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ROBBERY VIOLENCE*

PHILIP J. COOK**

I. INTRODUCTION

Robbery is both a property crime and a crime of violence. The definition of robbery delineates the relationship between these two dimensions: theft or attempted theft by force or the threat of violence. Victim losses from robbery-related theft are usually quite small; victim survey results indicate that only 15% of noncommercial robberies in 1983 resulted in a theft of more than \$250.¹ The violence element of robbery makes it a serious crime. In all, approximately 30% of the victims of noncommercial robbery are injured, and about one-third of these injuries require treatment at a hospital.² More importantly, approximately 2000 robbery victims are murdered each year.³

Robbery is particularly fear-inspiring, as it usually involves an unprovoked surprise attack by strangers on an innocent victim. This fear has serious consequences. James Q. Wilson and Barbara Boland note that "[i]t is mostly fear of robbery that induces many citizens to stay home at night and to avoid the streets, thereby diminishing the sense of community and increasing the freedom with which crimes may be committed on the streets."⁴

This Article will provide a description of the patterns of robbery violence, including demographic characteristics of robbers and their victims as well as their relationship to each other, the type of weapon used, and the location of the crime. This description is

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¹ U.S. DEP'T. OF JUSTICE, BUREAU OF JUSTICE STATISTICS, CRIMINAL VICTIMIZATION IN THE UNITED STATES, 7 (1983).

² *Id.*

³ U.S. DEP'T. OF JUSTICE, FED. BUREAU OF INVESTIGATION, CRIME IN THE UNITED STATES, 12 (1981-85).

⁴ Wilson & Boland, *Crime*, in THE URBAN PREDICAMENT 179, 183 (W. Gorham & N. Glazer eds. 1976).

drawn from data sets compiled by the Federal Bureau of Investigation and the Bureau of Justice Statistics. The statistics are national in scope and include thousands of observations on both robberies and robbery murders. The findings demonstrate that robbery homicides are more similar to other robberies than other homicides. The weapon type data provide an important exception to this generalization: although guns predominate in all types of homicide, they are relatively rare in nonfatal robberies.

This Article will develop evidence regarding the causal relationship between robbery and robbery murder. If robbery murder is an intrinsic by-product of robbery, then it follows that effective programs to reduce the robbery rate will also reduce the robbery murder rate. Alternatively, if robbery murders constitute an etiologically distinct group of events, then there will be no correlation between the rates of robbery and robbery murder, and, consequently, policies directed at one will have little effect on the other. The evidence strongly favors the "intrinsic by-product" characterization of robbery murder because variations in the robbery rate are closely linked to variations in the robbery murder rate. Finally, some types of robbery are much more likely to result in death than others. It is estimated that a reduction in gun robberies would save approximately five times as many lives as would a similar reduction in non-gun robberies.⁵

Part Two of this Article presents a description of robbery violence patterns. This description includes a multivariate analysis of nonfatal violence estimated from National Crime Survey (NCS) micro data files⁶, as well as a three-way comparison between robbery, robbery murder, and other homicides. Part Three of this Article explores the relationship between the intertemporal changes in city-specific robbery rates and the corresponding robbery murder rates of 43 large American cities. Finally, this Article discusses the relevance of these findings to several policy questions, such as the appropriate sanctions for such crimes and methods of deterrence.

II. PATTERNS OF ROBBERY VIOLENCE

Some robberies have much more serious consequences for the victims than others. Of the 1.5 million robbery attempts perpetrated each year,⁷ the vast majority result in little or no loss of prop-

⁵ See *infra* p.371.

⁶ U.S. DEP'T. JUSTICE, BUREAU OF JUSTICE STATISTICS (1979).

⁷ COOK, ROBBERY IN THE UNITED STATES: AN ANALYSIS OF RECENT TRENDS AND PATTERNS 3 (1983).

erty or physical injury. However, one in every 750 robbery victims is killed, and one in every forty is seriously injured.⁸

Developing a comprehensive description of robbery violence patterns is hampered by a lack of data. The Uniform Crime Reports data on robbery lack much detail. In particular, these reports do not contain information regarding the prevalence of injury to the robbery victims. The National Crime Survey (NCS) data include much more detail information about each of the robberies reported by survey respondents. These data also provides estimates of non-fatal injury patterns.⁹ The NCS data, however, include no information about robberies committed against commercial targets, which constitute 20% of all robberies, and exclude information about robbery murders. This information is compiled by the FBI from Supplementary Homicide Reports submitted by state and local jurisdictions.¹⁰

The first description of robbery violence patterns presented below is compiled from NCS data and is, therefore, limited to non-fatal, non-commercial robberies. The second section utilizes Supplementary Homicide Reports data to characterize robbery murder and to compare it with robbery and other types of criminal homicide.

A. NON-FATAL INJURIES

Data for this description were taken from NCS files for the years 1973 to 1979 and include all cases reported to NCS interviewers which involved at least one male robber, age 18 or older.¹¹ Robberies committed by younger teenagers were excluded to avoid dilution of the sample by a large number of relatively trivial events such as extortion of lunch money from school children.

Table 1 reports the results of this multivariate probit analysis. The independent variables were selected from those available in the NCS records on the basis of previous findings and common sense. With one exception, these variables are binary, and they indicate the presence or absence of some characteristic, such as the presence of three or more robbers at the time of the incident or the fact that the victim was black. The only variable that is not binary is the median

⁸ *Id.* at 6. See also Cook, *Is Robbery Becoming More Violent? An Analysis of Robbery Murder Trends Since 1968*, 76 J. CRIM. L. & CRIMINOLOGY 480 (1983).

⁹ For an introduction to the NCS, see Sparks, *Surveys of Victimization—an Optimistic Assessment*, in CRIME AND JUSTICE: AN ANNUAL REVIEW OF RESEARCH 1 (M. Tonry & N. Morris eds. 1981).

¹⁰ See U.S. DEP'T. OF JUSTICE, FED. BUREAU OF INVESTIGATION, UNIFORM CRIME REPORTING HANDBOOK (1980).

¹¹ This data set was provided to the author by Wesley Skogan, Professor of Political Science, Northwestern University.

income of the neighborhood in which the victim lives. This variable was drawn from 1970 census data and is measured in thousands of dollars. The estimated probability of violence in a robbery incident with specified characteristics can be calculated by summing the constant and the coefficient estimates associated with each of the applicable characteristics and converting the resulting Z-score to a probability by use of a table of the standard normal distribution.

Three definitions of "violence" are represented by the probit analysis reported in table 1. The most serious cases of violence result in victim hospitalization for treatment of his wounds. This type of violence is rare and occurs in only 2.6% of the cases included in the NCS sample.¹² The second definition of "violence" is "hospital treatment." This category comprises 10% of all cases and includes victims admitted to a hospital as well as victims treated in an emergency room and released. The third and broadest definition of "violence" is "victim attacked," which includes 51% of all cases.¹³

Each of the estimated coefficients in the last three columns of Table 1 represents a measure of the partial effect of the indicated characteristic of the robbery incident on the likelihood of violence, controlling for the influence of all the other characteristics listed. These estimated coefficients provide insight into the robbery process. Some of the patterns that emerge have been discussed in other literature.¹⁴ Of considerable interest is the relationship between injury prevalence and weapon type. Although there is a direct link between weapon lethality and the likelihood of death in robbery, a number of studies have found that the likelihood of victim injury is related inversely to the lethality of the weapon.¹⁵ This surprising pattern in victim injury can be attributed to the weapons-related difference in robbery technique. Non-armed robberies and robberies with clubs, known as "muggings" or "yokings", usually are initiated by an attack. Robberies with more lethal weapons, known as "hold-ups," usually are initiated with the threat and/or

¹² A recent study found that gunshot victims in assault and robbery cases were severely underrepresented in the NCS sample. See Cook, *The Case of the Missing Victims: Gunshot Woundings in the National Crime Survey*, 1 J. QUANT. CRIMINOLOGY 91 (1985).

¹³ The phrase "victim attacked" is derived from a question in the National Crime Survey which reads: "Did person[s] hit you, knock you down, or actually attack you in any way?" The violence may be appropriately characterized as "victim attacked" if the victim responds affirmatively to this question.

¹⁴ See, e.g., J. CONKLIN, *ROBBERY AND THE CRIMINAL JUSTICE SYSTEM* (1972); Cook, *A Strategic Choice Analysis of Robbery*, in *SAMPLE SURVEYS OF THE VICTIMS OF CRIME* 173 (W. Skogan ed. 1976); Zimring & Zuehl, *Victim Injury and Death in Urban Robbery: A Chicago Study*, 15 J. LEGAL STUD. 1 (1986).

¹⁵ See note 11 and accompanying text, Skogan, *Weapon Use in Robbery*, in *VIOLENT CRIME: HISTORICAL AND CONTEMPORARY ISSUES* (J. Inciardi & A. Pottieger eds. 1978).

TABLE 1
CORRELATES OF USE OF VIOLENCE IN NONCOMMERCIAL ROBBERY

Robber Characteristics	Relative Frequency (%)	PROBIT ANALYSIS OF COMPLETE SAMPLE ESTIMATED COEFFICIENTS		
		Victim Attacked	Hospital Treatment	Hospitalized Overnight
1. 3 or more robbers	22	.36**	.22**	.03
2. Black	55	-.01	.02	.01
3. Stranger to victim	74	-.09	-.27**	-.22*
4. Weapon type ("unarmed" category omitted)				
a. gun	22	-1.14**	-.14	.35**
b. knife	19	-.76**	.13	.30*
c. other	11	-.18**	.69**	.62**
d. unknown	11	-.45**	-.51**	-.01
Victim Characteristics				
5. 2 or more victims	8	-.27**	-.34**	-.29
6. Black	21	.05	.25**	.23*
7. Age ("12-17" category omitted)				
a. 18-24	33	.10	.26**	.42*
b. 25-54	40	.02	.30**	.36*
c. 55+	14	.17*	.55**	.87**
8. Male	67	-.17**	.09	.22*
9. Median income of neighborhood	—	-.018**	-.009	omitted
10. Location ("outdoor" category omitted)				
a. Home	14	.01	.05	-.21
b. Other indoor	16	-.11	-.07	-.15
11. Nighttime	63	.23**	.23**	.18
12. Constant		.59**	-1.68**	-2.75**
Sample Counts		1337/2608	260/2608	76/2875

* Coefficient exceeds standard error by factor of 1.65 - 1.96.

** Coefficient exceeds standard error by factor of 1.96 or more.

Sample: All cases included in the National Crime Survey, 1973-1979, involving at least one male robber age 18 or more.

the display of the weapon. This choice of technique in both cases reflects the robber's objective of overcoming the victim's willingness to part with his or her valuables. The mere threat of injury is sufficient if made credible by the display of a gun or a knife.

If a robbery victim is attacked, the seriousness of injury is determined in part by the weapon employed in the attack. Thus, we expect to find greater weapon-related disparities in minor injury rates than in serious injury rates. In addition, as will be discussed below, the likelihood of *fatal* injury is highest in robberies involving the use of the most lethal weapons, reversing the weapons-related pattern for minor injury.

A second important correlate of robbery violence is the age of the victim. Older victims, age fifty-five or above, are more likely than others to be attacked, to seek hospital treatment, and to be hospitalized overnight. Data presented in Table 2 indicate that older victims are also much more likely to be killed in a robbery. This pattern may reflect the relative vulnerability of older victims rather than a systematic difference in the nature of the robbers' assaults.

Third, robberies by strangers appear less likely to cause serious injury than robberies by acquaintances. This finding may be the result of a survey reporting bias.¹⁶ One may also speculate that robberies by acquaintances involve nonpecuniary motives conducive to violence such as a desire to avenge a drug rip-off.

Unfortunately, robbery murders cannot be incorporated into this data set. The analysis of robbery murder patterns presented in the next section, however, does include some of the same variables. These patterns are similar to those patterns for serious injuries discussed in Table 1.

B. ROBBERY MURDER

The FBI's Uniform Crime Reports statistics for 1981 indicate that 22,516 criminal homicides were committed in that year.¹⁷ Information on "circumstances/motives" was available for 20,053 of these homicides, of which 2,086 classified as "robbery-related."¹⁸ This latter statistic is based on information submitted by local police departments known as Supplementary Homicide Reports (SHR). The SHR provide detailed information on each criminal homicide occurring in the department's jurisdiction. The SHR are the only routinely available source of information concerning a number of characteristics of robbery related homicides. These data are neither completely reliable nor accurate.¹⁹

The SHR circumstance codes include a "robbery" category to be used for murders that occur "in conjunction with" a robbery. Most homicide investigators determine whether the motive of the crime was robbery-based by means of circumstantial evidence, such as whether the victim's wallet is missing, the location of the killing,

¹⁶ See Sparks, *supra* note 9 (respondents are less likely to report a crime committed against them by a relative or acquaintance than by a stranger, other things being equal).

¹⁷ U.S. DEP'T. OF JUSTICE, FED. BUREAU OF INVESTIGATION, CRIME IN THE UNITED STATES, 1981 7 (1982).

¹⁸ *Id.* at 12.

¹⁹ Loftin, *The Validity of Robbery-Murder Classifications in Baltimore*, 1(3) VIOLENCE AND VICTIMS 191 (1986).

TABLE 2
PERCENT DISTRIBUTION OF CRIMINAL HOMICIDES AND ROBBERIES
BY VICTIM AND OFFENDER CHARACTERISTICS - 1981

	ROBBERY		ROBBERY MURDER		NON FELONY HOMICIDE	
Victim Sex						
Male	63		85		78	
Female	37		15		22	
Victim Race						
White	73		64		50	
Black	25		33		48	
Other	3		2		2	
Victim Age						
Less than 20	27		6		12	
20-34	40		34		49	
35-49	15		21		24	
Over 49	18		39		15	
Offender Sex						
Male	92		92		82	
Female	4		2		17	
Both	4		6		1	
(Unknown)	(0.9)		(36.3)		(7.7)	
Offender Race						
White	34		39		48	
Black	56		58		50	
Other	5		1		2	
Mixed	4		2		0	
(Unknown)	(2.2)		(36.4)		(8.1)	
Offender Age						
Less than 21	40		33		13	
21 and over	46		56		85	
Mixed	14		11		2	
(Unknown)	(4.3)		(39.1)		(8.9)	
Victim Race	White	Black	White	Black	White	Black
	Off	Off	Off	Off	Off	Off
White	94	61	92	49	95	7
Black	6	39	7	51	4	93
Weapon Type	ROBBERY		ROBBERY MURDER		NON FELONY HOMICIDE	
Gun	17		65		65	
Knife or Other	28		25		25	
Personal or						
Unknown	56		11		10	
Relationship						
Relative	15		2		30	
Acquaintance			26		58	
Stranger	85		73		12	
(Unknown)			(34.2)		(10.9)	
N			2,091		11,599	

Definitions: "Unknown" entries are percent of all cases for which information on the stated attribute was unknown. Other entries in each column sum to 100 percent.

"Non Felony Homicide" includes all homicides not classified as felony related, suspected to be felony related, or unknown circumstances.

"Robbery" includes noncommercial, nonfatal cases with victims aged 12 or more.

Sources: FBI Supplementary Homicide Reports, microfiles.
 BJS *Criminal Victimization in the United States, 1981*

and the relationship, if any, between the victim and suspect. Cases that have some of the characteristics of robbery may be classified in the SHR system as "suspected felony type" or "unable to determine circumstances." Two recent studies evaluated homicide classification procedures in Chicago²⁰ and Baltimore.²¹ Both studies concluded that while almost all cases officially recorded as robbery-related were correctly classified, a number of cases which were recorded in a different category were probably robbery-related.

Table 2 displays percentage distributions of robbery and robbery-murder cases over a number of dimensions, including the age, sex, and the role of the victim and the offender, the relationship, if any, between the victim and the offender, and the type of weapon used in the commission of the crime. By way of comparison, the distributions over the same dimensions are reported in the third column for "non-felony homicides," which are criminal homicides that did not occur in the context of a robbery or another felony. The first column of Table 2 presents the corresponding distributions of nonfatal robberies, calculated from published data in the 1981 National Crime Survey.²² The NCS sample was drawn from a population that differs in certain respects from the population used for SHR data. The most important difference between NES and SHR data is that commercial robberies are not included in the NCS data. In the recent study of Chicago data, it was found that approximately 15% of the SHR's robbery-related murders occurred in the context of a commercial robbery.²³

Although the data in Table 1 result from a multivariate analysis, the statistics in Table 2 are more primitive because each dimension is considered separately. Hence, there are possible problems in attribution introduced by collinearity among the dimensions. In any event, a comparison of distributions in columns 1 and 2 indicates that robbery murders differ from nonfatal robberies in ways similar to the differences reported in Table 1 between serious injury robberies and other robberies. In comparing robbery murder victims to robbery victims, a disproportionate number of robbery murder victims are over forty-nine years old (39% versus 18%), and are male (85% versus 63%). Robbery murder victims are more likely than robbery victims to be acquainted with or related to the perpetrator (26 % versus 15 %). This conclusion is supported by the sta-

²⁰ Zimring & Zuehl, *supra* note 14.

²¹ Loftin, *supra* note 19.

²² U.S. DEP'T. OF JUSTICE, BUREAU OF JUSTICE STATISTICS, CRIMINAL VICTIMIZATION IN THE UNITED STATES (1981).

²³ Zimring & Zuehl, *supra* note 14.

tistics on racial crossovers: for black offenders, robbery murder victims are more likely to be of the same race than are robbery victims (51% versus 39%).

The greatest difference between robbery murder and other types of robbery is the type of weapon used by the perpetrator. While 65% of all robbery murders are committed with a gun, guns are used in only 17% of all robberies. This result may be viewed as a logical extension of the weapons pattern shown in Table 1. Robbers using guns are relatively unlikely to attack their victims but are relatively likely to inflict serious injury; in other words, gun assaults are more serious than assaults with other weapons.

Comparison of robbery murders with other criminal homicide cases also yields interesting results. The third column of Table 2 reports the percentage distributions for "nonfelony homicides" in 1981. Nonfelony homicides include: all homicides not classified as felony-related, those homicides suspected to be felony-related, or homicides occurring in unknown circumstances. With respect to the demographic characteristics of the offender, robbery murders are much more similar to robberies than to other homicides. Robbers, regardless of whether they kill their victims, are more likely than nonfelony killers to be male, under twenty-one years of age, and nonwhite.

Generally speaking, there is a greater relational distance between victim and offender in robbery and robbery murder cases than in nonfelony homicides.²⁴ Figures in Table 2 reflect that in 85% of the robberies and 73% of the robbery murders, the victim and offender were strangers; however, only 12 % of nonfelony murder cases shared this characteristic. Other statistics give further evidence of this relational distance. With respect to race, only 7% of nonfelony homicides involve black offenders and white victims; the corresponding percentages for robbery murder and nonfatal robbery are 49% and 61% respectively. White offenders, on the other hand, almost always choose whites as victims for all three types of crime. Finally, there is a greater age disparity between victim and offender in robberies and robbery murders than in nonfelony homicides.

In the dimension of weapon type, robbery murder is identical to nonfelony homicide and much different from robbery. Sixty-five percent of both types of killing are committed with guns, while guns were used in only 17% of the robberies.

In considering these statistical comparisons, it is important to

²⁴ *Id.*

keep in mind the imperfections of the data. The lack of data about commercial robberies bias the robbery statistics. For example, commercial robbery is more likely than non-commercial robbery to involve a gun.²⁵ Commercial robbery offenders tend to be older than non-commercial robbers.²⁶ Moreover, the robbery murder statistics may be distorted by the imprecision of police and FBI homicide classifications.²⁷ Finally, offender data for robbery murders and other homicides are incomplete because there are no suspects in some cases. These unknown offenders may have different characteristics than the typical known offenders. None of these problems, however, are severe enough to cast doubt on the basic pattern of findings. Furthermore, these data are the best available and have the virtue of being national in scope.

This description of robbery violence does not preempt the potential usefulness of intensive studies of single jurisdictions. In that context, there is a possibility of obtaining more data on the circumstances of the crime and the characteristics of offenders that are not readily observable, such as prior criminal record²⁸ and drug and alcohol involvement.²⁹

In summary, the more interesting findings from the data in Table 2 are:

- * Robbery and robbery murder are both typically committed by offenders who do not know their victims. Nonfelony homicides, on the other hand, are only rarely committed by strangers.
- * Black offenders choose white victims in half of all robbery murders and in more than half of all robberies. In nonfelony homicides, however, such racial "crossover" is rare.
- * The age of robbery murder victims is considerably older than that of either robbery or nonfelony homicide victims. Furthermore, the percentage of robbery murder victims who are male is higher than the corresponding percentages of either robbery or nonfelony homicides.
- * The final significant difference between robbery and robbery murder is the distribution of weapons. Armed robbery is far more likely to result in death than is an un-armed robbery.

²⁵ See Cook, *Reducing Injury and Death Rates in Robbery*, 6 POLICY ANALYSIS 21, (1980).

²⁶ *Id.*

²⁷ See Loftin, *supra* note 19; Zimring and Zuehl, *supra* note 14, at 4.

²⁸ See P. COOK & D. NAGIN, DOES THE WEAPON MATTER? AN EVALUATION OF A WEAPONS-EMPHASIS POLICY IN THE PROSECUTION OF VIOLENT OFFENDERS (1979).

²⁹ See Goldstein, *Homicide Related to Drug Traffic*, 62 BULL. N.Y. ACAD. MED. 509 (1986); Zimring & Zuehl, *supra* note 14.

III. MURDER AS A BY-PRODUCT OF ROBBERY

A. ALTERNATIVE SCENARIOS

The statistical evidence presented in Part II suggests that homicides classified as "robbery related" have much in common with nonfatal robberies. However, criminal law and criminal justice system operating procedures view robbery murder as being much more analagous to other murders than to other robberies. The police investigation of a robbery murder will be conducted by detectives from the homicide division and will be accorded much higher priority than a robbery. The crime will be recorded as a murder and not as a robbery for uniform crime reporting purposes. In the event of an arrest and subsequent prosecution, the primary charge will be murder. Within the criminal justice system, the robbery component of robbery murder is only relevant as an aggravating circumstance that may influence the degree of murder charged and the priority assigned the case by the prosecutor. In any event, the criminal justice system channels robbery murders on the same track as other murders and channels nonfatal robbery cases on a quite different track. Nevertheless, the potential influence of the criminal justice system on the robbery murder rate is not limited to its success in solving robbery murder cases, because effective robbery-specific policies may reduce robbery murder. These policies include the deterrence of gun use in robbery,³⁰ the education of potential victims concerning the safest way to behave if robbed,³¹ and the reduction of the overall volume of robbery by increasing the likelihood that robbers will be caught, convicted, and punished.³² However, robbery-specific policies will only be effective in reducing robbery murders if murder is in some sense the direct and probabilistic consequence of robbery. If each robbery has an intrinsic and positive probability of resulting in the victim's death, then robbery-specific policies could reduce robbery murder. On the other hand, if robbery murders are etiologically distinct from nonfatal robberies, then policies directed at the latter will have little or no effect on the former. Thus, understanding the causal link between robbery and robbery murder is useful in the search for policies to make robbery a less lethal crime.³³

³⁰ See Cook, *The Influence of Gun Availability on Violent Crime Patterns*, in CRIME AND JUSTICE: AN ANNUAL REVIEW OF RESEARCH 4 (M. Tonry & N. Morris eds. 1983).

³¹ See Cook, *The Relationship Between Victim Resistance and Injury in Noncommercial Robbery*, 15 J. LEG. STUD. 405 (1986).

³² See COOK, *supra* note 7, at 25.

³³ This argument is developed further in Cook, *Reducing Injury and Death Rates in Robbery*, 6 POLICY ANALYSIS 21 (1980).

Possible connections between the robbery and the killing components of a robbery murder are illustrated by the following scenarios:

Scenario 1: Two gun-toting robbers enter a convenience store and order the clerk to lie on the floor. The clerk hesitates and then reaches under the counter. One of the robbers, afraid that the clerk is reaching for a gun, shoots and kills him.

Scenario 2: Three teenagers knock down an elderly woman and run off with her purse. In falling, she hits her head on the sidewalk and later dies from the concussion.

Scenario 3: Two hoodlums break into a room where a large heroin transaction is in progress, kill everyone there, and flee with the drugs and cash.

Scenario 4: Two acquaintances meet on the street and begin arguing about a ten dollar loan that one claims to have made to the other. The argument becomes violent. The "lender" stabs and kills the other. Then, as an afterthought, the lender takes the other's wallet as "compensation" for the loan.

The first two scenarios are meant to represent a class of robberies in which the robbers have the capability, but not the intent, to use lethal violence prior to initiating the robbery. The killing involved is, in effect, a probabilistic outcome of the underlying event. The number of such robbery murders will bear a close causal relationship to the number of such robberies that occur. In the last two scenarios, the murders would also most likely be classified by the police as "robbery related", but the relationship between the killing and the theft is quite different from the first two scenarios. In the third and fourth scenario, the assailants make a decision to use lethal violence that is unrelated to the immediate events of the robbery. A criminal justice system effort to deter robbery might, if successful, eliminate some of the robbery murders of the types illustrated by the first two scenarios. However, the other types of robbery are beyond the reach of a robbery-specific program.

Some robbery murders, therefore, are robberies that result in the victim's death as a result of a mistake, an escalation of violence induced by victim resistance, or some other factor inherent in the robbery process. In other robbery murders, the killing is a distinct event that occurs in conjunction with a robbery. Which sort of robbery murder predominates? Is robbery murder more closely related to robbery or to criminal homicide in its essential etiology? These are the questions that motivate the statistical inquiry which follows.

B. INTERCITY DIFFERENCES IN ROBBERY AND MURDER RATES

If robbery murder is closely linked to robbery, then a close rela-

tionship between robbery rates and robbery murder rates, both over time and across jurisdictions, would be expected. As is apparent in the statistics in Table 2, there is indeed such a close relationship. The proper interpretation of this relationship requires a careful examination of the results.

1. *Data*

Available data permitted calculation of robbery rates, robbery murder rates, and criminal homicide rates by weapon type in each of forty-three large United States cities between 1976 and 1983. Robbery data were taken from the FBI's unpublished "Return A" files. Homicide rates were computed from the FBI's Supplementary Homicide Report files, which are also unpublished. Population-based rates for each city were averaged over the four years of "Period 1," 1976-79, and of "Period 2," 1980-83. Combining data over a four-year period in this fashion was necessary to provide meaningful robbery murder rates for the smaller cities in the sample, some of which had fewer than ten robbery murders in any one year.

2. *Results*

Table 2 indicates that the correlation between the robbery rate and the robbery murder rate is .81 for Period 1 and .80 for Period 2. Clearly, these two crime categories exhibit very similar geographic patterns, as would be expected if murder were a "by-product" of robbery. However, the fact that robbery murder is even more highly correlated with the overall homicide rate (net of robbery murders) calls this interpretation into question; this correlation is .83 in Period 1 and .87 in Period 2. Given this result, it appears that all three variables (robbery rate, robbery murder rate, overall homicide rate) are indicators of some underlying characteristic of these cities, which could be called "violence proneness." Cities with high robbery rates have high robbery murder rates and high rates of other types of homicide.

One method for sorting out the separate effects of somewhat collinear variables is a multivariate regression analysis. Table 3 presents the results of two sets of ordinary least squares regressions. In each case, the robbery murder rate per 100,000 is the dependent variable, computed for Period 1, for Period 2, and for the change between the two periods. The independent variables are computed for the corresponding periods.

From the results of Regression 2, it is apparent that the robbery rate and the net homicide rate make separate and distinguishable

TABLE 3
ROBBERY MURDERS PER 100,000, 43 CITIES ORDINARY LEAST
SQUARES REGRESSION RESULTS

	ESTIMATED COEFFICIENTS (ESTIMATED STANDARD ERRORS)		
	Period 1 1976-79	Period 2 1980-83	Change Period 2 — Period 1
Regression 1			
Constant	-.406 (.368)	-.012 (.364)	-.294 (.140)
Robberies/1000	.498 (.057)	.363 (.043)	.305 (.058)
R ²	.65	.64	.41
Regression 2			
Constant	-1.136 (.293)	-.668 (.266)	-.259 (.146)
Robberies/1000	.284 (.054)	.176 (.040)	.256 (.081)
Net Homicides/100,000	.112 (.018)	.107 (.015)	.028 (.033)
R ²	.82	.83	.42

Note: "Net Homicides" means total criminal homicides minus robbery murders.

Sources: Robbery data: FBI's Return A file for individual cities. Homicide data: FBI's Supplementary Homicide Reports files.

contributions in explaining the cross-section structure of robbery murder rates. Interestingly, when the same regression is run on the data for the changes in rates between the two periods, reported in the last column, the coefficient on the net homicide rate is small and statistically insignificant. Thus, the rate of change in the robbery murder rate is closely linked to the robbery rate, but not the net homicide rate, of the forty-three cities. These results suggest that the intertemporal relationship between robbery and robbery murder is not a reflection of the city "violence proneness" factor, as measured by the homicide rate, but rather indicates a direct causal link between the robbery rate and the robbery murder rate.

B. THE IMPORTANCE OF WEAPON TYPE

While it is natural to evaluate the seriousness of robbery by viewing its consequences to the victim, i.e., degree of injury and financial loss, the legal distinction is actually based on the robber's choice of weapon. In particular, armed robbery is subject to more severe punishment than unarmed, "strong-arm" robbery. A number of states have recently delineated a further distinction be-

tween armed robbery and unarmed robbery.³⁴ A survey of 900 assistant prosecutors found that they perceived gun robbery as substantially more serious than robbery with a blunt object or with physical force.³⁵ One argument in favor of such weapons-based distinctions derives from the notion of "objective dangerousness": that the likelihood of serious injury or death in robbery is influenced *inter alia* by the type of weapon employed by the assailant. Hence, the seriousness of a robbery is associated with weapon type regardless of the outcome.³⁶ Gun robberies, therefore, are more dangerous than other armed robberies, and armed robberies are more dangerous than strong-arm robberies. If this hypothesis is correct, then effective policies to discourage the use of lethal weapons in robbery will reduce the fraction of robberies that result in serious injury or death.

In Part II, it was reported that a much higher fraction of robbery murders than robberies are committed with a gun. Table 4 presents the robbery murder/robbery ratios for each weapon category, using SHR data for large cities. The third row of this table demonstrates that the likelihood of death in a gun robbery (about 1

TABLE 4
ROBBERY MURDER—ROBBERY RATIOS FOR LARGE CITIES, BY
WEAPON TYPE, 1977

	GUN	KNIFE	OTHER	UNARMED
1. Ratios calculated from Return A Robbery Count	0.70%	0.50%	0.19%	0.11%
2. Robbery Reporting Rate	.590	.260	.231	.208
3. Corrected Ratios	0.41%	0.13%	0.04%	0.02%

Notes:

Row 1: Each entry is the ratio of robbery murders committed with the stated weapon type (SHR data) to the number of robberies reported to the police (Return A data) for cities over 250,000 population, 1977. Ratios are stated in percent form.

Row 2: Each entry is the ratio of all U.S. robberies reported to the police. (*Crime in the United States, 1976*) to the number of robberies estimated from the National Crime Survey (*Criminal Victimization in the United States, 1976*), for the stated weapon type.

Row 3: Each entry is the product of corresponding entries in Rows 1 and 2. The implicit assumption here is that the national robbery reporting rates in 1976 were the same as urban robbery reporting rates in 1977.

³⁴ E. JONES & M. RAY, *HANDGUN CONTROL: LEGISLATIVE AND ENFORCEMENT STRATEGIES* (U.S. Dept. Justice, 1981).

³⁵ Roth, *Prosecutor Perceptions of Crime Seriousness*, 69 J. CRIM. L. & CRIMINOLOGY 232, 241 (1978).

³⁶ F. Zimring, *The Medium Is the Message: Firearm Calibre as a Determinant of Death From Assault*, 1 J. LEG. STUD. 97 (1972).

in 250) is three times greater than the likelihood of death in knife robbery, which is, in turn, about three times greater than the corresponding likelihood of death in armed robbery involving other weapons. The likelihood of death in unarmed robbery, one in 5000, is the lowest.

In sum, the likelihood of death in robbery is linked to the lethality of the weapon, with "lethality" defined as the amount of effort and strength required to kill. One could hypothesize that the relatively high death rate in gun robbery is the direct consequence of the fact that a loaded gun provides the assailant with the means to kill quickly at a distance and without much skill, strength, or danger of a counterattack. A passing whim or even the accidental twitch of a trigger finger is sufficient. Thus, a gun is intrinsically more dangerous than other types of weapons.

Although this argument is certainly plausible, the ratios in Table 4 may exaggerate the differences due to weapon type. The robber's choice of weapon is correlated with other observable characteristics of the robbery such as the type of target and the age and number of robbers involved. The choice of weapon may also be associated with unobservable characteristics of the robbery, such as the assailant's intent. If the robber plans to kill the victim, then presumably he will try to equip himself with the most appropriate tool for that task. For most assailants, this tool would be some type of firearm.³⁷ Thus, armed robberies differ from other robberies; these differences, however, are not all based upon weapon type. Other dimensions of armed robbery may account for some part of the large differences in death rates shown in Table 4.

Strong evidence that gun robberies are nonetheless intrinsically more dangerous than other types of robberies is presented in Table 5. The equations estimated in this table are identical to those used in Table 3, except that the robbery rate is replaced with two variables: the gun robbery rate, and the nongun robbery rate. Looking at the results of change data in Regression 2, we see that a one unit increase in the gun robbery rate is associated with a 0.432 percentage point increase in the robbery murder rate. This percentage point increase represents approximately five times the effect of a one unit increase in the nongun robbery rate. As noted above, a change in the net homicide rate has little or no influence on the robbery murder rate.

Thus, the robbery murder rate is much more sensitive to

³⁷ A more thorough discussion of the interaction between intent and weapon type is presented in Cook, *supra* note 30.

TABLE 5
ROBBERY MURDERS PER 100,000, 43 CITIES ORDINARY LEAST
SQUARES REGRESSION RESULTS

	ESTIMATED COEFFICIENTS (ESTIMATED STANDARD ERRORS)		
	Period 1 1976-79	Period 2 1980-83	Change Period 2 — Period 1
Regression 1			
Constant	-.524 (.275)	-.048 (.308)	-.175 (.159)
Gun Robberies/1000	1.043 (.103)	.884 (.130)	.479 (.128)
Non Gun Robberies/1000	.153 (.073)	.050 (.083)	.141 (.122)
R ²	.81	.75	.44
Regression 2			
Constant	-.928 (.287)	-.603 (.276)	-.132 (.165)
Gun Robberies/1000	.666 (.159)	.320 (.160)	.432 (.137)
Non Gun Robberies/1000	.173 (.067)	.123 (.069)	.081 (.137)
Net Homicides/100,000	.070 (.024)	.095 (.020)	.031 (.032)
R ²	.84	.84	.45

Note: "Net Homicides" means total criminal homicides minus robbery murders.

Sources: Robbery data: FBI's Return A file for individual cities. Homicide data: FBI's Supplementary Homicide Reports files.

changes in a city's gun robbery rate than to its nongun robbery rate. A reduction in the gun robbery rate yields a greater reduction in robbery murder than a corresponding reduction in nongun robbery. While this evidence is based on "natural" variations in crime data for forty-three cities, it is reasonable to infer that explicit policies which are successful in reducing gun use in robbery will also reduce the robbery murder rate.

C. SUMMARY

Homicides classified as "robbery-related" may result from a number of different motivational patterns. In some cases, the victim is killed by accident in response to the victim's resistance or as a result of a momentary vicious impulse. In such cases, it is reasonable to view the killing as a by-product of the robbery. Effective policies to reduce the robbery rate would also be effective in reducing such robbery-related killings.

Not all robbery-related murders have this "Russian roulette" character. In some cases, the murder is a planned part of the robbery; in others, the assailant's primary motive is to kill the victim, and the robbery is a secondary concern. The volume of such cases will be less closely linked to the overall volume of robberies.

The evidence presented above strongly indicates the empirical importance of the first sort of robbery murder. In forty-three cities, the change in the robbery murder rate between two four-year periods was highly correlated with the contemporaneous change in the robbery rate. Although it is possible that some "third cause" accounts for this correlation, this appears unlikely. A contemporaneous change in the overall level of lethal violence in these cities can be ruled out as a "third cause." Such a change would be reflected in the net criminal homicide rate. However, when that variable was included in the regression on change data, it had essentially no effect on the results. Thus, robbery murder rate patterns suggest that killings were an intrinsic by-product of robbery. If this conclusion is valid, then policies affecting robbery rates will also affect robbery murder rates.

Different types of robberies are characterized by different probabilities of generating this "by-product." The age of the victim, the time of day, the victim-offender relationship, and other factors, may influence the likelihood that the robbery victim will be killed. One factor that is of special interest due to its importance in the criminal law is the type of weapon used by the robber. It is expected that gun robberies would be intrinsically dangerous due to the relative ease with which a gun robber can kill his victim. The percentage of gun robberies that result in murder is three times higher than the percentage of murders resulting from knife robberies.³⁸ This ratio is higher with respect to other weapon types. Regression results on the robbery murder rates for forty-three cities demonstrates that the use of a gun has a direct causal effect on the likelihood of the victim's death.³⁹ In these regressions, a change in the gun robbery rate is estimated to have a five times greater effect on the murder rate than would a similar change in the nongun robbery rate.⁴⁰

IV. CONCLUDING THOUGHTS ON POLICY

Violence and the possibility of injury make robbery a serious

³⁸ See *supra* 371, Table 4.

³⁹ See *supra* 373, Table 5.

⁴⁰ See *supra* 371.

crime. The criminal justice system can respond to this violence both directly and indirectly. The direct response is to punish robberies that result in serious injury or death more harshly and to give higher priority to the investigation and prosecution of such robberies than to those in which the victims are not injured. The indirect response is to give high priority to convicting and punishing robbers who commit relatively dangerous robberies, whether or not they injure their victims.

The criminal justice system obviously places a high priority on robbery murder cases. The felony murder rule and capital punishment statutes facilitate prosecution and the imposition of severe punishment for these cases. The threat of severe punishment resulting from this direct response to robbery violence may have some general deterrent value. Surprisingly, however, the high priority given to robbery killings does not necessarily carry over to serious injury cases. Some jurisdictions do not appear to distinguish between robbery defendants in injury cases and robbery defendants in otherwise similar cases in which the victim was not injured.⁴¹

The indirect criminal justice system response to robbery violence is reflected in the distinction between armed and unarmed robbery. This distinction plays an important role in prosecution and sentencing. A further distinction between gun robberies and other armed robberies appears justified by wide variations in the fatality rate among different weapon categories. More persuasive evidence of the objective dangerousness of gun robberies is found in the regression results of Part III, which demonstrate the close link between variations in the gun robbery rate and the robbery murder rate.

Gun robberies can be deterred by means other than more severe sentencing. For example, since gun robberies are concentrated on commercial targets, programs to discourage commercial robbery, such as installing automatic cameras⁴² and instituting exact change policies,⁴³ are, in effect, anti-gun robbery programs. A quite different approach is to discourage the use of guns in robberies by reducing the general availability of guns or by instituting stringent

⁴¹ See COOK & NAGIN, *supra* note 28; P. Rossi, E. Weber-Burdin & H. Chen, *Effects of Weapons Use on Felony Case Disposition: An Analysis of Evidence from the Los Angeles PROMIS System* (1981)(unpublished manuscript).

⁴² D. WHITCOMB, SEATTLE—FOCUS ON ROBBERY—THE HIDDEN CAMERAS PROJECT (Law enforcement Assistance Administration—National Institute of Law Enforcement and Criminal Justice, 1979).

⁴³ Chaiken, Lawless & Stevenson, *The Impact of Police Activity on Subway Crime*, 3 J. URBAN ANALYSIS 173, 186-189 (1974).

enforcement of anti-carrying ordinances.⁴⁴ The evidence in Part III suggests that a reduction in the gun robbery rate achieved by these or other means will reduce the robbery murder rate.

Since criminal justice system resources are scarce, it is necessary to consider the likely consequences if increased priority for gun robbery cases comes at the cost of reduced priority to other types of robbery. There has been considerable speculation about the net social benefit of engineering a reduction in the fraction of armed robberies committed with guns, while leaving the overall armed robbery rate unchanged.⁴⁵ Based on the evidence in Parts II and III, it appears that robbery killings would decline, serious injuries would remain more or less constant, and minor injuries would increase.

The type of weapon used by the robber is not the only correlate of robbery violence. A number of others were identified in Part II, the most important of which is the age of the victim. The probabilities that a victim over age fifty will be attacked, injured, or killed during a robbery are much higher than for other age groups. The explanation for these results is not immediately obvious but deserves consideration in formulating criminal justice system policy.

Therefore, using the best and most extensive data available with national scope, some important patterns in robbery violence have been documented. Injury and death rates differ widely depending on the circumstances and the characteristics of the victims and offenders. However, robberies resulting in serious injury or death are not primarily the result of a distinct causal process. Rather, it appears that robbery violence is a probabilistic by-product of robbery encounters. Thus, it is logically possible to reduce the robbery murder rate indirectly by policies directed at nonfatal robbery. This indirect approach will be most effective in reducing deaths if it is directed at categories of robbery that are most dangerous, such as gun robberies.

⁴⁴ See Cook, *supra* note 30.

⁴⁵ See Cook, *supra* note 33, at 44-45; Skogan, *supra* note 15, at 72.