You Got Me: How Many Defensive Gun Uses Per Year?

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METHODOLOGY

A. Introduction

The 1994 National Survey of Private Ownership of Firearms in the United States (hereafter NSPOF) is a nationally representative telephone survey conducted by Chilton Research Services during November and December, 1994 for the Police Foundation and under the sponsorship of the National Institute of Justice. The methods employed by Chilton generally follow the norms of good practice for telephone surveys (Frey 1989). The main cause for concern is the low response rate -- more than 40 percent of the contacts with "eligible" telephone numbers could not be completed, or resulted in a refusal. Hence the completed sample may be somewhat unrepresentative of the U.S. population. However, for better or worse this response rate is not *unusually* low for surveys of this sort.

B. Survey Method

The NSPOF employs a list-assisted random-digit-dial sampling method, as discussed in Brick et al (1995). Households with unlisted telephone numbers are eligible under this method, and each telephone household in the U.S. essentially has equal likelihood of being selected.[1] Under this sampling procedure, each telephone household in the United States has equal likelihood of being selected. Each selected household was scheduled for an original plus up to five follow-up calls (Chilton, pg 2,4).[2] When a call was completed, the Chilton interviewer asked to speak with the adult in the household who had had the most recent birthday.[3] Since this method randomizes the choice of respondent from the adults living in the household, the NSPOF is able to produce a random probability sample of English or Spanish

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[1] As Brick et al (1995) note, the GENESYS method employed by Chilton selects blocks of 100 telephone numbers in which at least one residential telephone number is listed in the Donnelley Listed Household Database. Households with telephone numbers in blocks that do not contain a listed residential number are not eligible, but Brick and colleagues note that the effects of this coverage bias are small relative to the Waksberg method, in which each telephone household has an equal probability of selection.

[2] Chilton Methodology Report pg 5: "Refusal Follow Up: At the time of initial refusal, the telephone interviewer rated the severity of the refusal on a five point scale. Those respondents who rated a five (extremely angry/irritated) were not included in the follow-up effort. Specially trained and supervised interviewers, who had shown significantly higher than average ability to `convert' a person whom initially refused to participate into a cooperative, recontacted all other initial refusals in an effort to convert them into participating respondents."

[3] "May I please speak to the person at least age 18 who most recently celebrated their birthday?" If the Chilton interviewers were unsuccessful in reaching that adult on the first or subsequent calls, the household was not included in the final sample. That is, the Chilton interviewers were instructed not to substitute another adult for the one with the most recent birthday.

speaking adults in the U.S. (Waksberg, 1978).[4]

C. Response Rates

The survey response rate is relevant to judging the accuracy of survey estimates. The sample of completed interviews will be somewhat unrepresentative if those who refuse to cooperate tend to be different in relevant ways than those who are successfully interviewed. While we do not know whether those who refused to participate in the NSPOF survey are more or less likely than the national average to, say, own a gun, we can't rule out that possibility. The larger is the group of refusers in comparison with cooperators, the larger is the likely magnitude of "nonresponse bias." The response rate is quite low in the NSPOF, and hence a matter of concern.

The final sample disposition is presented in Table 2.1. Of the 29,917 telephone numbers that were randomly selected, 32 percent were ineligible (not working or not residential). Of the 20,302 telephone numbers in the sampling frame, 6,333 contacts were terminated by Chilton before conducting the interview, because the initial responses indicated that the household was not needed to complete pre-established sampling quotas. These quotas were defined for the NSPOF with respect to race[5] and gun-ownership status (Chilton, pg 16). What remain after netting out these cases are 13,969 telephone numbers of households that are either known to be eligible for inclusion, or at least *not* known to be *ineligible*. Of these, 2,568 interviews were completed.

There is no single definition for "response rate" (Frey 1989). The appropriate numerator (given our concern about the representativeness of the completed sample) is the number of households that provided interviews or were willing to do so (that is, completed interviews plus those terminated because the sample quota had been filled). Measures differ with respect to what is included in the denominator. At a minimum, the denominator includes, in addition to the count of willing participants (the numerator), the count of refusals (3,618, in the case of NSPOF). We believe it appropriate to also include the count of telephone numbers in which a call was never completed (4,724), since this form of nonresponse may also produce an unrepresentative sample.

Less clearcut is what to do about the other type of nonresponse, those cases (3,059 in all) in which some member of the household had been contacted and been cooperative, but no interview had actually been completed by the time the survey ended despite one or more

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[4] As Waksberg (1978) notes, "A telephone sample comprises a sample of households, not persons... To retain the features of a probability sample, the person in the household should be selected at random and not necessarily be the person who happened to answer the phone" (pg 45).

[5] Minimums were established for African-Americans, Hispanics, and All Others.

followup calls.[6] These cases can be viewed as "cooperators" (because the fact that there was a successful initial contact suggests at least the willingness to cooperate), in which case they would be included in both the numerator and the denominator. Or they could be viewed as nonrespondents, since the chosen adult in the household proved somewhat difficult to contact -- in which case they should be included in the denominator but not the numerator. We designate them as "initial cooperators," and calculate the response rate in two ways, one with them included as "cooperators" and one with them excluded.

In sum, we define the response rate as follows:
(# Cooperators) / (# Cooperators + # Refusers + # Nonrespondents).
where
 # Cooperators =
count of completed interviews + count of interviews terminated by Chilton + (?) count of initial cooperators.
 # Refusers =
count of those who refused to give an interview
 # Nonrespondents =
count of those telephone numbers where a call was never completed + count of initial cooperators.

If we include the "initial cooperators" in the numerator, the response rate is 59 percent; if we exclude them, the response rate is just 44 percent. In either case, there is clearly a possibility of nonresponse bias in estimates of population parameters. Those who refuse to be interviewed or who are unavailable to be interviewed may be different from the population as a whole in relevant ways, and there are a lot of them. Hence we urge caution in the interpretation of results based on NSPOF data. On the other hand, there is no reason to believe that this survey has a less representative sample than other commercial telephone surveys.[7]

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[6]The question is whether these cases tend to be systematically different than the population as a whole, in which case their exclusion would bias any estimates based on the completed interviews. These households are similar to those for which interviews were completed with respect to willingness to cooperate. But perhaps the difficulty in reaching the specific adult chosen for the sample is correlated with gun ownership or other items of interest.

[7] Kleck and Gertz (1995) report a response rate of 61 percent for their national survey of gun ownership and use. That rate is defined as the number of households willing to participate in the survey divided by the number of completed calls (they do not report the size of their sampling frame). Note that if we followed Kleck and Gertz's procedure, and excluded telephone numbers for which a call was not completed from the denominator, our response rates would be 77 and 57 percent (with initial cooperators included and excluded, respectively, from the denominator).

6. DEFENSIVE GUN USES

A. Introduction

The annual number of defensive gun uses (DGUs) is frequently invoked as a measure of the benefits of private gun ownership. It is typically compared to the costs as measured by the number of violent crimes committed with a firearm each year.[61] The National Crime Victimization Survey (NCVS) provides a relatively uncontroversial estimate of the number of gun crimes -- 1.3 million in 1994 (BJS, 1996). The NCVS also provides estimates of the number of DGUs, recently averaging about 65,000 per year (McDowall and Wiersema, 1994). But other surveys provide a basis for far-higher estimates (Kleck 1988). The most recent and noteworthy estimate of the number of DGUs is 2.5 million per year, based on data from a nationally representative telephone survey conducted explicitly for this purpose (Kleck and Gertz 1995). The 2.5 million figure has been picked up by the press and now appears regularly in newspaper articles,[62] letters to the editor,[63] and editorials[64], and even in Congressional Research Service briefs for public policymakers.[65]

The NSPOF survey is quite similar to that conducted by Kleck and Gertz (1995), and provides a basis for replicating their estimate. The NSPOF data indicate that at least 1.5 million adults used a gun defensively in 1994 against another person, a figure that is much closer to Kleck and Gertz's 2.5 million figure than to the NCVS-based estimates. Further, many of the NSPOF respondents who indicated a DGU in the preceding year said that they had also used their gun defensively on one or more other occasions. Taking account of these multiple reporters, the NSPOF data suggest that from 4 to 23 million DGUs occurred in 1994 (depending on which definition of a DGU is used).

Our discussion of these results focuses on two issues. The first is whether they are credible. Respondents who reported a DGU were asked a number of questions about the circumstances and results of their action. That information provides the basis for estimating a number of statistics for which the true values are known with some degree of accuracy. For example, the NSPOF data imply that there were over 100,000 criminals shot by their victims in 1994. That figure can be compared with estimates from other sources of the number of people treated annually for gunshot wounds in the United States. This and other such comparisons

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61 See for example the review in Cook (1991, p. 62).

[62]*St. Petersburg Times*, April 10, 1996 (which begins "That's right. Owning a gun, presuming you know how to use it, may be good for you").

[63]*Chicago Tribune*, August 15, 1995; *San Diego Union-Tribune*, June 25, 1995.

[64]*Orlando Sentinel*, May 7, 1995

[65] Keith Bea (September 19, 1994) "Gun Control." Congressional Research Service Issue Brief. p. CRS 5-6.

suggest that the NSPOF data on DGUs is grossly in error.

The second issue we explore is the value of these estimates for the ongoing debate over the public value of private gun ownership. Most commentators have assumed that the DGUs reported by survey respondents are actions that would be endorsed by an impartial observer who knew all the facts. Yet the sketchy and unverified accounts available from surveys leave considerable uncertainty about what actually happened and whether the respondent's actions were legal, reasonable, and in some sense in the public interest.

We begin by reviewing the previous literature on defensive gun uses in the U.S. The third section presents estimates of DGU incidents based on data from the NSPOF, following the methods used in earlier analyses based on surveys of this sort. The fourth section provides a discussion of the results.

B. How Many DGUs? Previous Findings

Previous estimates of the number of DGUs come from surveys of nationally representative samples. Here we review the results from the National Crime Victimization Survey (NCVS), and then from several telephone surveys conducted by private polling firms.

NCVS-Based Estimates

The NCVS is conducted by the Census Bureau for the U.S. Bureau of Justice Statistics, and involves in-person interviews with all adults age 12 and above in a nationally representative sample of 56,000 households. Each household is interviewed once every six months, and households are retained in the sample for seven interviews over the course of three years. The NCVS asks respondents who have been the victim of a crime in the preceding six months whether they "did or tried to do [anything] about the incident while it was going on?" If so, respondents are asked to describe their actions; among the possible response codes are "attacked offender with gun; fired gun" and "threatened offender with gun."

In research based on the NCVS, DGUs have been defined as those instances for which the respondent reported resisting by either attacking the offender with the gun, or threatening to do so. The following estimates of the annual DGU count have been published:

Estimate	Circumstances	Source
68,000	Assault and robbery, 1979-85	Kleck (1988)
80,000	All violent crimes & burglary, 1979-87	Cook (1991)
65,000	All violent crimes & burglary, 1987-90	McDowall & Wiersema (1994)

The reliability of NCVS-based estimates has been questioned by Kleck and Gertz (1995, p. 154-5), who develop several arguments for why the NCVS may understate the true count. We evaluate some of the issues they raise in Section D below. For now it is sufficient to note that the NCVS is the "gold standard" of criminal victimization surveys in terms of such criteria as sample size, response rate, methodological sophistication, and so forth. Estimates of DGUs

based on the NCVS cannot be lightly dismissed. On the other hand, the arguments by Kleck and Gertz deserve close attention.

Previous Telephone Survey-Based Estimates

From 1976 to 1994, various one-shot commercial surveys have included questions about DGUs, though none of the surveys were designed exclusively to examine this issue (Kleck and Gertz, 1995, p. 157). The surveys differ along various dimensions: sample population (non-institutionalized adults versus registered voters, national samples versus citizens from a particular state); whether the DGU questions were asked of all survey participants, or only those who met specific criteria such as gun ownership; whether a distinction was made between uses against animals and uses against people; and the time period over which respondents were asked to recall defensive gun uses (lifetime, past five years, or past one year).

Kleck and Gertz (1995, p. 182-183) compute the number of defensive gun uses against people suggested by each of these studies. The estimates range from 770,000 to 3.6 million defensive gun uses per year. They focus attention on two of the surveys which, they suggest, are of particularly high quality. The 1981 survey by Hart Research Associates[66] "implied a minimum of about 640,000 annual DGUs involving handguns... (p. 158)." Extrapolating the Hart handgun estimates to all gun uses, they estimate 1.8 million defensive gun uses per year.

The most recent telephone survey was conducted by Kleck and Gertz (1995) explicitly for the purpose of estimating the annual incidence of defensive gun uses. KG oversampled males in the South and West regions in order to produce an acceptably large number of DGUs, and weighted the data to generate nationally representative population estimates (pg 161). A total of 4,977 households were contacted in the KG survey, of which 1,832 cases completed the full questionnaire -- all respondents reporting a DGU plus a randomly selected third of respondents who did not report a DGU. An additional 3,145 were terminated by KG's interviewers once it was determined that they had not participated in a DGU.

KG's DGU question reads as follows: "Within the past *five years*, have you yourself or another member of your household *used* a gun, even if it was not fired, for self-protection or for the protection of property at home, work, or elsewhere? Please do *not* include military service, police work, or work as a security guard [emphasis in original, KG p. 161]." Respondents answering in the affirmative were then asked whether the DGU was used to protect against an animal or person, and also to provide the number of DGUs in which the respondent was involved over the past five years.

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[66]The 1981 national poll of 1,228 registered voters conducted by Hart Research Associates, which included the following question: "Within the past five years, have you yourself or another member of your household used a handgun, even if it was not fired, for self-protection or the protection of property at home, work, or elsewhere, excluding military service or police work?" Respondents that answered in the affirmative were asked whether the DGU was for protection against an animal, person, or both.

From the sample of almost 5,000 adults, 244 respondents indicated some kind of defensive gun use over the past five years. Of this group, 22 (9 percent) indicated the most recent defensive gun use was against an animal.[67]

The DGU estimates were standardized to show the estimated number of DGUs against humans that did not involve actions by police, military, or protective service personnel acting in the line of duty. Kleck and Gertz (1995) apply additional, more stringent, criteria in producing their own estimates for the annual number of "genuine" DGUs, as follows (p. 162-3):

(1) The defensive use "involved actual contact with a person, rather than merely investigating suspicious circumstances";
(2) "The defender could state a specific crime which he thought was being committed at the time of the incident;"
(3) The respondent "used" the gun ("at a minimum it had to be used as part of a threat against a person, either by verbally referring to the gun ... or by pointing it at an adversary.")

Incidents that meet all these criteria are used to calculate what they term *A*-type estimates for one- and five-year prevalence. Kleck and Gertz also produce more conservative *B* estimates which apply the additional restriction:

(4) The respondent was not employed by the police, military, or protective service industry (regardless of whether the most recent DGU occurred at work), and the record from the interview was complete in all relevant respects.

KG's *A*-type estimate for the number of adults involved in a DGU during the previous year is the well-known 2.5 million. Their *B*-type estimate is 2.2 million.

In sum, one-shot commercial telephone surveys of DGUs produce estimates that are one or two orders of magnitude larger than those produced using the NCVS data. In the next section, we use the NSPOF to develop estimates for the number of defensive gun uses and users, as a first step in attempting to resolve this discrepancy.

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[67] From private correspondence with Gary Kleck. This animal-human mix presents a striking contrast with other telephone survey results. Hemenway and Azrael (1995), for example, find that over half of all respondents reporting a DGU indicated that the most recent incident was for protection against an animal. Wright, Rossi and Daly (1983) also report a high prevalence of DGUs against animals. But NSPOF results, reported below, are similar to Kleck and Gertz'.

C. How Many DGUs? NSPOF-Based Estimates

DGU Questions in the NSPOF

Each of the 2,568 respondents in the NSPOF were asked the question: "Within the past 12 months, have you yourself *used* a gun, even if it was not fired, to protect yourself or someone else, or for the protection of property at home, work, or elsewhere?" Answers in the affirmative were followed with "How many different *times* did you use a gun, even if it was not fired, to protect yourself or property in the past 12 months?" [emphasis in original] Negative answers to the first DGU question were followed by "Have you *ever* used a gun to defend yourself or someone else?" Respondents who answered yes to either of these DGU questions were then asked a sequence of 30 additional questions concerning the most recent DGU in which the respondent was involved, including the respondent's actions with the gun, the location and other circumstances of the incident, and the respondent's relationship to the perpetrator.

The Chilton interviewers were also asked to provide their own assessment of whether the respondent was inventing the most recent DGU incident.

NSPOF Estimates

Given that the NSPOF is quite similar to the survey reported in Kleck and Gertz with respect to the instrument, sampling procedure, and interviewing method, we would expect similar results on the number of defensive gun users each year. As it turns out, we find that NSPOF-based estimates of the number of defensive gun *users* are lower but compatible (in a statistical sense) to those produced by Kleck and Gertz. The NSPOF has an advantage over the KG survey, in that it includes an item on the number of DGUs during the preceding year by those respondents who had at least one; thus we are able to estimate the number of defensive gun *uses*, which is several times as large as the number of users.

Table 6.1 contains results from the NSPOF on the number of defensive gun users each year. We exclude from our calculations those respondents whom the Chilton interviewers suspected of fabricating the most recent DGU incident. As shown in the table, 54 respondents reported a defensive gun use during the past 12 months, which projects to 3.6 million adults. A majority of these may be excluded for the reasons indicated, as in Kleck and Gertz (see above). In what follows, we use several operational definitions of DGU, with different sets of the above exclusions.

Table 6.2 provides a variety of estimates of the number of DGUers and DGUs. The first row includes all NSPOF respondents who reported a DGU against a person. There were 45 such respondents for the preceding year, representing 3.12 million adults, or 1.64 percent of the adult population. As it turns out, almost half of these respondents reported multiple DGUs over the

past year; one woman reported 52 DGUs.[68] Incorporating the information on the *number* of DGUs in the preceding year provides the basis for estimating the population total, which turns out to be 23 million.

There were 112 respondents who reported at least one DGU against a person during the previous *five* years. They represent 7.8 million adults, or 4.1 percent of the population (plus or minus 0.6 percent).

In the third column of Table 6.2, we apply the Kleck and Gertz (1995) criteria for "genuine" DGUs (type *A*), leaving us with just 19 respondents, as shown in Tables 6.11*a* and *b*. They represent 1.5 million defensive users. This estimate is directly comparable to the well-known KG estimate of 2.5 million, shown in the last column. While ours is smaller, it is statistically plausible that the difference is due to sampling error. Note that when we include the multiple DGUs reported by half our 19 respondents, our estimate increases to 4.7 million DGUs.[69]

Circumstances and Outcomes

While the NSPOF includes a number of items on the circumstances and outcomes of each DGU, our exploration is limited by the small sample size. We focus on the 85 respondents who report a civilian DGU against a person during the past 5 years.

As shown in Table 6.3, 60 percent of DGUs occurred in or near the victim's home. Half of the DGUs involved more than one perpetrator; in most cases (69 percent), the perpetrator(s) were strangers to the victim.

Handguns were used by defenders in about three-quarters of these incidents, and in over 40 percent of defensive uses the gun was kept either directly on the respondent or in the respondent's vehicle. Usually the victim confronted the perpetrator with a loaded gun; in the cases in which the gun was not already loaded (27 percent), most respondents proceeded to load the gun before facing the perpetrator. In fifteen percent of the cases, the gun that was used in the

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[68] KG report that the average number of DGUs reported by each DGU-reporting HH over the past five years was 1.5, and that about 30 percent of DGU-reporting Rs reported more than one DGU in the past five years (pg 166).

[69]It should be noted that our estimate is conservative in its assumptions. Beyond the various exclusions reported above, there is another that requires some explanation. Half of the 54 respondents who reported a DGU indicated that they had been involved in more than one during the preceding year. The survey only queried them about the circumstances of the most recent DGU, and on that basis we decided whether to include those respondents in the final estimate. For example, we exclude someone who reports two DGUs, the most recent of which was against an animal, despite the possibility that her first DGU was against a person.

defense did not belong to anyone in the respondent's household.

As shown in Table 6.6, the defender fired his or her gun in 27% of these incidents (combined "Fire warning shots" and "Fire at perpetrator" percentages): 40% of these were "warning shots," and about a third were aimed at the perpetrator but missed. The perpetrator was wounded by the crime victim in eight percent of all DGUs.[70] In nine percent of DGUs the victim captured and held the perpetrator at gunpoint until the police could arrive.

The perpetrator was armed in 40 percent of these cases; half of armed perpetrators had a gun, and in 30 percent of the cases in which the perpetrator had a gun (6 percent of the total) the victim reports having been fired upon. In 45 percent of DGUs the respondents believe that they or someone else would have been killed by the perpetrator had they not used a gun in self-defense.

The police were informed about the incident in slightly over half of these cases.

Defensive Gun Users

Table 6.7 presents descriptive statistics for three distinct groups: the 85 respondents who report a defensive gun use against a human during the past five years; gun owners who have never reported a DGU; and those respondents who do not own a gun. In comparison with gun owners, proportionately more DGUers are female, minority, unmarried, and living in an urban area. These findings are all consistent with earlier studies of DGU reporters (Kleck and Gertz, 1995, p. 178-9).

Defensive gun users tend to be young -- half under 35, which is nine years below the average age for other gun owners. DGUers are also two and one-half times as likely as other gun owners to have been arrested for a nontraffic offense, and four times as likely to have been arrested as adults who do not own a gun.

A more detailed description of DGUers is not possible due to the small sample size.

D. Resolving the NCVS-NSPOF Discrepancy

Can It Be? Some Troubling Implications

If these numbers are credible, we are led to conclude that millions of attempted assaults and thefts are foiled each year by armed citizens. Further, guns are used far more often to defend against crime than to perpetrate crime. On the other hand, if we reject these estimates in

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[70] These estimates, admittedly based on a small number of responses, suggest that about half of all victims who fire at perpetrators hit the mark. That accuracy rate exceeds estimated wounding rates for the police (37 percent) and for criminals (18 percent). DGUers in the Kleck and Gertz survey report a similar percentage of "hits" (Kleck and Gertz, 1995, p. 173).

favor of those based on NCVS data, the reverse is true. It is thus of considerable interest and importance to check the reasonableness of the NSPOF estimates before embracing them.

As a guide to how to proceed, we note Max Singer's discussion of `mythical numbers': "The main point of this article may well be to illustrate how far one can go in bounding a problem by taking numbers seriously, seeing what they imply, checking various implications against each other and against general knowledge (such as the number of persons or households in the city). Small efforts in this direction can go a long way to help ordinary people and responsible officials to cope with experts of various kinds" (Singer, 1971, p. 9). In this section we follow Singer's advice, comparing some of the estimates from the NSPOF against other statistics. The results suggest that the DGU estimates are far too high.

We begin by noting that if only a small fraction of violent crimes result in self-defense with a gun (an uncontroversial assumption) then the number of DGUs will necessarily be much less than the number of violent crimes. It comes as a surprise, then, to see that the NSPOF estimate of the number of rapes in which the woman defended herself with a gun was more than the *total* number of rapes estimated from NCVS (Table 6.8). For the other crimes listed in Table 6.8, the results are almost as far fetched: the NSPOF estimate of DGU robberies is 36 percent of all robberies[71] (as estimated by the NCVS), while the NSPOF estimate of DGU assaults is 19 percent of all aggravated assaults. If these percentages were anything like correct, crime would be a risky business indeed.

Table 6.9 presents some additional implications of the NSPOF estimates for annual DGUs. The NSPOF estimates suggest that 130,000 criminals are wounded or killed by civilian gun defenders; in contrast, estimates based on data from public-health surveillance systems suggest that the *total* number of people nonfatally shot by a firearm nationwide and treated in an emergency room or hospital is about 100,000 (Annest et al. 1995). That figure includes assaults, accidents, and suicide attempts. Adding an additional 16,000 who are shot and killed in assaults still leaves us short of the estimate from NSPOF for the number of people shot just in self-defense! Thus if the NSPOF results are correct, it must be true that most perpetrators who are shot during a criminal encounter never receive emergency room treatment for their wounds, and, incidentally, never become known to law enforcement.[72] We find that possibility rather unlikely.

As seen in 6.10, the NSPOF data also imply that as many as 630,000 lives are saved each year by defensive gun uses. By comparison, there were 22,076 people murdered in 1994 (FBI,

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[71]The NCVS excludes robberies of banks, gas stations, and other commercial places. Including these would reduce the ratio by only a few percentage points. Further, note that our DGU estimates are excluding actions by security guards while on duty.

[72]Cook (1985 estimates that the total number of criminal gunshot cases known to law enforcement is about six times as many who are firearms homicide victims. That ratio suggests a total number of cases known to the police of about 100,000.

1995, p. 18). Since the number of homicides is generally regarded as accurate, we can only think of two logical explanations to reconcile these two statistics, the first of which is absurd: (1) Victims of serious (potentially lethal) criminal attacks have firearms available and successfully ward off their attackers in about 97 percent of all cases; or (2) The NSPOF estimates of the number of lives saved, if not the DGU estimates themselves, are greatly exaggerated.

The evidence of positive bias in the DGU estimates is still stronger when we recall that the DGU estimates are calculated using only the most recently reported DGU incidents of NSPOF respondents; as we have seen, about half of the respondents who reported a DGU indicated that there had been two or more in the preceding year. While we have no details on the circumstances of those additional DGUs, presumably if the respondents had been asked they would have reported additional violent crimes, wounded perpetrators, and lethal attacks foiled. The already improbable figures for the number of crimes defensed with a gun could be magnified still farther.[73]

Some Explanations

With a sample size of 2,568, each NSPOF respondent represents from 70,000 to 80,000 citizens on average using the projection weights discussed earlier. As we have seen, the most recent NCVS-based estimates suggest 65,000 defensive gun uses by citizens against crime each year (McDowall and Wiersema 1995); on the basis of the NCVS figures, we would have expected one respondent from the entire NSPOF sample to have reported a defensive gun use during the past year. Instead, 19 reported at least one DGU that meets our stringent criteria. In this section, we explore possible explanations for these differences.

Sequence of Questions. The NCVS asks respondents whether they have been a victim of a crime during a specified time, and, if so, whether and what defensive actions were taken during the crime. As a result, the opportunity to discuss a defensive gun use is only made available to NCVS participants if a crime has first been reported. In the NSPOF (as with most telephone surveys), all respondents are asked whether a gun has been used defensively during the indicated period of time.

By construction of our selection criteria, each of the 19 NSPOF respondents indicate that some form of crime was involved in their most recent DGU. A small portion of the discrepancy between the NSPOF and NCVS estimates may be accounted for by the fact that in three cases the most serious crime reported is "trespass," a crime which is not included in the NCVS.

More important is the appearance of confusion on the part of some of the DGU reporters

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[73] For example, weighting each defensive use against a particular crime by the number of DGUs the respondent reports over the past 12 months, the "defended crime" figures become: 322,000 rapes (unchanged); assaults (attacks plus fights), 3,966,183 ; burglaries, 78,000 (unchanged); robberies (robberies plus thefts), 3,423,197; trespasses, 1,790,000; violent crimes in which the perpetrator had a handgun, 752,000; and wounded or killed perpetrators, 697,000.

concerning what happened. In question 72 they are asked "Which of the following best describes what was happening when you used the gun defensively?" They are given 9 options, and are permitted to answer "yes" to any number of them. As shown in Table 6.12, three responded "yes" to several categories of serious crime (rape, robbery) but also said "yes" to the category "No crime was involved." Another apparent inconsistency appears when we compare the responses to this question with the responses to question 75, "Did the perpetrator threaten, attack or injure you?" A total of six respondents who indicated that the circumstance of the DGU was rape, robbery, or attack (question 72) responded "no" to the question 75.[74] The NCVS has a more systematic approach to inquiring about victimization, and some of these DGUers would not have been classified as victims in the NCVS interview.

While the NCVS procedures will eliminate some faulty reports of victimization, it may also be true that some respondents will choose not to report crimes that actually occurred. One possible reason for failure to report is unique to the NCVS. Unlike NSPOF and other one-shot commercial surveys, participants in the NCVS sample are interviewed each six months over a three year period (BJS, 1996), and as a result over time may develop some familiarity with the survey instrument. Experienced respondents may recognize that reporting a crime, whether or not any defensive behavior was involved, will require additional time to answer the follow-up questions, while a simple "no" produces a quicker end to the interview.[75]

Survey Environment. The NCVS interviewing environment is different in potentially important ways from that of the one-shot telephone- survey interviews like those of the NSPOF. The NCVS is conducted face-to-face in the respondents' homes. The interviewers identify themselves as federal employees (working for the U.S. Bureau of the Census), and promise that all answers will be kept confidential. In contrast, the NSPOF interviewers identified themselves as from "Chilton Research Services" and conducted all interviews over the telephone without any promise of confidentiality. Which type of interview would respondents trust more?

Our presumption is that some respondents would feel more comfortable speaking with someone in person, especially with the guarantee, but that others would feel more comfortable on the telephone. Kleck and Gertz' (pp. 154-6) intuition is quite different than ours. They assert that respondents will be far less likely to disclose sensitive information to the NCVS interviewer than to a telephone interviewer who says she is working for a private firm. KG assert that the commercial telephone surveys produce a much higher prevalence of DGUs than NCVS precisely because there are many respondents who are unwilling to discuss legally dubious actions to government workers, but are willing to discuss them with a stranger on the telephone.

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[74]These responses would be logically consistent if the respondent had been intervening on behalf of another victim. Unfortunately, due to an interviewing or a coding error, responses to question 73, "Did you use the gun to protect yourself or someone else or both?" were not available for any of the 19 DGU reporters (and for only 16 respondents in the entire NSPOF).

[75]As economists we are amazed that such a large proportion of citizens agree to participate in voluntary -- and lengthy -- interviews, though as applied social scientists we are grateful.

We know of no evidence that would test this conjecture.

In some respects the NCVS is unarguably superior. While the NSPOF has a sample of 2,568, with a response rate of 44 or 59 percent,[76] the NCVS has a sample size of 120,000 in 56,000 housing units, and received responses from residents in 96 percent of targeted households (BJS, 1996). Thus, not only is the NCVS expected to provide more reliable estimates due to the sheer size of the sample (that is, NCVS-based estimates are less sensitive to a few aberrant responses), but the differences in response rates also suggest that the NCVS is closer to a truly representative sample of U.S. adults than are telephone surveys.

Telescoping. Following the convention in the literature, our estimates focus on the number of defensive gun users and uses during the past year. However, as seen in Table 6.2, dividing the estimates for DGUs and DGUers using the five year recall period produces annual estimates that are dramatically smaller than annual DGU estimates derived from the one-year recall period (1.46 million versus 648,000, using the conservative count for our most stringent criteria). As seen in the Table, this phenomenon is common to other telephone gun surveys (Kleck and Gertz, 1995, p. 165). We would not, of course, expect the five-year recall period to produce estimates of defensive gun users that are five times as large as the one year recall period, given that higher-risk individuals may be victimized several times. At the same time, the observation that the one-year recall period estimates are twice as large as the annual estimates produced by the five- year recall suggests that something troublesome might be at work. It may be that respondents in the NSPOF include DGUs that occurred more than a year ago in the 12-month recall question (a phenomenon known as "telescoping"); to the extent to which this occurs, the one-year recall period will produce overestimates of the number of DGUs each year.

The NCVS guards against this phenomenon by re-interviewing respondents every six months, and using the previous NCVS interview as a benchmark for respondents for the six-month recall period. The first interview with each NCVS participant is "unbounded," and has been found to produce far larger estimates for the six-month recall than subsequent (bounded) interviews (Cantor, 1989).

False Positives. Prevalence estimates based on interview data are subject to both false negatives (a respondent fails to report a relevant instance) and false positives (where a respondent reports a relevant instance that did not actually occur, or did not occur in the relevant time frame). If the true prevalence is low, as in the case of DGUs, then in a sense there is much greater scope for false positives than false negatives -- only a relatively few respondents are logically capable of giving a false negative, whereas anyone who did not use a gun defensively can give a false positive. If the true prevalence is 1/1,000, and the false-positive rate is 2/1,000, then the estimated DGU rate will be at least twice the true level *even if none of the true DGUers*

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[76] Kleck and Gertz (1995, p. 161) report that 61 percent of calls in which a person answered the telephone resulted in a completed interview; the proportion of designated telephone numbers in which a person could not be reached was not reported. See Section 2 of this report for a discussion of the response rate in the NSPOF.

choose to report their experience (Hemenway 1996).

Is there any reason to believe that some respondents will report DGUs that did not occur? In addition to the telescoping problem discussed above, respondents may falsely report because they are confused, have a distorted memory, or are simply having fun with the interviewer.

Research on survey methodology suggests that respondents have a desire to make themselves "look good" in the eyes of the interviewer (Sudman and Bradburn, 1974, p. 40). Fighting off a criminal attack is (in most circumstances) a heroic act. There may be a temptation for some respondents to either make something up, or else to change the details of an actual event. For example, a survey respondent who had recently heard a bump in the night and checked it out, gun in hand, may report having scared off a trespasser even though in fact he or she did not see anyone at the time.

The possibility that some respondents may be confused by the question or about their own experiences is suggested by the rather high incidence of mental illness and substance abuse in the United States. Recent estimates from the National Institute for Mental Health suggest that 51.3 million American adults aged 18 and over have "one or more mental or addictive disorders" (Bounrdon et al, 1994, p. 23).[77] Thus at any point in time a large proportion of American adults are either under the influence of some intoxicant or suffering from a mental disorder, and in either case may be unreliable reporter in a survey. A representative sample of American adults will include these individuals.

An additional source of false positives is strategic behavior by gun advocates. Those who are well informed about the gun-control debate will know that the number of DGUs is relevant, and may be tempted to enhance that estimate through their own response to the survey.[78]

The purpose of this discussion is not to claim that every citizen reporting a DGU is mentally impaired or inventing the incident for whatever reason; rather, our intention is to note that a representative survey of 2,568 American adults that asks questions about *any* topic will include at least a handful of people who are drunk, have an erratic memory or an axe to grind, or who are just having fun. Given that our estimate of over four million defensive gun uses rests on just 19 responses, a handful of false positives would make a big difference.

Of course it is possible that there are also one or more false negatives in this survey. We focus on the problem of false positives because of the logic of estimating rare events, and

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[77] NIMH notes that 40.4 million adults have some form of "nonaddictive mental disorder," including 2 million adults with schizophrenic/schizophreniform disorders (1.1 percent of the adult population), 2.7 million adults with antisocial personality disorders (1.5 percent), and 4.9 million adults with "severe cognitive impairments" (Bourndon et al, 1994, p. 23, 35).

[78] Thanks to David Kennedy for raising this point.

because we have been persuaded by the evidence offered in Section C that the NSPOF estimates overstate the true incidence by a very wide margin.

Finally, while the NSPOF estimate appears too high, that does not imply that the far-lower NCVS estimate is correct. The fact that the NCVS only asks DGU questions for those who report a crime surely forestalls reports from some DGUers who do not remember or choose to report the crime. The rather frustrating conclusion is that the available survey data leave considerable uncertainty about the "true" number of DGUs.

E. Interpretation of DGU Estimates

The controversy over the frequency with which guns are used in self-defense is animated by the notion that such uses are vital and virtuous; that is, they have public merit in ways that other private uses of guns (target shooting, hunting) do not (Cook and Moore 1995). The cost of any regulation that will deprive some law-abiding citizens of guns must be reckoned accordingly. If, as suggested by the NSPOF data, it is quite likely that a law-abiding gun owner will have occasion to use the gun in self-defense against a robber or burglar, then the social cost of restricting ownership and use may be substantial. If on the other hand the likelihood of virtuous self-defense is minute, as suggested by the NCVS data, then we reach quite a different conclusion.

The discussion above has focused on demonstrating that despite a number of surveys that seem relevant, including the NSPOF, we remain highly uncertain about the actual number of genuine DGUs that occur each year. The number that is in wide circulation, 2.5 million, is lower than our best estimate based on a literal interpretation of NSPOF data. But there are numerous reasons, both empirical and conceptual, to believe that this NSPOF estimate is far higher than the underlying reality. The truth eludes this method of measurement, because even a handful of misreports are sufficient to greatly distort the conclusion.

But there is a more fundamental problem here. Even if we could design a questionnaire so cleverly as to weed out misinformation, there would remain a problem in interpreting the result. Does the number of DGUs serve as a measure of the public benefit of private gun possession, even in principle? When it comes to DGUs, is more better? We note several problems:

1. *Gun use may take the place of other means of avoiding trouble.* Someone who has a gun handy will be inclined to use it when there is a perceived threat to person or property. But other means of defense, such as calling for help or leaving the scene, may be just as effective. The logic here extends to preventive activities as well. Gun possession may encourage some people to be less prudent about avoiding confrontation and unsafe situations and less willing to invest in other means of self-protection.

2. *Readiness to use guns in self-defense may lead to fatal mistakes.* Someone who keeps a gun handy for dealing with intruders and other predators may end up shooting the wrong person. We

refer here not only to the tragic cases in which someone shoots a member of their family after hearing a noise in the night, but also those cases in which the intruder is perhaps trespassing but poses no physical threat to the household.

3. *The number of DGUs tells us little about the most important effects on crime of widespread gun ownership.* When a large percentage of households and even people on the street are armed, that circumstance presumably has an important effect on the behavior of predatory criminals. Some may be deterred or diverted to other types of crime. Others may change their tactics, acquiring a gun themselves or in some other way seeking to preempt gun use by the intended victim (Cook 1991). Such consequences presumably have an important effect on criminal victimization rates, but are in no way reflected in the DGU count.

To sum up, surveys are a decidedly flawed method for learning about the frequency with which innocent victims of crime use a gun to defend themselves. On the other hand, even if we could develop a reliable estimate of this frequency, it would only be of marginal relevance to the ongoing debate over the appropriate regulation of firearms commerce, possession, and use.

Table 6.1
Defensive Gun Uses (DGUs) Reported for Preceding 12 months
NSPOF Estimates

Definition (Cumulative Exclusions)	Percentage of Adult Population	Estimated Number *millions*
Total (N=54)	1.93	3.67
Exclude if against animals (N=45)	1.64	3.12
Exclude if military use (N=38)	1.44	2.73
Exclude if no report of specific crime (N=37)	1.29	2.45
Exclude if no report of specific use of gun (N=26)	0.95	1.81
Exclude if did not see perpetrator (N=19)	0.77	1.46
Exclude if work-related DGU (even if not military/protective service job) (N=18)	0.75	1.43

Table 6.2
DGU Estimates for One- and Five-Year Recall Period
Comparison of NSPOF with KG Estimates

	All NSPOF	Selected NSPOF Cases A-Type	Kleck and Gertz A-Type
1 YEAR	**(N=45)**	**(N=19)**	**(N=66)**
Number of DGUers	3.12	1.46	2.55
Number of DGUers as Percent of Population	1.64	0.77	1.33
Number of DGUs *millions*	23.0	4.7	2.6
5 YEARS	**(N=~~112~~ 113)**	**~~(N=52)~~ 51**	**(N=165)**
Number of DGUers *millions*	7.80 7	3.2~~4~~ 3	6.37
Number of DGUers as percent of population Standard error	4.14 ~~4.11~~ ~~(0.56)~~	1.7~~1~~ 0 (0.36)	3.32

Note: In Kleck and Gertz' 1995 DGU study, A-type estimates meet certain criteria. See text for explanation.

Table 6.3
Circumstances for Defensive Gun Uses (DGUs) in Previous 5 Years
Against Humans, Excluding Law Enforcement

NSPOF QUESTION	**Percent Distribution (N=84)**
Where did DGU take place?	
Inside R's home	18.2
Near R's home	41.5
In/near friend/relative's home	13.7
At or near work	3.8
Commercial place (bar, gas station, shopping center)	7.2
Parking lot/garage	8.2
Street, public transp.	6.3
Other	1.1

Table 6.4
Perpetrator Characteristics for DGUs in Previous 5 Years Against Humans, Excluding Law Enforcement

NSPOF QUESTION	Percent Distribution
Did R see person defending against?	**(N=83)**
Yes	77.6
How many people was R defending against?	**(N=67)**
1	49.5
2	16.3
3 or more	34.2
Relationship to perpetrator:	**(N=84)**
Stranger	68.9
Friend/relative	17.0
Boy/girl friend (current or ex)	14.1

Table 6.5
Characteristics of Respondent's Gun in Defensive Gun Uses (DGUs) in Previous 5 Years
Against Humans, Excluding Law Enforcement

	Percent Distribution
Type of gun used in DGU:	**(N=81)**
Handgun	75.6
Long gun	24.4
Owner of gun used in DGU:	**(N=84)**
Respondent	68.7
Someone in R's household	16.1
Someone out of R's household	15.2
When R first wanted to use gun for protection, where was gun stored?	**(N=79)**
Bedroom	30.2
Gun cabinet	16.4
Other closet	6.6
Other household location	5.6
With/on R	22.3
In car/truck	18.7
Was gun already loaded?	**(N=82)**
Yes	72.7

If not: Did R load gun? Yes	**(N=24)** 80.9

Table 6.6
Circumstances and Outcomes for Defensive Gun Uses (DGUs)
in Previous 5 Years
Against Humans, Excluding Law Enforcement
NSPOF Estimates

CIRCUMSTANCES AND OUTCOMES	Percent Distribution
Did person R defending against know R had gun?	**(N=79)**
Yes	55.2
What did R do in the DGU?	**(N=85)**
Tell perpetrator R had gun	37.2
Show gun to perpetrator	68.7
Point gun at perpetrator	32.4
Use gun as club to strike	1.4
Fire warning shots	15.8
Fire at perpetrator	15.7
Capture perpetrator, hold until police arrive	9.4
Wound/kill perpetrator	8.0
What would have happened if R had not used gun?	**(N=79)**
Improved situation	7.6
Made no difference	20.5
Made situation worse	71.7

How likely that someone would have been killed if R had not used gun?	**(N=76)**
Very unlikely	29.0
Somewhat unlikely	25.6
Likely	11.4
Somewhat likely	15.5
Very likely	18.5
Did perpetrator threaten, attack, injure R?	**(N=85)**
None of these	46.1
Threatened only	26.9
Attacked/not injured	10.4
Attacked and injured	16.6
Who was first to attack with physical force?	**(N=17)**
R	3.8
Perpetrator	89.1
Someone else	7.1
Did perpetrator have weapon?	**(N=84)**
Yes	39.5
No	45.3
Don't know	15.2
What kind of weapon did perpetrator have?	**(N=38)**
Gun	49.5
Knife/sharp object	31.5
Blunt/other object	16.5
Don't know	2.4

Did perpetrator shoot at you / someone else? Yes	**(N=21)** 30.2
Did perpetrator get away with money/property? Yes	**(N=40)** 11.8
Were the police informed, or found out some other way? Yes	**(N=84)** 52.9

Table 6.7
Demographic Characteristics
Gun Owners, Defensive Gun Users (DGUs), and Non-Owners
NSPOF Estimates

CHARACTERISTIC	Percent Distribution-Gun owners who have never had DGU (N=644)	Percent Distribution-DGUs, last 5 years, excluding law enforcement (N=85)	Percent Distribution-Non-gun owners who have never had DGU (N=1576)
SEX			
Male	79.9	58.8	35.4
RACE:			
White	86.0	63.4	77.2
Black	7.3	22.2	13.2
Other	6.7	14.4	9.6
AGE:			
18-34	29.0	54.4	37.0
35 and over	70.3	43.8	60.7
Average age	45.8	36.3	44.0
MARITAL STATUS:			
Married	73.8	48.5	61.5
Widowed	3.8	1.0	6.9
Divorced/Separated	7.9	18.5	10.0
Never married	14.6	32.1	21.7
COMMUNITY:			
Rural	28.3	28.7	13.4
Small town/city	34.0	26.8	31.2
Medium city	11.8	13.3	17.4
Suburbs of large city	9.8	7.3	15.9
Large city	16.2	24.0	22.1

INCOME: $ 0-30.000 $ 30,000 and over Don't know/ missing	34.8 65.2 8.4	43.8 56.1 16.2	35.7 54.4 16.0
Children under 18 in household	36.8	44.2	46.9
R has ever been arrested for nontraffic offense	7.8	20.5	4.9

Source: U.S. Bureau of the Census estimates from *Statistical Abstract of the United States 1995*

Note: "DGUs" are those who report at least one defensive gun use against a person during the preceding 5 years, not including on-the-job DGUs by law enforcement officers or protective service workers. Column categories are mutually exclusive; DGUs that do not own firearms are excluded from third column.

Table 6.8
Defensive Gun Uses (DGUs) Compared to Total Crime Counts, 1994

CRIME TYPE	NSPOF DGUs by Crime Type *thousands*	National Criminal Victimization Survey (NCVS) Estimate of Crime Count *thousands*	Uniform Crime Reports (UCR) Total Crime Count *thousands*
Rape	322	313	102
Assault	834	9,071	N/A
Aggravated assault	462	2,563	1,120
Robbery	466	1,291	619
Violent crime in which perpetrator had a gun	163	1,020	N/A

Note: The NSPOF DGU crime figures are estimated using the 19 respondents who meet the criteria for a "genuine" DGU over preceding year. UCR and NSPOF figures are from 1994; NCVS figures are from 1993.

Table 6.9
Defensive Gun Uses (DGUs) Compared to Total Crime Counts

CRIME	NSPOF DGUs by Crime Type *thousands*	National Criminal Victimization Survey (NCVS) Estimate of Crime Count *thousands*	Implied "Defense Rate"*
Rape + Attempted Rape	322	313	.51
Assault	1,237	9,072	.12
Aggravated assault	452	2,563	.15
Robbery	527	1,291	.29
Crimes in which perpetrator had firearm	166	1,020	.14

*Defense rate = [A / (A + B)] for A = Estimated number crimes defended with a gun in NSPOF from 19 respondents who report "genuine" DGU during previous 12 months, B = Estimated number of crimes from 1993 NCVS (BJS, 1996).

Table 6.10
Defensive Gun Use (DGU) Reports-Lives Saved

	Estimate
How likely that someone would have been killed had gun not been used defensively?	*NSPOF Estimate thousands*
"Very likely"	57
"Somewhat likely"	322
"Likely"	250
Total number of lives saved	629
Total number of homicides saved (1994)*	21
Implied successful defense rate**	97 %

*Homicide estimates for 1994 taken from FBI's Uniform Crime Reports (1995, p.18).

**Implied successful defense rate represents percent of all potentially lethal attacks that are successfully defended by armed victim. Calculated as (A / A + B), with A = number of

successful gun defenses by victim in potentially lethal attack (NSPOF estimate), and B = number of homicides (FBI count).

Table 6.11*a*
List of NSPOF Respondents Reporting More than One "Genuine" Defensive Gun Use (DGU) During Past Year

DGUs last year	Sex	Age	Location	Relationship	Crime involved	P has gun?	R's actions	Did P threaten, attack?
9	F	19	Near R's home	Stranger	Theft	No	T,S,P,F	Threaten
20	M	22	Near R's home	Stranger	Attack, fight, trespass	No	S,P,F	Attack
2	M	30	Near R's home	Stranger	Attack, rob, fight, trespass	No	F	Neither
2	M	38	In R's home	Casual acquaintance	Attack, theft, trespass	Yes	S	Threaten
3	M	21	Near friend's home	Stranger	Attack, fight	Yes	S,F	Neither

3	M	49	Near R's home	Casual acquaintance	Attack	Yes	T	Threat-en
8	M	37	Near friend's home	Stranger	Attack, rob, fight, trespass	Yes	P,F	Attack

T=Told perpetrator about gun; S=showed gun; P=pointed gun; F=fired gun; W=wounded perpetrator; C=captured perpetrator

Table 6.11.*b*
List of NSPOF Respondents Reporting One "Genuine" Defensive Gun Use (DGU) During Past Year

DGUs last year	Sex	Age	Location	Relationship	Crime Involved	Pt has gun?	R's actions	Did Pt threaten, attack?
1	M	32	Parking lot/garage	Stranger	Attack, rob, theft, none	Yes	S, P	Neither
1	M	29	Near R's home	Former boy/girl friend	Rape, attack, rob, theft, trespass, none	Yes	P	Threatn
1	F	31	Parking lot/garage	Stranger	Rape, attack, none	No	T, S, P	Neither
1	F	55	R's home	Stranger	Rape, rob	No	S	Neither

1	M	?	Near R's home	Neighbor	Burglary	No	T, S, P, F, W, C	Neither
1	F	20	At/near friend's home	Other friend	Attack, fight	Yes	S, P, F	Attack
1	F	34	Near R's home	Stranger	trespass	No	T, SP	Neither
1	M	37	Open area	Stranger	Rob	No	S	Threatn
1	F	21	Near R's home	Stranger	trespass	Yes	T, S, F	Threatn
1	M	37	Near R's home	Stranger	trespass	No	T, S P	Neither
1	F	34	R's home	Casual acquaintance	Attack	No	T	Threatn

1	M	36	R's home	Stranger	Burglary, rob, trespass	No	S	Neither

T=Told perpetrator about gun; S=showed gun; P=pointed gun; F=fired gun; W=wounded perpetrator; C=captured perpetrator

Table 6.12

Reported Type of Crime and Use of Force by perpetrator in 19 Defensive Gun Uses (DGUs)

Response to question 72: What was happening during DGU	Response to question 75: perpetrator threatened	Response to question 75: perpetrator attacked	Response to question 75: perpetrator neither threatened or attacked
Rape	1	0	2
Robbery	1	1	3
Attack	3	2	1
Burglary	0	0	1
Theft	1	0	0
Trespass	1	0	2

Note: The columns classify DGUs on the basis of their answers to question 75: "Did the perpetrator threaten, attack or injure you?" The rows classify DGUs on the basis of their answers to question 72: "Which of the following best describes what was happening when you used the

gun defensively?" Question 72 permitted multiple answers; each DGU is categorized by the most serious crime mentioned, with the hierarchy of "seriousness" defined by the order in which the crime types are listed in the first column.