Likewise, if an increase in sentence length comes at the expense of parole time, the costs of the longer prison terms should reflect an offset for parole expense avoided. By ignoring these refinements, the results are biased against finding a positive benefit-cost ratio of any policy change that leads to more prison, and, in particular, an increase in imprisonment risk.

As is apparent in tables 3–1 and 3–2, increasing the risk of imprisonment has an unambiguously favorable benefit-cost ratio in all cases except burglary and larceny. For victimization data the case is similar for increases in the length of prison terms. However, for reported index crimes, increases in the length of sentences have marginal benefit-cost ratios for robbery and rape. Overall, as one would predict from the relative elasticities, increases in imprisonment risks are more attractive policy options. Increasing the likelihood of imprisonment following conviction produces benefit levels substantially in excess of costs for all violent crimes and auto theft. The results in tables 3–3 and 3–4 provide benefit-cost calculations for crime aggregates. The results for the aggregates are

Table 3–1. Benefits and Costs of Changes in Imprisonment Policies by Type of Crime: Index Crime Victimizations 1994

5% Longer Time Served

Benefits and Costs	Rape	Robbery	Aggravated Assault	Violent Crime Total[a]	Burglary	Auto Theft	Larceny	Property Crime Total	Index Crime Total
Benefits									
Number of Crimes	168,000	1,299,000	2,478,000	3,945,000	5,482,000	1,764,000	23,765,000	31,011,000	34,956,000
Percentage Reduction	3.50%	2.36%	3.02%	2.82%	1.68%	1.42%	1.22%	1.31%	1.48%
Number Reduction	5,880	30,591	74,836	111,307	92,098	24,961	289,933	406,991	518,298
Cost per Crime	$54,952	$19,331	$13,032	n/a	$1,200	$4,000	$200	n/a	n/a
Total Benefit (mil.)	$323.12	$591.36	$975.26	$1,889.73	$110.52	$99.84	$57.99	$268.35	$2,158.08
Costs									
Number of Prisoners	13,788	38,164	28,021	79,973	55,685	8,030	38,125	101,840	181,813
5% Increase in Prisoners	689	1,908	1,401	3,999	2,784	402	1,906	5,092	9,091
Average Number of Months in Prison	91	54	41	56	31	30	21	27	40
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$173.48	$284.95	$158.85	$617.28	$238.68	$33.31	$110.70	$382.69	$999.97
Benefit-Cost Ratio	**1.86**	**2.08**	**6.14**	**3.06**	**0.46**	**3.00**	**0.52**	**0.70**	**2.16**

5% Higher Risk of Imprisonment

Benefits and Costs	Rape	Robbery	Aggravated Assault	Violent Crime Total[a]	Burglary	Auto Theft	Larceny	Property Crime Total	Index Crime Total
Benefits									
Number of Crimes	168,000	1,299,000	2,478,000	3,945,000	5,482,000	1,764,000	23,765,000	31,011,000	34,956,000
Percentage Reduction	7.77%	6.92%	3.19%	4.61%	1.77%	2.38%	0.13%	0.55%	1.01%
Number Reduction	13,045	89,826	79,048	181,919	96,757	41,983	30,895	169,635	351,554
Cost per Crime	$54,952	$19,331	$13,032	n/a	$1,200	$4,000	$200	n/a	n/a
Total Benefit (mil.)	$716.85	$1,736.41	$1,030.16	$3,483.42	$116.11	$167.93	$6.18	$290.22	$3,773.64
Costs									
Number of Prisoners	13,788	38,164	28,021	79,973	55,685	8,030	38,125	101,840	181,813
5% Increase in Prisoners	689	1,908	1,401	3,999	2,784	402	1,906	5,092	9,091
Average Number of Months in Prison	91	54	41	56	31	30	21	27	40
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$173.48	$284.95	$158.85	$617.28	$238.68	$33.31	$110.70	$382.69	$999.97
Benefit-Cost Ratio	**4.13**	**6.09**	**6.49**	**5.64**	**0.49**	**5.04**	**0.06**	**0.76**	**3.77**

[a] Violent crime category in this table excludes homicide.

Note: Benefits are calculated as follows: The "Number of Crimes" in 1994, multiplied by the "Percentage Reduction" due to increased incarceration, equals the "Number Reduction." The resulting figure is then multiplied by the "Cost per Crime," giving the "Total Benefit," in millions of dollars. Costs are calculated as follows: The "Number of Prisoners" in 1993, multiplied by the "Increase in Prisoners" due to increased incarceration, multiplied by the "Average Number of Months in Prison," multiplied by the "Monthly Cost," equals the "Total Cost," in millions of dollars.

Sources: See appendix.

Table 3–2. Benefits and Costs of Changes in Imprisonment Policies by Type of Crime: Reported Index Crime 1994

5% Longer Time Served

Benefits and Costs	Homicide	Rape	Robbery	Aggravated Assault	Violent Crime Total	Burglary	Auto Theft	Larceny	Property Crime Total	Index Crime Total
Benefits										
Number of Crimes	23,310	102,100	618,820	1,119,950	1,864,180	2,712,200	1,539,100	7,876,300	12,127,600	13,991,780
Percentage Reduction	1.03%	3.50%	2.36%	3.02%	2.80%	1.68%	1.42%	1.22%	1.35%	1.54%
Number Reduction	239	3,574	14,573	33,822	52,208	45,565	21,778	96,091	163,434	215,642
Cost per Crime	$2,950,662	$54,952	$19,331	$13,032	n/a	$1,200	$4,000	$200	n/a	n/a
Total Benefit (mil.)	$704.99	$196.37	$281.71	$440.77	$1,623.85	$54.68	$87.11	$19.22	$161.01	$1,784.86
Costs										
Number of Prisoners	11,454	13,788	38,164	28,021	91,427	55,685	8,030	38,125	101,840	193,267
5% Increase in Prisoners	573	689	1,908	1,401	4,571	2,784	402	1,906	5,092	49,663
Average Number of Months in Prison	120	91	54	41	64	31	30	21	27	45
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$190.04	$173.48	$284.95	$158.85	$807.32	$238.68	$33.31	$110.70	$382.69	$1,190.01
Benefit-Cost Ratio	**3.71**	**1.13**	**0.99**	**2.77**	**2.01**	**0.23**	**2.62**	**0.17**	**0.42**	**1.50**

5% Higher Risk of Imprisonment

Benefits and Costs	Homicide	Rape	Robbery	Aggravated Assault	Violent Crime Total	Burglary	Auto Theft	Larceny	Property Crime Total	Index Crime Total
Benefits										
Number of Crimes	23,310	102,100	618,820	1,119,950	1,864,180	2,712,200	1,539,100	7,876,300	12,127,600	13,991,780
Percentage Reduction	2.64%	7.77%	6.92%	3.19%	4.64%	1.77%	2.38%	0.13%	0.78%	1.29%
Number Reduction	614	7,928	42,791	35,726	86,446	47,870	36,631	10,239	94,740	181,186
Cost per Crime	$2,950,662	$54,952	$19,331	$13,032	n/a	$1,200	$4,000	$200	n/a	n/a
Total Benefit (mil.)	$1,812.35	$435.66	$827.19	$465.59	$3,540.79	$57.44	$146.52	$2.05	$206.01	$3,746.80
Costs										
Number of Prisoners	11,454	13,788	38,164	28,021	91,427	55,685	8,030	38,125	101,840	193,267
5% Increase in Prisoners	573	689	1,908	1,401	4,571	2,784	402	1,906	5,092	9,663
Average Number of Months in Prison	120	91	54	41	64	31	30	21	27	45
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$190.04	$173.48	$284.95	$158.85	$807.32	$238.68	$33.31	$110.70	$382.69	41,190.01
Benefit-Cost Ratio	**9.54**	**2.51**	**2.90**	**2.93**	**4.39**	**0.24**	**4.40**	**0.02**	**0.54**	**3.15**

Note: Benefits are calculated as follows: The "Number of Crimes" in 1994, multiplied by the "Percentage Reduction" due to increased incarceration, equals the "Number Reduction." The resulting figure is then multiplied by the "Cost per Crime," giving the "Total Benefit," in millions of dollars.

Costs are calculated as follows: The "Number of Prisoners" in 1993, multiplied by the "Increase in Prisoners" due to increased incarceration, multiplied by the "Average Number of Months in Prison," multiplied by the "Monthly Cost," equals the "Total Cost," in millions of dollars.

Table 3–3. Benefit-Cost Calculations for Crime Aggregates: Index Crime Victimization 1994

5% Longer Time Served

Benefits and Costs	Violent Crime Total	Violent Crime (Elasticity)	Property Crime Total	Property Crime (Elasticity)	Index Crime Total	Index Crime (Elasticity)
Benefits						
Number of Crimes	3,945,000	3,945,000	31,011,000	31,011,000	34,956,000	34,956,000
Percentage Reduction	2.82%	0.97%	1.31%	1.97%	1.48%	2.34%
Number Reduction	111,307	38,069	406,991	609,366	518,298	817,970
Cost per Crime	n/a	$16,891	n/a	$593	n/a	$2,432
Total Benefit (mil.)	$1,889.73	$643.02	$268.35	$361.49	$2,158.08	$1,989.30
Costs						
Number of Prisoners	79,973	79,973	101,840	101,840	181,813	181,813
5% Increase in Prisoners	3,999	3,999	5,092	5,092	9,091	9,091
Average Number of Months in Prison	56	56	27	27	40	40
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$617.28	$617.28	$382.69	$382.69	$999.97	$999.97
Benefit-Cost Ratio	**3.06**	**1.04**	**0.70**	**0.94**	**2.16**	**1.99**

5% Higher Risk of Imprisonment

Benefits and Costs	Violent Crime Total	Violent Crime (Elasticity)	Property Crime Total	Property Crime (Elasticity)	Index Crime Total	Index Crime (Elasticity)
Benefits						
Number of Crimes	3,945,000	3,945,000	31,011,000	31,011,000	34,956,000	34,956,000
Percentage Reduction	4.61%	3.38%	0.55%	2.99%	1.01%	2.42%
Number Reduction	181,919	133,341	169,635	925,678	351,554	845,935
Cost per Crime	n/a	$16,891	n/a	$593	n/a	$2,432
Total Benefit (mil.)	$3,483.42	$2,252.26	$290.22	$548.93	$3,773.64	$2,057.31
Costs						
Number of Prisoners	79,973	79,973	101,840	101,840	181,813	181,813
5% Increase in Prisoners	3,999	3,999	5,092	5,092	9,091	9,091
Average Number of Months in Prison	56	56	27	27	40	40
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$617.28	$617.28	$382.69	$382.69	$999.97	$999.97
Benefit-Cost Ratio	**5.64**	**3.65**	**0.76**	**1.43**	**3.77**	**2.06**

Note: Benefits are calculated as follows: The "Number of Crimes" in 1994, multiplied by the "Percentage Reduction" due to increased incarceration, equals the "Number Reduction." The resulting figure is then multiplied by the "Cost per Crime," giving the "Total Benefit," in millions of dollars.

Costs are calculated as follows: The "Number of Prisoners" in 1993, multiplied by the "Increase in Prisoners" due to increased incarceration, multiplied by the "Average Number of Months in Prison," multiplied by the "Monthly Cost," equals the "Total Cost," in millions of dollars.

Table 3–4. Benefit-Cost Calculations for Crime Aggregates: Reported Index Crime 1994

5% Longer Time Served						
Benefits and Costs	**Violent Crime Total[a]**	**Violent Crime (Elasticity)**	**Property Crime Total**	**Property Crime (Elasticity)**	**Index Crime Total**	**Index Crime (Elasticity)**
Benefits						
Number of Crimes	1,864,180	1,864,180	12,127,600	12,127,600	13,991,780	13,991,780
Percentage Reduction	2.80%	0.97%	1.35%	1.97%	1.54%	2.34%
Number Reduction	52,208	17,989	163,434	238,914	215,642	327,408
Cost per Crime	n/a	$54,392	n/a	$906	n/a	$7,887
Total Benefit (mil.)	$1,623.85	$978.45	$161.01	$216.46	$1,784.86	$2,582.26
Costs						
Number of Prisoners	91,427	91,427	101,840	101,840	193,267	193,267
5% Increase in Prisoners	4,571	4,571	5,092	5,092	9,663	9,663
Average Number of Months in Prison	64	64	27	27	45	45
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$807.32	$807.32	$382.69	$382.69	$1,190.01	$1,190.01
Benefit-Cost Ratio	2.01	1.20	0.42	0.57	1.50	2.17

5% Higher Risk of Imprisonment						
Benefits and Costs	**Violent Crime Total[a]**	**Violent Crime (Elasticity)**	**Property Crime Total**	**Property Crime (Elasticity)**	**Index Crime Total**	**Index Crime (Elasticity)**
Benefits						
Number of Crimes	1,864,180	1,864,180	12,127,600	12,127,600	13,991,780	13,991,780
Percentage Reduction	4.64%	3.38%	0.78%	2.99%	1.29%	2.42%
Number Reduction	86,446	63,009	94,740	362,615	181,186	338,601
Cost per Crime	n/a	$54,392	n/a	$906	n/a	$7,887
Total Benefit (mil.)	$3,540.79	$3,427.20	$206.01	$328.53	$3,746.80	$2,670.55
Costs						
Number of Prisoners	91,427	91,427	101,840	101,840	193,267	193,267
5% Increase in Prisoners	4,571	4,571	5,092	5,092	9,663	9,663
Average Number of Months in Prison	64	64	27	27	45	45
Monthly Cost ($95)	$2,765	$2,765	$2,765	$2,765	$2,765	$2,765
Total Cost (mil.)	$807.32	$807.32	$382.69	$382.69	$1,190.01	$1,190.01
Benefit-Cost Ratio	**4.39**	**4.25**	**0.54**	**0.89**	**3.15**	**2.24**

[a] Violent crime category in this table excludes homicide.

Note: Benefits are calculated as follows: The "Number of Crimes" in 1994, multiplied by the "Percentage Reduction" due to increased incarceration, equals the "Number Reduction." The resulting figure is then multiplied by the "Cost per Crime," giving the "Total Benefit," in millions of dollars.

Costs are calculated as follows: The "Number of Prisoners" in 1993, multiplied by the "Increase in Prisoners" due to increased incarceration, multiplied by the "Average Number of Months in Prison," multiplied by the "Monthly Cost," equals the "Total Cost," in millions of dollars.

presented as both a simple sum of the relevant crimes (total) and an independent estimate using the aggregate elasticities.

Getting Tough and Getting It Wrong

What this exercise highlights is the finding that there are substantial gains to revamping the sentencing structure so that more criminals, especially violent criminals, are sentenced to prison rather than to probation or jail. These benefit-cost results clearly indicate that too few violent criminals are imprisoned in the United States.

As noted above, recent attempts at "getting tough" appear to have taken the form of longer prison sentences and not higher levels of imprisonment risk. Contrary to the situation observed in table 1–5 where it was clear that average time served has been increasing in recent years, no such trend is discernible for imprisonment risk in table 3–5. In fact, if any trend is observed, it is a downward trend. The benefit-cost results imply that this concentration on increasing sentence length in recent years is not particularly good public policy.

Table 3–5. Trends in Imprisonment Risk

	Imprisonment Risk[a]			
Crime Type	**1986**	**1988**	**1990**	**1992**
Violent Crime	67	68	62	63
Property Crime	47	51	49	45
Index Crime	**54**	**61**	**54**	**52**

[a] Number of felony defendants sent to prison per 100 felony convictions for the same type of crime.

Do a Violent Crime, Do Time: A Supply Side Imprisonment Policy

One simple modification of the sentencing structure that would be consistent with the benefit-cost analysis above would be to adopt a practice of sentencing all offenders convicted of violent crime to prison. This would change the sentencing system so that probation and/or jail were no longer sentencing options for offenders convicted of violent crimes.

To see how a "prison only" approach to sentencing for violent crime would fare in terms of benefit-cost analysis and prison populations, a rough cost-benefit analysis was conducted for the case where all offenders convicted of homicide, rape, robbery, and aggravated assault are sentenced to prison for the current average time served.

To construct this hypothetical case, the percentage change in imprisonment risk implied by a policy of making prison a certainty for all violent crime convictions was first calculated. Since the imprisonment risk for violent crime is currently 61.84 percent (table 1–2), it would take an approximately 62-percent increase in the risk of imprisonment to make imprisonment a certainty for all offenders convicted of a violent crime.[8]

Using this 62-percent change in the probability of imprisonment along with the elasticities in table 2–2, the year-by-year path of crimes and prisoners as well as costs and benefits were estimated for implementing the prison-only sentencing scheme for violent crime. In these calculations it was assumed that the representative construction cost was $40,000 per bed and that all cells were paid for in the year they were built. The annual cost of keeping an inmate, exclusive of interest, was assumed to be $2,500 per month. The results of this analysis appear in table 3–6.

Again, to err on the conservative side, it was assumed in each of these examples that the deterrent effect did not begin until the fifth year and that it did not reach its full effect until the eighth year after the sentencing reform was instituted. Even with these unfavorable behavioral assumptions and the fact that the prisons had to be fully paid for in the year they went into service, the policy had a positive benefit-cost ratio by the sixth year, and every violent crime had a positive total benefit-cost ratio by the eighth year. This is without considering the reduction in expenditures for arrests and convictions that will also result from this imprisonment policy.

Table 3–6. Costs, Benefits, and Prison Populations for a "Prison Only" Approach to Violent Crime Convictions											
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Anticipated Offenses	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180
Actual Offenses	1,864,180	1,864,180	1,864,180	1,864,180	1,667,906	1,471,632	1,275,358	1,079,084	1,079,084	1,079,084	1,079,084
Deterred Offenses	0	0	0	0	196,274	392,548	588,822	785,096	785,096	785,096	785,096
Benefit per Offense	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000
Benefit (mil.)	0	0	0	0	$10,599	$21,198	$31,796	$42,395	$42,395	$42,395	$42,395
Costs											
Anticipated New Prisoners	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429
Actual New Prisoners	147,851	147,851	147,851	147,851	132,766	117,142	101,519	85,895	85,895	85,895	85,895
Additional New Prisoners	56,422	56,422	56,422	56,422	41,337	25,713	10,090	(5,534)	(5,534)	(5,534)	(5,534)
Total Additional Prisoners	56,422	112,844	169,266	225,688	267,025	292,738	246,406	184,450	122,494	60,539	13,668
Average Sentence (mos.)	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8
Cost per Month per Prisoner	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Cost of Additional New Prisoners (mil.)	$1,693	$1,693	$1,693	$1,693	$1,240	$771	$303	($166)	($166)	($166)	($166)
Total Cost of New Prisoners (mil.)	$1,693	$3,385	$5,078	$6,771	$8,011	$7,795	$7,392	$5,534	$3,675	$1,816	$410
Construction Costs per Bed	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	0	0	0	0	0
Cost of New Beds (mil.)	$2,257	$2,257	$2,257	$2,257	$1,653	$429	0	0	0	0	0
Costs (mil.)	$5,642	$7,335	$9,028	$10,720	$10,904	$8,995	$7,695	$5,367	$3,509	$1,650	$244
Benefits-Costs	-$5,642	-$7,335	-$9,028	-$10,720	-$306	$12,203	$24,101	$37,028	$38,886	$40,745	$42,151
Discounted Present Value	-$5,642	-$7,053	-$8,346	-$9,530	-$261	$10,030	$19,048	$28,138	$28,414	$28,627	$28,476
Cumulative Discounted Present Value	**-$5,642**	**-$12,695**	**-$21,041**	**-$30,572**	**-$30,833**	**-$20,803**	**-$1,755**	**$26,383**	**$54,797**	**$83,424**	**$111,899**

Not only does this example have favorable total discounted benefit-cost ratios, it will also eventually induce a lower prison population. Although the benefit-cost ratio for the policy turns positive before the prison population stabilizes, it will stabilize at a level lower than the level it would have been had there been no change in imprisonment policy. For all types of violent crime, the initial increase in imprisonment rates results in a lower prison population as well as a lower crime rate. It will also eventually result in fewer arrests and convictions.

A Prison-Only Approach in a Less Accommodating World

There is, however, one factor discussed above that may act to reduce the power of imprisonment and, thus, the benefit-cost ratio reported in table 3–6. Because the elasticities in table 2–3 were calculated by averaging studies conducted using data between 1940 and 1970—to the extent that there is a downward trend in these elasticities, possibly resulting from the increase in the level of social pathology since 1960—the elasticities in table 2–3 may overstate the impact of increases in the likelihood of imprisonment on crime rates.[9] Although there is some evidence that the elasticities, at least for violent crimes, have declined in recent years, there are not enough studies to adequately explore this issue empirically.

We can, nevertheless, provide some perspective on this potentially important point by asking what the benefit-cost pattern of the prison-only policy for violent crime would be if the elasticities were only half of those reported in table 2–3. The results for this much less powerful variant appear in table 3–7. What is observed is that, if the elasticity with respect to the likelihood of imprisonment is now substantially less than an estimate based on historical data, the benefits of a prison-only policy for violent crime are still likely to outweigh the costs of such a policy. However, in this case the eventual prison population, while lower than the population level immediately after the intervention, will not dip below its original level.

Real Offense Sentencing for Violent Crime

An important aspect of the implementation in a prison-only policy for violent crime not explicitly accounted for in the analysis reported in tables 3–6 and 3–7 is the change in plea practices such a policy might induce. Mandatory prison sentences for any serious violent crime convictions might, by their effect on plea practices, increase the number of violent charges that result in nonviolent convictions. This would reduce somewhat the deterrence yield of the imprisonment-only policy for violent crime, but the existing elasticity estimates are not up to the task of modeling this type of feedback. One way to avoid some of this undercutting of the deterrent effect of a prison-only approach is to adopt “real offense” sentencing, i.e., sentencing based on offense behavior and not on the offense of conviction.

Conclusion

Although the benefit-cost calculations in this report, especially those involving hefty changes in imprisonment risks, stretch the empirical estimates of deterrence elasticities to their breaking point, the examples do make a point. Specifically, there is a credible argument that the excessive levels of crime and imprisonment in society have as their cause a sentencing structure that is not harsh enough. There is evidence that instituting a more draconian sentencing structure, i.e., one that involves imprisonment for essentially all convictions for violent crimes, is likely to be cost justified and may actually reduce the prison population. Imprisoning additional offenders is expensive, and society has to sacrifice current consumption to build and operate prisons. However, the evidence suggests that the costs are worth it, at least for violent crimes. Making imprisonment a certainty for violent crimes will make society much better off.

Table 3–7. Costs, Benefits, and Prison Populations for a "Prison Only" Approach to Violent Crime Convictions—Reduced Elasticity											
Year	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Anticipated Offenses	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180	1,864,180
Actual Offenses	1,864,180	1,864,180	1,864,180	1,864,180	1,766,043	1,667,906	1,569,769	1,471,632	1,471,632	1,471,632	1,471,632
Deterred Offenses	0	0	0	0	98,137	196,274	294,411	392,548	392,548	392,548	392,548
Benefit per Offense	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000	$54,000
Benefit (mil.)	0	0	0	0	$5,299	$10,599	$15,898	$21,198	$21,198	$21,198	$21,198
Costs											
Anticipated New Prisoners	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429	91,429
Actual New Prisoners	147,851	147,851	147,851	147,851	140,578	132,766	124,954	117,142	117,142	117,142	117,142
Additional New Prisoners	56,422	56,422	56,422	56,422	49,149	41,337	33,525	25,713	25,713	25,713	25,713
Total Additional Prisoners	56,422	112,844	169,266	225,688	274,837	316,276	293,276	270,379	231,859	201,150	177,715
Average Sentence (mos.)	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8	64.8
Cost per Month per Prisoner	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Cost of Additional New Prisoners (mil.)	$1,693	$1,693	$1,693	$1,693	$1,474	$1,240	$1,006	$771	$771	$771	$771
Total Cost of New Prisoners (mil.)	$1,693	$3,386	$5,078	$6,771	$8,245	$8,498	$8,798	$7,877	$6,956	$6,035	$5,331
Construction Costs per Bed	$40,000	$40,000	$40,000	$40,000	$40,000	$40,000	0	0	0	0	0
Cost of New Beds (mil.)	$2,257	$2,257	$2,257	$2,257	$1,966	$689	0	0	0	0	0
Costs (mil.)	$5,642	$7,336	$9,028	$10,721	$11,685	$10,427	$9,804	$8,648	$7,727	$6,806	$6,102
Benefits-Costs	-$5,642	-$7,336	-$9,028	-$10,721	-$6,386	$172	$6,094	$12,549	$13,470	$14,391	$15,095
Discounted Present Value	-$5,642	-$7,053	-$8,347	-$9,531	-$5,458	$141	$4,817	$9,536	$9,843	$10,111	$10,198
Cumulative Discounted Present Value	**-$5,642**	**-$12,696**	**-$21,042**	**-$30,573**	**-$36,032**	**-$35,890**	**-$21,074**	**-$21,537**	**-$11,695**	**-$1,584**	**$8,614**

Notes

1. "[T]he evidence is that we are quite harsh, in general harsher than other modern industrial nations, and that we have gotten strikingly harsher in recent years.... In 1988, the U.S. rate of incarceration (in jails and prisons) was 388 prisoners per 100,000 people.... For the same year, the rate for the United Kingdom was 97.4 per 100,000, for West Germany it was 84.9, for Belgium it was 65.4. The rate for Canada, with a society in many ways much like our own, was about 110 persons for every 100,000 inhabitants." (Jeffrey Reiman, *The Rich Get Richer and the Poor Get Prison: Ideology, Class, and Criminal Justice*, 4th ed., Boston, Massachusetts: Allyn & Bacon, 1995, p. 18.)

2. In particular, if we consider the ratio of new prison commitments to crime, we find that in 1980 the ratio was approximately 1 in 100 for index crimes and 4 in 100 for violent crimes. Both ratios were essentially unchanged in 1992. It is true that the average time served has been increasing of late, and, hence, there have been some increases in the ratio of prison population to crime. But the willingness to use prison as a sanction, which is probably best measured by the new commitment rate, has not changed appreciably in recent years.

3. Here, and in the work that follows, the term index crime is used to refer to the crimes of homicide, rape, robbery, aggravated assault, burglary, auto theft, and larceny. In actuality, the FBI uses the term "modified index crime" to refer to this group of crimes because "index crime" now also includes the crime of arson.

4. If we ignore the punishment that results simply from being arrested and assume that imprisonment is the only substantial punishment, the expected punishment (EF) can be expressed as

$$[EF = p_A * p_C * p_I * F]$$

where p_A is the probability of arrest, p_C is the probability of conviction, p_I is the probability of imprisonment given conviction (imprisonment risk), and F is the average time served.

5. While conviction itself imposes a reputational penalty, this is most relevant for offenders who commit white-collar crime, and such crimes are not a very significant proportion of the index crime figures used in this report.

6. The elasticities of the likelihood of imprisonment can vary substantially. It is important to bear in mind when interpreting the elasticities in table 2–2 that these estimates are themselves based on often disparate estimates.

7. See Block and Gerety (1995).

8. This is equivalent to increasing the probability of imprisonment for violent crime from 0.053 (table 1–2) to 0.086.

9. The relevant elasticities may also be smaller than the average based on historical evidence because we are analyzing such a large change in the imprisonment rate.

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Appendix: Data Sources and Estimates for Tables 1–1, 1–3, 1–5, and 3–1

Table 1–1

Victimization 1994

Data Source: U.S. Department of Justice, Bureau of Justice Statistics, *Criminal Victimization 1994*, Bulletin (Washington, D.C., April 1996), table 1: "Criminal Victimizations and Victimization Rates, 1993–94: Estimates From the Redesigned National Crime Victimization Survey." NCJ 158022.

Reported Crimes 1994

Data Source: U.S. Department of Justice, Federal Bureau of Investigation, *Crime in the United States, 1994* (Washington, D.C., 1995), table 1: "Index of Crime, United States, 1975–1994." NCJ 153022.

Arrests 1992

Data Source: U.S. Department of Justice, Federal Bureau of Investigation, *Crime in the United States, 1992* (Washington, D.C., 1993), table 29: "Total Estimated Arrests, United States, 1992." NCJ 144768.

Arrests and Cleared by Arrest 1994

Data Source: U.S. Department of Justice, Federal Bureau of Investigation, *Crime in the United States, 1994* (Washington, D.C., 1995), table 29: "Total Estimated Arrests, United States, 1994," and table 25: "Offenses Known and Percent Cleared by Arrest, Population Group, 1994." NCJ 158553.

Convictions (Felony) 1992

Data Source: U.S. Department of Justice, Bureau of Justice Statistics, *Felony Sentences in the United States, 1992*, Bulletin (Washington, D.C.: U.S. Department of Justice, 1996), table 2: "Number of Felony Convictions in State and Federal Courts, 1992"; column 2: "Felony Convictions—State." NCJ 153257.

Convictions (Felony) 1994

Derivation of Estimate: Estimated Convictions (Felony) 1994 = Convictions (Felony) 1992 multiplied by the result of dividing Total Index Arrests 1994 by Total Index Arrests 1992.

Prisoners 1994

Data Source: U.S. Department of Justice, Bureau of Justice Statistics, *Felony Sentences in the United States, 1992*, Bulletin (Washington, D.C., 1995), table 4: "Type of State and Federal Felony Sentences, by Violent Offenses, 1992," column 3: "Percent of Felons Sentenced to Incarceration—Prison." NCJ 153257.

Derivation of Estimate: Prisoners 1994 = Convictions (Felony) 1994 multiplied by the percentage of felons sentenced to prison in 1992.

Table 1–3

Charged With Index Crime

Data Source: U.S. Department of Justice, Bureau of Justice Statistics, *Felony Defendants in Large Urban Counties, 1992* (Washington, D.C., 1995), table 22: "Conviction Offense of Defendants Arrested for a Violent Offense and Subsequently Convicted, by Most Serious Arrest Charge, 1992," and table 23: "Conviction Offense of Defendants Arrested for a Nonviolent Offense and Subsequently Convicted, by Most Serious Arrest Charge, 1992." NCJ 148826.

Table 1–5

Average Time Served in Prison

Data Source: U.S. Department of Justice, Bureau of Justice Statistics, *National Corrections Reporting Program, 1992*, NCJ 145862 (Washington, D.C., 1994), table 2–4: "State Prison Releases, 1992: Time Served in Prison, by Offense and Release Type."

Derivation of Estimate: Average Time Served in Prison = weighted average of mean time served by first releases and subsequent releases for given offense. NCJ 145862.

Average Time To Be Served in Prison

Data Source: U.S. Department of Justice, Bureau of Justice Statistics, *Felony Sentences in the United States, 1992*, Bulletin (Washington, D.C., 1996), table 11: "Corresponding Time To Be Served in State and Federal Prison, by Offense, 1992," column 9: "Corresponding Time To Be Served in Prison—State." NCJ 153257.

Table 3–1

Cost per Crime

Data Source: Levitt (1996), table VIII: "Estimated Impact on Crime From Adding One Additional Prisoner" and "Cost per Crime, Adjusted to 1995 Dollars (CPI95/CPI92 = 1.082)."

Note: NCJ numbers listed above identify documents available from the National Criminal Justice Reference Service (see inside back cover).

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