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Victim Resistance and Offender Weapon Effects in Robbery

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What happens when victims resist robbers? Logistic regression analysis of over 4500 sample robbery incidents reported in the 1979–1985 National Crime Surveys reveals the following about various forms of victim resistance. Self-protection (SP) of any kind apparently reduces the probability of the robbery being completed, i.e., the robber getting away with the victim's property. Armed resistance is more effective than unarmed resistance, and resistance with a gun, though relatively rare, is the most effective victim response of all. Resistance with a gun also appears to reduce the likelihood of the victim being injured, while two types of resistance appear to increase it: (1) unarmed physical force against the robber and (2) trying to get help, attract attention, or scare the robber away. The robber's possession of a gun appears to inhibit victim resistance, which can sometimes provoke a robber to attack; robber gun possession thereby reduces the probability of victim injury. However, even controlling for victim resistance, robber gun possession is associated with a lower rate of injury to the victim. Finally, robbers with handguns are much more likely to complete their robberies, and those with knives and other weapons are somewhat more likely to do so, compared to unarmed robbers.

KEY WORDS: robbery; victim resistance; gun control; guns; weapons.

1. INTRODUCTION

Until recently, criminology focused its attention primarily on the behavior of criminals and on criminal justice actors who responded to the behavior of criminals. With the advent of victim surveys, attention shifted to the behavior of victims and information became available which shed light on how victims could influence both the frequency of criminal attempts and the outcome of those events. More specifically, study is now being devoted to the consequences of victim resistance. Special controversy surrounds the effects of armed resistance.

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Regarding offenders, the corresponding issue is the effects of robbers using weapons against victims, which can affect the likelihood of victim resistance, completion of the crime, whether victims are hurt, and how seriously they are hurt. This paper assesses the impact of victim resistance, especially armed resistance, and the impact of robbers' possession and use of guns, on the likelihood (1) of the robbery being completed (i.e. the victim loses money or other property) and (2) of the victim being injured.

2. THEORY

How does victim resistance, and especially armed resistance, affect the outcomes of robberies? Victim resistance may increase the likelihood that the robber will be delayed or detained long enough for police to arrive and capture the robber. Resistance which involves physical force or use of a weapon increases the likelihood that the robber will suffer injury or death. Conventional utilitarian deterrence theory would predict that resistance raises the risks or costs of continuing the robbery attempt. Therefore, resistance should decrease, to at least some degree, the probability that robbers will complete the robbery and gain the victim's property.

The impact of victim resistance on whether the victim is injured is not so easy to predict. It could be argued that victim resistance communicates to robbers the idea that the victim is dangerous to them, or at least difficult to control, and that they should therefore terminate the interaction, before either robbing or hurting the victim. On the other hand, it can also be argued that the victim's resistance could anger some robbers and provoke an attack, or trigger an attack to stop further resistance. Consequently, the direction of the effect of resistance on injury cannot be clearly predicted on a priori logical grounds.

Why do robbers carry and use guns and other weapons, and how does their weapon use affect the outcomes of robberies? According to Conklin (1972, pp. 110–112), weapons serve four functions for a robber: (1) they create a buffer zone between the offender and the victim, (2) they intimidate the victim into refraining from resistance and relinquishing his or her valuables, (3) they occasionally make good the robber's threats, by their use in an attack, and (4) they ensure escape from the scene and thereby reduce the chances of an arrest. Conklin's interviews with incarcerated robbers lead him to discount the notion that weapons serve as psychological props to give the robber feelings of omnipotence or masculinity. These ideas would lead one to expect that robber possession and use of guns would (1) reduce the probability that the victim would resist and (2) increase the probability that the robbery would be completed, with the robber escaping with the victim's valuables.

The effects on victim injury are not so clear. Weapons in the hands of robbers should help convince victims to not resist, which should reduce the likelihood of victim injuries (Hindelang, 1976, p. 212). Further, robbers without weapons may have to use physical attacks against victims as opening moves in the robbery encounter, as a means of deterring resistance. This would be preemptive violence used as a substitute for the intimidating power of a weapon. In contrast, robbers with weapons may be confident they can forego an actual attack and can rely solely on a verbal threat backed up by their weapon. Luckenbill (1980) found that robbers with guns or knives never opened the encounter with an attack but, rather, "opened with a command for compliance backed by a threat of force" (p. 367). In contrast, unarmed robbers and those with lesser weapons usually opened with actual attacks. Following this reasoning, weapon possession would reduce the likelihood of attack and injury to the victim because the weapon would serve as a substitute for physical attack, rather than its vehicle (Conklin, 1972, pp. 115–119).

On the other hand, robber weapons also should facilitate attacks which "make good the threat" and help to make the robber's attacks less risky to the robber by deterring victim counterattacks. This might be especially likely in cases where the robber is smaller or weaker than the victim or outnumbered by multiple victims. Weapon possession could thereby encourage robber attack. Given these mixed considerations, it is difficult to derive an unambiguous prediction of the direction of the effect of weapons on the probability of injury.

3. LITERATURE REVIEW

3.1. Victim Resistance

Table I summarizes the methods and findings of prior studies of the impact of victim resistance on robbery outcomes. The literature is limited in both volume and scope of coverage. There are 10 studies, 2 of them unpublished, most devoted to the impact of resistance in general, or sometimes forceful resistance, on the likelihood of injury to the victim. There are a number of problems with these studies. First, four of them rely on records of crimes reported to the police. Police samples are seriously biased with respect to victim resistance, understating the prevalence of victim resistance and distorting its typical consequences. Single-city police samples indicate that victims resist robbers in only 10–26% of robberies (Normandeau, 1968, p. 203; Conklin, 1972, p. 115; McDonald, 1975, p. 201; Block, 1977, p. 85; Block and Block, 1980, p. 630). On the other hand, victim surveys, which cover representative national samples of both crimes reported to the police

Table I. Victim Resistance and Robbery Outcomes

Study	Type of data[a]	Number of controls[b]	Association between victim resistance and Completion[c] R	FR	AR	Injury[c] R	FR	AR
Conklin (1972)	P	1				+		
McDonald (1975	P	0				+	+	+
Hindelang (1976)	V	1	−			+	+	0
Block (1977)	P	2				+		
Cook and Nagin (1979)	V	1				+		
Ziegenhagen and Brosnan (1985)	V	0	−	−	−	±	+	−
Cook (1986)	V	1				±	+	
King (1987)	V	6					+	
Weiner (1987)	P	9				+		
Kleck (1988)	V	0	−	−	−	+	+	−

[a]P, police (and sometimes prosecutor) records; V, victim survey.

[b]Number of control variables used in analyses of resistance–outcome relationship.

[c]Results are reported by type of resistance. R, any kind of resistance, compared to nonresistance; FR, forceful or "active" resistance; AR, armed resistance.

and those not so reported, have consistently indicated, using very similar definitions of resistance, that victims resisted in 50–67% of robberies [U.S. Bureau of Justice Statistics (1990) and corresponding volumes covering earlier years]. Most significantly for the present purposes, police samples disproportionately exclude cases of successful victim resistance. Block and Block (1980, p. 633) compared robbery data from a Chicago victim survey with Chicago police records for the same period and found that if one examined only robberies reported to the police and classified by them as legitimate robberies, 78% of cases in which victims resisted were completed—i.e., the robber got away with the victim's property anyway. However, when all the cases uncovered by the victim survey were examined, the corresponding completion rate was only 41%, much lower than the rate when victims did not resist. Victim resistance appeared far more effective in preventing robbery completion than the police sample indicated. The explanation for this discrepancy was simple: if resistance was successful, it meant the victim suffered neither injury nor property loss; the vast majority of such incidents is never reported to the police, presumably because victims feel they have little to report. Consequently, samples of crimes which come to the attention of the police are systematically biased for judging the efficacy or frequency of victim resistance.

It should be noted that victim surveys and police data probably both understate the frequency of armed resistance in robberies. Since the vast

majority of personal robberies occur on the street or in other public places (U.S. Bureau of Justice Statistics, 1990, pp. 58–59), ordinarily the only way victims could use a weapon for self-protection would be if they had carried the weapon to the crime scene. To admit armed resistance in such circumstances, either to police or to U.S. Census Bureau victim survey interviewers, would necessarily entail confessing to unlawful weapon carrying, a crime classified as a felony in most states. Since it seems likely that many victims would be reluctant to do this, the prevalence of armed resistance is presumably underestimated in both major sources of information.

3.1.1. Victim Resistance and Robbery Completion

Of the studies based on more representative victim survey data, only Hindelang (1976), Ziegenhagen and Brosnan (1985), and Kleck (1988) addressed the impact of resistance on completion. The cross-tabular findings of all three studies support the idea that victim resistance reduces the probability of a robbery being completed. Hindelang's (1976, pp. 241–242) analysis of eight city victim surveys showed lower robbery completion rates when victims used some kind of self-protective measures (32%, vs 81% completed when no self-protection was used). Ziegenhagen and Brosnan's study of 13 city victim surveys was the first to examine specific types of forceful and nonforceful resistance, showing that all types were associated with a lower probability of property loss (p. 689). Kleck's (1988) cross-tabular analysis of National Crime Survey (NCS) data examined eight categories of self-protection and found that resistance in general, forceful resistance, and armed resistance were all associated with lower rates of robbery completion than was nonresistance and that gun resisters, although rare within the NCS samples, experienced the lowest completion rates of all. Neither of the other two studies separated gun resistance from other kinds of resistance, though Ziegenhagen and Brosnan found that armed resistance in general was more effective than unarmed resistance.

3.1.2. Victim Resistance and Injury

All 10 studies considered the effects of resistance on victim injury, and most indicated that resistance in general, and forceful resistance in particular, was associated with a higher likelihood of injury to the victim. These findings are consistent with the idea that resistance can provoke a robber to attack the victim. This interpretation, however, is clouded by ambiguity concerning sequence; the data in almost all of the studies were inadequate for establishing whether the robber's attack or the victim's initial self-protection actions came first. Therefore, the findings were also compatible with the idea that a robber's attack on the victim can rouse a previously passive victim to

resistance (Cook, 1986). Block (1977) claimed that his police record data allowed him to determine this sequence, and he concluded that in incidents involving robber use of force and the victim fleeing or yelling for help, 70% of the time the victim resistance came first. On the other hand, where there was robber use of force and *forceful* victim resistance, 68% of the time the victim's resistance actions came after the robber's use of force, a sequence incompatible with the idea that forceful resistance provoked the robber to attack. Confirming the latter conclusion even more strongly, Kleck's (1988) analysis of special victim survey data, which did determine the attack-resistance sequence, indicated that *none* of the robberies with both forceful resistance and an attack on the victim involved the resistance occurring first, and only 22% of robberies with nonforceful resistance and an attack involved the resistance occurring first. [See also Quinsey and Upfold (1985) for similar findings in connection with resistance in rapes.] Thus, the findings concerning the sequence of forceful resistance and robber attack on the victim are consistent across prior studies. Therefore, since the injury-resistance sequence is usually incompatible with the resistance-provokes-attack thesis, the positive associations found in the studies reviewed in Table I should probably be tentatively interpreted as reflecting primarily robber attacks provoking victims to resist.

Cook (1986) asserted that, where one does not have information on the sequence of resistance and injury, one cannot draw conclusions about whether resistance provoked injury. This is only half-right because Cook failed to note the asymmetry of his argument. Under such an information limit, it is indeed impossible to assert, for any given incident, that resistance provoked a criminal's attack [as, e.g., Zimring and Zuehl (1986, p. 19) attempted to do]. However, for most forms of resistance, there is no injury at all in most of the incidents where the resistance was attempted, and therefore there could be no issue of sequence; one can conclusively assert that resistance did *not* provoke the robber to injure the victim in such incidents because there was no injury. For example, Kleck (1988) found that in 83% of robberies where victims resisted with guns, the victim was not injured. One can confidently draw the strong negative conclusion that resistance did *not* cause the robber to attack and injure the victim in at least these 83% of these resistance cases, without any information whatsoever on sequence. The absence of sequence information can only impair the resistance-provokes-injury thesis, not the contrary position.

Another problem with most of the prior studies is the failure to separate armed resistance from other forms of forceful resistance. Perhaps because of the relative infrequency of armed resistance, it is usually lumped in with other forceful actions such as unarmed physical attacks on the offender (e.g., Cook, 1986) or with all forms of resistance (e.g., Cook and Nagin, 1979).

Kleck (1988, p. 8) showed that this is misleading because, while cases of unarmed physical resistance showed the highest rates of victim injury, cases of armed resistance showed the lowest injury rates. McDonald's (1975) data indicated a high injury rate among armed resisters, but he had only nine such cases, and they were part of a police sample which was biased for the reasons previously discussed. Recomputation of victim survey data in Hindelang (1976, p. 236) indicates that armed resisters experienced about the same injury rate as nonresisters (though Hindelang's report did not explicitly address this issue). In sum, the prior evidence is limited and mixed regarding the impact of armed resistance on robbery victim injury but generally indicates that such resistance rarely provokes robbers to attack.

3.2. Robber Weaponry

3.2.1. Robber Weapons and Robbery Completion.

The three studies with relevant data indicated that robbers with weapons were more likely to complete their robbery attempts than were unarmed robbers (Block, 1977, p. 80; Skogan, 1978, p. 67; Ziegenhagen and Brosnan, 1985, p. 692). For policy purpose, the most relevant comparison is not between armed and unarmed robbers but, rather, between those with guns and those using the other weapons most likely to be substituted for them if guns were not available, in particular knives. Gun control policies are not intended to produce, or capable of producing, a scarcity of knives or blunt instruments, so these would continue to be available as alternative instruments of aggression. The only relevant information on the gun–knife comparison appears to be Skogan's (1978, p. 67) rather sketchy report of a "slight ($\gamma = 0.15$) relationship between the lethality of weapons employed in robbery" and completion of personal robberies, and his remark that this relationship was mainly due to the weapon/no-weapon distinction, rather than differences among weapon types.

3.2.2. Robber Weapons and Victim Injury.

Table II summarizes the prior research on the impact of robber weaponry on victim injury in robbery. Sixteen prior studies have found that robbers with weapons are *less* likely to injure their victims than are unarmed robbers. The 13 studies that separately examined gun robberies all found that gun robbers were less likely to injure their victims than were unarmed robbers. Of eight studies permitting a comparison between gun robbers and knife robbers, none found evidence of a higher probability of injury in gun robberies than in knife robberies. Generally these findings were interpreted by noting that victims of armed robbers, and especially gun robbers, were

Table II. Robber Weaponry and Victim Injury[a]

Study	Type of data[b]	Number of controls[c]	Injury[d]			Serious injury[d]		
			Weapon	Gun	Gun vs Knife[e]	Weapon	Gun	Gun vs knife[e]
President's Commission (1966)	P	0	−					
Normandeau (1968)	P	0	−	−	No			No
National Commission (1969)	P	0	−					
Conklin (1972)	P	1	−	−	No			
Weir (1973)	P	0	−					
McDonald (1975)	P	0		−	No			
Hindelang (1976)	V	0	−	−	No			
Block (1977)	P	0		−				
Skogan (1978)	V	0	−	−	No			
Cook and Nagin (1979)	V	1	±	−	No	+	0/+	No
Luckenbill (1980)	P	1	−					
Ziegenhagen and Brosnan (1985)	V	0		−				
Zimring and Zuehl (1986)	P	0	−	−	No	−	−	No
Cook (1987)	V	10	−	−	No	+	±	No
King (1987)	V	7	−	−				
Weiner (1987)	P	9	±	−				

[a]Studies of robbery completion and robber weaponry are discussed only in the text, as there were too few to require summary in this table. Cook (1987) overlaps with Cook (1986), both using 1973–1979 National Crime Survey data, while Cook (1980) overlaps with Cook and Nagin (1979), both studies using 26-city victim survey data, so only the latter study in each pair was included above. Readers might also consult Skogan and Block (1983) and Felson and Steadman (1983) for findings on assaults, and Kleck and McElrath (1990) on all violent crimes, which were quite congruent with those reported here for robbery.

[b]P, police (or prosecutor) records; V, victim survey.

[c]Number of control variables used in analysis of weapon–outcome relationship.

[d](+) Robber weapon was positively associated with injury; (−) negative association; (±) mixed findings, depending on specific weapon type.

[e]Was apparent effect of gun on injury significantly greater than effect of knives?

less likely to resist. [For comparable results pertaining to resistance by rape victims, see Kleck and Sayles (1990) and the studies reviewed therein.]

Three studies compared the seriousness of injuries inflicted in armed and unarmed robberies, and all three found that injuries inflicted by armed robbers were more likely to be serious than those inflicted by unarmed robbers. The findings were mixed regarding the contrast between gun robberies and all other robberies (penultimate column of Table II). More importantly, four other studies directly compared injury seriousness between gun and knife robberies, and none found serious injuries to be more likely in

gun robberies than in knife robberies (last column in Table II).[3] Being based on victim survey data, the present study cannot address determinants of the death of the victim in robberies.

4. METHODS

The present study examines the effects of victim resistance and robber weapon possession on (1) robbery completion and (2) injury to the victim. It goes beyond prior work in four significant respects. (1) It explores the effects of eight different specific forms of victim resistance, rather than lumping all forms, or all forceful forms, of resistance together. In particular, it separates armed resistance from unarmed forceful resistance and separates gun resistance from armed self-protection involving other weapons. (2) It uses multivariate statistical procedures to separate the effects of resistance and robber weaponry from two dozen possibly confounding correlates (see Table III). It is possible that victims use some forms of self-protection only when circumstances are favorable to them, where the robber is unlikely to attack them regardless of their actions; e.g., a given victim strategy might be used only in robberies which occur in daylight, in an outdoor location, where robber attack would be risky, or when the victims outnumber the robbers. Or perhaps some forms of resistance are adopted only by victims who are especially strong or agile, by virtue, for example, of their gender or age, victims whom robbers would be more reluctant to attack regardless of their self-protection actions. (3) The study uses a large, representative national sample of robbery incidents reported in the National Crime Surveys, which include both crimes reported to the police and those not reported, thereby reducing the aforementioned biases in police data, and which include nonurban as well as urban robberies, reducing any biases attributable to studying only robberies in big cities. (4) The study assesses the effects of robber weapon on injury, independent of its effect on victim resistance, to determine whether weaponry can have some effect through other causal paths besides inhibiting resistance.

4.1. Sample

The sample used was all robbery incidents included in the National Crime Survey (NCS) incident files and occurring in the United States during the period 1979 to 1985 [Inter-university Consortium for Political and Social Research (ICPSR, 1987a)]. The NCS uses a rotating panel design in which

[3]Victim surveys do not directly measure injury seriousness but, rather, the extent of medical care applied to the injury.

Table III. Variables in Analysis

Variable	Interpretation	Mean	SD
COMPLETE	Robbery was completed		
INJURY	V was injured	0.340	0.474
INJURY 2	V was injured in some way besides rape	0.333	0.471
SP	V used some form of self-protection (s.p.)	0.641	0.480
GUNSP	V used gun for s.p.	0.012	0.108
KNIFESP	V used knife for s.p.	0.008	0.090
OWEAPSP	V used other weapon for s.p.	0.015	0.121
PHYSFRSP	V used weaponless physical force for s.p.	0.227	0.419
THREATSP	V threatened, argued, reasoned with offender	0.137	0.344
GETHEPSP	V tried to get help, attract attention, scare O away	0.213	0.409
NOFORCSP	V resisted without force, used evasive action	0.215	0.411
OTHERSP	V used some other form of s.p.	0.041	0.198
HGUNPRES	O had handgun	0.180	0.384
OGUNPRES	O had other gun	0.021	0.145
KNIFPRES	O had knife	0.212	0.409
OWEPPRES	O had other weapon, other than knife or gun	0.132	0.338
BLACKOFF	Black O involved	0.574	0.495
AOGE30	O age 30 or more involved	0.185	0.388
INCOME	V's family income (14 categories)	6.363	4.700
AGEVICT	V's age in years	30.927	16.167
BLAKVICT	V was black	0.238	0.426
EDUCATN	V's years of formal schooling	13.884	6.439
GUNOCC1	V was a cop, guard, in the military, etc.—occupation involved carrying a gun, training in its use, etc.	0.015	0.120
SEXDIF	Male O and female V	0.333	0.471
AGEDIF	O age 15–29 and V either under 15 or 30 or older	0.260	0.439
RAPE	Incident also involved rape or attempted rape of V	0.026	0.158
PRIVATE	Incident occurred in private location	0.271	0.445
DARK	Incident occurred when it was dark	0.515	0.500
POPGE250	City with population greater than 250,000	0.427	0.495
POP100	City with population of 100,000	0.086	0.280
Other variables eliminated in regression screening			
MARRIED	V currently married	0.261	0.439
NUMVICT	Number of Vs present in incident	2.063	9.677
FEMVICT	V was female	0.367	0.482
MALEOFF	Male O involved	0.946	0.227
NUMOFF	Number of offenders	2.345	6.543
NUMDIF	Number of Os minus number of Vs	1.178	19.266
SUMMER	Incident occurred in June, July, or August	0.263	0.440
INSIDE	Incident occurred in inside location	0.263	0.440

stratified multistage cluster samples of U.S. housing units are contacted and all residents age 12 and over are interviewed. Respondents (Rs) are asked about incidents occurring in the previous 6 months, to minimize recall failure. The interviews during this period were nearly all face-to-face, conducted in the home of the respondent by employees of the U.S. Census Bureau, and were therefore not anonymous.[4]

"Robberies" encompasses incidents with theft or attempted theft, plus the threat or use of force. Purse-snatchings and pocket-pickings are not included in this category. The NCS covers only personal robberies, not commercial robberies. Robberies were included regardless of how many robbers or how many victims were involved in the incidents. Incidents which involved the elements of other crimes, such as rape or burglary, in addition to the defining elements of robbery, were also included in the samples, to avoid sampling bias and maximize generalizability of the findings. (The presence of these other crime elements was statistically controlled in the analyses to follow.)

4.2. Estimation Procedures

For purposes of preliminary screening of possible determinants of the dependent variables, initial versions of all models were estimated using ordinary least-squares methods but using a very liberal (one-tailed) significance level of 0.3 to avoid prematurely excluding a relevant variable from the models. Then logistic regression equations were estimated, one for each of the three dependent variables: (1) completion of the robbery, (2) injury to the victim, and (3) whether the victim resisted.[5] Logistic regression was

[4]Cook (1985) found that the NCS appears to underestimate sharply the frequency of nonfatal gunshot woundings, based on a comparison with police-based estimates. This flaw should result in an understatement of the effect of robber guns on victim injury. However, because it is possible that other, nongun woundings are similarly underestimated, it is impossible to say how this flaw would affect the present paper's comparisons of different robber-weapon situations.

[5]The estimates of coefficient standard errors provided by most computer packages employ formulae based on an assumption of a simple random sample, which few surveys use. The NCS uses a stratified multistage cluster sample, so these formulae yield estimates which are too small. Alexander (1987) proposed a rough adjustment for estimating regression standard errors when using the NCS: multiply the computed standard errors by the square root of the design effect, DEFF$=b/$SI, where $b=a$ "generalized variance parameter" reported in an appendix of each annual NCS report (it ranged from 2355 to 3015 from 1979 to 1985) and SI is the sampling interval (roughly 1500). For the 1979–1985 incident files, Alexander (1988) estimated the DEFF to be about 1.8. To adjust for the DEFF, one can multiply the computer-generated standard errors by 1.342 or, equivalently, divide the ratios of coefficients to standard errors by 1.342. To achieve significance at the 0.10 level (two-tailed; 0.05, one-tailed) would ordinarily require a ratio of 1.645 (assuming a normal distribution), but adjusting for the DEFF the ratio would have to exceed 2.21 (1.645×1.342). Likewise, the critical 0.05 (0.025) value would be 2.63 and the 0.01 (0.005) value would be 3.46.

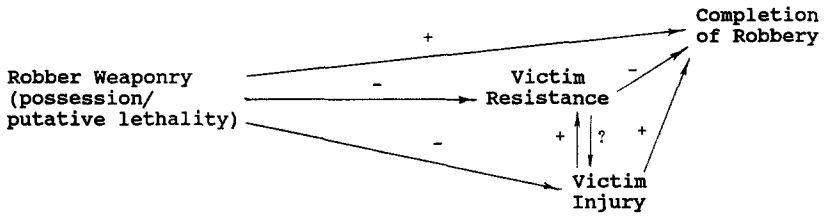

Fig. 1. Relationships among the key variables.

appropriate because all three dependent variables were binary. The victim resistance model was estimated for two reasons. First, estimation of the model provides an assessment of the differential capacity of each robber weapon type to deter victim resistance. Second, if resistance is usually provoked by a robber's attack, rather than the reverse, it makes more sense to treat resistance as a dependent variable and victim injury as an independent variable. The assumed relationships among the key variables, the direction of their predicted effects, and their assumed causal orders are illustrated in Fig. 1. As a check to see if results depended on the estimation methods, and to provide more easily interpreted parameter estimates, the models were also estimated using ordinary least squares methods.

4.3. Variables in the Model

The independent variables specified as affecting the crime outcomes are listed in Table III, along with their means and standard deviations. Some of these variables require explanation. Each of the "self-protection" (SP) variables is a dummy variable reflecting whether or not a victim used a given form of resistance (1 = used SP method, 0 = did not use this method). This analytic strategy allows for victims who used more than one form of resistance—they would simply be coded 1 on more than one SP variable. The robber weapon variables similarly reflected whether the robbers possessed weapons of each given type, in a way which was evident to victims.

Other independent variables measured attributes of the victims, robbers, and circumstances which might influence the outcomes of the robberies and victim willingness and ability to resist. For example, three variables measured power advantages to the robber(s): (1) NUMDIF, the number of robbers minus the number of victims, reflecting the degree to which robbers were more powerful than victims because they outnumbered them; (2) AGEDIF, coded 1 when one or more robbers was in his or her physical prime by age (15–29) and the interviewed victim was outside of this age range, and coded 0 otherwise; and (3) SEXDIF, coded 1 when one or more robbers was male

and all victims were female, and coded 0 otherwise. (Over 90% of the robberies involved just one victim.)

DARK and PRIVATE were included in the completion and injury equations on the assumption that it would be easier to complete robberies occurring at night or in private locations, because it was less likely that the crime would be witnessed by others and interrupted, and because robbers might be less inhibited about attacking victims in such circumstances. POPGE250 and POP100 were dummies measuring population size of the crime location; it was suspected that big-city robbers might be more professional, more likely to be drug addicts, and possibly more ruthless than robbers elsewhere, thereby increasing the likelihood that they would complete robberies, but also possibly increasing the likelihood that they would be willing to attack victims. GUNOCC1 measured whether the victim was in a gun-carrying occupation, such as a police officer or security guard, and thus likely to possess a gun at the time of the robbery. This should reduce the likelihood of completion or injury, while increasing the likelihood of resistance.

Finally, two other victim characteristics, race and education, were included to control for response biases. Blacks appear to underreport violent incidents, especially less serious ones, more than do whites. And better-educated persons consistently report more incidents, especially minor ones, than do less-educated persons (Skogan, 1981). By recalling a larger number of minor robberies without injury or property loss, better-educated Rs make it seem that their robberies are less likely to result in these outcomes, with an opposite, equally artificial pattern for blacks compared with whites. The result is that the measured fraction of robberies resulting in completion or injury may be artificially elevated for blacks compared to whites and lowered for better-educated people compared to less educated people. We controlled for these effects by including education and race of victim in all initial versions of the completion and injury equations.

The models were estimated both with and without these control variables, to see if any of the key results are affected by the presence of the controls and, by implication, whether prior studies without multivariate controls were likely to have been distorted by this omission.

5. FINDINGS

The parameter estimates for the completion, injury, and self-protection equations are shown in Tables IV–VI, respectively. The Table IV results indicate that robberies are significantly less likely to be completed when victims resist. This is true for all eight forms of self-protection. Armed resistance was more frequently successful than unarmed resistance, and the

Table IV. Completion of Robbery

Predictor	Coefficient (ratio coeff./SE)		
	Logit	OLS	Logit
GUNSP	−1.922**	−0.379**	−1.944**
	(−6.51)	(−6.35)	(−6.82)
KNIFESP	−1.165**	−0.334**	−1.755**
	(−4.54)	(−4.50)	(−5.21)
OWEAPSP	−1.510**	−0.324**	−1.659**
	(−5.82)	(−6.15)	(−6.58)
PHSYFRSP	−0.983**	−0.175**	−0.895**
	(−12.43)	(−10.57)	(−12.51)
THREATSP	−0.424**	−0.064*	−0.400**
	(−4.79)	(−3.37)	(−4.76)
GETHEPSP	−0.324**	−0.051*	−0.114
	(−3.93)	(−2.98)	(1.57)
NOFORCSP	−1.012**	−0.171**	−0.877**
	(−13.07)	(−10.49)	(−12.24)
OTHERSP	−0.771**	−0.142**	−0.730**
	(−5.06)	(−4.29)	(−4.98)
HGUNPRES	0.935**	0.236**	0.984**
	(9.01)	(12.53)	(10.24)
OGUNPRES	0.492	0.139*	0.696*
	(1.85)	(2.77)	(2.82)
KNIFPRES	0.232	0.102**	0.241*
	(2.08)	(6.04)	(3.14)
OWEPPRES	0.239*	0.309**	0.830**
	(3.34)	(21.53)	(18.92)
NUMOFF	0.120**	0.026**	
	(6.02)	(8.68)	
SEXDIF	0.517**	0.145**	
	(6.92)	(9.721)	
AGEDIF	0.308**	0.095**	
	(3.98)	(6.15)	
AOGE30	0.266*	0.060*	
	(3.05)	(3.45)	
BLAKVICT	0.320**	0.100**	
	(4.02)	(6.35)	
INJURY2	0.768**	0.161**	
	(10.20)	(10.73)	
EDUCATN	−0.010	0.006**	
	(−2.08)	(5.95)	
PRIVATE	0.468**	0.110**	
	(6.03)	(7.13)	
Sample size	4944	4944	5353
Log-likelihood	−2841.7	0.0684[a]	−3207.7

[a]Adjusted R^2.

*$0.01 < P < 0.05$ (two-tailed; see footnote 5).

**$P < 0.01$ (two-tailed; see footnote 5).

Table V. Injury to Victim

Predictor	Coefficient (ratio coeff./SE)		
	Logit	OLS	Logit
GUNSP	−0.929*	−0.144*	−0.795*
	(−2.39)	(−2.36)	(−2.31)
KNIFESP	0.394	0.084	0.263
	(1.14)	(1.17)	(0.81)
OWEAPSP	−0.302	−0.069	−0.310
	(−1.05)	(−1.27)	(−1.21)
PHSYFRSP	0.803***	0.211***	0.764***
	(10.24)	(12.99)	(10.87)
THREATSP	−0.311**	−0.034	−0.352***
	(−3.25)	(−1.81)	(−4.02)
GETHEPSP	0.661***	0.163***	0.665***
	(8.54)	(10.14)	(9.53)
NOFORCSP	−0.007	0.044**	−0.030
	(−0.09)	(2.74)	(−0.41)
OTHERSP	−0.394*	−0.060	−0.492**
	(−2.35)	(−1.79)	(−3.03)
HGUNPRES	−1.073***	−0.134***	−1.182***
	(−9.80)	(−7.55)	(−12.15)
OGUNPRES	−0.943**	−0.126*	−0.806**
	(−3.19)	(−2.58)	(−3.14)
KNIFPRES	−0.522***	−0.058**	−0.549***
	(−6.02)	(−3.42)	(−7.04)
OWEPPRES	−0.261***	0.152***	−0.490***
	(−3.51)	(10.11)	(−11.87)
NUMDIF	0.068***	0.015***	
	(3.46)	(4.32)	
AGEVICT	−0.001	0.003***	
	(−0.46)	(4.32)	
BLAKVICT	−0.373***	−0.032	
	(−4.60)	(−2.05)	
INCOME	−0.074***	−0.005***	
	(−9.97)	(−3.46)	
GUNOCC1	−0.627	−0.115	
	(−2.17)	(−2.12)	
DARK	0.316***	0.090***	
	(4.74)	(6.83)	
PRIVATE	0.204**	0.062***	
	(2.72)	(4.13)	
POP100	0.120	0.045	
	(1.05)	(1.94)	
Sample size	4562	4562	5353
Log-likelihood	−2680.9	0.1218[a]	−3249.2

[a]Adjusted R^2.

*$0.05 < P < 0.10$ (two-tailed; see footnote 5).

**$0.01 < P < 0.05$ (two-tailed; see footnote 5).

***$P < 0.01$ (two-tailed; see footnote 5).

Table VI. Self-Protection as Dependent Variable

Predictor	Coefficient (ratio coeff./SE)	
	Logit	OLS
HGUNPRES	−1.397***	−0.305***
	(−15.89)	(−16.68)
OGUNPRES	−0.708**	−0.128*
	(−3.10)	(−2.60)
KNIFPRES	−0.312***	−0.050**
	(−3.83)	(−3.01)
OWEPPRES	0.074	0.116***
	(0.76)	(6.39)
INJURY2	0.554***	0.101***
	(7.55)	(7.17)
BLACKOFF	−0.221**	−0.026
	(−3.27)	(−1.96)
AGEDIF	−0.221*	−0.058**
	(−2.62)	(−3.33)
AGEVICT	−0.011***	−0.001*
	(−4.81)	(−2.40)
EDUCATN	0.028***	0.008***
	(5.51)	(8.15)
RAPE	1.016***	0.514***
	(7.40)	(20.77)
POPGE250	−0.400***	−0.070***
	(−6.03)	(−5.16)
Sample size	4903	4903
Log-likelihood	−2842.3	0.097[a]

[a]Adjusted R^2.

*$0.05 < P < 0.10$ (two-tailed; see footnote 5).

**$0.01 < P < 0.05$ (two-tailed; see footnote 5).

***$P < 0.01$ (two-tailed; see footnote 5).

most frequently successful method of all was resistance with a gun. These findings generally held regardless of estimation procedure. As expected, if analysis was limited to just cases reported to the police, the self-protection measures generally appeared less effective than when the full sample was used, and this was especially so for resistance with a gun (results not shown but available from the senior author). This confirms the cross-tabular findings of Block and Block (1980) and reinforces the caution against using police-reported samples to assess the effectiveness of victim resistance.

Concerning offender possession of weapons, the results indicate that armed robbers are more likely than unarmed robbers to complete their robberies and that those armed with guns are more likely than other armed robbers to do so. The coefficient for "other guns" (mostly rifles and

shotguns) was larger than those for nongun weapons, but was not significantly different from zero, due to a large standard error attributable to the rarity of this attribute in the sample. Note that armed robbers are more likely than unarmed robbers to get away with the victim's property, even when victim resistance is controlled. Weapon possession seems to have some advantage to robbers other than the obvious one of deterring victim resistance. What that advantage might be, we cannot say.

Robbers are more likely to complete the robbery when they injure the victim, suggesting that there is a positive incentive for robbers to attack victims. This makes it all the more surprising that robbers do not attack victims in most robberies. Perhaps fear of victim counterattack deters robber attack. In any case, the results indicate that whatever reduces victim injury should also indirectly reduce robbery completion, other things being equal.

As discussed later, robberies rarely involve both victim and offender using guns, and they certainly almost never involve gunfights. Instead, power asymmetry is the norm: only one of the parties has a weapon, and this party dominates the interaction. If it is the victim who has the weapon, the robbery usually is successfully disrupted. If it is the robber who has the weapon, the robbery is usually completed.

Table V shows the parameter estimates for the injury model. In this model we assumed that self-protection was causally prior to injury, in order to test the hypothesis that resistance can provoke robbers to attack and injure victims. Later we consider a model in which the reverse causal order is assumed.

The hypothesis that victim resistance provokes robbers to attack victims is supported only for two forms of self-protection. Even if one assumes, contrary to the existing evidence, that victim resistance usually precedes robber attack, the evidence is inconsistent with this hypothesis for most forms of resistance because the predicted significant positive associations between self-protection actions and injury do not exist. The only exceptions were for two forms of unarmed, but forceful or physical, resistance: (1) getting help, attracting attention, trying to scare the robber away, etc., and (2) unarmed physical force. Given the previously cited evidence that forceful resistance rarely precedes injury, even these findings cannot be unambiguously interpreted as reflecting the effect of victim resistance on robber attack.

Five of the eight forms of self-protection were negatively associated with victim injury; three of these negative associations were significant. Gun-armed resistance was one of those with a significant negative association, and its coefficient was the largest one among the self-protection variables. On balance, victim gun use was the resistance strategy most strongly and consistently associated with successful outcomes for robbery victims, confirming the simple crosstabular findings of Kleck (1988).

Two forms of self-protection were significantly and positively associated with injury: (1) using physical force, without a weapon, against robbers and (2) trying to get help, attract attention, or scare robbers away. Unfortunately these are two of the three most common forms of resistance used in robbery (nonforceful resistance is the other one). One plausible explanation would be that these particular victim actions almost force robbers to use violence against the victims, if they are to avoid capture or injury. When victims resist with physical force, robbers may feel they have to counter with force, in what, to the robbers, seems like an act of self-defense. And when victims attempt to summon help, many robbers may feel they have to use force to stop the victims in order to avoid arrest. In contrast, armed resistance can inhibit robber use of force, due to the robber's fear of injury and the victim's power advantage, while purely verbal and other nonforceful forms of resistance allow the robber the option of simply cutting the attempt short and leaving the scene.

These findings strongly reinforce the importance of researchers separately assessing specific forms of self-protection instead of lumping them together. It is clear that it is especially misleading to group cases of armed resistance with cases of unarmed forceful resistance (e.g., Skogan and Block, 1983; Cook, 1986; Zimring and Zuehl, 1986), since this groups methods with the lowest risk of injury with methods with the highest risk.

The findings concerning robber weaponry and victim injury confirm those of previous studies: armed robbers are less likely to hurt their victims than are unarmed robbers. The present findings extend this by showing that the greater the putative lethality of the weapon, the less likely an injury is. More specifically, gun robbers are less likely to injure their victims than knife robbers, and both of these groups are less likely to do so than those armed with other kinds of weapons, such as blunt instruments. Robbers armed with guns are the least likely of all to injure their victims. While these findings may seem surprising to nonspecialists, they are the standard findings among scholars who have examined empirical evidence on these issues (Table II).

Table VI reports results for the model in which victim self-protection (of any kind) is considered as the dependent variable, and injury to the victim is treated as one of its possible causes, consistent with previous evidence on the typical sequence of these events (see also the discussion of sequence below). The positive association between injury and resistance is confirmed in the present results and is interpreted as indicating primarily the impact of injury on victim resistance. When victims are attacked and injured, they are more likely to resist. Perhaps previously passive victims are forced by the attack to resist in some way, or are made desperate, or become convinced that they have nothing more to lose by resisting. Note that when robbery is

committed in connection with a rape, victim resistance is particularly likely. These findings help explain why robbers usually do not attack their victims, even though the net impact of injuring the victim seems to be an increased probability of completing the robbery—it also increases the chances that victims will resist.

As predicted, the results support the view that robber possession of guns or knives deters victim resistance and that this effect is stronger for guns than for knives. This, however, is only part of the explanation of why weapon possession increases a robber's chances of completing the crime, since the Table IV results indicated that completion was more likely for armed robbers even controlling for victim resistance.

When completion and injury models were reestimated with the control variables excluded (i.e., with only the self-protection and robber weapon variables included), the results indicated that a number of the findings related to victim resistance and robber weapons would have been different had the controls not been included (last columns in Tables IV and V). In the completion model, the coefficient for GETHEPSP reversed sign, going from negative and significant with control variables included to positive without controls. The coefficient of OGUNPRES increased by 41% when controls were omitted and reached statistical significance. Coefficients for two other variables changed substantially, though not enough to alter qualitative conclusions. The GUNSP coefficient increased by 51%, and that for OWEPPRES by 247%, when controls were omitted. In the injury model, none of the estimates changed enough for substantive conclusions to have been altered. The coefficient for KNIFESP shrank by 33%, while that for OWEPPRES increased by 88%, when control variables were omitted. The large sample sizes, however, ensured such strong initial significance levels that even these large changes in coefficient estimates did not alter conclusions about whether the coefficients were significantly different from zero.

All three models were reestimated on just robberies which victims said they reported to the police, in order to simulate the effects of the bias in samples derived from police records. As expected, the results indicated that victim resistance looks less effective and more dangerous when one limits attention to crimes known to the police. Finally, the models were also reestimated with series victimizations excluded, and results were substantively identical to those already discussed (results are not shown but are available from the senior author).

5.1. The Nature of Armed Resistance

As noted earlier, the NCS probably seriously underestimate the prevalence of armed resistance in robberies. Keeping this in mind, incidents

involving victims resisting with guns was reported in only 1.2% of the robberies in this data set, yielding just 64 relevant sample cases. Therefore, caution must be exercised in interpreting data based on this subsample. Less than 5% of the gun-resistance incidents involved victims in gun-carrying occupations (police, security guards, active-duty military). Among the remaining 95%, 55% used guns in public street locations, 21% did so in their own homes (or in a detached building on their property, such as their garage), 11% in parking lots, and the remaining 13% in miscellaneous other locations. Victims robbed in their homes were more likely to use guns (1.9%) than robbery victims in general (1.2%).

Defensive gun uses in robbery apparently are almost never gun fights or shoot-outs, with both parties shooting at each other. While the NCS does not indicate what precisely gun-resisting victims did with their guns, they do indicate that 70% of such victims faced robbers who did not even possess a gun (or at least none that were evident to the victim). Only 3.7% of these cases involved robbers who shot at the victims, and only 1.6% involved a robber actually inflicting a gunshot wound on the victim. Other surveys of defensive gun uses in general (not just robbery) indicate that only about 45% of them involve victims firing their guns, including warning shots (Kleck, 1991). If this applies to the 3.7% of NCS robberies which involved a defensive gun-using victim and a gun-firing robber, it suggests that less than 1.5% of defensive gun uses in the present sample could have been "shoot-outs" with both parties shooting. Nevertheless, victims are actually somewhat *more* likely to resist with a gun when the robber has a gun than when he does not (1.8 vs 1.0%). Perhaps desperate circumstances impel victims to adopt more desperate measures, or maybe victim gun use impels robbers to pull out their guns.

This "asymmetry" of weaponry, with just one party usually having a gun, is partly just a matter of probabilities: if only 20% of robbers have guns (Table III) and only, let us say, 10% of victims possess guns when robbed, then (assuming independence of the events) the probability of both parties having a gun in a robbery would be only 2%. It should be stressed that the NCS do not ask whether victims possess guns—their questions get at only whether victims actually *used* guns in some way. The fraction of robbery victims who had guns but did not use them is unknown; presumably more victims had guns than used them.

There is more, however, to this asymmetry than just probabilities. There is strong evidence that the NCS sharply undercounts defensive gun use. At least six other national surveys have measured the prevalence of defensive use of guns, and all of them implied numbers of uses many times higher than the NCS-based estimates (Kleck, 1991). An underestimation of gun uses by victims would obviously also reduce the reported numbers of

incidents with both offenders and victims using guns, contributing to an image of asymmetry which is partly artifactual. More specifically, when victims report incidents to the NCS but fail to mention defensive gun uses, it would mean that the generally successful (from the victim's standpoint) outcomes of these incidents could be wrongly attributed to other self-protection actions mentioned, or possibly even to nonresistance, rather than to gun resistance.

Although the number of sample cases is small, it may be worthwhile to look more closely at gun-resisting victims, to compare how successful they are when facing robbers who are also armed and to compare them with victims using other self-protection methods. The relevant data are in Table VII. These data indicate that even when robbers had guns, victims who used guns for self-protection were substantially less likely to lose their property than other victims in general, victims using other specific resistance methods, or victims who did nothing to resist. The same is true when considering robberies with unarmed offenders. When victims faced robbers with any kind of weapons, victims using nongun weapons were slightly more successful than those using guns, but armed victims in general did substantially better than unarmed victims.

More surprisingly, even when confronting robbers armed with guns, victims who used guns were substantially less likely to be injured than other victims in general, and no more likely to be injured than victims who did not resist at all.

Finally, Table VIII provides some limited data on the issue of the sequence of victim resistance and attack and injury. These data are drawn

Table VII. Completion and Injury Rates for Self-Protection Methods, by Robber Weaponry

	% incidents completed when robber(s) had				% with victims injured when robber(s) had			
Self-protection	Gun	No gun	Weapon	No weapon	Gun	No gun	Weapon	No weapon
Gun	42.1	24.4	37.8	19.6	21.1	15.6	14.2	27.4
Knife	71.4	25.0	32.8	41.7	42.9	36.1	42.3	35.7
Other weapon	63.6	28.6	31.4	35.5	36.4	28.6	27.8	37.8
Physical force	61.4	49.9	47.3	54.8	46.6	52.9	53.6	51.2
Threat	59.6	54.0	58.5	53.6	24.7	33.5	34.9	33.2
Get help	69.2	62.6	66.6	62.2	43.6	50.5	50.0	50.7
Nonforceful	52.1	49.9	54.2	52.9	22.2	35.7	35.4	37.3
Other s.p.	62.1	49.5	51.8	47.5	17.2	28.5	29.0	24.5
Any s.p.	53.1	45.8	51.5	54.5	39.5	35.1	39.5	39.6
No s.p.	88.1	87.7	90.6	82.7	22.6	48.1	18.8	30.6
Total	65.7	60.6	69.3	61.5	33.4	39.7	30.1	37.3

Table VIII. Sequence of Attack, Injury, and Victim Resistance in Personal Robberies[a]

	Frequency	%
Resistance-provokes-attack thesis		
Sequences consistent with thesis (4, 6, and 7)	4	10.3
Sequences ambiguous re thesis (3, 5, and 8)	11	28.2
Sequences contrary to thesis (1 and 2)	24	61.5
Total	39	100.0
Resistance-provokes-injury thesis		
Sequences consistent with thesis (4, 6, and 8)	12	30.7
Sequences ambiguous re thesis (3)	0	0.0
Sequences contrary to thesis (1, 2, 5, and 7)	27	69.2
Total	39	100.0
Sequences		
1. 1st attack–1st injury–SP	7	17.9
2. 1st attack–SP (no injury)	17	43.6
3. 1st attack, 1st injury, and SP all at same time	0	0.0
4. 1st attack–SP–1st injury	1	2.6
5. 1st attack and SP at same time (no injury)	3	7.7
6. SP–1st attack–1st injury	3	7.7
7. SP–1st attack (no injury)	0	0.0
8. SP and 1st attack at same time–1st injury	8	20.5
Total	39	100.0

[a]Source: *National Crime Surveys: Victim Risk Supplement*, 1983. (ICPSR, 1987b). All frequencies and percentages are based on unweighted numbers of incidents.

from a special supplement to the NCS, the Victim Risk Supplement, conducted for 1 month in 1983. This small sample included only 39 sample cases of robberies in which victims were attacked and used some kind of self-protection, so readers are urged to use appropriate caution in interpreting the results. The VRS permits us to distinguish eight possible sequences of (1) the robber's initial attack, (2) the victim's use of self-protection, and (3) the inflicting of injury on the victim (which could have occurred in connection with a later attack, other than the initial one). These sequences are listed in Table VIII, where it is noted which of these sequences would be consistent with the thesis that victim resistance provokes robbers into attacking, and sometimes injuring, the victims. Note that Sequence 8 is ambiguous regarding the SP-attack sequence because the victim reported them as occurring at the same time, but it is consistent with the SP-causes-injury thesis because the SP preceded a later attack which inflicted an injury. Sequence 7 is consistent with the idea that resistance provokes an attack, yet inconsistent with the idea that it provokes an attack resulting in injury, since in these robberies the attacks did not result in injury. Also, Sequence 5 is ambiguous regarding the SP-attack sequence but is contrary to the SP-causes-injury thesis because there was no injury.

The data indicate that about two-thirds of these robberies involved sequences clearly incompatible with either the resistance-provokes-attack thesis or the resistance-provokes-injury thesis. Still other cases were ambiguous on these issues because resistance, attack, and/or injury occurred too close together for victims to establish sequence. Victim resistance preceded the robber's initial *attack* (which may or may not have resulted in injury) in only 10% of these cases, while resistance preceded initial *injury* in 31% of the cases. The difference in figures is due to the possibility that robbers can attack without inflicting injury, the attack being followed by victim resistance, which is followed by the robber attacking again and inflicting an injury.

Among the 1979–1985 personal robberies examined in the present analysis, 17.4% of cases with victims using guns in self-protection involved a victim being injured. Therefore, using the 31% figure, at most about 5% of victim-gun use robberies involved injury which could have been provoked by the gun-armed resistance. It is, however, impossible to tell whether any of these injuries were actually due to the armed resistance, since it is possible that, even where resistance preceded injury, the robbers would have inflicted the injuries anyway, even if the victim had not resisted.

6. DISCUSSION

It has been claimed that even though resistance might sometimes help victims hold on to their property, it also is likely to provoke robbers into injuring victims. The present findings generally do not support this view. When a sample including unreported as well as reported robberies is used, possible sources of spurious associations are controlled, and specific forms of self-protection are separately assessed, it is evident that the antiresistance thesis is without support for any but two forms of unarmed forceful self-protection: unarmed use of physical force, and attempting to get help, attract attention, and so on. When ancillary information on the sequence of resistance and robber attack is taken into account, the plausibility of the thesis is reduced further, because resistance usually does not precede robber attack or injury to the victim. This is not to say that resistance never provokes robber attack; undoubtedly this occurs at least occasionally, and is probably most common with victims who attempt to get help or attract attention. It is, nevertheless, apparently the exception rather than the rule.

It is worth discussing the issue of trading off crime completion to avoid injury, even though the evidence seems to indicate that there is rarely any reason for robbery victims to do this. While even minor injury may be viewed by middle-class victims as more serious than the loss of even several hundred dollars, it is not so clear that these priorities are shared by uninsured shopkeepers on the edge of bankruptcy or the low-income people who are most

likely to be the victims of personal robberies. If the loss of cash in one's purse or wallet means that one will be unable to pay the rent or doctor bills or buy the usual amount of groceries, it is by no means obvious that risking injury through resistance is not a rational response to a robbery attempt, especially in light of the fact that most robbery injuries seem to be relatively minor. Only 15% of robbery victims are injured and receive any kind of medical care, only 10% receive hospital care, and only 2% receive an overnight hospital stay (U.S. Bureau of Justice Statistics, 1987, p. 7).

The low rates of injury among resisting victims are more understandable if one considers how victims make the choice as to whether they should resist. Luckenbill's (1982) close analysis of police reports and interviews with victims as well as robbers conveyed a picture of rational victim decision-making, with victims refraining from acts of forceful resistance where this would be likely to provoke a dangerous response from the robber. Victims seemed to pick and choose when to resist, doing so when they had superior resources but complying with the robber's demands when they did not (see especially Luckenbill, 1982, pp. 814–816, 819, 820).

The findings are subject to the following limitations and caveats. First, the NCS covers only personal robberies. Although about 80% of robberies are personal robberies [U.S. National Criminal Justice Information and Statistics Service (U.S. NCJISS), 1978, p. 22], commercial robberies are nonetheless numerous, and different from personal robberies. In particular, commercial robberies, on average, involve larger amounts of money and larger numbers of victims for the robber to control. The robbers, therefore, are more likely to have weapons, and victims are also more likely to have access to weapons (Hindelang, 1976; Skogan, 1978; Kleck, 1988). It is possible that the weapon–injury relationship differs between personal and commercial robberies (Skogan, 1978). Therefore, the present conclusions may be applicable only to personal robberies, although studies with mixed samples have yielded compatible findings. Further, the NCS samples do not include crimes in which the victim died and do not provide valid measures of injury seriousness independent of the extent of medical care the victim received, so we cannot add anything to the literature regarding weapon or resistance effects on the seriousness of victim injuries or the likelihood of victim death. Also, the NCS does not include direct measures of robber willingness to injure victims or determination to complete robberies, so it is possible that estimates of weapon effects are biased by the exclusion of such variables. Finally, the NCS for the 1979–1985 period did not have information on the sequence of injury and resistance, necessitating our reliance on the ancillary information from three previous studies regarding this sequence.

7. CONCLUSIONS

Many police officers advise victims and prospective victims not to resist criminals [some particularly egregious examples are given by Anderson (1991)]. In light of the evidence summarized here, this advice seems dubious. While this advice is undoubtedly sincere, it usually appears to be based on selectively recalled "cop war stories" and similar anecdotal evidence derived informally from small, unrepresentative samples of victims who reported their crimes to police. Since successful incidents of victim resistance are systematically excluded from police attention, the conclusions police officers draw, to the extent they are based only on the experiences of victims with whom they and other police have had professional contact, will inevitably be misleading. As Ziegenhagen and Brosnan commented, "Victims can and do play an active part in the control of crime outcomes regardless of well-intentioned but ill-conceived efforts to encourage victims to limit the range of responses open to them. Victims can, and do, exercise a range of optional responses to robbery far beyond those conceived of by criminal justice professionals" (1985, p. 693).

Regarding weaponry used by robbers, robber possession of a weapon apparently makes injury to the victim less likely, and the greater the putative lethality of the weapon, the less likely injury is. More specifically, robber possession of a gun makes victim injury less likely than if the robber had a knife. As to the seriousness of robbery injuries, there is no consistent evidence in prior studies of greater average seriousness of injuries in gun robberies compared to nongun robberies, and no such evidence at all for gun robberies compared to knife robberies (Table II).

Finally, the implications of these findings for opportunity and rational choice approaches to crime and the deterrence doctrine should be noted. Resistance is clearly not a rare or minor phenomenon, as the victim surveys indicate that victims engage in some form of self-protection in 64% of robberies. If victim resistance reduces the likelihood that robbers will complete robbery attempts, then the fact of frequent victim resistance should deter some robbers from attempting some robberies at all. Thus, one would expect that robbery rates would be higher than they are if victims did not resist as often as they do.

REFERENCES

Alexander, C. H. (1987). *Workshop on the design and use of the National Crime Survey. Session 10: Use of NCS for estimation.* Unpublished paper, Statistical Methods Division, Bureau of the Census, Suitland, MD.

Alexander, C. H. (1988). Telephone conversation, July 5.
Anderson, J. (1991). How not to be a target. *Parade Mag.* April 7: 18, 21, 22.
Block, R. (1977). *Violent Crime*, Lexington Books, Lexington, MA.
Block, R., and Block, C. (1980). Decisions and data. "The transformation of robbery incidents into official robbery statistics." *J. Crim. Law Criminol.* 71: 622–636.
Conklin, J. E. (1972). *Robbery and the Criminal Justice System*, Lippincott, Philadelphia.
Cook, P. J. (1976). A strategic choice analysis of robbery. In Skogan, W. (ed.), *Sample Surveys of the Victims of Crime*, Ballinger, Cambridge, MA, pp. 173–187.
Cook, P. J. (1979). The effect of gun availability on robbery and robbery murder. In Haveman, R. and Zellner, B. B. (eds.), *Policy Studies Review Annual*, Sage, Beverly Hills, CA, pp. 743–781.
Cook, P. J. (1980). Reducing injury and death rates in robbery. *Policy Anal.* 6: 21–45.
Cook, P. J. (1982). The role of firearms in violent crime. In Wolfgang, M. E., and Weiner, N. A. (eds.), *Criminal Violence*, Sage, Beverly Hills, CA, pp. 236–291.
Cook, P. J. (1985). The case of the missing victims: Gunshot woundings in the National Crime Survey. *J. Quant. Criminol.* 1: 91–102.
Cook, P. J. (1986). The relationship between victim resistance and injury in noncommercial robbery. *J. Legal Stud.* 15: 405–416.
Cook, P. J. (1987). Robbery violence. *J. Crim. Law Criminol.* 78: 357–76.
Cook, P. J., and Nagin, D. (1979). *Does the Weapon Matter?* INSLAW, Washington, DC.
Felson, R. B., and Steadman, H. J. (1983). Situational factors in disputes leading to criminal violence. *Criminology* 21: 59–74.
Hindelang, M. J. (1976). *Criminal Victimization in Eight American Cities*, Ballinger, Cambridge, MA.
Inter-university Consortium for Political and Social Research (ICPSR) (1987a). *National Crime Surveys: National Sample, 1979–1985 (Revised Questionnaire)*, Study 8608 (MRDF), Bureau of Justice Statistics (producer), Washington, DC; ICPSR (distributor), Ann Arbor, MI.
Inter-university Consortium for Political and Social Research (ICPSR) (1987b). *National Crime Survey: Victim Risk Supplement, 1983*, Study 8316 (MRDF), Bureau of Justice Statistics (producer), Washington, DC; ICPSR (distributor), Ann Arbor, MI.
King, J. W. (1987). Situational factors and the escalation of criminal violence. Paper presented at the annual meetings of the American Society of Criminology, Montreal, Canada.
Kleck, G. (1988). Crime control through the private use of armed force. *Soc. Problems* 35: 1–21.
Kleck, G. (1991). *Point Blank: Guns and Violence in America*, Aldine de Gruyter, New York.
Kleck, G., and McElrath, K. (1991). The effects of weaponry on human violence. *Soc. Forces* 69: 669–692.
Kleck, G., and Patterson, E. B. forthcoming. The impact of gun control and gun ownership levels on violence rates. *Journal of Quantitative Criminology.*
Kleck, G. and Sayles, S. (1990). *Rape and resistance. Soc. Problems* 37: 149–162.
Luckenbill, D. F. (1980). Patterns of force in robbery. *Deviant Behav.* 1: 361–378.
Luckenbill, D. F. (1982). Compliance under threat of severe punishment. *Soc. Forces* 60: 811–825.
McDonald, J. (1975). *Armed Robbery: Offenders and Their Victims*, Charles Thomas, Springfield, IL.
McDowall, D. (1986). Gun availability and robbery rates: A panel study of large U.S. cities, 1974–1978. *Law Policy* 8: 135–148.
National Commission on the Causes and Prevention of Violence (1969). *Crimes of Violence, Vol. 11. A Staff Report*, U.S. Government Printing Office, Washington, DC.

Normandeau, A. (1968). *Trends and Patterns in Crimes of Robbery*, Unpublished Ph.D. dissertation, University of Pennsylvania, Philadelphia.

President's Commission on Crime in the District of Columbia (1966). *Report*, U.S. Government Printing Office, Washington, DC.

Quinsey, V. L., and Upfold, D. (1985). Rape completion and victim injury as a function of female resistance strategy. *Can. J. Behav. Sci.* 17: 40–50.

Skogan, W. (1978). Weapon use in robbery. In Inciardi, J. A., and Pottieger, A. E. (eds.), *Violent Crime*, Sage, Beverly Hills, CA, pp. 61–73.

Skogan, W. (1981). *Issues in the Measurement of Victimization*, U.S. Department of Justice, Bureau of Justice Statistics, U.S. Government Printing Office, Washington, DC.

Skogan, W. and Block, R. (1983). Resistance and injury in non-fatal assaultive violence. *Victimology* 8: 215–226.

U.S. Bureau of Justice Statistics (1987). *Robbery Victims*, BJS Special Report, U.S. Government Printing Office, Washington, DC.

U.S. Bureau of Justice Statistics (1990). *Criminal Victimization in the United States, 1988*, U.S. Government Printing Office, Washington, DC.

U.S. National Criminal Justice Information and Statistics Service (1978). *Criminal Victimization in the United States 1977*, U.S. Government Printing Office, Washington, DC.

Weiner, N. A. (1987). Situational dynamics and juvenile interpersonal violence. Paper presented at the annual meetings of the American Society of Criminology, Montreal.

Weir, A. (1973). The robbery event. In *The Prevention and Control of Robbery, Vol. 1*, Center on Administration of Criminal Justice, University of California, Davis.

Wright, J. D., Rossi, P. H., and Daly, K. (1983). *Under the Gun: Weapons, Crime and Violence in America*, Aldine, New York.

Ziegenhagen, E. A., and Brosnan, D. (1985). Victim responses to robbery and crime control policy. *Criminology* 23: 675–695.

Zimring, F. E. (1972). The medium is the message: Firearm caliber as a determinant of death from assault. *J. Legal Stud* 1: 97–123.

Zimring, F. E., and Hawkins, G. (1987). *The Citizen's Guide to Gun Control*, Macmillan, New York.

Zimring, F. E., and Zuehl, J. (1986). Victim injury death in urban robbery: A Chicago study. *J. Legal Stud.* 15: 1–40.