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Using Dollar Severity Weights To Assess the Aggregate Victimization Costs of Crime

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Abstract

This paper uses estimates of victimization costs for FBI violent and property crime categories to assess the size and source of per capita crime costs. We find that from 1977-2006, the average annual per capita cost of crime has been $496 (expressed in 2006 dollars). Even though murder represents about 0.15% of all FBI reported crime, it represents 65% of total crime costs. The share of individual crime categories varies substantially across times and across different jurisdictions. The murder share of crime in southern states, for instance, is substantially greater than the murder share in the north (e.g. 79% in Mississippi versus 43% in Massachusetts). Overall, the murder share has fallen over time (from 70% in 1977 to 63% percent in 2006). In a racial breakdown, we find the costs of crime are disproportionately borne by blacks. In 2005, the per capita cost of crime for blacks was more than three times that of whites ($1214 vs. $338).

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Introduction

In September 2007, the FBI reported that violent crime had increased 1.9% between 2005 and 2006. Media outlets described the rise as "continuing the most significant [violent crime] increase in more than a decade" as the Justice Department revealed its intent to push for $200 million in 2008 to combat violent crime.[1] But the FBI's daunting statistic was misleading in two important respects.

First, as economist Steven Levitt noted on his New York Times Freakonomics Blog, the figure did not account for population growth. Between 2006 and 2007, the U.S. population had risen 1%, which meant that the per capita growth in violent crime – a truer measure of the violent crime increase – fell just under 1%.[2]

Second, and perhaps more significantly, the statistic suffered from a weighting problem that has long affected the FBI's violent and property crime indexes. Simply stated, these indexes give equal weight to each of their component crimes. In terms of the violent crime index, this practice means that an instance of murder or rape "counts" as much as a robbery or an aggravated assault, even though the former two crimes are more costly to their victims. Essentially, the FBI indexes fail to account for the severity of their component crimes, grouping offenses of disparate costliness under one heading and inviting broad-brush statements about the index as a whole that gloss over significant variations in the underlying crimes. Thus, when we remedy this failure – by "weighing" crimes in the index by their severity – the widely-announced 1.9% increase in violent crime between 2005 and 2006 is downsized by over two-thirds: the per capita "severity" of .violent crime increased 0.6%.

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[1] Dan Eggen, *Violent Crime, a Sticky Issue for White House, Shows Steeper Rise*, WASH. POST, Sept. 25, 2007, at A07.

[2] Steven Levitt, *The Next Crime Wave is Upon Us, Right?*, N.Y. TIMES, Sept. 28, 2007, http://freakonomics.blogs.nytimes.com/2007/09/28/the-next-crime-wave-is-upon-us-right/.

In this paper, we build on this critique of the FBI's violent and property crime indexes, which are so often consulted in policy-making decisions and in media discussions.[3] We argue that weighting crimes by their victimization costs, a proxy for their severity, better encapsulates their relative severity and produces truer measures of crime. Using authoritative estimates of the dollar victimization costs of various crimes, we highlight national and state-based trends in crime over the last thirty years that have previously gone unrecognized or been deemphasized.

We have organized this paper as follows. Section I provides relevant background on the FBI's violent and property crime indexes, which supply the data on crime incidence that we use in this paper. In Section II we discuss the concept of measuring the cost of crime, our reasons for adopting certain measures of victimization costs as severity weights, and the manner in which these victimization costs were calculated. Section III outlines the set-up of our analysis. Section IV presents the bulk of our statistical results and analysis, the policy implications of which are described in Section V. We conclude by highlighting a few salient points from our analysis and offering suggestions for further research.

Section I. FBI's Uniform Crime Reports and Crime Indexes

The FBI's Uniform Crime Reporting (UCR) program began in the 1930s after the International Association of the Chiefs of Police recognized the importance of having a mechanism to collect and compile national crime data. The FBI has since served as the clearinghouse for such data, produced reports outlining trends in national, state, and local-level crime, and provided such information to law enforcement, policymakers, and the public. In its data collection process, UCR relies on the voluntary participation of law enforcement agencies nationwide to report crime statistics, but in order to fill gaps in the data the UCR assigns

[3] By "crime" we refer to reported crime, as in the FBI's Uniform Crime Reports. *See infra* Section I.

proportional crime volumes to non-reporting agencies based on the crime statistics of similar nearby areas.[4]

The UCR program collects data on offenses for "Part I" crimes, which include murder and non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny, motor vehicle theft, and arson. Part I crimes are also known as "index crimes" because they are divided into two indexes: the violent crime index (a sum of the incidence data on murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault), and a property crime index (a sum of the incidence data on burglary, larceny, motor vehicle theft, and arson). UCR also collects arrest data on the Part I crimes as well as on twenty-one "Part II" crimes, which include driving under the influence and loitering.[5] We focus in this paper on the Part I index crimes since we are concerned with offense data for major crimes. We exclude arson from our analysis because the UCR's arson data is incomplete for the years we reference in this study.

A few aspects of the UCR Part I program are particularly noteworthy for the purposes of our analysis. First, the UCR figures reflect only *reported* crime; unreported crime is not accounted for in any way. Second, the UCR uses a "Hierarchy Rule" to "count" only the highest ranking offense in a multi-offense scenario and exclude all others, except when the crimes are justifiable homicide, motor-vehicle theft, and arson. For example, if a victim of rape were murdered in the course of that rape, that incident of crime would be noted as a homicide only. The hierarchy for Part 1 crimes proceeds as follows: 1) criminal homicide, 2) forcible rape, 3) robbery, 4) aggravated assault, 5) burglary, 6) larceny-theft, 7) motor vehicle theft, and 8)

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[4] Uniform Crime Reporting (UCR): Frequently Asked Questions, http://www.fbi.gov/ucr/ucrquest.htm (last visited June 28, 2008) [hereinafter UCR FAQ]. The UCR's participation base as of 2003 covered 93% of all agencies in the country.

[5] Part II offenses are simple assault, curfew offenses and loitering, embezzlement, forgery and counterfeiting, disorderly conduct, driving under the influence, drug offenses, fraud, gambling, liquor offenses, offenses against the family, prostitution, public drunkenness, runaways, sex offenses, stolen property, vandalism, vagrancy, and weapons offenses. UCR FAQ, *supra* note 3.

arson.[6] Third, the UCR's definition of rape refers only to female victims; therefore, all male rape victimizations are not accounted for in UCR data.

Although these concerns are valid and significant in their own right, they are not particularly disadvantageous to our analysis. The UCR's focus on reported crime is a non-issue since we are concerned with the UCR data itself, not with the overall incidence of crime. That is, we are seeking in this paper 1) to examine trends and characteristics of crime as reported in the UCR indexes and 2) to draw conclusions about how weighting UCR measures of crime might affect policy decisions that take these indexes into account. Thus, the exclusion of non-reported crime data is not seriously detrimental to the integrity of this analysis. In addition, although the UCR's Hierarchy Rule and exclusion of male-victim rape do not allow for a complete picture of the number and distribution of victimizations nationwide, these rules are consistent with the victimization cost calculation method used in this paper, as we will discuss in the next section. We therefore acknowledge the incompleteness of the incidence data in these respects, but also recognize that the data is consistent with our internal methodology.

The major disadvantage with the Part I index crimes, as we have mentioned, is that both the violent and property crime indexes give equal weight to each of their component crimes, despite a general societal recognition that different crimes cause different harms.[7] The purpose of our analysis is therefore to analyze trends in reported crime, similar to the manner in which the UCR does, while accounting for the relative severity of crimes.

Section II. Assigning Dollar Severity Weights

[6] UCR Handbook 10 (2004), *available at* http://www.fbi.gov/ucr/handbook/ucrhandbook04.pdf.

[7] This recognition is perhaps made most obvious in criminal sentencing, where more serious crimes are dealt with more harshly (e.g. with life imprisonment or the death penalty) while less serious crimes are dealt with less harshly (e.g. with fines). *See, e.g.,* United States Sentencing Commission's 2007 Guidelines Manual, http://www.ussc.gov/2007guid/gl2007.pdf (last visited June 28, 2008).

Our manner of capturing the severity of each of the index crimes is simple: we assign a dollar "severity" weight to each crime. This dollar severity weight takes the form of a crime-specific victimization cost. In this section, we explain 1) our reasons for choosing a dollar weight (as opposed to another metric) to capture crime severity and 2) our reliance on victimization costs to supply the dollar weights. We begin with a discussion of how to assess "severity" in the context of crime.

A. Gauging the Relative Severity of Crimes

Over the past thirty years a number of metrics have been utilized to compare or assess the relative harms of crimes. A 1975 study by Michael Martz[8] sought to measure the harm of crimes by days lost due to financial difficulty or by life-years lost, in order to avoid biased results of harm due to variations in the victims' wealth, but these non-monetary units of measurement made the harms across crimes difficult to compare. In 1985, Wolfgang et al. attempted to measure crime severity non-monetarily by using surveys that asked respondents to rank the severity of crimes described by various scenarios.[9] Other studies adopted similar survey methodology to assess crime harms.[10] These survey-based measures of severity, however, rely on subjective public opinion, which itself can fluctuate based on skewed perceptions of the likelihood of being involved in a crime and the predicted likelihood of a crime resulting in injury. Survey-based measures of crime severity also cannot differentiate what part of an identified injury from a victimization results from the actual victimization rather than from other

[8] Michael Maltz, *Measures of Effectiveness for Crime Reduction Programs*, 23 OPERATIONS RES. 452 (1975).
[9] MARVIN E. WOLFGANG ET AL., U.S. DEP'T JUST., THE NATIONAL SURVEY OF CRIME SEVERITY (1985).
[10] *See, e.g.*, Francis Cullen et al., *The Seriousness of Crime Revisited*, 20 CRIMINOLOGY 83 (1982); Peter H. Rossi & RICHARD A. BERK, JUST PUNISHMENTS: FEDERAL GUIDELINES AND PUBLIC VIEWS COMPARED (1997).

associated harms.[11] Thus, survey-based studies are not especially helpful in measuring and comparing the relative severity of various crimes.

In this paper, we choose to use dollar weights, rather than other metrics, to gauge the severity of crimes. We have two main reasons for doing so. First, we want to be able to compare the various harms and costs incurred by a victim of a crime – whether physical, emotional, financial, or productivity-related – under a common unit. Second, we find that using dollars to measure severity allows policymakers to conduct cost-benefit analyses and to assess whether crime-targeting programs are being administered cost-effectively.[12] Therefore, the calculation of severity weights for our analysis required measuring the dollar costs of various index crimes, which in turn required discerning how to measure these dollar costs.

B. Conceptualizing and Measuring the Costs of Crime

The "cost of crime" discussion is certainly not a new one. Scholars, policymakers, and communities have long recognized that crime exacts a toll on society, whether in the form of the law enforcement expenses, the victim's loss of property or quality of life, costs of trial and incarceration, expenditures related to reentry, private crime prevention, or various associated social costs.[13] Yet the actual measurement of these costs has proven difficult due to inadequacies and uncertainties in data collection and methodology.[14]

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[11] Mark A. Cohen, *Measuring the Costs and Benefits of Crime and Justice*, 4 CRIM. JUST. 263, 269 (2000), *available at* http://www.ncjrs.gov/criminal_justice2000/vol_4/04f.pdf [hereinafter Cohen, *Measuring Costs and Benefits*].

[12] *Id.* at 270-71 ("One of the benefits of using dollars as a common metric for analyzing criminal justice epolicy is that society spends dollars to try to prevent crime from occurring.").

[13] In fiscal year 2007, the annual cost of incarcerating one individual at a Federal Bureau of Prisons facility was $24,922. The annual cost of incarceration at a community corrections facility was $22,871, and the annual cost of supervised release was $3,621.64. *Costs of Incarceration and Supervised Release*, U.S. COURTS (last visited June 28, 2008), http://www.uscourts.gov/newsroom/2008/costs.cfm. For a comprehensive discussion of the costs of crime (to victims, offenders, and societies), see Cohen, *Measuring Costs and Benefits*, *supra* note 11, at 273-98. Bernard Harcourt highlights some of the social costs related to "disproportionate criminal supervision and incarceration," including the disintegration of families, disruption of education, difficulty in obtaining employment, and deterioration of community-police relations. BERNARD E. HARCOURT, AGAINST PREDICTION: PROFILING, POLICING, AND PUNISHING IN AN ACTUARIAL AGE 29 (2007). *See also* JEREMY TRAVIS, ELIZABETH C. MCBRIDE, & AMY L. SOLOMON, URBAN INST., FAMILIES LEFT BEHIND: THE HIDDEN COSTS OF INCARCERATION AND REENTRY (June

Over the last thirty years, numerous studies have attempted to capture the various costs of crime. Early research focused on the costs of crime to communities by examining changes in property valuations in high and low crime areas.[15] One drawback of these studies, however, was their inability to estimate the costs of specific crimes to individual victims. In 1988, Mark Cohen used jury awards to capture in dollars the cost of "pain, suffering, and fear" resulting from non-fatal injuries and incorporated these costs into index-crime-specific estimates of victimization costs.[16] Cohen's 1988 study was the first to use both direct and indirect[17] methods to capture both the tangible and intangible[18] costs of crime borne by victims. He combined direct costs taken from the National Crime Victimization Study, which asks victims to quantify their short-term out-of-pocket losses due to victimization,[19] with value of life and risk of death estimates from government surveys and FBI data, as well as with data on jury awards based on the type and severity of crime. Cohen's jury-award approach was later modified and incorporated into a study commissioned by the National Institute of Justice study ("NIJ study") and co-authored by

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2005), *available at* http://www.urban.org/UploadedPDF/310882_families_left_behind.pdf (describing the financial and emotional costs incurred by families of incarcerated individuals).

[14] As Gary Becker recognized in his seminal 1968 study on the economics of crime, "grave limitations in the quantity and quality of data on offenses, convictions, [and] costs" hampered the execution of studies on crime policies. Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968).

[15] *See* Richard Thaler, *A Note on the Value of Crime Control: Evidence from the Property Market*, 5 J. URBAN ECON. 137 (1978); Daryl A. Hellman & Joel L. Naroff, *The Impact of Crime on Urban Residential Property Values*, 16 URBAN STUD. 105 (1979); Mario J. Rizzo, *The Cost of Crime to Victims: An Empirical Analysis*, 8 U. CHI. L. REV. 177 (1979). For an explanation and critique of property valuation methods in crime-cost analysis, see Cohen, *Measuring Costs and Benefits*, *supra* note 11, at 284.

[16] Mark A. Cohen, *Pain, Suffering, and Jury Awards: A Study of the Cost of Crime to Victims*, 22 LAW & SOCIETY REV. 537 (1988) [hereinafter Cohen, *Pain & Suffering*].

[17] "Direct methods use primary sources such as crime victim surveys or budgets of criminal justice agencies. Indirect methods use secondary sources such as property values or jury awards." Cohen, *Measuring Costs and Benefits*, *supra* note 11, at 281.

[18] "Tangible costs are those that involve monetary payments such as medical costs, stolen or damaged property, wage losses, prison cells, and police expenditures. These are costs that end up being tallied in the gross national product and are normally included in estimates of aggregate or individual wealth. Intangible, or nonmonetary, costs are those not normally exchanged in private or public markets, such as fear, pain, suffering, and lost quality of life." *Id.*

[19] The NCVS will be discussed in more detail in Section I.C, *infra.*

Ted Miller, Mark Cohen, and Brian Wiersema in 1996.[20] The NIJ study provides the cost estimates for our paper and will be described in more detail in the following sub-section.

Though the victimization-compensatory approach to calculating the cost of crime captures many previously intangible factors, a common criticism of the approach is that it is an *ex post* calculation and, as such, is less relevant for policy-making decisions that rely on cost-benefit calculations based on an *ex ante* willingness-to-pay (WTP) measures. As Cohen et al. note, "[c]onceptually, when deciding whether to fund a program, we want to know how much the public expects to benefit – hence how much they would be willing to pay. Thus, economists generally prefer *ex ante* measures of 'willingness to pay' . . . when conducting cost-benefit analysis . . . ."[21] As a result, WTP studies have become more popular in recent years. WTP studies include the aforementioned property value studies that focus on actual market transactions and account for the perceived risk of victimization. Recent research has also attempted to utilize the "contingent valuation" methodology developed in environmental economics to assign dollar values to improvements in community safety, with mixed results.[22]

C. Victimization Costs and the NIJ Study

This paper utilizes the victimization costs developed by the 1996 NIJ study to assign severity weights to individual crimes. Before explaining our decision to use the NIJ study's victimization cost figures, we will describe the NIJ study in some detail.

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[20] TED R. MILLER ET AL., U.S. DEP'T JUST., VICTIM COSTS AND CONSEQUENCES: A NEW LOOK (Jan. 1996), *available at* http://www.ojp.usdoj.gov/nij/pubs-sum/155282.htm [hereinafter MILLER ET AL., VICTIM COSTS]. This study has been cited by several media reports and in other economics-of-crime research. *See, e.g.*, *Study Reveals High Cost of Crime in the U.S.*, N.Y. TIMES, Apr. 22, 1996; Donohue & Siegelman (1998); Ayres & Levitt (1998); Donohue & Levitt (2001).

[21] Mark A. Cohen et al., *Willingness-to-Pay for Crime Control Programs*, 42 CRIMINOLOGY 89, 91 (Feb. 2004) [hereinafter Cohen et al., *Willingness-to-Pay*].

[22] *See* Cohen et al., *Willingness-to-Pay*, *supra* note 21, at 91. The study found that while WTP estimates should theoretically be smaller than *ex post* victimization cost estimates, actual estimates were significantly higher than previous cost of crime estimates. *Id.* at 27.

1) The NIJ Study's Estimates of the Cost of Crime

The NIJ study relies heavily on the NCVS to quantify victimization costs because the NCVS is the only direct source of victimization costs. The survey polls households and asks crime victims to estimate their out-of-pocket costs. But the NCVS "severely understates the tangible costs of crime to victims" for several reasons: 1) the NCVS reference period is confined to crimes committed in the previous six months, which limits costs to short-term costs; 2) the NCVS excludes from measurement some costs altogether, including mental health care and self-protection costs; and 3) the NCVS does not ask about some crimes such as murder, child abuse, and arson.[23] Because of these limitations, the NIJ study supplements the NCVS data with indirect data on the costs of injuries from sources such as worker compensation and hospitalization charges, and uses jury awards to help estimate the value of pain, suffering, and decreased quality of life.[24] Table 1 *infra* outlines the losses per criminal victimization as estimated by the NIJ study in 2006 dollars. Note that the study estimates a wide variety of losses, including those related to productivity, medical care, mental health care, police and fire services, social services, property loss and damage, and quality of life.

The NIJ study has been praised for its comprehensiveness and has been widely cited, but it has also been criticized for both its choice of data sources and its cost evaluation methodology.[25] Most of this criticism concerns the use of jury awards to compensate victims for intangible damages and the resulting values of pain, suffering, and life. Specifically, Zimring and

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[23] Cohen, *Measuring Costs and Benefits*, *supra* note 11, at 282; MILLER ET AL., VICTIM COSTS, *supra* note 20, at 2; Daniel S. Nagin, *Costs and Benefits of Crime Prevention*, *in* 28 CRIME AND JUSTICE: A REVIEW OF RESEARCH 347, 380 (Michael Tonry, ed., 2001).

[24] For a detailed account of what data sources were utilized in the NIJ to estimate victimization costs, see MILLER ET AL., VICTIM COSTS, *supra* note 20, at 10-16.

[25] Nagin, *supra* note 23, at 376.

Hawkins allege that estimates of pain and suffering based on jury awards are arbitrary and inflated, and that the $2 million-plus value of human life is far in excess of what society would spend to save such a life.[26] Cook and Ludwig critique the use of jury awards to measure the value of a statistical life both because the cases that go to trial most often involve the atypical middle-class homicide victim, and because the jury's task to compensate a known victim results in victimization cost measures that exceed what society would be willing to spend *ex ante* to save an "unknown" life.[27]

We recognize and appreciate these criticisms. But even with these limitations, the NIJ estimates provide a much closer picture of the relative costs of crime than the implicit equal weighting used in current FBI indexes. We use the NIJ study's estimates as dollar weights to calculate basic descriptive statistics on the concentration of crime costs and to draw out geographic and temporal characteristics and trends in index crimes. We are thus primarily concerned with cost estimates as relative weights of crime severity rather than as absolute figures. We find the NIJ study to be a thorough attempt at estimating victimization costs and agree with Cohen and Nagin that the jury-award estimates of intangible losses are not unreasonable.[28] Indeed, we find the study to be among the most procedurally comprehensive of all cost-of-crime studies.

2) Using Victimization Costs as Severity Weights

The NIJ study, to be sure, produces only victimization costs and therefore excludes a number of important costs of crime. We recognize that using victimization costs to assess the severity of crimes has disadvantages. Victimization costs are *ex post* estimates of crime; they

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[26] FRANKLIN E. ZIMRING & GORDON J. HAWKINS, INCAPACITATION: PENAL CONFINEMENT AND RESTRAINT OF CRIME 139 (1995).
[27] PHILIP J. COOK & JENS LUDWIG, A CONCEPTUAL FRAMEWORK FOR ESTIMATING THE COSTS OF FIREARM INJURIES 5 (1998).
[28] *See* Nagin, *supra* note 23, at 377; Cohen, *Pain & Suffering*, *supra* note 16, at 541.

ignore costs of prevention and focus solely on dollar amounts to compensate a victim's for his or her losses. Indeed, victimization costs capture only a partial picture of the total cost of crime. They are based on the cost to a single individual (the victim) and therefore ignore the external and social costs of specific crimes that other individuals and communities face,[29] such as the reduced quality of life in a neighborhood or increased law enforcement expenditures.[30] For these reasons, critics have remarked that victimization costs do not appropriately represent what society would be willing to spend to save lives or to prevent crime.[31]

Our paper, however, is not concerned with cost measures for the purpose of deciding what society would be willing to spend on prevention. We are instead utilizing cost measures to identify the relative severity of crimes. We conclude that the appropriate measure for assessing the "severity" of a crime is its victimization cost. In other words, the type of "severity" we are concerned with in this paper concerns the crime's impact on the victim, rather than the level of society's law enforcement expenditures or incarceration costs. Thus, by saying that rape is more "severe" than robbery, we are referring to the fact that the costs that a rape imposes on its victim exceed the costs that a robbery exacts from its victim. Note also here that by referring to victim "costs" we are not by any means advocating for or asserting the acceptability of putting "dollar figures" on human life or suffering. Instead, we try to capture (albeit not perfectly) a victim's

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[29] Nagin, *supra* note 23, at 374-75.

[30] As Cohen, et al. remark in their WTP study, "By focusing exclusively on costs to victims of crime and the criminal justice system, previous studies have ignored other social costs of crime. Such costs include prevention expenditures for personal security, averting behavior by potential victims (for example, taking taxis instead of walking home and avoiding certain neighborhoods), third-party costs of insurance (for example, parking lost owners insuring against claims by victims that there was inadequate lighting) and government welfare programs. There are other, nonmonetary costs of crime that may also factor into individuals' willingness to pay for crime prevention, such as general concerns about community safety. . . . We find that people value more than just the reduced costs of victimization – they are also willing to pay for reductions in these other social costs of crime." Cohen et al., *Willingness-to-Pay*, *supra* note 21, at 105-106.

[31] *See supra* notes 26-27 and accompanying text.

wide-ranging injuries as they vary with crime. We therefore choose to use the NIJ's victimization cost estimates as weights to capture the severity of crimes in our analysis.

Section III. Dollar-Weighting and Analysis Procedure

To formulate our severity weights, we extracted from the NIJ estimates the total victimization costs of seven index crimes: murder, rape, aggravated assault, robbery, burglary, larceny, and auto theft,[32] as shown in Table 1. We matched the costs provided in the NIJ study (first column of Table 1) with these index crimes to produce severity weights (last column of Table 1).

We found that there was sufficient compatibility between the NIJ and UCR categories of crime to carry over the NIJ cost estimates. The NIJ estimates are based on both completed and attempted crimes, and the UCR defines crimes as including attempts, except in the case of murder.[33] Our aggravated assault weight is the NIJ estimate for "other assault or attempt," which excludes rape-related assaults. This exclusion of rape-related assaults from the victimization cost estimate used for aggravated assault mirrors the hierarchy employed by the UCR whereby a crime incident involving both rape and assault is classified as a rape. However, we do recognize that the UCR definition of "rape" does not formally include "sexual assault," which *is* included in the NIJ victimization cost estimate that we adopt as a severity weight for rape. Nevertheless, we find that rape and sexual assault involve similar harms, as the NIJ study acknowledged,[34] and thus expect that the NIJ estimate for rape and sexual assault is not an unreasonable figure to use as a severity weight for rape.

[32] When we refer to "index" crimes in this paper, we will be referring to these seven crimes.
[33] UCR Handbook 15 (2004), *available at* http://www.fbi.gov/ucr/handbook/ucrhandbook04.pdf.
[34] MILLER ET AL., VICTIM COSTS, *supra* note 20, at 4-5.

Finally, since the NIJ study does not provide an estimate for the victimization cost of murder, our severity weight for murder is an average of the study's fatal crime victimization costs, which are divided into categories: "rape, assault, etc." ($2,940,000), "arson deaths" ($2,740,000), and "DWI" ($3,180,000). The range of these estimates is $440,000, which is less than 16% of any of them. Since an offense that results in death is recorded as a "murder" or "fatal crime" regardless of any underlying, concurrent, or causative crimes, we opted not to choose any particular estimate of the victimization cost of death. Rather, seeing as how the three cost estimates are within 16% of each other, we chose to temper the differences of the estimates and the unknown nature of any contributing crimes by averaging the three estimates to approximate the victimization cost of a "murder."

Our data on criminal offenses comes from the UCR and for the bulk of our analysis, where not indicated otherwise, this data is averaged over 30 years from 1977-2006. That is, when we discuss national or cross-state trends and characteristics of crime, the reported crime figures are usually averages taken over 30 years in order to mitigate the effects of any outliers. This offense data is then combined with the severity weights in various ways to yield the results in our tables.

A major limitation of our study's procedure, nevertheless, is that we use one, static cost measure, which was calculated in the early to mid-1990s with national data, as a weight for offense data across thirty years and across fifty states. Using the same cost of crime measure as a weight regardless of what year or state the offense was committed is admittedly simplistic. The cost of various crimes certainly fluctuates with time and region. Moreover, as Cohen recognizes, calculating the costs of crime is not a straightforward task since the expenses involved in such a calculation depend on a range of factors, including the prices of relevant goods and services,

society's emphasis on procuring certain methods of treatment, the advancement of medicine, and the change in wages.[35] Although we recognize these fluctuations in cost, we also realize that calculating a cost of crime measure specific to year and state is beyond the scope of this study. We use the NIJ figures, which are estimated in approximately 1993, the median year of our dataset, for the reasons mentioned *supra*, but convert them from 1993 dollars to 2006 dollars.

Thus, as Table 1 illustrates, we assign the following severity weights in our analysis, in 2006 dollars: $4,120,360 (murder); $121,379 (rape); $13,114 (aggravated assault); $11,161 (robbery); $1,953 (burglary); $516 (larceny); and $5,162 (auto theft). We now move to a discussion about the conclusions that emerge when these severity weights are introduced into an analysis of crime in the United States.

[Table 1 about here]

Section IV. Statistical Results of Dollar-Weighting

A. Crime Shares and Crime Costs

A central goal of this study was to compare the severity shares of various crimes under both unweighted and dollar-weighted paradigms in order to assess the magnitude of the toll that these crimes exact on society. Under the unweighted standard, which is commonly used by the FBI in its UCR program, crime is reported by its incidence. We looked to the UCR figures to calculate the fraction of total crime for which each index crime (murder, rape, robbery, aggravated assault, burglary, larceny, and auto theft) was responsible. We then conducted the same analysis under a dollar-weighted scheme, whereby the incidence of each crime was multiplied by its respective severity weight.

[35] MARK A. COHEN, THE COSTS OF CRIME AND JUSTICE 46 (2005).

Table 2 displays our findings and the disparity in the market shares of crimes under the two methods of calculation is stark. Murder, while only 0.15% of the total number of crimes nationwide, is responsible for nearly two-thirds of all victimization costs[36] nationwide. Larceny, in contrast, accounts for 56.5% of the total crime nationwide but only 3% of all crime costs. From these figures, it is readily apparent that while murder is not the most prevalent crime committed nationwide, it severity share is the highest. In terms of categories of crime, property crimes (which include burglary, larceny, and auto theft) constitute the clear majority (about 88%) of crimes committed nationwide, but are only a small fraction (about 13%) of the costs suffered by all crime victims. Likewise, violent crimes (including murder, rape, robbery, and aggravated assault) are a small minority (about 12%) of all crimes committed but account for the vast majority (about 87%) of all victimization costs.

[Table 2 about here]

To examine the robustness of this analysis of national market shares, we conduct the same analysis using an alternative set of severity weights. Two of these weights are 25% high and low-end adjustment of the original weights. That is, we adjust the original weights by 25% in either direction, one crime category at a time while holding the rest constant, and re-run the market share analysis. The third robustness iteration involves new cost estimates derived from a 2004 Cohen et al. study, which used a contingent valuation method to measure the public's willingness-to-pay for reductions in crime. They found the implied willingness-to-pay per crime to be $9,700,000 for murder; $237,000 for rape and sexual assault; $70,000 for serious assault; $232,000 for armed robbery; and $25,000 for burglary.[37] We use these figures as new severity

[36] When using the word "costs" in the remainder of the paper, we will be referring to victimization costs unless otherwise indicated. Our analysis is also conducted on a per capita basis, unless otherwise indicated.
[37] Cohen et al., *Willingness-to-Pay*, *supra* note 21, at 98.

weights for murder, rape, aggravated assault, and robbery categories and calculate a new share of total violent crime costs for each crime.

The results of the robustness analysis are presented in Table 3. Under the 25% bounds analysis, the crime cost and crime share values adjust in either direction based on the increase or decrease in weight, but remain in the original hierarchical order. Murder still inflicts the highest per capita crime cost (well over 50%) followed by rape, aggravated assault, auto theft, robbery, burglary, and larceny. Under the willingness-to-pay analysis, however, the hierarchy of per capita crime costs and shares of violent crime costs shift. Murder still has the highest victimization cost but its share of violent crime costs has decreased considerably (from about 75% to 49%). Rape's share of violent crime costs has also decreased dramatically (from 10% to 5.5%), but the shares of robbery and aggravated assault increased substantially, by 600% and 50%, respectively.

[Table 3 about here]

Table 3 also contains the national per capita crime costs associated with each crime. Under our dollar-weighted analysis (in the column marked "Original"), murder has the highest per capita cost of crime, at $323, followed by rape at $43 and aggravated assault at $44. These costs jump considerably when WTP severity weights are used. The cost of murder, for example, more than doubles to $762. Rape, in the WTP analysis, however, is now the *least* costly of all crimes ($84), which indicates that while the victimization costs of rape are high, society is not willing to pay as much to avoid a rape as to avoid other crimes.

1) Per Capita Cost and Shares by Year

We also assessed how market shares of crime cost fluctuate with time by extending our Table 2 analysis over a thirty year period, from 1977-2006. Figure 1 depicts the trends in

victimization cost shares during these years. For certain crimes, these shares are strikingly stable. The shares for auto theft, larceny, burglary, and robbery show total variations of under 2% in all cases, with standard deviations of 0.6%, 0.3%, 0.7%, and 0.3%, respectively. The cost share of murder, however, shows a clear decline – murder made up between 70% and 61% of total victimization costs over the thirty year span. The cost shares of rape and aggravated assault, in contrast, showed marked increases. Rape constituted between 6.9% and 10.7% of all victimization costs, while aggravated assault made up between 6.2% and 11.4%.

[Figure 1 about here]

To provide context for these ranges in victimization cost shares, we calculated the fluctuation in the shares of per capita incidence crime between 1977 and 2006. Figure 2 displays those results. Larceny is consistently the majority of all crimes, but its share has been rising. Auto thefts and aggravated assaults have also been accounting for more of the crimes committed over time. Burglaries, in contrast, have been steadily decreasing in share. Perhaps most interesting, however, are the cases of rape and murder. While rapes are on average about 0.7% of all crimes committed (on a per capita basis), their share of all crimes has risen from under 0.6% to about 0.8%. This small increase in incidence accounts for the increase in rape's share of total victimization costs. Similarly, murder makes up no more than 0.17% of all crimes in any year, but its decrease in share from 0.17% to 0.15% of crimes accounted for a significant drop in murder's victimization cost share.

[Figure 2 about here]

2) Per Capita Costs and Shares by State

Victimization costs also show considerable variation by state. Table 4 shows that the per capita crime cost across states (excluding District of Columbia) ranges from $795 to $106. These

amounts represent the victimization cost of all crime, violent and property, on a per capita basis per state, averaged over thirty years. The numbers in bold represent the largest, second largest, and smallest costs. The District of Columbia had the largest per capita cost of crime, $1,196, followed by Louisiana with $409. The state in which the cost of crime was the least, at $55 per capita, was North Dakota.

[Table 4 about here]

The Table 4 rankings are derived from cost-of-crime figures that are based on *all* crimes – both violent and property. Table 5 disaggregates the underlying data and reports the per capita crime costs as well as cost shares for individual index crimes. From this table, we can see there is substantial variation across states in the severity shares and dollar cost of particular crimes. . The District of Columbia has the largest per capita costs due to murder, robbery, aggravated assault, larceny, and auto theft. North Dakota has the smallest per capita costs from all crimes except larceny and auto theft.

[Table 5 about here]

In terms of cost shares, the highest share of any crime belongs to murder. In D.C., murder accounts for about 83% of all costs of crime; in Mississippi, murder accounts for about 79%. Murder's high share in these states can be partially explained by the fact that the per capita cost of every other crime in these states is far, far smaller than that of murder. Comparing, for example, the per capita cost of murder in Mississippi ($459), with that of the next most costly category, rape ($42) yields a ratio of about 10. The state in which rape makes up its largest share (25%) is South Dakota, where the ratio between the murder and rape cost shares is at among its lowest (about 2). Generally, costly crimes such as murder, rape, or aggravated assault represent a significant share of a state's crime costs only when other costly crimes are not particularly

abundant. For example, in Massachusetts, aggravated assaults impose 17% of all crime costs – the highest share of any state – but the state's murder share is 43% (the lowest murder share of any state) and its rape share is about 11% (which is the average level for all states). Property crimes (burglary, larceny, and auto theft) never constitute the majority of crime costs in any state and their cost shares range from 1-2% to about 10-12%.

There also emerges considerable regional disparity in the discussion of market shares of crime. The lightly shaded rows denote states in the South. Notice that all states in which murder accounts for over 70% of total costs are found in the South, and that the share of murder is substantially greater in southern states than in other states. Figure 4 highlights this difference. Moreover, all southern states have murder shares above the mean percentage (61%), with the exception of Florida whose share is 60%. The shares of property crime (burglary, larceny, and auto theft) costs in the South, however, are all consistently *under* their respective means. Thus, southern states have disproportionately more high-cost crimes, particularly murder, and fewer lower-cost, property crimes.

[Figure 3 about here]

B. Re-ranking the Violent and Property Crime Indexes

When the FBI publishes its UCR figures, a common reaction on the part of media and others is to rank the figures by state or by city in order to judge which areas are more or less "dangerous."[38] In this section, we seek to compare the rankings of states based on their UCR violent and property crime indexes to the rankings that emerge from a dollar-weighted analysis.

1) Comparison of Violent Crime Rankings by Incident and Cost

[38] *See, e.g.*, 2005 Most Dangerous Cities, http://www.securityworld.com/ia-442-2005-most-dangerous-cities-to-live-in.aspx (last visited June 30, 2008) (ranking by violent crime based on FBI UCR); 15 Most Dangerous States for 2008, http://money.aol.com/mortgage/most-dangerous-states (last visited June 30, 2008) (ranking based on unweighted violent crime).

In Table 6, we compare the unweighted (by incident) ranking of violent crime with the weighted (by victimization cost) ranking across states, from largest (e.g. highest violent crime) to smallest. The far right-hand column indicates the change in the rankings, with a positive number denoting an improvement in the state's violent crime rank (i.e. the state becomes "less violent") when moving from an unweighted to a dollar-weighted ranking scheme. Nearly every state's rank changes, but in a few cases the shift is particularly salient. Mississippi shift from being the 33rd most violent state in the nation to being the 8th highest ranked state in terms of per capita violent crime costs (a drop of 25 places between rankings). Thus, because the traditional, unweighted ranking scheme weighs all violent crimes equally, Mississippi is hidden in the middle of the traditional rankings. Under a dollar-weighted scheme, however, Mississippi appears far more "violent" because of its disproportionately high share of murders (recall that Mississippi had the highest murder share of any state at 79%). Other states whose ranks decrease by double digits (i.e. are much more "violent" by cost) under the dollar-weighted ranking scheme include Kentucky (-10), Texas (-10), Virginia (-13), and West Virginia (-11).

Several states undergo a positive shift between rankings as well. Massachusetts improves twenty places when moving from the unweighted incidence rankings (16th place) to the dollar-weighted rankings (36th place). We can explain this improvement by examining the state's violent crime shares as listed in Table 5. Massachusetts has the lowest share of murder of any state (43%), the highest share of aggravated assault (17%), and shares of rape and robbery that are above the mean. Thus, Massachusetts has a disproportionately low share of the most costly violent crime, murder, which makes the state less "violent" when ranking by cost. The two other states that rise in rank by double digits (i.e. are much less "violent" by cost) are Delaware and New York, which rise eleven and twelve places between rankings, respectively.

[Table 6 about here]

2) Comparison of Property Crime Rankings by Incident and Cost

We conduct the same rankings analysis for property crimes in Table 7. Massachusetts is once again a notable case. The state drops in ranking by twenty-four places, from a rank of 35 to a rank of 11, when moving to a dollar-weighted scheme. Whereas Massachusetts' improvement in the violent crime rankings analysis was due to its small proportion of high-cost violent crimes such as murder, the decrease in rank here can be explained by the state's disproportionately large share of the high-cost property crimes: auto theft (12%, the highest of any state) and burglary (over 6%, nearly one standard deviation above the mean). Rhode Island also drops across ranking schemes by double digits (-10), for the same reason.

Utah's rank improves seventeen places due to the fact that larceny, the least costly of all property crimes, constitutes the largest share of the state's property crimes (at about 8%, which is about two standard deviations over the mean larceny share across states).

[Table 7 about here]

C. State Crime Cost Correlations

Unweighted state rankings would be valid measures of relative criminality if the ratios of various crimes were relative constant across states. Table 5, however, has already shown that there are substantial variations in, for example, the ratio of murder to larceny in different states. Table 8 reports an alternative way to show that per capita costs for various crimes do not move in lock step: by calculating simple pairwise correlations. We find across states that the per capita cost of murder is highly correlated with that of robbery (0.89) and aggravated assault (0.77) but far less with that of rape (0.37). Moreover, the per capita cost of murder is very strongly correlated (0.997) with violent crime costs in general – a reflection of the fact that violent crime

costs are strongly driven by the soaring costs of murder. Similarly, auto theft and general property crime costs are strongly correlated (0.94), as are burglary and general property crime costs (0.89), but costs of general property crime are not as correlated (0.75) with those of the least-expensive crime, larceny. Finally, burglary, larceny, auto theft, and general property crime are not highly correlated with rape or murder, suggesting that states that have higher per capita costs in these high-incidence property crimes may not have higher per capita costs in the low-incidence, but high severity violent crimes.

`` [Table 8 About Here]

D. Analysis of the "Effective" Number of Crimes

The previous tables suggest that victimization costs are relatively concentrated. In this section we borrow a tool commonly used in antitrust analysis to estimate the concentration of crimes nationwide and by state. The Herfindahl Hirschman Index (HHI) is the central measure of concentration under the Department of Justice's Merger Guidelines[39] and is typically utilized to assess the degree of competition among firms in a given industry. The reciprocal of the HHI can be interpreted as the "effective" number of firms in the industry, as it is the number of equally sized firms that would produce the same measure of concentration. Before applying this tool to the cost of crime context, we will first briefly explain how the HHI calculation process works in the antitrust context.

First, let s_i equal the market share of a firm in a given industry in which N firms are competing. It follows that $\Sigma s_i = 1$. The Herfindahl Hirschman Index (HHI) = Σs_i^2, which means that the HHI will always be between zero and one.[40] If there are N equally sized firms in an

[39] Department of Justice Horizontal Merger Guidelines, http://www.justice.gov/atr/public/guidelines/horiz_book/hmg1.html (last visited July 9, 2008).
[40] Note under the Justice Department's Merger Guidelines the shares are multiplied by 100 so that the HHI varies between 0 and 10,000.

industry, it can be shown that the N = 1/HHI.[41] Even when the firms are not equally sized, the reciprocal of the HHI gives a heuristic estimate of the "effective" presence of firms in the industry because it gives little weight to firms with relatively small market shares. For example, in an industry with four firms with market shares of 40%, 40%, 10% and 10% would have an HHI "Effective" Number of 2.95 firms.

We applied these approach to the crime context, likening severity shares to firm market shares. For each state, and nationally, we set the HHI = Σ [(Cost of crime$_i$/total cost of crime)^2*(average number of crime$_i$)]. The reciprocal of this number (1/HHI) is the "effective" number of crimes. These results are presented in Table 9. The far-right column is the cost per effective crime, calculated by dividing the total cost of crime by the effective number of crimes. Nationally, the effective number of crimes is about 47,000, which is almost 1/300 of the actual number of crimes. The cost per effective crime is about $2.7 million, a figure that is obviously heavily influenced by the high cost of murder. Indeed, we can see the influence of the soaring cost of murder in the fact that the state with the highest cost per effective crime (after D.C.) is Mississippi, which had the highest state share of murder in Table 5, while the state with the lowest cost per effective crime is Massachusetts, which had the smallest state share of murder in Table 5.

[Table 9 about here]

Another illustration of the impact of murder on the effective number of crimes is the numerical proximity between the effective number of crimes and the number of murders, compared to the proximity between the effective number of crimes and the overall number of crimes. States in which murder does not make up a significant share of all crimes and crime costs

[41] $s_i = 1/N$. Then, HHI = $\Sigma s_i^2 = \Sigma(1/N)^2 = N*(1/N)^2 = 1/N$. Therefore, 1/HHI = N. Thus, the reciprocal of the HHI is the number of effective firms (EN). That is, EN = 1/HHI = $1/(\Sigma s_i^2)$.

show a far greater ratio of the effective number of crimes to the number of murders (e.g. Massachusetts, where the ratio is over five). In contrast, states in which murders are the majority of all crimes have a small ratio of effective number of crimes to the number of murders (e.g. Mississippi, where the ratio is about 1.6).

The cost of crime is thus heavily concentrated in the small number of victims of violent crimes, particularly murder. Thus, while the number of crimes per 100,000 is on average (across states) about 4,800, the effective number of crimes is, on average, only 17. This concentration further implies that the probability of being a victim of a serious, violent crime such as murder is far smaller than the probability of being the victim of crime in general.

E. Racial Breakdown of the Costs of Crime

The costs of crime are disproportionately concentrated not only on certain crimes, but also on certain races. Each year the Bureau of Justice Statistics publishes data on criminal victimizations by race, under categories of "white," "black," and "other." Table 10 reports the breakdown of per capita crime costs and crimes shares by race using data from 2005, the most recent year for which data is available. Recall from Table 3 that the per capita crime cost nationwide is $496. If we conduct the per capita crime cost analysis by race, we find that the cost for whites is $338 while the cost for blacks is $1,214, a difference of over 350%. Thus, not only is the cost of crime concentrated on a small segment of the nation, but that segment is also disproportionately black.

[Table 10 about here]

Further racial disparity exists in the distribution of both crime shares and crime incidents. Perhaps most salient is the difference in the murder shares. Overall, murder is about 65% of all crime, with a per capita cost of $323. For whites, however, murder is only 39% of all crime

costs, and has a cost of $124 – less than half of the cost of murder overall. In sharp contrast, murder constitutes about 69% of all crime costs for blacks and costs about $776 per capita, which is over 2.5 times the overall figure. In other words, the per capita cost of murder for blacks is over *six* times as high as that for whites.

To help explain these disparities, we look to the murder share of victimizations by race – Murder makes up 0.04% of all white victimizations and 0.28% of black victimizations. Thus, a black person is seven times more likely than a white person to be a victim of murder.[42] The greatest number of white victimizations (70.5%) comes from larceny, which is the least costly of all index crimes, with the second largest share belonging to burglary (at 17%). Larceny and burglary, however, represent 57% and 22%, respectively, of all crimes on the national level, and still less (56% and 20%, respectively) for blacks. Thus, for whites, larceny makes up a disproportionately large share (71%) of victimizations, while high-cost violent crimes make up about only 8%. For blacks, high-cost violent crimes account for about 17% of all victimizations, which is double the share for whites.

We note, though, in this section that we use the same victimization cost measure (severity weight) for blacks and whites, although the cost of specific crime victimizations certainly differs between the races. If the average black murder (or other violent crime) victim earns less or has less earning potential than the average white murder victim,[43] has a lower quality of life, can spend less money on care, etc., then using the same victimization cost for both races raises the per capita crime cost of murder for blacks inaccurately. We lack race-specific victimization costs

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[42] This imbalance in murder rates has been well-documented. *See, e.g.*, Alexandra Marks, *In Philadelphia, a 'Disturbing' Black Murder Rate*, Christian Sci. Mon., Feb. 13, 2007, *available at* http://www.csmonitor.com/2007/0213/p01s02-ussc.html.

[43] For more on the correlation between income and victimization likelihood, see STEVEN LEVITT, THE CHANGING RELATIONSHIP BETWEEN INCOME AND CRIME VICTIMIZATION (1999), http://pricetheory.uchicago.edu/levitt/Papers/LevittTheChangingRelationship1999.pdf.

and instead maintain the severity weights presented in Table 1. Thus, our results present discrepancies in crime cost shares that would result if we assume that race does not affect the losses that a victim suffers. While this assumption may be unrealistic, our results are significant in themselves. Violent crimes are disproportionately and substantially more costly to blacks than to whites.

Section V. Policy Implications of Dollar-Weighting

In this section, we extract a number of policy implications from our state-based, dollar-weighted analysis of crime by examining two federal programs that apportion funds to states for the purpose of fighting crime: the Justice Assistance Grant (JAG) program and the Community Oriented Policing Services (COPS) program. The JAG program bases its allocation of funds in part on the national violent crime indexes as published by the FBI. The COPS program, in contrast, does not explicitly refer to the Part I indexes in its grant criteria but does make some assessment of "need." In comparing the JAG and COPS allocations with those suggested by the dollar-weighted analysis of crime shares, we highlight noticeable disparities and offer recommendations to reconcile policy with the realities of the costs of crime.

A. Description of JAG and COPS Programs

1) JAG (Justice Assistance Grant) Program

The Edward Byrne Memorial Justice Assistance Grant (JAG) Program,[44] is administered by the Department of Justice's Bureau of Justice Assistance. The program grants funds to state and local governments in order to provide "additional personnel, equipment, supplies, contractual support, training, technical assistance, and information systems for criminal

[44] Edward Byrne Memorial Justice Assistance Grant Program, 42 U.S.C. § 3750 (2006).

justice."[45] JAG funds can be used for a variety of purposes, including law enforcement programs, corrections and community corrections programs, drug treatment programs, and prosecution and court programs. [46] JAG funds are allocated to states through a formula that incorporates both a minimum allocation and a variable allocation based on population and Part I violent crime statistics. Specifically, half of a state's allocation is proportional to the ratio of the state's "average annual number of part I violent crimes . . . for the three most recent years reported" to "the average annual number of such crimes reported by all States for all such years."[47] Allocations to local government are made analogously (with the relevant comparison group being all other units of local government in that state).[48]

2) COPS (Community Oriented Policing Services) Program

The COPS program differs from the JAG program with regards to both purpose and procedure. The legislative footing for COPS is found in the Violent Crime Control and Law Enforcement Act of 1994,[49] which lists four goals for the Act: 1) to increase the number of police officers in communities; 2) to promote community-police interaction and problem-solving; 3) to foster innovation in policing methods; and 4) to cultivate new crime-reducing technologies.[50] COPS, therefore, focuses its efforts on improving the level and nature of policing practices nationwide. While COPS' grant application lists a requirement on the part of the applicant to demonstrate a "public safety need,"[51] the program does not make explicit reference to any method of calculating this need and does not allude to index crime statistics to help make

[45] 42 U.S.C. § 3751(a)(1) (2006).
[46] 42 U.S.C. § 3751(a)(1)(A)-(F) (2006).
[47] 42 U.S.C. § 3755(a)(1)(B)(i)-(ii) (2006).
[48] 42 U.S.C. § 3755(d)(2)(A) (2006).
[49] Violent Crime Control and Law Enforcement Act of 1994 § 10003, http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=103_cong_bills&docid=f:h3355enr.txt.pdf.
[50] Jeffrey A. Roth & Joseph F. Ryan, *The Cops Program After 4 Years – National Evaluation*, NAT'L INST. JUST. 1 (Aug. 2000), *available at* http://www.ncjrs.gov/pdffiles1/nij/183644.pdf.
[51] Violent Crime Control and Law Enforcement Act of 1994 § 1701(c)(2).

this assessment. However, in practice, COPS awarded areas with serious crime problems repeated grants and therefore disproportionately allocated its funds to areas of serious crimes, such as murder.

The COPS program has, moreover, seen much fluctuation and critique in its lifetime. In its first four years of implementation, the program distributed about $1 billion in grants, but this amount decreased sharply thereafter, dropping to only $5 million in 2005.[52] The program has also seen mixed reviews, with some critics calling for its reinvigoration and others deeming it a failure.[53]

B. Comparing JAG and COPS Allocations with Weighted Crime Rankings

Using data on JAG and COPS allocations from 2006,[54] we ranked states by the amount of grant money received from JAG and COPS. We then compared these rankings with the unweighted (incidence-based) and dollar-weighted violent crime rankings, since both the JAG and COPS programs either explicitly or implicitly reference a state's violent crime level when allocating funds. Table 11 displays these rankings and comparisons.

[Table 11 about here]

The first section of the table reports the correlations between state rankings based on JAG and COPS allocations and state rankings based on unweighted (incidence of violent crime) and dollar-weighted (cost of violent crime) schemes. The JAG and COPS rankings show no significant correlation with either the unweighted or weighted violent crime rankings, but the

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[52] John J. Donohue & Jens Ludwig, *More COPS*, BROOKINGS INST. 1 (Mar. 2007), *available at* http://www.brookings.edu/comm/policybriefs/pb158.pdf.
[53] *Compare* Donohue & Ludwig, *supra* note 47 (calling COPS "one of the most successful anti-crime measures of the 1990s") *with* David B. Muhlhausen, *Impact Evaluation of COPS Grants in Large Cities*, HERITAGE FOUND. (2006) (arguing that COPS did not stimulate local spending or significantly decrease crime).
[54] JAG allocation data can be found at JAG FY 2006 Allocations, http://www.ojp.usdoj.gov/BJA/grant/06jagallocations.html (last visited June 30, 2008). COPS allocation data can be found at COPS Grants By Program and State, http://www.cops.usdoj.gov/Default.asp?Item=1081 (last visited June 30, 2008).

JAG rankings are positively correlated (0.71) with the per capita cost of crime. This latter correlation provides evidence that JAG allocations are made with an eye to the presence of violent (high-cost) crime in a given state. Since some of the nuance of the incidence and cost of crime is lost when ranking, it is not unreasonable that the JAG allocations are not correlated with the rank of violent crime incidence.

COPS allocations, however, show no correlation with per capita crime costs, which may be explained by the fact that the program does not explicitly emphasize a state's level of violent crime when allocating funds. In fact, the COPS program requires only a showing of "need" from the state and the program's explicit goal is not crime-prevention but rather improvements in policing. Thus, we can see that COPS' allocation of funds does not correlate in any meaningful way with a state's level of violent crime.

Finally, we would expect a strong positive correlation between the unweighted and dollar-weighted rankings of violent crime, as the greater the incidence of violent crime, the greater the costs of violent crime. We also expect rather strong negative correlations between per capita crime costs and either ranking, since the greater the per capita crime cost, the greater the violent crime, and the lower the number denoting the state's violent crime rank.

We now turn to the rankings of states based on funds received from the JAG and COPS programs. The JAG allocation ranking reveals that the District of Columbia and Delaware receive the most in grant money, while Virginia receives the least. Under the COPS program, Delaware and D.C. receive the most funds, while North Dakota receives the least. The two rightmost columns in Table 11 display the disparity between the JAG and COPS rankings, on the one hand, and the dollar-weighted ranking on the other. A positive value in these columns indicates that the violent crime problem is actually more "severe" (or costly) in the particular

state than the program's ranking (and grant allocation) would indicate. In other words, states with a positive difference are more relatively "severe" and thus should be receiving more funds for crime-fighting and prevention than they currently are. Such states include Alabama, California, Louisiana, Michigan, Nevada, and New Mexico. States that are in the opposite camp – receiving too many funds given their level of violent crime costs – include Delaware, Minnesota, New Hampshire, and Rhode Island. In states that are either receiving too few or too many funds based on the severity of their violent crime costs, we see a programmatic inefficiency that could be corrected by allocating funds on the basis of violent crime costs. To the extent that these funds can help prevent violent crimes from occurring, assigning them to states in proportion to violent crime costs is a cost-minimizing technique.

Conclusion

The paper has on one hand been nothing more than an exercise in descriptive statistics. There are no tests of statistical significance or claims of causality. But our hope has been to improve on the distorted view produced by reliance on the FBI's violent crime and property crime indexes. To be sure, the victimization costs upon which we rely are incomplete and subject to legitimate criticism. But used as severity weights, they paint a much more accurate picture of crime in the U.S. than the one that emerges from the equally weighted FBI indexes. Did crime increase between 2005 and 2006? Newspaper articles have at least nine different FBI measures (seven common crimes plus two indexes) from which to choose to answer this question. Severity weights, however, allow us to aggregate these various measures under a single common unit – dollars that measure victimization costs – in order to assess how crime has moved with time. Thus while newspapers worried that violent crime increased by 2% in 2006,

we find in fact that the severity of violent crime – perhaps a more appropriate trigger for fear or worry – increased by 0.6%.

Viewing the world through a severity lens also provides a better way to disaggregate the data and compare different crimes, different times, and different jurisdictions. We immediately see the disproportionate importance of murder in the victim costs of crime. Severity weights allow us to compare "apples and oranges" using the universalizing solvent of money and to even estimate per capita crime costs. We can also see in new ways how the costs of crime are disproportionately concentrated on those who are touched by murder and on African Americans. Undoubtedly, there are numerous other ways in which to use severity-weighting to assess crime, and improved data on the costs of crime will surely facilitate such research and help adapt it to the policy realm.

Indeed, even from our own preliminary analysis, there emerge some policy considerations. The dramatic difference in the severity shares of murder across states, for example, suggests that police in different states should deploy resources differently. The disconnect between the amount of violent crime in a state and that state's federal funding for crime-prevention, moreover, implies that federal funds might be better allocated with more attention to crime severity. Our analysis does *not* suggest that government or law enforcement should deploy resources in strict proportion to the dollar cost of crime. "Broken windows" theories of crime prevention, for instance, suggest that preventing property crime may deter more serious violent crime.[55] But it is foolish to rely on the crude unweighted crime indexes as guides to policy when we know that so much important variation can lie beneath.

[55] The "broken windows" theory argues that when lower-level, quality-of-life crimes (such as burglary that results in broken windows) are tolerated in a community, higher-level crimes will follow. Thus, policing against the former could prevent the latter. James Q. Wilson & George L. Kelling, *Broken Windows: The Police and Neighborhood*

Safety, ATLANTIC MONTHLY (Mar. 1982), *available at* http://www.manhattan-institute.org/pdf/_atlantic_monthly-broken_windows.pdf).

Figure 1: Victimization Cost Shares Over Time, 1977-2006

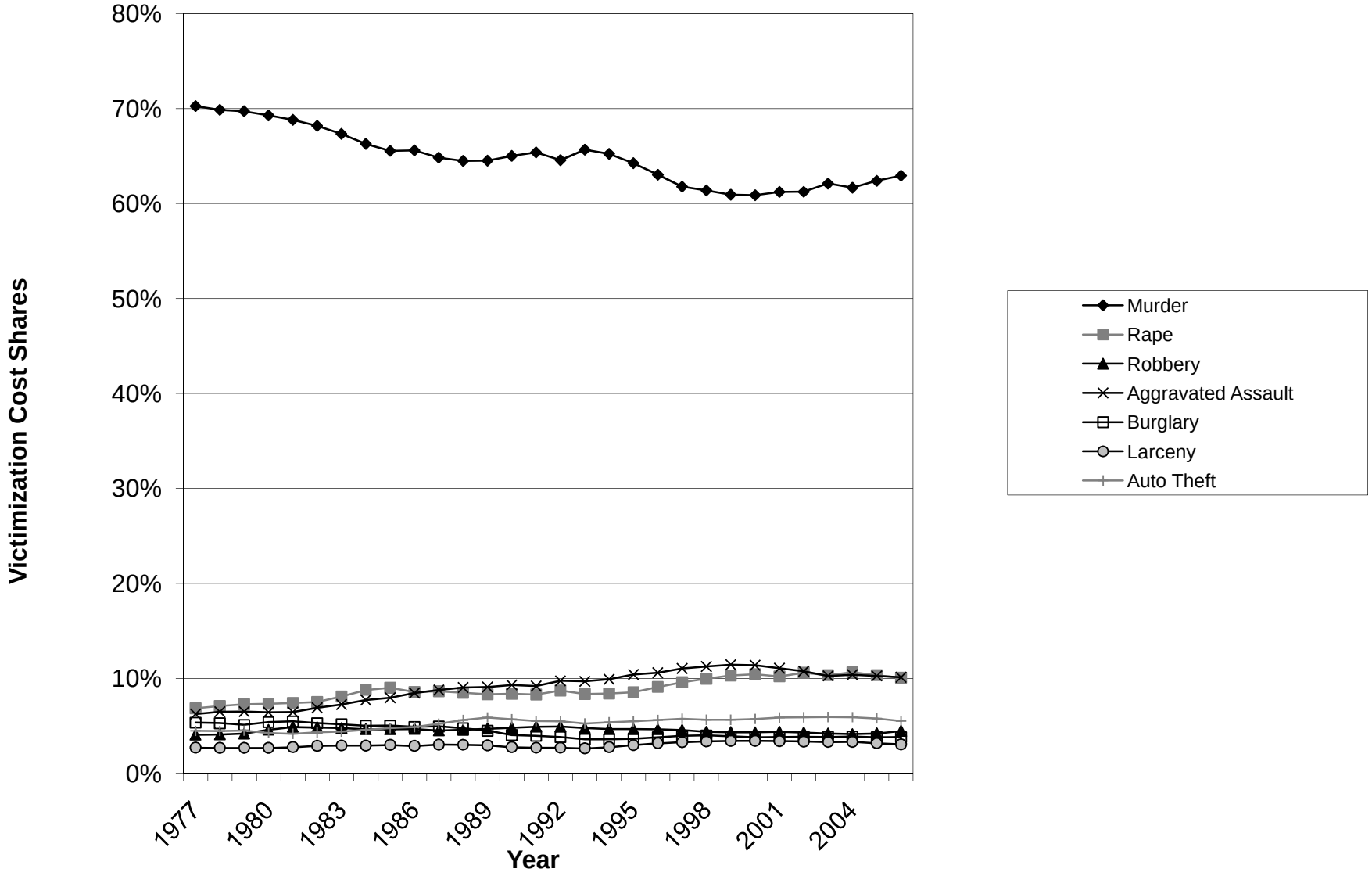

Figure 2: Fluctuation in Per Capita Incidence Shares, 1977-2006

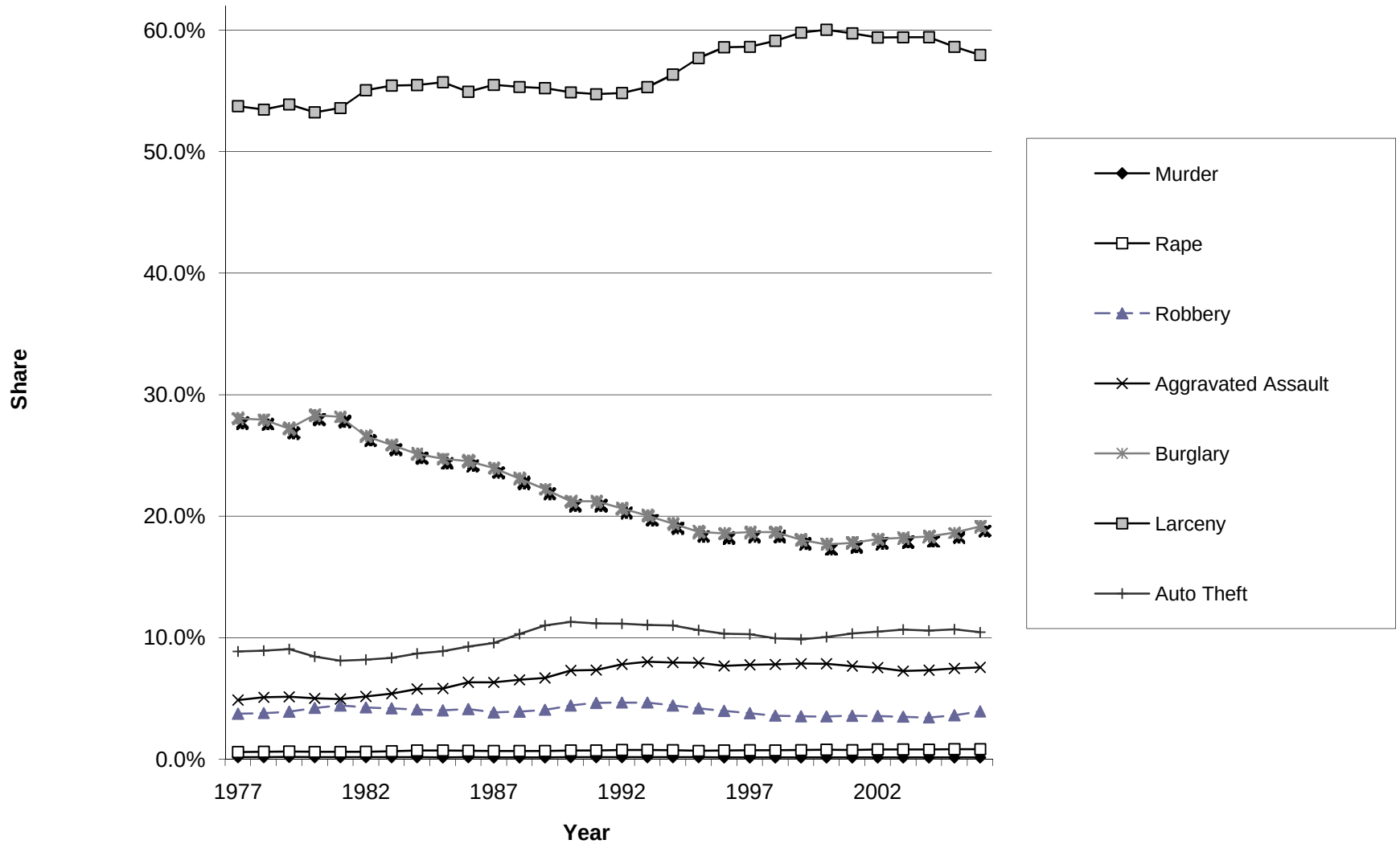

Figure 3: Murder Share of Total Victim Cost By State
Averaged Over 29 Years, 1977-2006

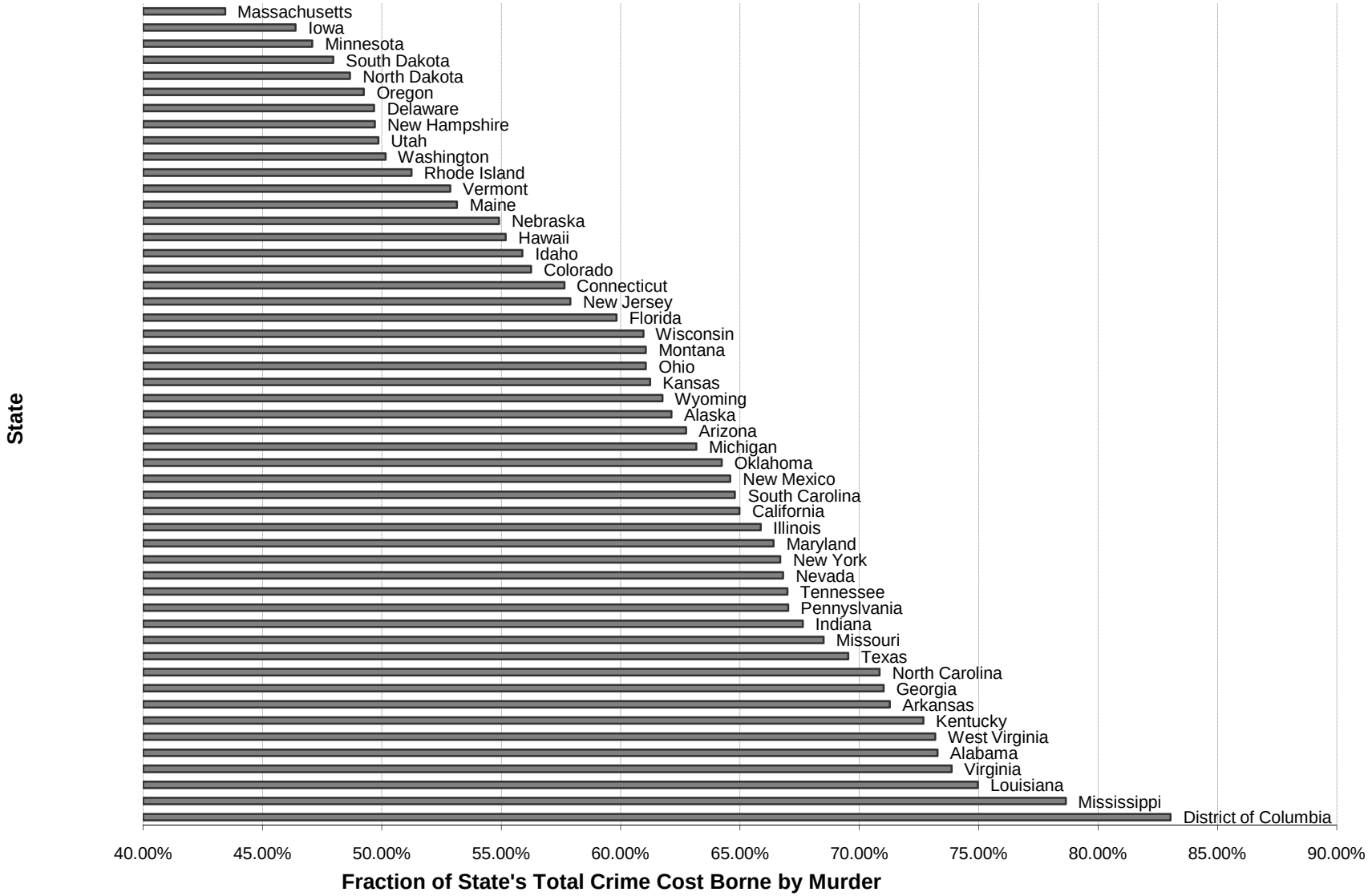

Table 1: Dollar losses per criminal victimization (including attempts)

	Productivity	Medical care/ ambulance	Mental health care	Police/fire services	Social/ victim services	Property loss/ damage	Subtotal: Tangible losses	Quality of life	Total (Dollar Victim Cost Used As Severity Weights)
									Murder
Fatal Crime	1,336,559	24,276	6,697	1,832	0	14,612	1,385,855	2,732,180	$ 4,120,360
									Rape
Rape and sexual assault	3,069	698	3,069	52	38	140	7,115	113,566	$ 121,379
									Aggravated Assault
Other assault or attempt	1,325	593	106	84	22	36	2,162	10,882	$ 13,114
									Robbery
Robbery or attempt	1,325	516	92	181	35	1,046	3,209	7,952	$ 11,161
									Burglary
Burglary or attempt	17	0	7	181	7	1,353	1,535	419	$ 1,953
									Larceny
Larceny or attempt	11	0	8	112	1	377	516	0	$ 516
									Auto Theft
Auto Theft or attempt	63	0	7	195	0	4,604	4,883	419	$ 5,162

Note: All estimates are in 2006 dollars. Totals do not add due to rounding in the original source. Risk of death is excluded. Fatal crime cost is average of various types of fatal crimes (including death from rape, assault, arson, DWI)
Source: Miller, Cohen, and Wiersema 1996, table 2.

Table 2: National Market Shares of Crime, By Type

	Unweighted			Dollar-Weighted		
	Fraction of national violent crime*	Fraction of national property crime*	Fraction of national total crime*	Fraction of national violent crime cost*	Fraction of national property crime cost*	Fraction of national total crime cost*
Murder	1.34%	*	0.15%	74.18%	*	64.81%
Rape	6.13%	*	0.71%	10.15%	*	8.87%
Robbery	34.58%	*	3.98%	5.20%	*	4.54%
Aggravated Assault	57.95%	*	6.77%	10.47%	*	9.14%
Burglary	*	24.81%	21.96%	*	34.72%	4.38%
Larceny	*	63.95%	56.50%	*	23.70%	3.00%
Auto Theft	*	11.24%	9.92%	*	41.58%	5.26%

* Based on national averages over 30 years, 1977-2006

Table 3: Robustness Analysis of Dollar-Weighted Per Capital Costs and Market Shares of Crime Nationwide, By Type*

	Original (Our Dollar-Weighted Numbers)			25% Bounds				Willingness to Pay	
	Per Capita Crime Cost	Fraction of violent crime cost*	Fraction of Total Crime Cost*	Low Per Capita Crime Cost	Low Crime Shares of Total Crime Cost	High Per Capita Crime Cost	High Crime Shares of Total Crime Cost	Per Capita Crime Cost	Fraction of violent crime cost*
Murder	$ 323.35	74.2%	64.8%	$ 242.51	58.0%	$ 404.19	69.7%	$ 761.22	48.8%
Rape	$ 43.17	10.2%	8.9%	$ 32.38	6.8%	$ 53.96	10.8%	$ 84.29	5.5%
Robbery	$ 22.68	5.2%	4.5%	$ 17.01	3.4%	$ 28.35	5.6%	$ 471.49	30.2%
Aggravated Assault	$ 44.48	10.5%	9.1%	$ 33.36	7.0%	$ 55.60	11.2%	$ 237.42	15.6%
Burglary	$ 22.00		4.4%	$ 16.50	3.3%	$ 27.50	5.4%		
Larceny	$ 14.68		3.0%	$ 11.01	2.3%	$ 18.35	3.7%		
Auto Theft	$ 25.82		5.3%	$ 19.36	4.0%	$ 32.27	6.5%		
Total	**$ 496.18**			**$ 372.13**		**$ 620.22**			

* Based on averages over 30 years, 1977-2006. Shares in the 25% bounds are calculated holding other crime category estimated crime costs constant and thus do not add to 100%.

Table 4: Per Capita Crime Cost By State Averaged over 30 Years, 1977-2006

	Per Capita Crime Cost	
Alabama	$	563.03
Alaska	$	579.87
Arizona	$	540.91
Arkansas	$	482.28
California	$	632.64
Colorado	$	387.01
Connecticut	$	309.28
Delaware	$	373.54
District of Columbia	**$**	**2,326.28**
Florida	$	630.62
Georgia	$	599.38
Hawaii	$	302.87
Idaho	$	229.29
Illinois	$	566.15
Indiana	$	405.98
Iowa	$	169.98
Kansas	$	355.26
Kentucky	$	381.13
Louisiana	**$**	**795.40**
Maine	$	159.71
Maryland	$	612.37
Massachusetts	$	302.61
Michigan	$	583.13
Minnesota	$	228.70
Mississippi	$	583.63
Missouri	$	506.02
Montana	$	238.01
Nebraska	$	236.66
Nevada	$	697.74
New Hampshire	$	160.81
New Jersey	$	360.35
New Mexico	$	604.36
New York	$	574.20
North Carolina	$	504.45
North Dakota	**$**	**106.12**
Ohio	$	379.48
Oklahoma	$	476.18
Oregon	$	334.15
Pennsylvania	$	350.67
Rhode Island	$	282.80
South Carolina	$	583.01
South Dakota	$	156.63
Tennessee	$	549.69
Texas	$	646.68
Utah	$	244.37
Vermont	$	175.11
Virginia	$	407.76
Washington	$	360.12
West Virginia	$	279.10
Wisconsin	$	233.45
Wyoming	$	269.80
Min	$	106.12
Second Smallest	$	156.63
Max	$	2,326.28
Second Largest	$	795.40
Mean	$	447.43
Median	$	381.13
Std. Dev.	$	317.61

Note: Total crime is the sum of violent and property crime. Minimum and maximum values are bolded.
All costs are in 2006 dollars

Table 5: State Victimization Cost Shares of Crime by Incident and by Cost, Averaged Over 1977-2006

	Murder		Rape		Robbery		Aggravated Assault		Burglary		Larceny		Auto Theft	
	Per Capita Crime Costs	Share of State's Total Victim Cost	Per Capita Crime Costs	Share of State's Total Victim Cost	Per Capita Crime Costs	Share of State's Total Victim Cost	Per Capita Crime Costs	Share of State's Total Victim Cost	Per Capita Crime Costs	Share of State's Total Victim Cost	Per Capita Crime Costs	Share of State's Total Victim Cost	Per Capita Crime Costs	Share of State's Total Victim Cost
Alabama	$ 412.59	73.28%	$ 38.19	6.78%	$ 14.72	2.62%	$ 46.86	8.32%	$ 21.45	3.81%	$ 13.43	2.38%	$ 15.80	2.81%
Alaska	$ 360.26	62.13%	**$ 92.84**	16.01%	$ 10.77	1.86%	$ 54.82	9.45%	$ 17.93	3.09%	$ 16.88	2.91%	$ 26.37	4.55%
Arizona	$ 339.38	62.74%	$ 45.07	8.33%	$ 17.32	3.20%	$ 50.83	9.40%	$ 29.60	5.47%	**$ 21.48**	3.97%	$ 37.24	6.88%
Arkansas	$ 343.78	71.28%	$ 41.67	8.64%	$ 10.40	2.16%	$ 40.94	8.49%	$ 19.90	4.13%	$ 12.88	2.67%	$ 12.73	2.64%
California	$ 411.07	64.98%	$ 47.54	7.52%	$ 32.99	5.21%	$ 60.60	9.58%	$ 26.29	4.16%	$ 15.00	2.37%	**$ 39.15**	6.19%
Colorado	$ 217.69	56.25%	$ 53.24	13.76%	$ 12.31	3.18%	$ 38.75	10.01%	$ 23.78	6.14%	$ 18.38	4.75%	$ 22.86	5.91%
Connecticut	$ 178.27	57.64%	$ 27.34	8.84%	$ 19.07	6.17%	$ 25.64	8.29%	$ 19.43	6.28%	$ 13.05	4.22%	$ 26.48	8.56%
Delaware	$ 185.55	49.67%	$ 67.26	18.01%	$ 17.35	4.64%	$ 47.89	12.82%	$ 19.90	5.33%	$ 16.15	4.32%	$ 19.45	5.21%
District of Columbia	**$ 1,931.62**	**83.03%**	$ 58.59	**2.52%**	**$ 108.62**	4.67%	**$ 113.22**	4.87%	$ 31.39	**1.35%**	**$ 22.69**	**0.98%**	**$ 60.14**	2.59%
Florida	$ 377.29	59.83%	$ 58.52	9.28%	$ 31.73	5.03%	$ 78.58	12.46%	**$ 33.40**	5.30%	$ 20.24	3.21%	$ 30.87	4.90%
Georgia	$ 425.63	71.01%	$ 43.87	7.32%	$ 21.62	3.61%	$ 42.77	7.14%	$ 24.68	4.12%	$ 16.05	2.68%	$ 24.77	4.13%
Hawaii	$ 167.15	55.19%	$ 37.90	12.51%	$ 12.56	4.15%	$ 14.66	4.84%	$ 23.86	7.88%	$ 20.66	6.82%	$ 26.07	8.61%
Idaho	$ 128.14	55.89%	$ 32.80	14.30%	$ 2.68	1.17%	$ 26.92	11.74%	$ 15.78	6.88%	$ 13.15	5.74%	$ 9.82	4.28%
Illinois	$ 372.89	65.86%	$ 41.86	7.39%	$ 33.08	5.84%	$ 56.64	10.00%	$ 19.85	3.51%	$ 14.76	2.61%	$ 27.07	4.78%
Indiana	$ 274.55	67.63%	$ 37.58	9.26%	$ 12.56	3.09%	$ 30.99	7.63%	$ 17.48	4.31%	$ 13.24	3.26%	$ 19.58	4.82%
Iowa	$ 78.84	46.38%	$ 22.97	13.51%	$ 4.84	2.85%	$ 24.95	14.68%	$ 15.25	8.97%	$ 13.37	7.87%	$ 9.76	5.74%
Kansas	$ 217.56	61.24%	$ 42.96	12.09%	$ 10.43	2.93%	$ 33.84	9.52%	$ 21.00	5.91%	$ 15.41	4.34%	$ 14.08	3.96%
Kentucky	$ 277.03	72.69%	$ 32.27	8.47%	$ 9.45	2.48%	$ 26.35	6.91%	$ 15.18	3.98%	$ 9.37	2.46%	$ 11.47	3.01%
Louisiana	**$ 596.22**	74.96%	$ 46.76	5.88%	$ 22.89	2.88%	$ 64.57	8.12%	$ 24.60	3.09%	$ 16.49	2.07%	$ 23.88	3.00%
Maine	$ 84.88	53.15%	$ 23.73	14.86%	$ 2.84	1.78%	$ 12.68	7.94%	$ 15.68	9.82%	$ 11.74	7.35%	$ 8.17	5.11%
Maryland	$ 406.68	66.41%	$ 43.22	7.06%	$ 36.38	5.94%	$ 59.52	9.72%	$ 21.28	3.47%	$ 15.68	2.56%	$ 29.60	4.83%
Massachusetts	$ 131.44	**43.43%**	$ 34.62	11.44%	$ 18.21	6.02%	$ 50.75	**16.77%**	$ 19.16	6.33%	$ 10.96	3.62%	$ 37.47	**12.38%**
Michigan	$ 368.36	63.17%	$ 70.60	12.11%	$ 23.30	4.00%	$ 50.19	8.61%	$ 22.60	3.88%	$ 15.21	2.61%	$ 32.87	5.64%
Minnesota	**$ 107.68**	**47.08%**	**$ 45.31**	**19.81%**	**$ 10.57**	**4.62%**	**$ 18.76**	**8.20%**	**$ 16.76**	**7.33%**	**$ 13.89**	**6.07%**	**$ 15.74**	**6.88%**
Mississippi	$ 459.01	**78.65%**	$ 41.70	7.14%	$ 10.71	1.84%	$ 27.04	**4.63%**	$ 21.45	3.68%	$ 10.72	**1.84%**	$ 13.01	**2.23%**
Missouri	$ 346.66	68.51%	$ 35.62	7.04%	$ 19.43	3.84%	$ 46.55	9.20%	$ 20.66	4.08%	$ 14.16	2.80%	$ 22.93	4.53%
Montana	$ 145.31	61.05%	$ 27.67	11.63%	$ 2.99	1.26%	$ 20.83	8.75%	$ 12.63	5.31%	$ 16.04	6.74%	$ 12.54	5.27%
Nebraska	$ 129.93	54.90%	$ 30.70	12.97%	$ 6.99	2.96%	$ 27.52	11.63%	$ 13.52	5.71%	$ 14.48	6.12%	$ 13.51	5.71%
Nevada	$ 466.15	66.81%	$ 68.00	9.75%	$ 33.49	4.80%	$ 46.65	6.69%	$ 30.70	4.40%	$ 16.93	2.43%	$ 35.82	5.13%
New Hampshire	$ 79.93	49.71%	$ 33.65	20.92%	$ 3.23	2.01%	$ 10.26	6.38%	$ 12.72	7.91%	$ 10.85	6.75%	$ 10.18	6.33%
New Jersey	$ 208.63	57.90%	$ 30.22	8.39%	$ 26.07	7.24%	$ 32.28	8.96%	$ 18.85	5.23%	$ 12.73	3.53%	$ 31.57	8.76%
New Mexico	$ 390.34	64.59%	$ 61.14	10.12%	$ 14.29	2.36%	$ 71.90	11.90%	$ 28.17	4.66%	$ 17.69	2.93%	$ 20.83	3.45%
New York	$ 382.92	66.69%	$ 31.42	5.47%	**$ 47.84**	**8.33%**	$ 48.47	8.44%	$ 20.10	3.50%	$ 12.70	2.21%	$ 30.75	5.36%
North Carolina	$ 357.37	70.84%	$ 33.03	6.55%	$ 14.44	2.86%	$ 45.72	9.06%	$ 25.84	5.12%	$ 14.23	2.82%	$ 13.82	2.74%
North Dakota	**$ 51.64**	48.66%	**$ 22.09**	20.82%	**$ 1.02**	0.97%	**$ 5.80**	5.47%	**$ 7.57**	7.13%	$ 10.26	**9.67%**	$ 7.73	7.29%
Ohio	$ 231.70	61.06%	$ 47.74	12.58%	$ 18.97	5.00%	$ 27.15	7.16%	$ 19.57	5.16%	$ 13.85	3.65%	$ 20.48	5.40%
Oklahoma	$ 305.87	64.23%	$ 49.87	10.47%	$ 11.71	2.46%	$ 44.72	9.39%	$ 25.95	5.45%	$ 14.49	3.04%	$ 23.58	4.95%
Oregon	$ 164.54	49.24%	$ 50.92	15.24%	$ 14.80	4.43%	$ 35.71	10.69%	$ 25.04	7.49%	$ 19.18	5.74%	$ 23.95	7.17%
Pennyslvania	$ 235.00	67.01%	$ 30.72	8.76%	$ 17.97	5.12%	$ 26.07	7.44%	$ 12.96	3.69%	$ 9.33	2.66%	$ 18.62	5.31%
Rhode Island	$ 144.90	51.24%	$ 33.06	11.69%	$ 10.90	3.85%	$ 28.63	10.12%	$ 20.32	7.19%	$ 12.71	4.50%	$ 32.28	11.41%
South Carolina	$ 377.70	64.78%	$ 52.71	9.04%	$ 15.18	2.60%	**$ 79.55**	13.65%	$ 25.02	4.29%	$ 15.41	2.64%	$ 17.43	2.99%
South Dakota	$ 75.13	47.96%	$ 39.59	**25.28%**	$ 1.87	1.19%	$ 14.32	9.14%	$ 9.97	6.37%	$ 9.73	6.21%	**$ 6.03**	3.85%
Tennessee	$ 368.22	66.99%	$ 50.55	9.20%	$ 20.32	3.70%	$ 50.02	9.10%	$ 23.28	4.24%	$ 12.68	2.31%	$ 24.62	4.48%
Texas	$ 449.67	69.54%	$ 53.41	8.26%	$ 21.47	3.32%	$ 45.94	7.10%	$ 28.32	4.38%	$ 17.72	2.74%	$ 30.16	4.66%
Utah	$ 121.83	49.85%	$ 40.98	16.77%	$ 6.81	2.79%	$ 22.96	9.39%	$ 17.16	7.02%	$ 19.29	7.89%	$ 15.35	6.28%
Vermont	$ 92.57	52.87%	$ 30.49	17.41%	$ 1.94	1.11%	$ 11.03	6.30%	$ 17.76	**10.14%**	$ 12.40	7.08%	$ 8.91	5.09%
Virginia	$ 301.20	73.87%	$ 31.95	7.84%	$ 12.43	3.05%	$ 22.11	5.42%	$ 13.90	3.41%	$ 13.21	3.24%	$ 12.95	3.18%
Washington	$ 180.61	50.15%	$ 62.83	17.45%	$ 13.43	3.73%	$ 32.60	9.05%	$ 26.31	7.31%	$ 19.37	5.38%	$ 24.98	6.94%
West Virginia	$ 204.23	73.18%	$ 22.24	7.97%	$ 4.66	1.67%	$ 18.81	6.74%	$ 12.10	4.33%	**$ 7.70**	2.76%	$ 9.36	3.35%
Wisconsin	$ 142.29	60.95%	$ 24.13	10.33%	$ 9.31	3.99%	$ 15.86	6.79%	$ 13.69	5.87%	$ 13.74	5.89%	$ 14.43	6.18%
Wyoming	$ 166.60	61.75%	$ 33.76	12.51%	$ 2.53	**0.94%**	$ 29.45	10.91%	$ 12.87	4.77%	$ 15.23	5.65%	$ 9.38	3.47%
Min	$ 51.64	43.43%	$ 22.09	2.52%	$ 1.02	0.94%	$ 5.80	4.63%	$ 7.57	1.35%	$ 7.70	0.98%	$ 6.03	2.23%
Second Smallest	$ 75.13	46.38%	$ 22.24	5.47%	$ 1.87	0.97%	$ 10.26	4.84%	$ 9.97	3.09%	$ 9.33	1.84%	$ 7.73	2.59%
Max	$ 1,931.62	83.03%	$ 92.84	25.28%	$ 108.62	8.33%	$ 113.22	16.77%	$ 33.40	10.14%	$ 22.69	9.67%	$ 60.14	12.38%
Second Largest	$ 596.22	78.65%	$ 70.60	20.92%	$ 47.84	7.24%	$ 79.55	14.68%	$ 31.39	9.82%	$ 21.48	7.89%	$ 39.15	11.41%
Mean	$ 293.62	61.53%	$ 42.29	11.32%	$ 16.89	3.48%	$ 38.42	8.92%	$ 20.25	5.34%	$ 14.65	4.14%	$ 21.31	5.27%
Median	$ 235.00	62.13%	$ 40.98	10.12%	$ 13.43	3.18%	$ 33.84	8.96%	$ 19.90	5.16%	$ 14.23	3.26%	$ 20.48	5.09%
Std. Dev.	$ 268.11	9.33%	$ 14.39	4.61%	$ 16.54	1.66%	$ 20.68	2.48%	$ 5.85	1.80%	$ 3.27	1.96%	$ 10.54	2.09%

Note: All costs are in 2006 dollars. Minimum and maximum values are bolded.

Table 6: Comparison of Violent Crime Rankings by Incident and by Cost

	Incident		Cost		
	Rate per 100,000 inhabitants*	Unweighted (Traditional) Ranking (from largest to smallest)	Average per Capita Violent Crime Cost* (in 2006 dollars)	Cost-Weighted Ranking (from largest to smallest)	Change in Rank (positive = improvement)
Alabama	531	20	$ 512	14	-6
Alaska	600	13	$ 519	12	-1
Arizona	588	15	$ 453	18	3
Arkansas	448	26	$ 437	21	-5
California	807	5	$ 552	5	0
Colorado	455	24	$ 322	27	3
Connecticut	393	29	$ 250	34	5
Delaware	581	17	$ 318	28	11
District of Columbia	1932	1	$ 2,212	1	0
Florida	941	2	$ 546	6	4
Georgia	566	19	$ 534	10	-9
Hawaii	260	41	$ 232	38	-3
Idaho	259	42	$ 191	44	2
Illinois	772	7	$ 504	16	9
Indiana	386	32	$ 356	24	-8
Iowa	254	43	$ 132	47	4
Kansas	392	30	$ 305	30	0
Kentucky	319	35	$ 345	25	-10
Louisiana	750	8	$ 730	2	-6
Maine	144	48	$ 124	50	2
Maryland	825	4	$ 546	7	3
Massachusetts	582	16	$ 235	36	**20**
Michigan	659	11	$ 512	13	2
Minnesota	278	39	$ 182	45	6
Mississippi	348	33	$ 538	8	**-25**
Missouri	567	18	$ 448	20	2
Montana	212	45	$ 197	40	-5
Nebraska	301	37	$ 195	41	4
Nevada	723	10	$ 614	3	-7
New Hampshire	137	49	$ 127	49	0
New Jersey	510	22	$ 297	31	9
New Mexico	736	9	$ 538	9	0
New York	833	3	$ 511	15	12
North Carolina	514	21	$ 451	19	-2
North Dakota	73	51	$ 81	51	0
Ohio	422	28	$ 326	26	-2
Oklahoma	494	23	$ 412	22	-1
Oregon	451	25	$ 266	33	8
Pennyslvania	391	31	$ 310	29	-2
Rhode Island	347	34	$ 217	39	5
South Carolina	795	6	$ 525	11	5
South Dakota	160	47	$ 131	48	1
Tennessee	614	12	$ 489	17	5
Texas	598	14	$ 570	4	-10
Utah	273	40	$ 193	42	2
Vermont	129	50	$ 136	46	-4
Virginia	314	36	$ 368	23	-13
Washington	425	27	$ 289	32	5
West Virginia	208	46	$ 250	35	-11
Wisconsin	228	44	$ 192	43	-1
Wyoming	279	38	$ 232	37	-1

* averaged over 30 years, 1977-2006

Table 7: Comparison of Property Crime Rankings by Incident and by Cost					
	Incident		Cost		
	Rate per 100,000 inhabitants*	Unweighted (Traditional) Ranking (from largest to smallest)	Average per Capita Cost* (in 2006 dollars)	Cost-Weighted Ranking (from largest to smallest)	Change in Rank (positive = improvement)
Alabama	4005	31	$ 26.26	31	0
Alaska	4698	17	$ 31.80	22	5
Arizona	6397	2	$ 45.89	2	0
Arkansas	3760	37	$ 23.56	35	-2
California	5009	11	$ 41.87	5	-6
Colorado	5220	10	$ 33.72	16	6
Connecticut	4036	30	$ 30.66	24	-6
Delaware	4524	20	$ 28.78	27	7
District of Columbia	7168	1	$ 59.52	1	0
Florida	6229	3	$ 43.85	3	0
Georgia	4852	14	$ 33.99	14	0
Hawaii	5729	4	$ 36.63	9	5
Idaho	3546	41	$ 20.04	43	2
Illinois	4399	21	$ 32.06	21	0
Indiana	3840	34	$ 26.12	33	-1
Iowa	3560	40	$ 19.85	44	4
Kansas	4334	23	$ 26.13	32	9
Kentucky	2816	48	$ 18.67	46	-2
Louisiana	4916	12	$ 33.71	17	5
Maine	3235	45	$ 18.40	47	2
Maryland	4700	16	$ 34.61	13	-3
Massachusetts	3830	35	$ 35.25	11	**-24**
Michigan	4740	15	$ 36.77	7	-8
Minnesota	3853	33	$ 24.05	34	1
Mississippi	3426	44	$ 23.39	36	-8
Missouri	4246	24	$ 29.99	26	2
Montana	3996	32	$ 21.34	39	7
Nebraska	3760	38	$ 21.52	38	0
Nevada	5546	6	$ 43.37	4	-2
New Hampshire	2950	46	$ 17.48	48	2
New Jersey	4043	29	$ 32.88	20	-9
New Mexico	5273	9	$ 34.55	12	3
New York	4085	27	$ 33.08	19	-8
North Carolina	4348	22	$ 27.88	29	7
North Dakota	2524	49	$ 13.24	51	2
Ohio	4083	28	$ 27.98	28	0
Oklahoma	4592	19	$ 33.22	18	-1
Oregon	5462	8	$ 35.36	10	2
Pennyslvania	2831	47	$ 21.27	40	-7
Rhode Island	4128	25	$ 34.00	15	-10
South Carolina	4605	18	$ 29.97	25	7
South Dakota	2512	50	$ 13.30	50	0
Tennessee	4125	26	$ 31.46	23	-3
Texas	5467	7	$ 39.56	6	-1
Utah	4913	13	$ 26.83	30	**17**
Vermont	3484	43	$ 20.19	42	-1
Virginia	3522	42	$ 20.77	41	-1
Washington	5584	5	$ 36.65	8	3
West Virginia	2293	51	$ 15.11	49	-2
Wisconsin	3642	39	$ 21.71	37	-2
Wyoming	3791	36	$ 19.38	45	9

* averaged over 30 years, 1977-2006

Table 8: State Correlations of Per Capita Costs of Crime, By Type									
	Murder	Rape	Robbery	Aggravated Assault	Burglary	Larceny	Auto Theft	Violent Crime	Property Crime
Murder	1								
Rape	0.37	1.00							
Robbery	0.89	0.32	1.00						
Aggravated Assault	0.77	0.59	0.75	1.00					
Burglary	0.55	0.61	0.56	0.74	1.00				
Larceny	0.43	0.57	0.43	0.54	0.71	1.00			
Auto Theft	0.66	0.48	0.82	0.71	0.71	0.55	1.00		
Violent Crime	0.997	0.43	0.90	0.81	0.59	0.46	0.70	1.00	
Property Crime	0.66	0.60	0.76	0.78	0.89	0.75	0.94	0.70	1

Table 9: Analysis of "Effective Number of Crimes" (Reciprocal of Herfindahl) and Concentration of Costs of Crime by State, Averaged over 1977-2006

	Number of Crimes	"Effective" Number of Crimes	Number of Murders	Number of Crimes per 100,000	"Effective" Number of Crimes Per 100,000	Cost Per Capita	Cost Per Effective Crime
National	**12,817,479**	**46670**	**19779**	**5056**	**18**	**$ 489.97**	**$ 2,688,716.15**
Alabama	189206	772	413	4536	19	$ 563.03	$ 3,020,868.68
Alaska	28985	124	46	5298	22	$ 579.87	$ 2,537,529.57
Arizona	274105	830	327	6985	21	$ 540.91	$ 2,590,876.65
Arkansas	103668	401	203	4208	16	$ 482.28	$ 2,937,469.37
California	1680247	6853	2890	5816	23	$ 632.64	$ 2,681,510.86
Colorado	198456	586	185	5675	16	$ 387.01	$ 2,322,007.41
Connecticut	144049	422	141	4430	13	$ 309.28	$ 2,387,955.05
Delaware	34852	126	31	5104	18	$ 373.54	$ 2,042,447.54
District of Columbia	54185	401	276	9099	67	$ 2,326.28	$ 3,419,839.61
Florida	933088	3317	1149	7170	25	$ 630.62	$ 2,432,608.62
Georgia	372330	1378	685	5418	20	$ 599.38	$ 2,910,680.57
Hawaii	66466	147	44	5988	13	$ 302.87	$ 2,259,520.18
Idaho	41822	110	34	3806	10	$ 229.29	$ 2,288,674.85
Illinois	608099	2446	1065	5171	21	$ 566.15	$ 2,724,722.30
Indiana	241870	831	382	4226	14	$ 405.98	$ 2,798,720.65
Iowa	109289	253	55	3815	9	$ 169.98	$ 1,930,053.23
Kansas	119475	355	133	4726	14	$ 355.26	$ 2,534,986.54
Kentucky	119682	483	255	3134	13	$ 381.13	$ 2,998,408.42
Louisiana	245249	1110	625	5666	26	$ 795.40	$ 3,095,482.95
Maine	40780	88	25	3379	7	$ 159.71	$ 2,203,534.56
Maryland	265281	1077	479	5526	22	$ 612.37	$ 2,753,638.29
Massachusetts	264447	1007	192	4412	17	$ 302.61	$ 1,806,947.71
Michigan	510409	2110	846	5398	22	$ 583.13	$ 2,617,043.23
Minnesota	184790	526	118	4130	12	$ 228.70	$ 1,964,931.01
Mississippi	101123	478	295	3774	18	$ 583.63	$ 3,242,879.05
Missouri	252524	935	438	4813	18	$ 506.02	$ 2,826,483.22
Montana	35381	79	30	4208	9	$ 238.01	$ 2,520,803.33
Nebraska	66207	170	51	4061	10	$ 236.66	$ 2,274,494.94
Nevada	82453	340	148	6270	24	$ 697.74	$ 2,723,053.50
New Hampshire	33163	85	21	3087	8	$ 160.81	$ 2,054,239.22
New Jersey	355370	1176	398	4552	15	$ 360.35	$ 2,402,352.40
New Mexico	94726	358	148	6009	23	$ 604.36	$ 2,654,080.67
New York	887475	3759	1676	4918	21	$ 574.20	$ 2,756,097.52
North Carolina	341756	1199	595	4862	17	$ 504.45	$ 2,907,377.41
North Dakota	16837	34	8	2597	5	$ 106.12	$ 2,035,615.87
Ohio	496383	1651	618	4505	15	$ 379.48	$ 2,530,433.22
Oklahoma	165797	583	240	5086	18	$ 476.18	$ 2,652,253.87
Oregon	175702	484	116	5913	16	$ 334.15	$ 2,030,803.99
Pennyslvania	386800	1519	685	3222	13	$ 350.67	$ 2,773,571.89
Rhode Island	44413	132	35	4475	13	$ 282.80	$ 2,129,455.03
South Carolina	194804	782	325	5400	22	$ 583.01	$ 2,662,428.90
South Dakota	19147	56	13	2672	8	$ 156.63	$ 1,999,105.62
Tennessee	244136	1016	452	4739	20	$ 549.69	$ 2,755,230.75
Texas	1076291	3942	1864	6064	22	$ 646.68	$ 2,838,978.64
Utah	96024	221	54	5186	12	$ 244.37	$ 2,041,990.83
Vermont	20088	44	13	3613	8	$ 175.11	$ 2,204,017.65
Virginia	239804	837	456	3836	13	$ 407.76	$ 3,046,834.65
Washington	301268	872	218	6009	17	$ 360.12	$ 2,070,399.56
West Virginia	46280	171	92	2501	9	$ 279.10	$ 3,030,615.31
Wisconsin	193186	465	174	3870	9	$ 233.45	$ 2,527,626.37
Wyoming	19516	50	19	4070	10	$ 269.80	$ 2,556,821.19
Min	16,837	34	8	2,501	5.2	$ 106.12	$ 1,806,947.71
Second Smallest	19,147	44	13	2,597	7.2	$ 156.63	$ 1,930,053.23
Max	1,680,247	6,853	2,890	9,099	67.3	$ 2,326.28	$ 3,419,839.61
Second Largest	1,076,291	3,942	1,864	7,170	25.6	$ 795.40	$ 3,242,879.05
Mean	251,323	925	388	4,773	16.7	$ 447.43	$ 2,539,382.40
Median	175,702	484	203	4,726	16.2	$ 381.13	$ 2,556,821.19
Std. Dev.	310,085	1,237	535	1,244	9.0	$ 317.61	$ 380,048.34

Table 10: Breakdown of 2005 Victimization Shares by Race

		White				Black				Other			
	Totals**	Number*	Per Capita Crime Cost***	Fraction of White Victimization Costs	Fraction of White Victimizations	Number*	Per Capita Crime Cost***	Fraction of Black Victimization Costs	Fraction of Black Victimizations	Number*	Per Capita Crime Cost***	Fraction of "Other" Race Victimization Costs	Fraction of "Other" Race Victimizations
Murder	14,860	7,133	$ 123.77	39.3%	0.04%	7,125	$ 775.92	68.5%	0.28%	390	$ 77.71	40.58%	0.1%
Rape	191,670	124,930	$ 75.86	20.3%	0.76%	51,980	$ 214.42	14.7%	2.06%	6,330	$ 61.47	19.40%	0.9%
Robbery	624,850	447,030	$ 24.96	6.7%	2.73%	136,310	$ 51.71	3.6%	5.39%	37,580	$ 33.56	10.59%	5.3%
Aggravated Assault	1,052,270	757,950	$ 49.73	13.3%	4.63%	225,480	$ 100.50	6.9%	8.92%	31,860	$ 33.43	10.55%	4.5%
Burglary	3,456,220	2,757,440	$ 22.68	7.2%	16.85%	510,080	$ 26.33	2.3%	20.19%	120,800	$ 11.41	5.96%	17.0%
Larceny	13,605,580	11,536,620	$ 25.08	8.0%	70.51%	1,411,450	$ 19.26	1.7%	55.86%	462,950	$ 11.56	6.03%	65.1%
Auto Theft	978,120	731,160	$ 16.32	5.2%	4.47%	184,490	$ 25.85	2.3%	7.30%	51,450	$ 13.19	6.89%	7.2%
Total Victimizations	19,923,570	16,362,263	**$ 338.40**			2,526,915	**$ 1,213.98**			711,360	**$ 242.32**		

* Includes both completed and attempted crimes.
** Totals include white, black, other and unknown race victimizations.
*** Base populations for per capita cost calculations are white, black, or other race populations and are confined to age 12 and over for non-murder violent crimes.
Note: Table excludes property crimes against two or more races. Figures for violent crime excluding murder are for population age 12 and over; property crimes are per household with race denoting race of head of household. Crimes against two or more races or race unknown are included in totals only. Data on victimization by race taken from Bureau of Justice Statistics Criminal Victimization in the U.S., http://www.ojp.gov/bjs/abstract/cvus/race989.htm (last visited June 30, 2008).
Cost shares are based on Cohen measures in 2006 dollars.

Table 11: 2006 Per Capita JAG and COPS Allocations per State with Comparison to Unweighted and Weighted Violent Crime Rankings

	2006 Per Capita JAG Allocation	2007 JAG Ranking (from largest to smallest)	2006 Per Capita COPS Allocation	2006 COPS Ranking (from largest to smallest)	Unweighted Violent Crime Rank	Dollar-Weighted Violent Crime Rank	Per Capita Violent Crime Cost	Difference between 2006 Per Capita JAG Rank and Dollar-Weighted Rank	Difference between 2006 Per Capita COPS Allocation Rank and Dollar-Weighted Crime Rank
Correlation with Unweighted Violent Rank	-0.143		0.161		1				
Correlation with Dollar Weighted Violent Crime Rank	-0.132		0.068		0.88	1			
Correlation With Per Capita Crime Cost	0.710		-0.002		-0.65	-0.71	1		
Alabama	$0.69	26	$ 4.69	37	20	14	$ 512.35	12	23
Alaska	$0.84	12	$ 9.80	12	13	12	$ 518.69	0	0
Arizona	$0.59	43	$ 0.76	27	15	18	$ 452.59	25	9
Arkansas	$0.78	18	$ 0.68	23	26	21	$ 436.78	-3	2
California	$0.60	39	$ 0.41	42	5	5	$ 552.21	34	37
Colorado	$0.57	47	$ 0.14	14	24	27	$ 322.00	20	-13
Connecticut	$0.62	34	$ 1.07	45	29	34	$ 250.32	0	11
Delaware	$1.46	2	$ 2.08	1	17	28	$ 318.05	-26	-27
District of Columbia	$3.10	1	$ 1.79	2	1	1	$ 2,212.06	0	1
Florida	$0.69	27	$ 0.30	8	2	6	$ 546.11	21	2
Georgia	$0.60	41	$ 0.12	15	19	10	$ 533.89	31	5
Hawaii	$0.73	22	$ 1.54	20	41	38	$ 232.27	-16	-18
Idaho	$0.80	15	$ 0.28	43	42	44	$ 190.54	-29	-1
Illinois	$0.66	30	$ 0.50	4	7	16	$ 504.48	14	-12
Indiana	$0.59	45	$ 0.35	38	32	24	$ 355.68	21	14
Iowa	$0.63	33	$ 1.15	41	43	47	$ 131.60	-14	-6
Kansas	$0.74	20	$ 0.45	48	30	30	$ 304.77	-10	18
Kentucky	$0.64	32	$ 0.77	13	35	25	$ 345.10	7	-12
Louisiana	$0.82	14	$ 0.99	34	8	2	$ 730.43	12	32
Maine	$0.89	10	$ 0.21	46	48	50	$ 124.12	-40	-4
Maryland	$0.77	19	$ 0.54	19	4	7	$ 545.80	12	12
Massachusetts	$0.68	28	$ 0.84	31	16	36	$ 235.02	-8	-5
Michigan	$0.67	29	$ 0.71	33	11	13	$ 512.44	16	20
Minnesota	$0.59	42	$ 0.69	11	39	45	$ 182.32	-3	-34
Mississippi	$0.71	25	$ 2.66	7	33	8	$ 538.45	17	-1
Missouri	$0.72	24	$ 0.46	28	18	20	$ 448.27	4	8
Montana	$1.14	3	$ 2.25	24	45	40	$ 196.81	-37	-16
Nebraska	$0.73	21	$ 0.56	32	37	41	$ 195.14	-20	-9
Nevada	$0.72	23	$ 0.51	26	10	3	$ 614.29	20	23
New Hampshire	$0.91	8	$ 4.32	9	49	49	$ 127.06	-41	-40
New Jersey	$0.59	44	$ 0.46	49	22	31	$ 297.20	13	18
New Mexico	$0.96	6	$ 1.47	50	9	9	$ 537.67	-3	41
New York	$0.58	46	$ 0.40	3	3	15	$ 510.65	31	-12
North Carolina	$0.62	35	$ 0.31	5	21	19	$ 450.56	16	-14
North Dakota	$0.87	11	$ 3.75	51	51	51	$ 80.56	-40	0
Ohio	$0.54	49	$ 0.33	6	28	26	$ 325.57	23	-20
Oklahoma	$0.78	17	$ 0.81	39	23	22	$ 412.16	-5	17
Oregon	$0.61	38	$ 0.68	29	25	33	$ 265.98	5	-4
Pennyslvania	$0.61	36	$ 0.40	44	31	29	$ 309.76	7	15
Rhode Island	$0.91	9	$ 0.74	10	34	39	$ 217.48	-30	-29
South Carolina	$0.84	13	$ 1.22	47	6	11	$ 525.15	2	36
South Dakota	$0.66	31	$ 1.60	36	47	48	$ 130.90	-17	-12
Tennessee	$0.80	16	$ 0.71	16	12	17	$ 489.11	-1	-1
Texas	$0.60	40	$ 0.15	25	14	4	$ 570.48	36	21
Utah	$0.61	37	$ 0.46	21	40	42	$ 192.57	-5	-21
Vermont	$1.01	5	$ 4.67	40	50	46	$ 136.04	-41	-6
Virginia	$0.52	51	$ 1.44	35	36	23	$ 367.69	28	12
Washington	$0.55	48	$ 1.05	18	27	32	$ 289.46	16	-14
West Virginia	$0.92	7	$ 2.96	17	46	35	$ 249.93	-28	-18
Wisconsin	$0.54	50	$ 0.79	22	44	43	$ 191.59	7	-21
Wyoming	$1.13	4	$ 0.48	30	38	37	$ 232.33	-33	-7
Min	0.52		0.12				80.56	-41	-40
Second Smallest	0.54		0.14				124.12	-41	-34
Max	3.10		9.80		51.00		2212.06	36	41
Second Largest	1.46		4.69		50.00		730.43	34	37
Mean	0.78		1.30		26.00		391.23		
Median	0.69		0.71		26.00		325.57		
Std. Dev.	0.38		1.67		14.87		305.05		