

Emily Shapiro, Legislative Analyst
651-296-5041

Cost of Crime: A Review of the Research Studies

This information brief describes the research studies that have been conducted over the past 30 years to assess the cost of crime to individuals and to society. Although these studies have different focuses and use different research methodologies, they share the common goal of seeking to quantify the impact of criminal activity on the economic and social lives of crime victims and on the community in which the crime occurred. Because the studies vary in their scope and methodologies, their quantitative findings also differ from one other. Despite these differences, the studies are useful to policymakers because they provide a guide not only to the obvious and direct costs of crime but also to the subtle and indirect ones. These studies also help to identify what types of statistical information are available or not available concerning a particular cost of crime item.

The information brief consists of the following:

- a description of the scope of “cost of crime” research studies and the types of data used in the studies;
- a summary of the types of crime costs identified in most studies;
- a description of the common data “gaps” that have been identified in the research literature; and
- a summary of other research issues that are suggested by the current research.

Finally, Appendix A (page 6) contains an abstract for each cost of crime research study that was analyzed for this information brief. Each abstract contains the following information: the name of the research study; the scope of the study; the methodology used to conduct the research; a

summary of the study's main findings; and, where appropriate, additional comments on the research. Additionally, Appendix B (page 27) contains a bibliography of the research studies.

Most “cost of crime” research studies focus on Part I (serious) crimes and use similar data bases.

The majority of research studies assessing the cost of crime to victims and society limit their scope to crimes classified as serious Part I crimes by the FBI. These crimes include homicide, forcible rape, robbery, aggravated assault, burglary, larceny-theft, motor vehicle theft, and arson. Additionally, a handful of studies focuses on the costs of particular crimes, such as driving while intoxicated or child abuse. These studies tend to be based on targeted, customized surveys and data collection efforts rather than on pre-existing, general crime data bases.

The majority of studies also rely primarily on two sources of crime data: the FBI's annual Uniform Crime Reports (UCR) and the National Crime Victimization Study (NCVS) conducted annually by the U.S. Department of Justice's Bureau of Justice Statistics. The UCR collect data from police departments nationally concerning crimes known or reported to the police. They include not only the eight Part I crimes listed above but also approximately 20 less serious crimes, referred to as Part II offenses. In contrast, the NCVS is based on an annual survey of individuals which asks whether they have been victims of any of the following offenses: rape, robbery, assault, household or personal theft, burglary, or motor vehicle theft. The survey seeks to document the total number of crimes experienced by households annually, whether or not reported to the police, and to quantify the short-term out-of-pocket losses experienced by these victims due to their victimization.

Other data sources for cost of crime research include the National Fire Incident Reporting System (for information on arson-related costs), various demographic data relating to population migration patterns and housing values, and surveys of professionals who come into contact with crime victims, such as medical and mental health professionals. Research that focuses on particular types of crime, such as drunk driving or child abuse, tends to rely on more specialized or customized data sources, particularly survey data. Finally, there are a number of cost of crime studies written by economists which use theoretical, economic analysis models, rather than statistical data, to generate their findings.

The cost of crime research studies identify a variety of crime costs. Most studies focus on tangible costs; others go further and include a variety of intangible costs.

Virtually all cost of crime research studies tabulate costs relating to the victim's property loss and physical injury. Many studies also include information on the victim's legal costs and seek to quantify the intangible cost of the victim's pain and suffering. Several studies have a broader focus and include direct and indirect costs experienced by the victim's family or the victim's neighborhood. Finally, a few studies attempt to quantify the direct and indirect costs of crime experienced by society in general. These various costs are described below more fully.

Tangible costs relating to property loss. The tangible costs of crime relating to a victim's property loss fall into three categories. First, there are the direct costs associated with property or cash stolen from the victim. These costs are the easiest to quantify because usually they are known at the time the crime is committed. Second, victims may experience costs relating to property damage. These costs are, likewise, relatively fixed and easily quantified. Third, victims may suffer loss of wages or productivity and legal costs due to either the physical or mental injuries they suffer or their participation in the criminal justice process. These costs are more difficult to quantify because they may arise, in part, after the primary data are collected about the criminal victimization event. In all cases, a victim's property loss may be wholly or partially reimbursed by insurance or government assistance. This transforms the crime cost from one borne by the victim to one borne by society in general.

Medical costs. Victims of crimes against the person and, to some degree, victims of property crimes often must bear medical and mental health treatment costs. Data concerning these costs come from a variety of sources, including victim self-reports, insurance data, hospital and emergency medical care data, and information supplied by medical and other treatment providers. Again, some of these costs may be shifted from victims to society by means of insurance coverage and government-sponsored reparations programs.

Government costs. There are a number of crime costs that are borne by society generally through government-sponsored public safety programs and institutions. These include the costs of providing police protection, emergency medical services, criminal court processes, prosecution and public defense services, victim services programs, and correctional institutions and programs. Many of these costs are an inherent and inevitable attribute of organized societies but, nevertheless, can be sensitive barometers of rising or falling crime rates.

Private security measures. A number of research studies itemize various costs relating to the actual or perceived need of victims and communities to increase their level of personal security in response to crime. These costs include the purchase by homeowners of better locks, home security systems and firearms, as well as the increased use of armored vehicles and security guards by businesses. Some research studies go beyond these tangible security measures and attempt to quantify the cost of the increased fear that residents of high crime neighborhoods have of leaving their homes, particularly at night. This increased fear may, itself, contribute to a decrease in neighborhood safety to the extent that deserted streets and public areas invite additional criminal activity.

Other indirect or intangible costs. Finally, several research studies seek to quantify other indirect or intangible costs of crime. One example is the negative effect that criminal victimization may have on children in the household. Most studies conclude that child victims are at increased risk of having school problems, psychological problems and delinquency problems as a result of their victimization. Another example is the intangible cost to victims of their continuing pain and suffering due to the criminal event and their actual or perceived lost "quality of life." Even though "pain and suffering" costs are extremely difficult to measure, some research studies provide an aggregate dollar estimate of them, primarily based on data derived from jury awards in civil law suits.

The cost of crime research studies tend to identify similar gaps in information.

Many cost of crime research studies address the issue of “information gaps.” These studies tend to identify the same categories of missing or incomplete information. Specifically, they report that information tends to be missing, incomplete, or unreliable concerning the following costs:

- costs associated with mental health injuries;
- costs associated with homicide crimes;
- social services costs that are linked, directly or indirectly, to the criminal victimization;
- the extent to which insurance payments or government-paid reparations reimburse victims for their costs;
- costs associated with “white collar” crime, racketeering crime, and fraud crimes committed against businesses and individuals; and
- costs associated with so-called “victimless” crimes, such as gambling, drug crimes, and prostitution.

Additionally, data generally are not available to measure adequately the effect of crime on the economic and social health of urban areas. Such measures of “urban decay” include housing vacancy rates, loss of commercial establishments, and migration of law-abiding community members to other neighborhoods. These measures of urban decay, if used, must be carefully controlled for other factors that also may contribute to urban decline such as demographic changes, lack of employment opportunities, and housing and transportation problems.

In addition to addressing these information gaps, future cost of crime researchers also must address several research issues. Two important research issues for the future relate to improving estimates of the incidence of crime and improving estimates of indirect crime costs.

Improving incidence estimates. Crime statistics tend to undercount the number of criminal incidents because individuals often are reluctant to report the crime to the police or believe there is no purpose in doing so. The under-reporting of rape offenses is a particular problem, as is the under-reporting of crimes committed within the family, such as domestic abuse and child abuse. Cost of crime researchers need to be aware of the under-reporting problem and seek ways to compensate for it.

Improving cost estimates. Improved cost estimates also are needed of the long-term psychological effects of crime on the victim, particularly domestic violence and child maltreatment crimes. Additionally, better estimates are needed of the indirect costs of crime, such as mental health care, wage loss, lost quality of life, crime-induced suicide or criminality, and fear of crime among the general population.

Other research issues. Policymakers who read or rely on the quantitative findings of cost of crime research studies also must keep the following caveats in mind.

- Quantitative estimates may look solid but may be based on poor or incomplete data or on subjective estimates. In particular, intangible costs like “pain and suffering” and “lost quality of life” are, by definition, subjective.
- Cost estimates depend on the time frame examined. Some costs are long-term in nature and will be underestimated if the time frame studied is too short.

Appendix A

COST OF CRIME STUDIES: A SUMMARY OF THE LITERATURE

(The following abstracts of the cost of crime research studies are organized in reverse chronological order.)

Alcohol and Crime: an Analysis of National Data on the Prevalence of Alcohol Involvement in Crime

Bureau of Justice Statistics, April 1998

Scope of study: This study contained an analysis of national data on the prevalence of alcohol involvement in crime.

Methodology: The study used data from the NCVS, federal self-report surveys of correctional populations, and periodic censuses of federal, state, and local correctional facilities. It also used data from the FBI Uniform Crime Reporting Program and the FBI National Incident-based Reporting Program. Finally, it used new analyses from the federal Fatal Accident Reporting System, a data base containing information on more than two million fatal accidents occurring over the past 20 years. This allowed estimates to be made of the level of intoxication among drinking offenders at the time they committed the offense for which they were convicted.

Summary of major findings: The study provided statistics concerning the percentage of crimes (35 percent) in which the victim reported that the offender had been drinking at the time of the offense. A greater percentage (66 percent) of victims of crime committed by an intimate reported alcohol use by the offender and an even greater percentage of victims of spousal violence (75 percent) reported alcohol use by the offender. About 20 percent involved perceived offender drug use as well. Police reported about half the incidents involving alcohol involvement were between intimates; 70 percent of alcohol-involved incidents occurred at a residence, usually beginning after 11 p.m. Similar statistics were provided for fatal accidents involving alcohol or drug use. Statistics also were provided for the number of convicted offenders who were reported to have used alcohol or drugs at the time of the offense (36 percent).

Additional comments: While this study did not focus on the cost of crime; it did rely on similar data bases as other cost of crime studies. It also was useful as an indication of the proportion of violent crime involving alcohol use and, therefore, indicated an area where additional social controls could be useful in lowering crime incidences and their costs.

The Cost of Mental Health Care for Victims of Crime

Mark Cohen and Ted Miller, September 1997 revised

Scope of study: This study estimated the annual cost of mental health care for victims of crime by estimating the number of crime victims receiving mental health counseling and multiplying this number by an estimate of the average annual cost of treatment for each type of crime victim.

Methodology: The authors surveyed 168 mental health professionals, identified from a random sample of 339 professionals, based on lists of mental health professionals representing 80 percent of the mental health providers who were members of national professional associations. The surveys were conducted by telephone in 1992 and concerned clients treated during the previous calendar year.

Summary of major findings: Based on this survey, the authors estimated that, in 1991, between 3.1 million and 4.7 million people received mental health counseling primarily as a result of criminal victimization. The estimated mean total dollar value of counseling and therapy received by crime victims was \$9.7 billion and the median value was \$8.3 billion. Assuming 70 percent of the normal fee was paid, the mean estimate of actual expenditures was \$6.8 billion and the median estimate was \$5.8 billion. This estimate may not reflect the entire cost of the victims' injury because several respondents noted that crime victims often get much less counseling than they need, due to cost considerations.

Additional comments: More than one-half of the victims were adults who were being seen for child sexual or physical abuse that occurred years prior to the sample year. Crime victims represent about 20 percent to 25 percent of the total client population of professionals included in the survey; however, this percentage varied considerably by type of provider. These clients represented over 40 percent of actual hours of service, demonstrating that crime victims suffer trauma that generally requires more counseling visits than other clients.

Guns, Money & Medicine

U.S. News & World Report, July 1, 1996

Scope of study: This study contained an assessment of the medical costs of gun-related violence.

Methodology: No data sources were cited, except for one cite to the National Spinal Cord Injury Statistical Center as the source of information on the medical costs of treating paraplegics (\$427,700 lifetime) and quadriplegics (\$1.3 million lifetime).

Summary of major findings: The study estimated that gunshot violence in the United States costs \$20 billion a year and that one-fifth of this cost was in medical expenses—\$200 per household.

It also provided cost-of-care expense information for various types of gunshot victims and data on the proportion of these expenses paid by private insurance, public Medicaid dollars, or both.

The study found that, although gunshot wounds accounted for fewer than 1 percent of injuries in hospitals nationwide, they generated 9 percent of injury treatment costs. A typical stab wound cost \$6,446 to treat in 1992; the average gunshot case cost \$14,541.

Additional comments: No source was provided for the estimate regarding the total and per household cost of gunshot violence in the United States annually.

Safety and Savings: Crime Prevention Through Social Development

National Crime Prevention Council of Canada, March 1996

Scope of study: This study sought to show that the most effective way to prevent crime is to invest in healthier children, stronger families, better schools, and cohesive communities.

Methodology: The study collected and summarized the findings of a number of earlier research studies.

Summary of major findings: The study estimated the total cost of crime in Canada to be \$46 billion annually. This estimate excluded the cost of white collar crime. It was based on the estimates in the *Business Week* study (see p. 17, *infra*). The study also noted other estimates of crime developed by other research studies, including the following:

- a \$6.7 billion estimate annually of the indirect costs of crime (i.e., property loss, security services, hospitalizations, etc.)
- a Quebec study that the cost of crime in that province alone ranged from \$6.8 billion to \$34 billion annually
- a Canadian Public Health Association study that the cost of violence-related hospitalization was between \$38 million and \$71 million annually
- a study by the Center for Research on Violence Against Women and Children that the annual cost of criminal violence against women was \$4.2 billion
- another study that the health-related cost of violence against women was \$1.5 billion annually

This study argued that crime prevention strategies in a number of other jurisdictions have been successful in reducing crime and its associated costs.

Additional comments: The study contained no original research on crime costs.

Are Prisons Really A Bargain? The Use of Voodoo Economics

James Austin, Spectrum: The Journal of State Government, Spring 1996

Scope of study: This study was critical of recent studies which had argued that the incarceration of more offenders for longer time periods is a cost-effective means of fighting crime. It criticized the methodology and assumptions of this research. It also was critical of “anti-incarceration” lobbyists who assert that increasing the use of alternatives to prison will reduce recidivism and crime rates.

Methodology: The study contained the following critique of the cost of crime methodology used in other studies.

(1) It criticized the inclusion in the BJS’s crime victimization study of crimes that are not reported to the police because these crimes are relatively petty. It pointed out that if only the serious property and person crimes from the NCVS are included in the total crime number, that number is very close to the number of crimes reported to the police in the FBI’s Uniform Crime Reports.

(2) Additionally, the study noted that the NCVS’s data showing the average cost per crime were skewed upward by a minority of crimes involving large monetary loss. It argued that the median loss per crime was more accurate and was only \$26 per crime compared with the \$524 average.

(3) Finally, the author was very critical of the methodology used in the 1996 NIJ “Victim Costs and Consequences” research report (see p. 10 *infra*), arguing that it grossly inflated the cost of crime. It did so by including in the total cost figure an amount for “intangible losses in quality of life” that was equal to 77 percent of the total. This “quality of life” loss estimate was based on jury awards for pain and suffering in civil cases. However, these civil cases, by definition, involved atypical situations involving atypical victims. In addition, it was not a true cost in actual dollars expended but, rather, a monetary symbol without economic significance.

Summary of major findings: The author argued that a well-balanced crime control policy must recognize that:

- (1) the amount of crime committed by released prisoners is low;
- (2) most crimes committed are property crimes with minimal or no monetary loss;
- (3) age is a major factor to be considered in the risk of recidivism;
- (4) reducing the amount of time inmates serve is an effective means of reducing prison growth without increasing the risk to public safety; and

(5) greater emphasis should be placed in prisons on work and education programs instead of treatment programs.

Additional comments: This study was useful because it demonstrated how cost of crime data can be affected by the methodology and assumptions that are used in a particular research study. Quantitative findings may look solid but actually may rest on a weak foundation. This is particularly true when the research attempts to include estimates of types of crimes or losses for which actual data do not exist.

Victim Costs and Consequences: A New Look

National Institute of Justice, February 1996

Scope of study: This study estimated the cost and consequences of personal crime for Americans. Its focus was on quantifying the costs incurred directly by or on behalf of crime victims. It included fatal crimes, child abuse, rape, other assault, robbery, drunk driving, arson, larceny, burglary, and motor vehicle theft, and described the cost of these crimes in terms of: medical costs, lost earnings, public program costs relating to victim assistance, pain and suffering, and lost quality of life. The study contained detailed charts that broke down the cost figures by type of crime. It also included an interesting chart listing various types of crime-related costs and showing which party (victim, victim's family, society) directly bore the cost of the crime.

The study excluded a number of crimes that were not crimes against persons or households, such as crimes against businesses or the government, white collar crime, and "victimless" crimes such as prostitution, gambling, loan sharking, and drug crimes. It also excluded costs incurred to operate the criminal justice system and costs of actions taken to reduce the risk of becoming a crime victim.

Methodology: The study relied on a number of different data sources, depending on the type of crime studied. It used the BJS's NCVS and the FBI's Uniform Crime Reports extensively, and supplemented these data with research from a number of sources, particularly groups that have studied specific crimes; i.e., data on child abuse was derived from the National Incidence and Prevalence Survey of Child Abuse and the National Family Violence Survey.

Summary of major findings: The study estimated that the total annual cost of crimes committed against persons and households in the United States during the time period 1987-90 was \$450 billion. This number included both tangible and intangible costs as follows:

(1) medical/mental health care costs: \$18 billion

(2) other tangible costs (property damage and loss, lost productivity), pain and suffering: \$87 billion

(3) intangible costs, i.e., reduced quality of life: \$345 billion

The study also broke down these figures by type of crime.

The study also provided information on who paid these costs. It estimated that: insurers paid about \$45 billion annually due to crime; government paid \$8 billion for restorative and emergency services to victims, plus about one-fourth of the \$11 billion in health insurance payments; and crime victims and their families paid the costs for some crimes, while the public largely paid for others.

Additional comments: This study contains many useful tables with detailed information not described in this abstract. Although the scope of the study was limited to certain crimes (person/household offenses) and certain costs (victim costs, not social costs), it was more comprehensive than other studies in terms of the data bases used to derive the crime and cost figures. It also included a section at the end that compared the study's estimates with those derived in earlier research studies. This provided a useful review of the research on the cost of crime topic. The report also included a chart comparing the cost estimates, by crime, in this study with those contained in earlier studies. Finally, the study contained a section on future research issues, including the need for improved estimates of crime incidence and costs and more sophisticated analysis of the data.

The Impact of Crime on Communities

R. Taylor, *Annals of the American Academy of Political and Social Science*, May 1995

Scope of study: This study consisted of: (1) a review of previous empirical research on the impact of crime levels on community decline; and (2) a study of the impact of past and changing crime levels on changes in relative house values and vacancy rates in Baltimore neighborhoods in the 1970s.

Methodology: The Baltimore research used 1970 and 1980 census data on housing values and vacancy rates and 1970 and 1980 reported crime rates for Part I offenses. Using these data, the author created a model using least squares regression to predict unexpected changes in housing value and vacancy in relation to a number of predictors, including crime.

Summary of major findings: The study's review of research literature showed that crime depressed house values, resulting in lost property tax revenue. However, it was unclear how the impacts differed depending on the type of crimes committed and how changes in crime levels affected house values over time. The study's original research on Baltimore indicated that different aspects of the housing market were influenced by different crimes and changes in their rates. For example, changes in the rates of assault and murder appeared to influence house values, while burglary rate changes, instead, appeared to influence house vacancies.

Additional comments: This study focused mainly on the effect of crime on housing values. It also recognized the difficulty of separating crime factors from other factors that may

contribute to neighborhood decline, including socioeconomic factors, demographic and racial factors, aging housing stock, location of employment, etc.

An Analysis of the Economic Cost of Crime in Missouri: 1987 through 1992

Missouri State Highway Patrol, Statistical Analysis Center, September 1995

Scope of study: The author created synthetic estimates of the victimization costs of eight types of crime committed during the years 1987 through 1992, with an emphasis on 1992. The eight crimes studied were: rape, robbery, assault, larceny with contact, larceny without contact, burglary, household larceny, and motor vehicle theft.

Methodology: The study used the 1987 to 1992 NCVS, in conjunction with the 1987 to 1992 *Editor and Publisher: Market Guide* for population estimates.

Summary of major findings: The study computed statistics for the number of households touched by crime and for the total victimization cost to those households. It found that, in 1992, the largest victimization loss was due to stolen property, followed by property repairs, medical expenses, stolen cash, and lost wages. Households located in urban counties accounted for almost 90 percent of the total cost. Motor vehicle theft was the most expensive crime, but it touched the smallest percentage of households. In contrast, larceny without contact accounted for a relatively small portion of the total cost but touched a greater percentage of the victimized households. For every \$1 of property or cash stolen from households, approximately 29 cents were recovered because the property or cash was returned. This recovery figure did not include compensation received from either insurance reimbursements or victim reparations payments due to insufficient data.

Additional comments: The study focused only on economic costs to households and, primarily due to lack of data, did not attempt to analyze social or economic costs of crime to communities, neighborhoods, or government agencies. Also, the study did not look at a number of major crimes because of lack of data. These crimes included homicide, white collar crimes, and “victimless” crimes such as drug abuse, prostitution, and gambling.

Look Out, There’s a Thief About

Paul Lashmar, *New Statesman & Society*, March 25, 1994

Scope of study: This study focused on the cost of crime in Great Britain.

Methodology: The study contained no original research but, instead, used estimates reported by government agencies and the media.

Summary of major findings: The study provided data on the aggregate cost of crime in Great Britain with particular emphasis on the cost of burglary crimes and the correlation between burglary crimes and unemployment rates. It also focused on the effect of burglary crimes

and car thefts on insurance costs. It found that because the poorest people live in the highest crime areas, they are most likely to be the victims of theft and burglary crimes and the least able to afford ever-increasing insurance premiums to protect themselves from loss.

Additional comments: The study was written for the general magazine audience.

The Costs of Crime to Victims; Crime Data Brief

Patsy A. Klaus, Bureau of Justice Statistics, February 1994

Scope of study: This study focused on direct losses experienced by crime victims in 1992 as a result of the following crimes: rape, robbery, assault, personal and household theft, burglary and motor vehicle theft. "Direct losses" was defined to include losses from property loss or damage, cash losses, medical expenses, and loss of pay.

Methodology: The study used data collected in the NCVS.

Summary of major findings: The study found that the total number of victimizations in 1992 was 33,649,340 and involved 23 percent of all U.S. households. Economic loss of some kind occurred in 71 percent of all personal crimes. For violent crimes, economic loss occurred in 23 percent of the victimizations. Household crimes (burglary, theft, auto theft) involved economic loss in 91 percent of the victimizations. The average loss per crime was \$524 and the mean loss was \$26. The study contained numerous breakdowns of these numbers by type of crime and type of economic loss.

Additional comments: This study is an example of research that is limited to a discrete number of crimes and to direct, tangible economic losses. It has been criticized as understating the true cost of crime for this reason. On the other hand, it is less vulnerable to attack as being overly speculative.

Cost of Crime: \$674 Billion

U.S. News & World Report, January 17, 1994

Scope of study: This study focused on the annual cost of crime in the United States.

Methodology: The study was based on a survey of economists and criminal justice professionals around the country. Its specific data sources included: U.S. Depts. of Commerce and Justice; Hallcrest Systems; Ted Miller, National Public Services Research Institute; Mark Cohen, Vanderbilt University; Dorothy Rice, Univ. of Calif-San Francisco; and U.S. News & World Report estimates.

Summary of major findings: The study contained the following estimates:

- (1) Federal, state, and local criminal justice system costs (police, corrections, courts): \$78 billion
- (2) Private security measures (alarm systems, locks, guards, armored vehicles): \$64 billion
- (3) Medical and mental health costs stemming from violent crime victimization: \$11 billion
- (4) Lost wages and costs of victim pain and suffering: \$191 billion
- (5) Costs of crimes committed against businesses (shoplifting, embezzlement, bribery, kickbacks): \$120 billion
- (6) Stolen goods (\$20 billion) and non-corporate fraud (\$40 billion): \$60 billion
- (7) Drug abuse costs (medical/mental health care, lost wages, and productivity—excluding criminal justice system costs): \$40 billion
- (8) Drunk driving costs, including medical expenses (\$6 billion), lost wages (\$25 billion), and pain and suffering of victims (\$79 billion): \$110 billion

GRAND TOTAL: \$674 billion

Additional comments: The study provided no detail on data sources or their methodology, nor information on the time frame for the data.

The Costs and Consequences of Violent Behavior in the United States

Mark Cohen, Ted Miller, and Shelli Rossman, *Understanding and Preventing Violence*, 1994

Scope of study: This study estimated all costs (short- and long-term; aggregate and marginal) associated with the intentional infliction of injury.

Methodology: The study used a variety of data sources and extrapolated from them. It identified data gaps where they existed and made clear when an estimate was imprecise. It contained a lengthy discussion of a conceptual framework for estimating costs and consequences including: (1) costs caused directly by violence; (2) costs incurred by society in attempting to punish, deter, or prevent future incidents; and (3) costs incurred by offenders (i.e., loss of productivity). It also contained a useful review of the cost of crime literature and noted the places where data were scarce or costs were difficult to estimate.

Summary of major findings: The study contained two useful charts listing the various types of individual and social costs of intentional injury and identifying the party primarily affected by

each of these costs. The first chart contained the following “costs caused directly by violence”:

- direct property losses
- medical and mental health care
- victim services
- lost workdays
- lost school days
- lost housework
- death
- legal costs

(Each of these items consisted of subitems.)

The second chart contained the following “costs of society’s response to violent behavior”:

- fear of crime
- precautionary expenditures/effort
- criminal justice system
- victim services
- other noncriminal programs
- incarcerated offender costs
- overdeterrence costs
- justice costs

(Most of these items consist of subitems.)

The article then quantified (through estimates) each of these costs for the year 1987.

Additional comments: This study was extremely useful for its enumeration of the different costs of crime. The actual cost estimates were less interesting than the discussion of the various direct and indirect consequences that should be considered costs of crime. The study has been criticized by a number of experts who argued that its estimates of pain and suffering costs and other indirect costs were too high and grossly inflated the cost of crime. These experts worried that the high cost of crime estimate in this study may be used to justify long sentences and spending a lot of money on building new prisons. See e.g., Butterfield, F., “Prison: Where the Money Is,” *New York Times* (June 1, 1996); Butterfield, F., “\$450 Billion Seen as True Cost of Crime,” *St. Paul Pioneer Press*, p. 1A (April 22, 1996).

Shooting in the Dark: Estimating the Cost of Firearm Injuries

Wendy Max and Dorothy P. Rice, *Health Affairs*, Winter 1993

Scope of study: This study estimated the cost of firearm injuries in the United States in 1990.

Methodology: The study based its estimate on an update of a 1985 estimate of firearm injuries that was contained in a report submitted to Congress. The estimate was based on an economic model that calculated not only the direct and indirect costs of firearm injuries, but also life-years lost. The model uses a variety of data as the basis for its estimates of fatalities, hospitalized injuries, and non-hospitalized injuries.

Summary of major findings: The study estimated that firearm injuries cost \$20.4 billion in 1990. It broke down costs as follows:

- \$1.4 billion for direct expenditures for health care and related goods
- \$1.6 billion in lost productivity due to injury-related illness and disability
- \$17.4 billion in lost productivity due to premature death

Additional comments: The authors noted that, although their estimates were based on the best available national estimates, it was likely that they understated the economic impact of firearm injuries because they were based on relatively old data and on many assumptions necessitated by data gaps.

Victim Costs of Violent Crime and Resulting Injuries

Mark Cohen, Ted Miller and Shelli Rossman, *Health Affairs*, Winter 1993

Scope of study: This study estimated the costs and monetary value of lost quality of life due to death and nonfatal injury resulting from violent crime.

Methodology: The study used data from the NCVS, the FBI UCR, and the National Fire Incident Reporting System (arson fires). It measured direct losses, productivity losses, and non-monetary losses, and excluded property losses and societal costs incurred to prevent future crime.

Summary of major findings: The study estimated that, in 1987, physical injury to persons ages 12 and older resulting from violent crime caused about:

- \$10 billion in potential health-related costs, including some unmet mental health care needs
- \$23 billion in lost productivity
- \$145 billion in reduced quality of life

The study broke down costs by type of crime and on whether death, physical injury, or psychological injury occurred. It estimated the lifetime cost for all intentional injuries at \$178 billion for the years 1987-90.

Additional comments: These three authors used this same methodology and research in their later, more comprehensive studies of the cost of crime (see p. 14, *supra*).

Highlights from 20 Years of Surveying Crime Victims: the National Crime Victimization Survey, 1973-92

Bureau of Justice Statistics, October 1993

Scope of study: This study summarized data gathered during the 20 years that the federal government conducted the NCVS as of the study date. It provided information on crime-related trends over this 20-year period.

Methodology: The study used data collected in the NCVS.

Summary of major findings: The study provided information concerning medical costs incurred by victims of violent crime from 1973 to 1991, estimating that victims incur medical costs in 10 percent of all violent victimizations. Where the dollar amount was known, medical expenses exceeded \$250 in almost 60 percent of the victimizations. Of those victims injured, 51 percent required some type of medical treatment; 19 percent received treatment at a hospital; and 4 percent stayed overnight at a hospital for at least one night. Victims reported no medical insurance coverage in 34 percent of the victimizations resulting in injury.

The study also provided information on direct monetary losses due to personal and household crime in 1991 (losses from property theft or damage, cash losses, medical expenses, and other costs for the crimes included in the NCVS) and how those costs have increased since 1981. Adjusting for inflation, the cost of crime to victims has risen 17 percent from 1981 to 1991. The average loss per crime also has increased, both in actual and in inflation-adjusted dollars.

Additional comments: The study contained lots of crime statistics and trend analysis for a variety of crime-related issues, not only cost of crime information. Newer information from the NCVS is available through other studies (see e.g., Klaus, Patsy A. *The Costs of Crime to Victims; Crime Data Brief*, NCJ- 145865 (February 1994)) (p. 13 *supra*).

The Economics of Crime

Business Week, December 13, 1993

Scope of study: This study computed the cost of violent and property crime to the country and suggested ways to control these costs through a variety of crime control and crime prevention strategies.

Methodology: The study provided little information on the methodology or the research sources on which the crime cost estimates were based.

Summary of major findings: The study estimated the total cost of crime to the country to be \$425 billion per year. This annual cost estimate consisted of the following estimates:

- \$90 billion spent by federal, state, and local governments on the criminal justice system (\$35 billion for police protection alone; no other breakdown of costs provided; no source cited)
- \$65 billion spent by individuals and businesses on increased security protection (alarms, locks, private guards, security systems) (source: William Cunningham; president of a security consulting firm in McLean, VA.)
- \$50 billion due to urban decay (lost jobs, fleeing inner-city residents) in large cities due to high crime rates (source: *Business Week* estimate; no other information provided)
- \$45 billion in property loss based on value of stolen goods (no source cited)
- \$5 billion for medical costs of treating crime victims (no source cited)
- \$170 billion in intangible damages to crime victims and their families, friends, and communities (source: research by Ted Miller et. al. of the National Public Services Research Institute, Landover, Md.; no specific article or study named)

Additional comments: The study provided little information on the basis of its estimates. It also made a number of recommendations on how the cost of crime could be reduced, including:

- improved enforcement of laws to make punishment more certain;
- focus on chronic offenders;
- increased supervision and treatment for drug offenders;
- expanded job training, particularly for juveniles;
- increased community policing and emphasis on crime prevention;
- expanded violence prevention programs in school; and
- expanded gun control laws and gun buy-back programs.

Estimating Costs of Traffic Crashes and Crime: Tools for Informed Decision Making

F. M. Streff, et al, *Journal of Public Health Policy*, Winter 1992

Scope of study: This study measured the cost of traffic crashes and the cost of selected index crimes in Michigan in 1988 and compared these costs.

Methodology: The study used data from Michigan state agencies for both index crime and crash incidents. It computed monetary costs of crimes and crashes from available data sources, and added non-monetary costs (pain, suffering, fear) based on two alternative measures: a compensation approach (jury award data) and a “willingness to pay” (WTP) approach. (The latter approach seeks to estimate the value of reducing the risk of suffering death or injury rather than the costs of the injury. This estimation of individuals’ willingness to pay for

small changes in their probability of survival encompasses all aspects of individual well-being, including the value of pain and suffering. Due to its focus on value instead of cost, the WTP approach is used increasingly in cost-benefit analyses.) The study derived two different estimates of the total cost of the index crimes; one using the compensation approach and the other using the WTP approach.

Summary of major findings: The study estimated that the cost of traffic crashes in Michigan in 1988 equaled \$2.3 billion in monetary costs and \$7.1 billion in total monetary and non-monetary quality of life costs, nearly three times the cost of the selected index crimes (\$0.8 billion and \$2.4 billion, respectively). It pointed out that policymakers may want to use similar cost estimates in evaluating relative spending needs.

Identical totals using the compensation approach and the WTP approach were derived for three crimes (burglary, larceny, and car theft) because these crimes have largely monetary costs. For the remaining crimes, the WTP approach yielded lower cost estimates than the compensation approach and, therefore, more conservative estimates.

Additional comments: This study gave the WTP approach greater credence than some other studies. It highlighted how researchers differ in their confidence with one methodology over another. For example, some researchers dismiss the use of jury compensation awards entirely, arguing that they focus too much on individual incidents and on the most severe incidents.

A Note on the Cost of Crime to Victims

Mark Cohen, *Urban Studies*, 1990

Scope of study: This study estimated the cost of individual crimes by supplementing existing estimates of out-of-pocket expenses with estimates of: (1) the risk of death; and (2) the pain, suffering, and fear endured by crime victims.

Methodology: The study combined actual victim injury rates with jury awards in personal injury accident cases to estimate pain, suffering, and fear. It also combined crime-related death rates with estimates of the value of life to arrive at monetary values for the risk of death.

Summary of major findings: Table 1 of the study estimated the cost of certain crimes (rape, robbery, assault, car theft, burglary, and larceny) by adding together the monetary value of direct losses, pain and suffering, and risk of death. Table 2 of the study displayed the individual and aggregate cost of crime to victims by multiplying the cost of individual crimes by a risk factor. This yielded a per capita cost for each crime as well as an aggregate cost (the product of the per capita cost multiplied by the U.S. population). Finally, the study added all the aggregate costs for these six crimes, yielding a single aggregate cost of crime.

Additional comments: This research and methodology was also used in the larger study in which Cohen participated, along with other research methods (see p. 14, *supra*).

Pain, Suffering, and Jury Awards: A Study of the Cost of Crime to Victims

Mark Cohen, *Law & Society Review*, 1988

Scope of study: This study estimated the total cost to victims of individual crimes by examining the pain, suffering, and fear endured by crime victims. Previous studies included only direct costs such as tangible injury and property loss.

Methodology: Actual victim injury rates in violent crime incidents were combined with jury awards in personal injury accident cases to estimate monetary values for pain, suffering, and fear. Additionally, crime-related death rates were combined with estimates of the value of life to create a monetary value for the risk of death.

Summary of major findings: The study found that the estimated aggregate cost of crime to victims of FBI index crimes was \$92.6 billion. The author argued that, by measuring the total costs to victims of these crimes, policymakers could analyze the costs and benefits of various sentencing policies more accurately.

Additional comments: Cohen used this same methodology and research in his later, more comprehensive studies of the cost of crime (see p. 14 *supra*).

The Costs of Family Violence

Straus and Gelles, *Public Health Reports*, November - December 1987

Scope of study: This study sought to supplement current estimates of the incidence and monetary cost of family violence by adding information on the cost of providing mental health and social services to victims of family violence and the cost of treating aggressors. It provided preliminary data on the increased risk of psychological problems associated with spousal and child abuse.

Methodology: The study's data were based on 1985 epidemiologic survey of a nationally representative sample of 6,002 American families. This survey used conflict tactics scales to estimate incidence rates for physical abuse of children and spouses. It also included data enabling a comparison of certain aspects of the physical/mental health of physically abused family members with persons in the sample who reported no abuse.

Summary of major findings: (1) The study estimated the annual incidence of spousal violence at 161 victims per 1,000 couples and the incidence of serious physical abuse at 34 per 1,000. Severely assaulted victims averaged twice the number of days in bed due to illness than non-abused persons and three times as many wives reported being in poor health. Abuse victims also experienced double the incidence of headaches, four times the rate of depression, and five-and-one-half times more suicide attempts.

(2) The study estimated the annual incidence of child abuse to be 110 incidents per 1,000 children and 23 serious assault incidents per 1,000 children. Abused children consistently

experienced more “special difficulties” than other children: two to three times higher rates of trouble making friends, temper tantrums, failing grades, disciplinary problems at school and at home, physical aggression, vandalism, theft, drinking, and drug abuse.

(3) The study’s findings suggested that mental health and non-medical costs may be much greater than the costs of treating physical injuries. These costs include mental health services, police services, social services, legal costs, violence committed by child abuse victims, imprisonment costs, etc. These costs are not yet quantified, but clearly outweigh the cost of primary prevention programs and services.

Additional comments: This study sought only to provide data on the incidence of family violence and to identify the physical and mental health ill-effects of that violence on victims. It did not attempt to quantify the costs of treating these ill-effects but suggested that such a cost figure, if known, would make it clear that prevention of family violence is necessary and the only practical means of lowering or avoiding these costs.

Crime by Choice: An Economic Analysis

Morgan O. Reynolds, Fisher Institute, 1985

Scope of study: This study offered a cost of crime estimate for the United States in 1983.

Methodology: The study used statistics from the FBI, industry sources, and other research studies.

Summary of major findings: The study estimated property loss and other costs for property and violent crimes. It adjusted for under-reporting of these crimes, and also estimated costs of private security, criminal justice system expenditures, illegal goods and services (“victimless crimes”), foregone output (low productivity of prisoners), underground economy, and additional regulatory and law enforcement expenditures. The study did not include costs of traffic crimes, such as DWI, or welfare fraud in its grand total but did provide some cost estimates of these crimes. It also did not quantify the cost of “fear,” or effects on wage scales or property values in high crime areas.

GRAND TOTAL: \$350 billion or \$4,400 per household.

Additional comments: This study was useful for its explanations of why certain items were or were not included in the cost of crime total. It contained a single chart describing all the information included in the total, broken down by total cost and cost per household. This chart could provide a model or starting point for future research attempts to quantify crime costs.

The Economic Cost of Crime to Victims

Shenk and Klaus, Bureau of Justice Statistics Special Report, April 1984

Scope of study: This study measured the direct, quantifiable costs that a victim incurs within six months of being victimized by a rape, robbery, assault, burglary, larceny, or motor vehicle theft.

Methodology: The study's data were from the 1981 NCVS. This survey was based on a national sample of 60,000 households in which all household members (132,000) were interviewed every six months about whether they had been victimized by any of the six crimes included in the survey. If so, the respondents were asked a detailed series of questions concerning the event, including the extent of loss or injury.

Summary of major findings: This study presented information about aggregate total economic loss experienced by crime victims in 1981 in various crime categories and victim categories. It also provided median and quartile statistics in these categories. The study's major findings included the following:

- Total direct economic loss to victims in 1981 was \$10.9 billion
- Household burglary accounted for one-third of this loss and all household crimes accounted for 75 percent of it
- More than 93 percent of the aggregate loss occurred as a result of crimes in which there was no victim-offender contact
- Motor vehicle theft accounted for the highest median loss
- Among the three violent crimes, robbery accounted for the largest total loss
- Medical expenses constituted 2 percent of the total cost of crime; damage to personal/household property accounted for 6 percent of the total; theft of property or cash accounted for the remaining 92 percent
- 36 percent of the total losses reported by victims was recovered or reimbursed in some manner

Additional comments: This study was one of the Department of Justice's first attempts to document the cost of crime to victims. It contains a useful discussion of some of the methodological problems raised by cost of crime research: what to include in "crime cost"; what data sources to use; and how to ensure the reliability of source data. The study also posed the following questions as examples of the type of choices researchers involved with this topic must make: How can we assess the cost of white collar and organized crimes, such as income tax evasion or failure to pay Social Security taxes? Who bears the economic cost of "victimless crimes" such as prostitution and gambling and how should these crimes

be included in calculations? Should the operating costs of the criminal justice system be included in the calculations or be viewed more indirectly as part of the expense of governing society? How should unreported crimes be included in the calculations? What about private security costs incurred by individuals and businesses to prevent crime? What about unquantified costs such as the effect of fear and anxiety on victims and potential victims?

The Economics of Crime Control

L. Phillips and H. Votey, Jr., Sage Library of Social Research 1981

Scope of study: This study combined two different approaches that have been used in the past to assess the impact of crime in order to arrive at a more accurate cost estimate.

Methodology: The study took a 1964 index of crime seriousness previously developed by Sellin and Wolfgang and calibrated it in dollar terms based, in part, on dollar cost estimates developed by the 1965 President's Commission on Law Enforcement and the Administration of Justice.

Summary of major findings: Using log-log plots, the authors determined that 92.5 percent of the dollar value was explained by their hybrid seriousness score. However, they conceded that the accuracy of the cost estimate depended on the appropriateness of the seriousness ranking.

Additional comments: This study was very theoretical and was based on outdated data.

Estimates of the Impact of Crime on Property Values

Naroff, Hellman, and Skinner, Growth and Change, 1980

Scope of study: This study constructed an econometric model to estimate empirically the impact of crime rates on the property values of a city like Boston.

Methodology: The study's econometric model consisted of the following system of equations:

- a crime rate function
- a conviction rate function
- a police input function
- an aggregate property value function
- a city revenue function

Summary of major findings: The results of applying this model to the city of Boston showed that the elasticity of the property value variable with respect to the crime variable was fairly high. This suggested that by reducing crime rates through, among other measures, increased police protection, the city could increase property values and property revenues. For example, a crime rate reduction of 5 percent might yield an increase in tax revenue of \$7

million to \$30 million. It would seem, therefore, that an investment in police services might yield a potentially large return to the city.

Additional comments: This study was very theoretical.

The Costs of Crime

Charles M. Gray, Sage Publications, 1979

Scope of study: This study provided a conceptual review and overview of existing cost of crime research studies. It recommended definitions for various types of costs, using an economics approach.

Methodology: The study relied on definitions and concepts common to economics literature.

Summary of major findings: The study defined “crime” and “costs” as follows:

It used Hann’s (see p. 26, *infra*) definition of “socially bad criminal activity”: “a criminal activity is ... socially bad ... if, by restricting its level, the government could achieve a . . . level of welfare for the community.”

It defined opportunity costs, external costs, and social costs. Social costs included the private costs of protection, the costs of victimization, and the costs of public protection and services.

It also defined the purpose of the criminal justice system as the minimization of the social costs of crime.

Additional comments: This study contained a useful conceptual analysis and definitions. Its review of literature is significantly out-of-date.

The Private Costs of Crime

Clotfelter and Seeley, Sage Criminal Justice System Annuals, 1979

Scope of study: This study contained an analysis of the social cost of private protection activities businesses and households undertake in response to crime or the fear of crime.

Methodology: The study used data and estimates from other research studies and victimization surveys.

Summary of major findings: The study contained the following findings:

(1) **Cost of purchased goods and services;** *i.e.* security systems, security guards, locks, special glass, TV monitors, firearms, etc. Estimated expenditures in 1969: \$2.9 billion. Estimated expenditures in 1972: \$4.2 billion.

(2) **Costs of protective behavior;** *i.e.*, keeping doors locked, avoiding certain neighborhoods, staying home, etc. A 1971 Washington, D.C., survey found that this type of behavior is a widespread response to rising crime rates. Over 80 percent reported keeping their residence locked while at home. Other precautions included leaving lights on while away (65 percent), staying home (43 percent), limiting visits (33 percent), taking taxis instead of walking or taking a bus (28 percent). These behaviors created or increased the following social costs:

- staying home or not walking in the neighborhood increased lack of neighborhood safety;
- to the extent that protective behavior was a lower cost alternative to purchasing security goods or services, this adverse impact on neighborhood safety was greater in lower income areas and, therefore, poorer households bore a disproportionate share of the cost of reduced social interaction.

Therefore, the study concluded, protective behavior can contribute to rising crime rates and, consequently, to still higher rates of self-protection.

Additional comments: The study contained a very interesting analysis of the unintended adverse effects of protective behavior on neighborhoods. Its data on the cost of purchased private protection presumably are out-of-date.

The Cost of Crime to Victims: an Empirical Analysis

Mario J. Rizzo, University of Chicago Law Review, 1979

Scope of study: This study constructed a theoretical model to compute the effect on property values of a rise or fall in the crime rate.

Methodology: The study used an econometric model with a number of variables representing crime rates, housing values, public services and amenities, etc.

Summary of major findings: The study's model demonstrated the negative effect rising crime rates have on property values in a poor neighborhood of Chicago and citywide. The model showed that these costs were greater for residents in poorer neighborhoods than for residents of the city generally.

Additional comments: The study was very theoretical.

Crime and the Cost of Crime: An Economic Approach

Robert G. Hann, *The Economics of Crime and Law Enforcement*, 1976

Scope of study: This study presented an economist's approach to the cost of crime. The author developed economic guidelines relevant for policymakers and created a theoretical structure for evaluating existing research or conducting future research into the cost of crime.

Methodology: The study relied on economic analysis and models to create a definition of "crime" and to evaluate the costs and benefits of prohibiting or preventing that activity.

Summary of major findings: The study defined "crime" to mean behavior creating greater marginal external diseconomies than internal economies which, if restricted, would allow the government to achieve a better level of welfare for the community. This definition allows society to ignore some crimes that remain below acceptable levels and to target crimes that are more "socially bad." The author argued that cost of crime studies should seek to measure the potential difference between the level of community welfare before and after the "socially relevant" externalities have been removed; i.e., a measure of the potential improvement that could be made if the correct criminal legislation were drafted and enforced more efficiently.

The author also argued that providing useful estimates of the cost of crime involves a two-step procedure: (1) estimating the crime and anti-crime supply and demand functions and their production costs; and (2) assigning unit costs to the different factors of production within each activity and showing how these individual and total costs vary with the level of each activity.

Additional comments: The study was very theoretical.

Appendix B

BIBLIOGRAPHY

(articles are organized in reverse chronological order)

- Alcohol and Crime: An Analysis of National Data on the Prevalence of Alcohol Involvement in Crime*, Bureau of Justice Statistics, April 1998.
- Cohen, Mark and Ted Miller, *The Cost of Mental Health Care for Victims of Crime*, revised September 1997.
- “Guns, Money & Medicine,” *U.S. News & World Report*, pp. 31-40, July 1, 1996.
- Safety and Savings: Crime Prevention Through Social Development*, National Crime Prevention Council of Canada, March 1996.
- Austin, James, “Are Prisons Really A Bargain? The Use of Voodoo Economics.” *Spectrum: The Journal of State Government*, vol. 69, n. 2., p. 6, Spring 1996.
- Victim Costs and Consequences: A New Look*, National Institute of Justice, February 1996.
- Taylor, R. “*The Impact of Crime on Communities*,” 539 *Annals of the American Academy of Politics and Social Sciences* 28, May 1995.
- An Analysis of the Economic Cost of Crime in Missouri: 1987 through 1992*, Missouri State Highway Patrol, Statistical Analysis Center, September 1995.
- Lashmar, Paul. “Look Out, There’s a Thief About,” *New Statesman & Society*, vol. 7, n. 295, p. 16, March 25, 1994.
- Klaus, Patsy A. *The Costs of Crime to Victims; Crime Data Brief*, NCJ-145865, February 1994.
- “Cost of Crime: \$674 Billion,” *U.S. News & World Report*, pp. 40-41, January 17, 1994.
- Miller, Ted, Mark Cohen, and Shelli Rossman, “Victim Costs of Violent Crime and Resulting Injuries,” *Health Affairs*, pp. 186-197, Winter 1993.
- Highlights From 20 Years of Surveying Crime Victims: the National Crime Victimization Survey, 1973-92*, Bureau of Justice Statistics, October 1993.
- Max, Wendy and Dorothy P. Rice, “Shooting in the Dark: Estimating the Cost of Firearm Injuries,” *Health Affairs*, pp. 171-184, Winter 1993.
- “The Economics of Crime,” *Business Week*, pp. 72-81, December 13, 1993.

Streff, F. M. et al, "Estimating Costs of Traffic Crashes and Crime: Tools for Informed Decision Making," *Journal of Public Health Policy*, pp. 451-471, Winter 1992.

Cohen, Mark, Ted Miller, and Shelli Rossman, "The Costs and Consequences of Violent Behavior in the United States," *Understanding and Preventing Violence*, vol. 4. National Academy Press, Washington, D.C. 1994.

Cohen, Mark, "A Note on the Cost of Crime to Victims," *Urban Studies*, vol. 27, no. 1, pp. 139-146, 1990.

Straus and Gelles, "The Costs of Family Violence," *Public Health Reports*, vol. 102, no. 6, pp. 638-641, November-December 1987.

Reynolds, Morgan O., *Crime by Choice: An Economic Analysis*. Fisher Institute, 1985.

Shenk and Klaus, *The Economic Cost of Crime to Victims*, Bureau of Justice Statistics Special Report, April 1984.

Phillips L. and H. Votey, Jr., "Establishing Monetary Measures of the Seriousness of Crime," chap. 4, *The Economics of Crime Control*, vol. 132, Sage Library of Social Research, 1981.

Naroff, Hellman, and Skinner, "Estimates of the Impact of Crime on Property Values," *Growth and Change*, pp. 24-30, 1980.

Gray, Charles M., *The Costs of Crime*, pp. 13-29, Sage Publications, 1979.

Clotfelter and Seeley, "The Private Costs of Crime," chap. 11, *The Costs of Crime*, vol. 12, Sage Criminal Justice System Annuals, 1979.

Rizzo, Mario J., *The Cost of Crime to Victims: An Empirical Analysis*, University of Chicago Law Review, vol. 8, p. 177, 1979.

Hann, Robert G., "Crime and the Cost of Crime: An Economic Approach," chap. 4, *The Economics of Crime and Law Enforcement*, McPheters and Stronge, eds., 1976.