

# Federal Probation

Bulging Prisons, an Aging U.S. Population, and the Nation's  
Violent Crime Rate ..... *Darrell Steffensmeier*  
*Miles D. Harer*

Accreditation: Making a Good Process Better ..... **NCJRS** ..... *Lynn S. Branham*

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Comparing Hair and Urine Assays for Cocaine and Marijuana ..... *Tom Mieczkowski*  
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Looking at the Law—Are Clarifying Amendments to the Sentencing  
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# Federal Probation

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## This Issue in Brief

**Bulging Prisons, an Aging U.S. Population, and the Nation's Violent Crime Rate.**—Have rapidly rising rates of imprisonment reduced the Nation's violent crime rate? No—according to authors Darrell Steffensmeier and Miles D. Harer—who analyzed data for the years 1980-92 from the two main sources of national statistics on violent crimes—the Uniform Crime Reports and the National Crime Survey. Their findings indicate not only that violence levels have been increasing in recent years but that changes in the population's age structure have had a major impact on violent crime trends. In light of these findings, the authors urge policymakers to rethink whether spending more and more money on incarcerating more and more offenders will solve the crime problem.

**Accreditation: Making a Good Process Better.**—The accreditation of correctional facilities and programs has led to substantial improvements in the conditions and practices in such facilities and programs across the country. Yet there are a number of ways in which the accreditation process can be improved. Author Lynn S. Branham, a member of the Commission on Accreditation for Corrections, discusses steps that the Commission can and should take to ensure that accredited facilities meet constitutional requirements, that the information provided by auditors to the Commission is accurate and complete, and that the accreditation decisions of the Commission are reliable.

**Texas Collects Substantial Revenues From Probation Fees.**—With correctional costs skyrocketing, many government officials and legislators have decided that offenders should help pay for the cost of their own supervision and rehabilitation. A recent approach to this strategy is to require employable probationers to pay for at least some of the costs of their supervision. Authors Peter Finn and Dale Parent describe how many probation field offices in Texas—motivated by legislation that provides strong incentives to collect fees—raise substantial amounts of money from assessing probation fees. The authors note that other states and counties may be able to increase revenues from probation fees considerably by adopting some of the statutory incentives and local practices implemented in Texas.

**Factors Influencing Probation Outcome: A Review of the Literature.**—Past research has provided important insight into what factors influence probation outcome and which offenders are more likely to succeed or fail under probation supervision. Research has pointed to significant relationships between certain variables—such as age, gender, employment, educational attainment, and prior criminal record—and probation success or failure. Author Kathryn D. Morgan reviews some of those studies and their findings. She focuses on studies reporting probation failure

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# Bulging Prisons, an Aging U.S. Population, and the Nation's Violent Crime Rate

BY DARRELL STEFFENSMEIER AND MILES D. HARER\*

WITH VIOLENCE becoming an increasingly important element in American life, a continuing topic of debate among policymakers and the public concerns the relationship between incarceration and violent crime. The debate in recent months has been targeted around assessments of trends in the Nation's violent crime rate since 1980 as part of a broader scrutiny of policies tracked by the Bush-Quayle and Reagan-Bush presidencies. Has violent crime been rising or falling in recent years (e.g., since 1980)? What effects, if any, have soaring prison populations had on violent crime rates? Are there alternative methods for controlling or reducing the Nation's violent crime rate?

The main thrust of U.S. crime-control policy over the past decade or so has been to incarcerate a growing proportion of its citizenry. Imprisonment rates rose far more sharply in the 1980's than in any previous decade in history. Since 1980, the number of inmates confined in Federal, state, and local correctional facilities has nearly tripled. By year-end 1992, inmates in Federal and state prisons numbered 883,593 as compared to 329,821 at year-end 1980.<sup>1</sup> This population growth has resulted in a serious shortfall in prison and jail capacity.

Rooted in deterrence and incapacitation notions of punishment, longer prison sentences and higher levels of incarceration are expected to reduce crime by deterring would-be offenders from committing crimes because of the growing threat of a prison sentence and by physically preventing increasing numbers of offenders from committing new crimes because they are behind bars. The imprisonment strategy has been aimed particularly at violent offenders (e.g., "murderers," "rapists," "muggers") who, in the eyes of the citizenry and law enforcement, symbolize the gravest facet of the crime problem.

The approach has received mixed reviews. Syndicated columnist Neal Pierce deems it a "colossal failure."<sup>2</sup> "We [the United States] are world champions in putting people behind bars," but the incarceration

policy has not reduced crime levels. Other commentators disagree. Eugene Methvin, a senior editor at *Reader's Digest*, writes:

One of America's best kept secrets is that our huge investment in building prisons—an estimated \$30 billion in the last decade to double capacity—has produced a tremendous payoff: Americans are safer and, as the Justice Department reported last week, crime has fallen steadily . . . if we again double the present federal and state prison population . . . we will break the back of America's 30-year crime wave.<sup>3</sup>

Evidence consistent with Methvin's views was tendered in a recent *Science* article, authored by Patrick Langan (a statistician at the Bureau of Justice Statistics). Following the thrust of his analysis which examined factors that have contributed to the recent surge in the Nation's prison population (e.g., the rising chances of a state prison sentence following arrest), Langan cites annual victimization statistics which show fewer rapes, robberies, and assaults today than a decade or so ago. Langan also suggests that the declines are not due to recent changes in the Nation's age structure toward smaller numbers of young people who tend to be more violence prone. He writes:

If only half or even a fourth of the reductions were the result of rising incarceration rates, that would still leave prisons responsible for sizable reductions in crime. That possibility must be seriously weighed in debates about America's prisons.<sup>4</sup>

Unfortunately, commentaries or analyses on the topic (including Langan's) only nibble at the issue and leave unresolved fundamental questions about the relationship between recent trends in the Nation's violent crime rate and either the growth in America's prison population or the changing age structure. For example, the violent crime statistics cited by Langan are drawn from household victimization data collected under the National Crime Survey (NCS) program rather than from police statistics gathered under the Uniform Crime Reports (UCR) program. The latter traditionally has served as the "measuring rod" of the Nation's violent crime problem. In addition, Langan's numbers overlook a prominent feature of the NCS (as well as the UCR) reporting program: its "crude" victimization tabulations that are the basis for trend comparisons do not take into account that (a) crime is strongly age-sensitive and (b) there has been an "aging out" of the U.S. population in recent years.

Violent crime rates peak during the late teens and early twenties and then decline to about half their peak age in the early thirties, as shown in figure 1. The

\*Dr. Steffensmeier is professor, Department of Sociology, The Pennsylvania State University. Dr. Harer is research analyst, Federal Bureau of Prisons. The conclusions reached in this article are those of the authors and should not be taken as the views of the Federal Bureau of Prisons. Parts of this article are based on Dr. Steffensmeier's report, *Incarceration and Crime: Facing Fiscal Realities in Pennsylvania*. The report may be obtained from the Pennsylvania Commission on Sentencing, Post Office Box 1200, State College, Pennsylvania 16804.

Nation's violent crime rate, therefore, is likely to be strongly affected by the age composition of the population. Figure 2 displays the recent shift in the population's age composition from a younger to older makeup, involving in particular a decline in the proportion of young adults (late teens to early thirties) and a growth in middle-aged and elderly cohorts.

In this report we apply age-adjustment methods to both the UCR and NCS data for the years 1980-92 and then plot and compare the trend lines between the violent crime rates and the incarceration rates.<sup>5</sup> Since their violent crime trends diverge somewhat, an understanding of the mechanics and relative merits of each crime-reporting program is important.

### *Two Nationwide Measures of Violent Crime: UCR and NCS*

The Uniform Crime Reports (UCR) and the National Crime Survey (NCS) are the two main sources of national statistics on violent crimes. The UCR has appeared annually since 1930, the NCS since 1973.

The UCR statistics are based on police department counts of citizen reports of victimization and on the number of crimes or victimizations witnessed by the police themselves. The UCR violent crimes are homicide, aggravated assault, forcible rape, and robbery. The Violent Crime Index is a single number obtained by adding together all the incidents of each of these crimes.

The NCS is a survey of a scientifically selected sample of households throughout the United States. Persons over 12 years of age in these households are questioned about their experience with three violent crimes: assault, forcible rape, and robbery. As in the UCR, the basic counting unit in the NCS is offenses or criminal incidents. Each criminal incident is counted only once, by the most serious act that took place during the incident, ranked in accordance with the seriousness classification used by the Federal Bureau of Investigation (FBI).

Thus, the UCR counts only violent crime (i.e., incidents or victimizations) that come to the attention of the police. The NCS obtains information on both reported and unreported crime. Also, the UCR counts crimes committed against all people and all businesses, organizations, governmental agencies, and the like. The NCS counts only crimes against persons age 12 or older and their households.

Each reporting program is subject to the kinds of errors and problems typical of its data collection method, and there is disagreement among criminologists as to which program offers the more reliable and valid measure of violent crime. The tendency among criminologists had been to view the NCS as the better measure because it includes unreported crimes and is

not "contaminated" by police bias. But this view is changing as more is learned about problems associated with NCS procedures and with changes in those procedures over the years. The main criticisms are that the NCS data are less adequate as an indicator of "serious" violent crime, since total levels are swamped by citizen reporting of minor victimizations, and that the NCS statistics systematically *underestimate* current violent crime levels as compared to prior years because of sampling deficiencies and changes in data collection procedures.

The appraisal that the NCS is a less adequate measure of the Nation's violent crime rate rests on two concerns. First, citizens report to NCS interviewers minor violent crimes (within the broad category) that they fail to report to law enforcement agencies, just as the police often overlook and don't record minor offenses. Also, the NCS does not include homicide. Second, individuals or households at high risk for criminal involvement or victimization are less likely to be contacted and/or interviewed successfully by NCS interviewers. There is a serious "undercount" problem in the NCS survey of those individuals and households most likely to be victims (or offenders) of violent crimes. For both reasons, therefore, violent crimes that fall on the low end of the seriousness continuum are more likely to be counted in the NCS, and violent crimes that fall on the high end of the seriousness continuum are more likely to be included in the UCR.

That the NCS systematically *underestimates* violent victimizations today as compared to prior years is a much more serious concern. This underestimation stems partly from budgetary constraints that have resulted in an increasing reliance on telephone interviews during the 1980's, along with an expanding use of proxy respondents. Telephone interviewees and proxy respondents report less victimization than face-to-face interviewees and actual victims.<sup>6</sup> In addition, greater residential mobility and the growing census undercount have increased the number of "hard-core" poor and homeless who are most at-risk for violent victimization but who are inaccessible to NCS telephone interviewing.

In contrast, none of the recent changes in the UCR data collection methodology would have artifactually pushed reported crime rates upwards. Increased computerization of law enforcement records and so on were largely complete prior to 1980. Therefore, generally, law enforcement officials and many criminologists believe the FBI's Uniform Crime Reporting system offers a more reliable and valid measure of violent crime trends.

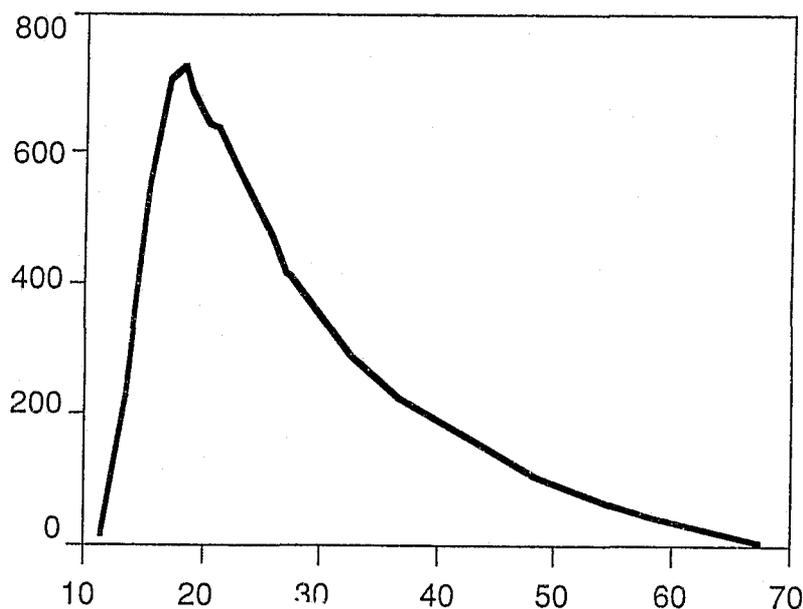
### *Age-Adjustment Methods*

As noted earlier, a problem common to both the UCR and the NCS reporting programs is that their violent crime figures are not age-specific but are crude rates

# VIOLENT CRIME RATE

FIGURE 1. Age-Specific Arrest Rates for UCR Violent Crime\*

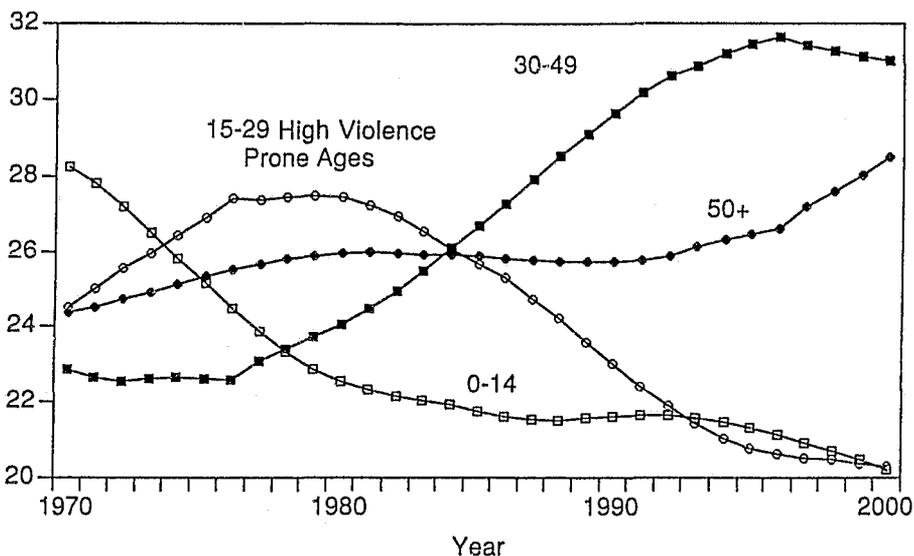
Rate/100,000



\*Source: Uniform Crime Reports, 1980. UCR violent crimes are homicide, rape, robbery, and aggravated assault.

FIGURE 2. Age Composition of the U.S. Population 1970-2000.

Percent of U.S. Population



(i.e., approximations) based on the U.S. population as a whole instead of the population at risk. Consequently, adjustment procedures are needed to purge any observed changes in the crude violent crime rate that are due to shifts in the age structure of the population.

At issue more broadly is one of the most frequently occurring problems in epidemiology and vital statistics in general—the comparison of the rate for some event or characteristic across different populations or for the same population over time. If the populations were similar with respect to factors associated with the event under study—such as age, sex, or race—comparing overall or “crude” rates as they stand would not be a problem. But if the populations are not similarly constituted (as is the case here), the direct comparison of the overall rate may be misleading.

Because the basic counting unit in both the UCR and the NCS is offenses, the age of the offender is unknown since accurate information about the age of the offender is not known until an arrest is made. Thus, what demographers refer to as the indirect method of standardization was used to determine the extent of change in the violent crime rate from 1980 to 1992 that was a direct result of the changes in the age makeup of the U.S. population.<sup>7</sup> Among other things, the procedures we employ provide rate adjustments based on all ages instead of only two age groupings—15-24 and all other ages—as has been the practice in most other research.

The adjustment procedure follows these steps, where

$i$  = age categories (0-12, 13-14, 15,..., 24, 25-29,..., 60-64, 65+)

$j$  = crime categories (violent, homicide, rape,...)

$k$  = year

$R$  = crude arrest rate

$U$  = crude offense rate

(1) Age-specific rates for the base year, 1980, are calculated with the following formula:

$$r_{ij(k=1980)} = \left( \frac{\text{number of arrests}_{ij(k=1980)}}{\text{U.S. Population}_{i(k=1980)}} \right)$$

(2) Adjustment factors for each crime category for 1992 are calculated using the formula:

$$A_{j(k=1992)} = \left( \frac{R_{j(k=1980)}}{\sum_i (r_{ij(k=1980)} \times (\text{prop. U.S. Pop.}_{i(k=1980)}))} \right)$$

(3) The 1992 standardized rates are then calculated:

$$U'_{j(k=1992)} = (A_{j(k=1992)}) \times (U_{j(k=1992)})$$

### Age-Adjusted Violent Crime Trends

Figure 3 shows percentage-change trends in “reported” as compared to “age-adjusted” violence rates for the years 1980 and 1992, as derived from the FBI’s Uniform Crime Reports (UCR) and the National Crime Survey (NCS), respectively. The reported rate is the crude or unadjusted rate that is published in UCR and NCS tables. The percentage change based on the adjusted rate corrects for shifts in the age makeup of the population and represents a “truer” measure of change. The crude and age-adjusted rates that were used to calculate the percentage changes are presented in table 1. The percentage changes in both the unadjusted and the age-adjusted rates are plotted in figure 3.

Violence levels, as reported in UCR publications, rose 27.1 percent from 1980 through 1992. When these rates are adjusted for age shifts, violence levels actually increased 36.2 percent. For the individual violent crimes, there was a small decline in the age-adjusted homicide rate (about 5 percent); moderately large rises in rape (29 percent) and robbery (27 percent); and a large increase in aggravated assault (58 percent).

According to NCS publications, however, violence levels declined 12.5 percent from 1980 through 1991 (the 1992 NCS statistics will not be available until fall 1993). When these rates are adjusted for age shifts, however, violence levels show a small drop of 3.6 percent. For the individual violent crimes surveyed in the NCS program, there was a small increase in the age-adjusted robbery rate (about 2 percent); a moderately large increase in rape (22 percent); and a small decrease in aggravated assault (8 percent). The small drop in the NCS violence index, then, is because the drop in aggravated assaults swamps the increases in both robbery and rape.<sup>8</sup> Thus, the two reporting programs show somewhat differing trends in the Nation’s violent crime rate since 1980—the UCR shows a large increase, the NCS little or no change.

### Relation Between Incarceration Rates and Violent Crime Trends

Incarceration rates since 1970 are plotted in figure 4 and compared to age-adjusted violence rates from the UCR. We have extended this part of the analysis back to 1970, to place the recent years in better perspective.

Looking at national trends, we see that incarceration rates took an upward trend around the mid-1970’s and rose steadily during the 1980’s. During the 1970

# VIOLENT CRIME RATE

TABLE 1. CRUDE AND AGE-ADJUSTED VIOLENCE RATES AND PERCENTAGE CHANGES, 1980-91

Uniform Crime Reports (Rates/100,000)					
	1980 Crude	1991 Crude	1991 Adjusted	Unadjusted Percentage Change	Adjusted Percentage Change
Violent Index <sup>a</sup>	596.6	768.4	844.5	28.8	41.5
Homicide	10.2	10.1	10.6	-1.0	3.9
Rape	36.8	42.5	46.2	15.5	25.5
Aggravated Assault	298.5	436.9	463.4	46.2	55.2
Robbery	251.1	277.6	330.5	10.6	31.6
National Crime Survey (Rates/1,000)					
	1980 Crude	1991 Crude	1991 Adjusted	Unadjusted Percentage Change	Adjusted Percentage Change
Violent Index <sup>b</sup>	16.8	14.7	16.2	-12.5	-3.6
Rape	0.9	1.0	1.1	11.1	22.2
Aggravated Assault	9.3	8.1	8.6	-12.9	-7.5
Robbery	6.6	5.6	6.7	-15.2	1.5

<sup>a</sup> UCR Violent Index includes homicide, forcible rape, aggravated assault, and robbery.

<sup>b</sup> NCS Violent Index includes forcible rape, aggravated assault, and robbery.

to 1992 period, the UCR's violence rate fluctuated but generally rose steadily, at a pace somewhat greater than the rise in incarceration rates.

During the 1981-92 period (Reagan/Bush years), the UCR violence rate went through two distinct periods. First, as incarceration rose by 25 percent in 1981-84, violent crime fell by 9 percent. Then, as incarceration increased by 78 percent from 1985 to 1992, violence rates rose by 42 percent.

### *Trends in the 1960's*

The analysis above compared incarceration rates and crime rates since 1970. What would the plots look like if we had traced the rates backwards to include the 1960's?

In the 1960's incarceration rates declined somewhat while violent crime rates rose substantially, according to FBI statistics. By contrast, although violent crime rose in the 1980's when incarceration rates increased substantially, the rate of increase of violent crime was substantially less than the increase in the 1960's. This reduction in the rate of increase in violent crime raises the question of whether there is less crime today than there would have been had we not substantially increased incarceration of violent offenders in the 1980's. Are violent crime rates today lower than they would have been if the low-incarceration policies of the 1960's and 1970's had been continued into the 1980's?

The question is an intriguing one, but, unfortunately, it cannot be answered with the available data. The FBI's crime statistics for the period of the 1960's are beset with serious reliability and validity problems. First, the statistics don't reflect the increased birthrate

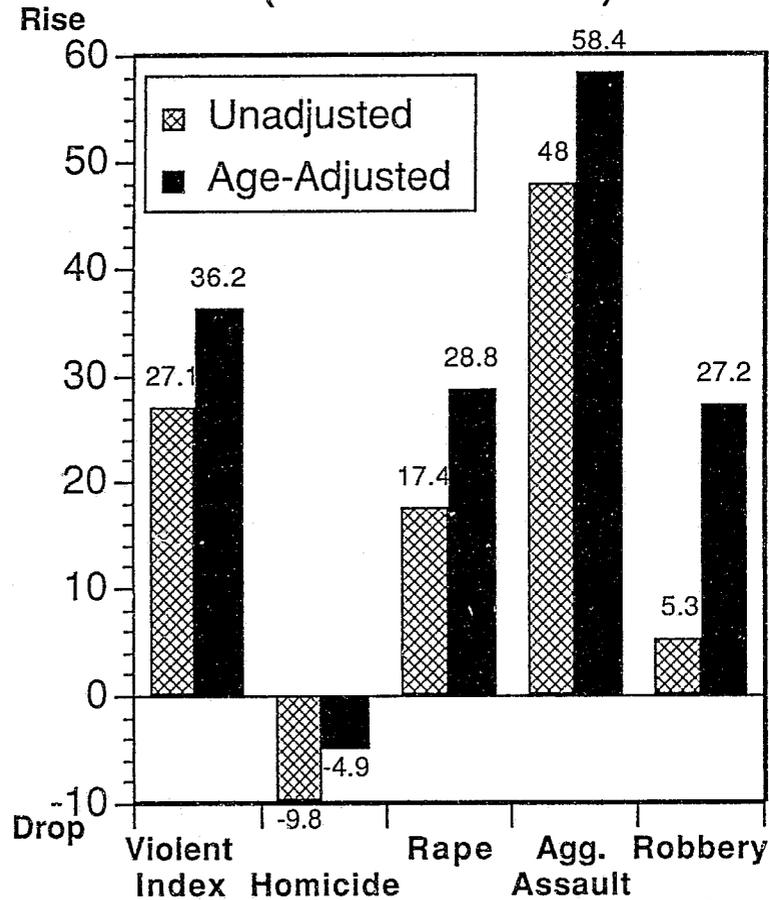
(the "baby boom") that occurred after World War II which produced a swelling of the 15-24 age group in the 1960's. An analysis by the President's Commission on Law Enforcement and Administration of Justice concluded that about 40 percent of the increase in index crimes during the 1960's could be accounted for by changes in the Nation's age composition.

Second, the UCR statistics for the 1960's are highly unreliable because of changes in coverage, policing, and reporting procedures that produced large paper increases in crime. Professionalization of police, increases in the number of clerks and statistical personnel, better methods for recording information, and the use of more intensive patrolling practices increased the amount of reported crime. (See: 1967 Task Force Report, *Crime and Its Impact—An Assessment*, President's Commission on Law Enforcement and Administration of Justice.)

The Task Force Report noted, for example, that a tightening of reporting procedures in New York City in the mid-1960's had resulted in a tripling of the city's robbery rate. Changes in the reporting systems of other large cities also produced large paper increases in crime. Since the large cities account for the lion's share of crime nationally, paper increases in crime dramatically affected the Nation's crime rate during the 1960's (as that rate is reported in the Uniform Crime Reports).

Because the changes in policing and reporting systems took place over a period of time and because they were most often a gradual rather than an abrupt change, it is difficult to estimate what their cumulative effect has been. The Uniform Crime Reporting

## Uniform Crime Reports (1980-1992)



## National Crime Survey (1980-1991)

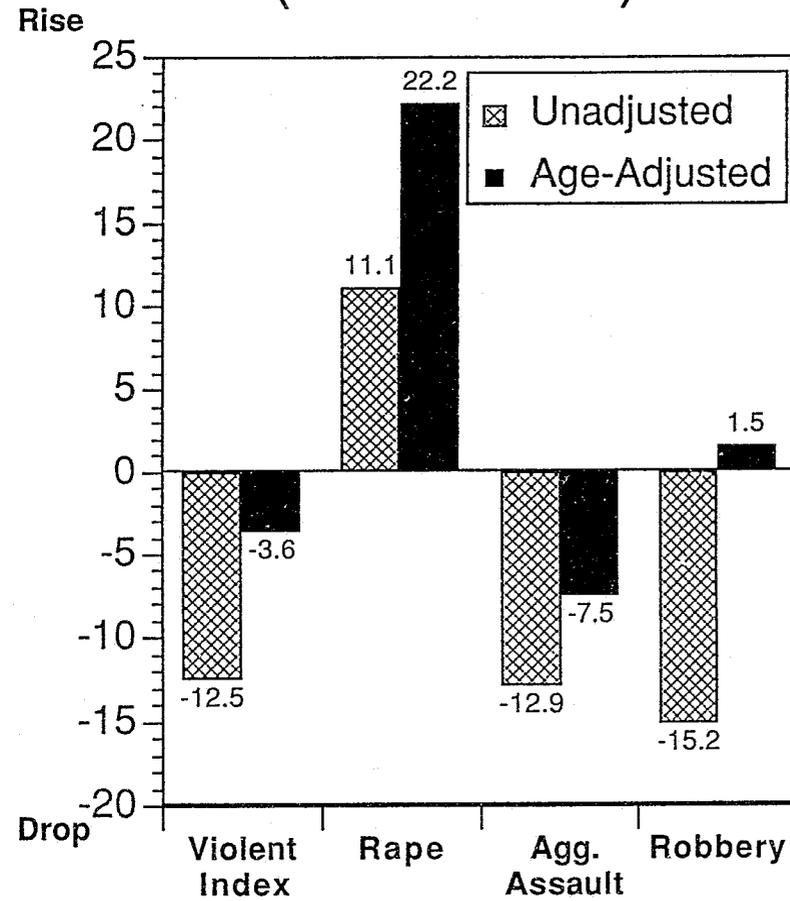
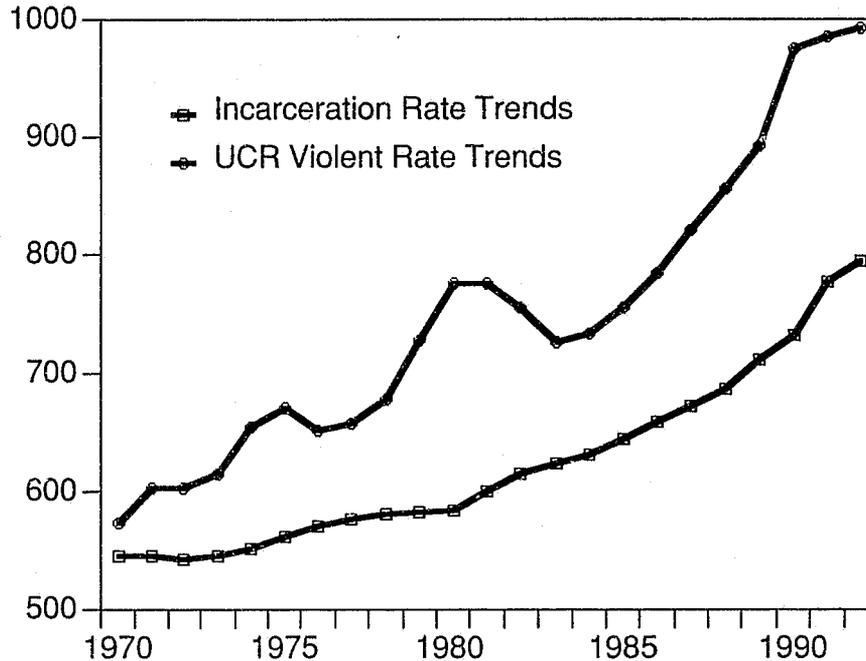


Figure 3: Percentage Change in UCR/NCS Violent Crimes for 1980 and 1992.

## VIOLENT CRIME RATE

FIGURE 4. United States Trends in Incarceration Rates  
UCR Violent Crime Rates 1970-1992.



system does not vouch for its crime figures prior to the early 1970's.

The 1970 to 1992 period is sufficiently long, however, for an evaluation of the relation between incarceration rates and crime rates. Bulging prisons have not led to the expected drop in the crime rate nationally or, in some unspecified way, dampened it.

### *Policy Implications*

It is difficult to detect any overall relationship between incarceration and violence rates or to show that incarceration is a cost-effective means of reducing crime. Enforcement that makes the lives of violent offenders riskier and prospects of incarceration greater may accomplish a worthwhile goal such as punishment or expression of moral outrage. But that should not be confused with a significant effect on the Nation's level of violence.

It is risky business to forge a causal link between violent crime rates and imprisonment rates in the absence of statistical controls for other variables that might influence crime trends—such as the growth in racial/ethnic minorities, episodic swings in drug abuse, economic cycles, and other shifts in criminal justice practice. Some might argue that if these and other (unknown) social forces were taken into consideration, the observed rise in age-adjusted violent crime rates would have been even greater had it not been for the would-be deterrent or incapacitative effects of rising prison populations. But there is nothing in the prison or

crime statistics themselves that suggests such an interpretation.

Why hasn't the incarceration strategy worked? First, above and beyond the penalties already in place, longer sentences or the "piling on of punishment" apparently have very little, if any, deterrent effect on violent crime. Some research suggests that improving law enforcement in ways that increase the chance persons will be sanctioned or incarcerated once they have committed an offense, and without imposing excessively long prison terms, will more efficiently and effectively reduce crime rates than will a policy of incapacitation.<sup>9</sup> Second, because violence is often linked to participation in other criminal activities such as robbery or drugs, incarcerated offenders are replaced quickly on the streets by other robbers, drug dealers, and so on—you can incapacitate the offender but not necessarily the offense. Third, older offenders (e.g., late 20's) who already are "aging out" of crime and who comprise the bulk of the prison population (especially of violent offenders) are replaced continuously on the streets by fresh cohorts of youth entering into the high-crime prone ages (e.g., mid- to late teens).

More than \$20 billion was spent in 1991 on incarceration in state, Federal, and local jails, and the building of prisons alone cost an estimated \$30 billion in the last decade. Some commentators (e.g., Methvin, quoted earlier) recommend a doubling of prison capacity for the 1990's. A meaningful debate on crime would consider the potential benefits and costs of carcera-

tion, including the social cost of imprisoning large numbers of young black men who commit a disproportionate share of violent acts. The debate should also assess the relative crime control benefits—both short-term and long-term—of employment policies, firearms reduction, community policing, and intermediate sanctions.

The evidence on the relation between incarceration and crime rates also suggests that incapacitation as a crime control strategy need not be directed as broadly as it is. The incarceration strategy has not only increased incarceration rates for violent offenders, as intended, but incarceration rates for property and drug offenders have increased even faster. Efforts in the policy arena should be directed at focusing more on identifying the limited number of violent, dangerous, and persistent offenders who account for a majority of serious crime and for whom incapacitation is a needed and warranted expense.

### Conclusion

Our analysis of the national data suggests that increasing incarceration levels have not reduced violent crime rates as predicted but, in fact, violence levels have been rising in recent years. The UCR statistics in particular show large increases in violence rates since 1980—the age-adjusted index violence rate has risen a sizable 36 percent since 1980.

An important question facing policymakers at both the state and national levels is whether spending more and more money on incarcerating more and more offenders will solve the crime problem. Alternative approaches for punishing offenders (e.g., intermediate sanctions) are available that appear to be more cost-effective and more suitable for many property and drug offenders who today disproportionately occupy the Nation's prisons and jails. Using incarceration as the primary sanction for the bulk of offenders does not appear justified given what we know.

### NOTES

<sup>1</sup>Bureau of Justice Statistics, 1993. Reported in *New York Times*, May 10, 1993, A20.

<sup>2</sup>N. Pierce, "Filling Our Prisons Isn't Deterring Crimes," *Philadelphia Inquirer*, Jan. 13, 1992, p. C9.

<sup>3</sup>E. Methvin, "An Anti-Crime Solution: Lock Up More Criminals," *Washington Post*, October 27, 1991, p. C1.

<sup>4</sup>P. Langan, "America's Soaring Prison Population," *Science*, 251, 1992, p. 1573. Langan also contends that rising incarceration rates are due to the greater likelihood of a prison sentence given an arrest, rather than to longer prison terms. But there are serious flaws in Langan's analysis, including: using statistics on prison releases rather than prison admissions; looking at length-of-sentence imposed rather than time served for prison populations; and cutting off the analysis at 1986, after which both incarceration rates and violence rates rose sharply. A more methodologically rigorous analysis is provided by Cohen and Canela-Cacho which shows that an increase in time served for violent offenders, among other factors, has contributed to the growth in prison populations. See: J. Cohen and J. Canela-Cacho, *Incarceration and Violent Crime: 1965-88* (paper prepared for Panel for the Understanding and Control of Violent Crime, 1991).

<sup>5</sup>Our investigation here builds on our analysis of crime trends from 1980-88, which also applied age-standardization methods to the UCR and NCS data. See: D. Steffensmeier and M. Harer, "Did Crime Rise or Fall During the Reagan Presidency? The Effects of an 'Aging' U.S. Population on the Nation's Crime Rate, 1980-88," *Journal of Research in Crime and Delinquency*, 28, 1991, pp. 330-359.

<sup>6</sup>A. Biderman and J.P. Lynch, *Understanding Crime Incidence Statistics*. New York: Springer-Verlag, 1991.

<sup>7</sup>D. Steffensmeier and M. Harer in (5). See also: J. Fliess, *Statistical Methods for Rates and Proportions*. New York: John Wiley, 1973.

<sup>8</sup>The small drop in homicide rates and the sharp rise in aggravated assault rates may partly reflect improvements in emergency medical procedures that apparently have saved the lives of an unknown number (some commentators say a substantial number) of would-be homicide victims.

<sup>9</sup>See: Cohen and Canela-Cacho (op. cit. in 4); J. Petersilia and P. Greenwood, "Mandatory Prison Sentences: Their Projected Effects on Crime and Prison Populations," *Journal of Criminal Law and Criminology*, 69, 1978, pp. 604-615.