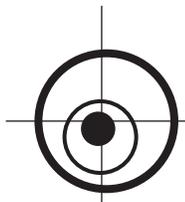

Myths about Defensive Gun Use and Permissive Gun Carry Laws

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In 1998, economist John Lott, Jr. published a book with the provocative title *More Guns, Less Crime*¹ in which he presents and interprets data to support his thesis that communities are safer when its residents are free of government restrictions on gun ownership and carrying. The book focuses primarily on two of his studies. The first, conducted with David Mustard, estimates the effects on crime attributable to state laws that allow virtually all eligible gun buyers to obtain a permit to carry a gun in public.² The second, conducted with William Landes, examines the effects of permissive gun carrying laws on mass shootings.³ In each case, the authors conclude that permissive gun carrying laws result in substantial reductions in violent crime.

Another study that examines the benefits of gun ownership and carrying was conducted by Florida State University criminologists Gary Kleck and Marc Gertz,⁴ and was designed to estimate the frequency with which would-be-victims of crime in the U.S. use guns to successfully defend themselves. Kleck and Gertz estimate that 2.5 million citizens use guns in self-defense each year in the U.S., a figure that exceeds the annual number of gun crimes committed (around 1 million, according to government victimization surveys).

Lott and Kleck, as well as pro-gun activists, have used these studies to argue that policies that could potentially make guns less available to citizens may cause violent crime to increase by preventing more defensive gun uses than gun crimes. This paper summarizes some of the key problems with these studies and the authors' interpretations of their findings.

Evidence That Permissive Gun Carrying Laws Reduce Violent Crime

Currently, 31 states have laws that require local law enforcement authorities to issue permits to carry concealed handguns to any adult applicant who does not have a felony conviction or a history of serious mental illness. Prior to the implementation of such laws, local police had discretion in issuing such permits. Because most police officers are nervous about the possibility that every traffic stop or drunk-and-disorderly might be armed, law enforcement officials in states that allow police discretion in the issuance of gun carrying permits had typically issued only a limited number of such permits.

The argument by Lott and other proponents of permissive gun-carrying laws is that if more people could legally carry guns in public spaces, the chances that criminal predators encounter well-armed would-be victims will increase. This heightened risk faced by potential attackers will in turn dissuade them from committing violent crimes in the future.

The potential costs of these laws come from the possible misuse of guns by those with concealed-carry permits, and the potential complications that such laws may pose for police efforts to prevent illegal gun carrying. Another cost from these laws comes from the possibility of an "arms race" between criminals and law-abiding citizens. Previous research suggests that this is a plausible concern. Currently, a full 75% of robbers do not use guns to commit their crimes.⁵ If more potential victims start carrying handguns, those robbers who continue to perpetrate street muggings may be more likely to use guns to commit their crimes. When they do, these robbers may be more likely to shoot first and ask questions later in an attempt

¹ Lott JR Jr. *More Guns, Less Crime*. Chicago: University of Chicago Press, 1998.

² Lott JR Jr, Mustard D. Crime, deterrence and right-to-carry concealed handguns. *Journal of Legal Studies* 1997; 26:1-68.

³ Lott JR Jr, Landes WM. Multiple-victim public shootings, bombings, and right-to-carry concealed handgun laws. University of Chicago Law School Working Paper, 1997.

⁴ Kleck G, Gertz M. Armed resistance to crime: The prevalence and nature of self-defense with a gun. *Journal of Criminal Law and Criminology* 1995 (Fall); 86:150-187.

⁵ Rennison CM. Criminal Victimization 1998: Changes 1997-98 with Trends 1993-98. (NCJ 176353) Bureau of Justice Statistics, U.S. Department of Justice, Washington D.C., July 1999.

to preempt an armed victim response. In fact, research by Philip Cook confirms that cities where more robbers use guns to commit their crimes also have higher robbery-murder rates.⁶

Since both positive and negative effects from these laws are in principle possible, what are the net effects on the overall rate of violent crime? The results of John Lott's research (or at least his interpretation of his findings) point one way, made clear by the book's title — *More Guns, Less Crime*. But, as we will demonstrate, the evidence that permissive gun carrying laws lead to substantial reductions in crime is shaky at best.

Much of Lott's book focuses on his and David Mustard's study that was designed to estimate the effects that permissive gun carrying laws had in the first 10 states that adopted them in the U.S. To estimate the impact of these laws, Lott analyzed data on crime trends from 1977 through 1992 for 3,054 counties across the U.S. His research approach was to identify the effects of permissive gun carrying laws by comparing changes in crime rates over time in states that adopted permissive concealed-carry laws with states that did not alter their usually more restrictive laws governing the issuing of permits to carrying concealed guns. These comparisons in trends statistically control for a number of differences across counties that may affect crime; for example, he controls for differences in the age, race, and income levels of populations. Some analyses also control for the presence of laws requiring waiting periods for handgun purchases and laws requiring mandatory minimum sentences for persons convicted of committing a violent crime with a gun.

The methods used in Lott's study are relatively sophisticated and, in some ways, are an improvement on previous evaluations of gun laws. But it is very difficult to derive valid estimates of the effects of 10 state gun laws due to the need to control for other factors that influence crime trends that may also be correlated with the passage of permissive gun carrying laws. The errors made in this study, several inconsistencies in the findings, the implausible estimates that are generated, and subsequent research on the effects of permissive gun carrying laws provide convincing evidence that Lott's methods do not adequately control for these other confounding factors.

We will not describe in detail all of the errors contained in *More Guns, Less Crime*. Readers are referred to the work of Professor Tim Lambert of the University of New South Wales for an extensive review of these errors, and our previous explanation of errors made in the classification of certain states' gun carrying laws.

Errors aside, the fundamental problem with Lott's research can be summarized by the old social science adage "correlation is not causation." Many variables may be related to one another yet not cause one another. For example, there is a significant association between a child's shoe size and the child's writing ability. But this correlation, of course, does not prove that large shoes improve writing ability.⁷

A similar inferential challenge lies at the heart of most policy evaluations, including Lott's study of the effects of permissive concealed-carry laws. If Florida has a lower crime rate than California, and Florida has a permissive concealed-carry law, can we conclude that the difference in crime rates is due to the gun-carrying legislation? In reality Florida and California differ along a number of dimensions, and attributing the difference in crime rates between the

⁶ Cook PJ. "The effect of gun availability on robbery and robbery murder: A cross-section study of fifty cities." In *Policy Studies Review Annual, Volume 3*, RH Haveman and GG Zellner (eds.). Beverly Hills, CA: Sage, 1979.

⁷ Kuzma JW. *Basic Statistics for the Health Sciences*. Mountain View, CA: Mayfield Publishing Company, 1984, page 159.

two states to any one factor is quite difficult. The obvious concern is that we will mistakenly attribute the difference in crime rates between Florida and California to the presence of a permissive concealed-carry law in the former, when in fact part or all of the difference will be due to other unmeasured differences across states. Lott does control for some differences between states that would explain some of the differences in crime rates. But he does not adequately control for many other factors that are almost surely relevant for a state's crime rate, including poverty, drugs (and in particular crack use and selling, which is widely thought to have been responsible for the dramatic increase in violent crime in America starting in the mid-1980's), gang activity, and police resources or strategies.

Lott tries to overcome this problem by comparing the *changes* in crime rates over time in states with versus without permissive concealed-carry laws. The idea is that unmeasured factors may cause California to have a higher crime rate than Florida, so focusing on the *change* in crime rates in Florida around the time of this state's gun-carrying law with the change observed in California around the same time will not be affected by the fact that California always has higher crime rates than Florida for reasons unrelated to the law. This research strategy assumes that the trend in crime rates in states like California and Florida would have been identical had Florida not enacted a permissive concealed-carry law.

But research by Dan Black at Syracuse University and Dan Nagin at Carnegie-Mellon show that: (1) states with permissive concealed-carry laws have violent crime trends that were different from other states even before the gun-carrying laws are enacted in that violence was increasing more in states that adopted permissive gun carrying laws than in other states in the years leading up to the permissive gun carrying law; and (2) the variables included in Lott's statistical models do a poor job of controlling for these differences in trends. As a result, differences in crime trends between states with and without permissive gun-carrying laws around the time of these laws cannot be attributed to the laws themselves, because all or part of the difference in trends around the time of the laws will be due to the unmeasured factors that caused the trends to be different before the laws went into effect. Crime trends in any particular area tend to be cyclical and regress to some long-term mean (average) after going up or down. Therefore, the reductions in violent crime observed after the introduction of permissive gun carrying laws may actually be simple regression to the mean, rather than the effects of the laws, as Lott suggests.

To his credit, Lott recognizes the potential problem with his crime-trend analysis. He attempts to remedy the problem in some of his analyses by using a more complicated statistical technique for identifying causal effects known as instrumental variables. Instrumental variables analyses are dependent on several crucial assumptions that may or may not hold in the crime data, though Lott presents none of the diagnostic tests that might help readers determine whether these assumptions are met. Instrumental variables require that the analyst identify a variable that is correlated with a state's gun carrying law, but is otherwise uncorrelated with differences across states in crime rates. One such variable that Lott uses is the proportion of a state's population that belongs to the National Rifle Association (NRA). While this variable is correlated with state concealed-carry laws, most people can recognize that

NRA representation within a state is likely to be correlated with crime rates for other reasons as well, since heavy NRA states are more likely than average to be rural and to support many other “tough on crime” measures. Lott uses other instrumental variables as well, though all of them have similar problems. In fact, the statistical problems with many of his instruments were discussed in a report issued on criminal deterrence by the National Academy of Sciences in 1978.⁸

Unlike most of the other findings that Lott describes in his book, he does not translate the results from the instrumental variable analyses into estimates of the percentage reduction in violent crime associated with the adoption of permissive gun carrying laws. When Lott’s findings from these analyses are translated in this manner, the estimates suggest that enacting a permissive gun carrying law will, on average, reduce homicides by 67 percent, rapes by 65 percent, and assaults by 73 percent. If true, these results suggest that if every state in the union enacted a permissive gun carrying law, our murder rate would be reduced to levels not seen in this country since 1910, roughly similar to the rate currently observed in Finland. These implausibly large estimates of the laws’ effects are strong evidence that Lott’s efforts to address the problem with his crime trend comparisons was unsuccessful.

Lott’s other study of the effects of permissive gun carrying laws on multiple-victim public shootings uses the same research approach at the study discussed above, and thus suffers from the same inferential problems. This study also produces estimates of the law effects that most would consider implausibly large – an 89% reduction in multiple-victim public shootings. One indicator of the implausibility of these estimates of the effects of permissive carry laws is Gary Kleck’s skepticism that permissive gun carrying laws could produce the much more modest reductions in violent crime (usually 2%–8%) that Lott more commonly trumpets. Kleck (generator of implausibly large estimates of the number of successful defensive gun uses in the U.S.) states that Lott’s conclusions that permissive gun carrying laws led to substantial reductions in violent crime

...could be challenged, in light of how modest the intervention was. The 1.3% of the population in places like Florida who obtained permits would represent at best only a slight increase in the share of potential crime victims who carry guns in public places. And if those who got permits were merely legitimating what they were already doing before the new laws, it would mean that there was no increase at all in carrying or in actual risks to criminals.... More likely, the declines in crime coinciding with relaxation of carry laws were largely attributable to other factors not controlled in the Lott and Mustard analysis.⁹

Indeed, a subsequent survey of new permit holders in North Carolina indicates that most had been taking a gun outside the home, in their vehicles, or on their person prior to obtaining the permit with little or no increased frequency in carrying after obtaining the permit.¹⁰

The study that Lott references to argue that permit holders are rarely arrested for crimes of violence also indicates that permit holders very rarely successfully use a gun to ward off a criminal attacker. This study examined data collected by the Dade County, Florida police dur-

⁸ Blumstein A, Cohen J, Nagin D. Eds. *Deterrence in Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates*. Washington, DC: National Academy Press, 1978.

⁹ Kleck G. *Targeting Guns: Firearms and Their Control*. New York: Aldine de Gruyter, 1997.

¹⁰ Robuck-Mangum G. “Concealed Weapon Permit Holders in North Carolina: A Descriptive Study of Handgun Carrying Behaviors.” Unpublished Master’s Thesis, University of North Carolina – Chapel Hill, School of Public Health, 1997.

ing the first five years after Florida's permissive gun carrying law went into effect. During this period there were only three incidents in which a permit holder successfully used a gun in defense against a criminal attack outside the permit-holder's home.^{11 12} Considering that about 100,000 violent crimes were reported to Dade County police during the five-year study period, it is hard to argue that criminals are likely to have noticed a significant change in their risk of facing a victim armed with a gun.

Another way to assess whether the decreases in violent crime that Lott finds are associated with permissive gun carrying laws are actually attributable to the laws and not to unmeasured confounding factors is to see if the crime reductions are most pronounced for robberies than for other types of crimes because robberies are most likely to be committed against strangers in public places. But Lott's own research indicates that the violent crime category for which permissive gun carrying law effects were weakest (and often nonexistent) was robbery. Because even permissive gun carrying laws do not allow juveniles to legally carry guns, one should see greater reductions for victimizations of adults than of juveniles. Again, Lott's research as well as subsequent research¹³ indicates that permissive gun carrying laws were not associated with greater reductions in murders of adults than of murders of juveniles.

The Myth of 2.5 Million Defensive Gun Uses Per Year

Kleck and Gertz's claim of 2.5 million defensive gun uses per year is derived from a telephone survey of 5,000 American adults conducted in 1992. Fifty-six respondents to this survey reported that they had used a gun in self-defense during the past year. Kleck and Gertz multiply the proportion of respondents in their survey who report a defensive gun use ($X / 5,000 = Y$ percent) by the number of adults in the U.S. (around 200 million) and the number of defensive gun uses equals 2.5 million per year. They estimate that in 670,000 of these incidents the would-be victims used guns when they were away from their homes.

Many people are amazed that projections about national phenomena can be made based on a telephone survey of a few thousand adults. While many surveys of this type can provide useful information about national phenomena, in this particular case the public's skepticism is warranted. The primary problem is that, even if the Kleck and Gertz's estimates were accurate, defensive gun use is a relatively rare occurrence in that only 1% of respondents reported a defensive gun use during the previous 12 months. As David Hemenway of Harvard University has pointed out, inaccurate reporting of these events by a relatively small number of respondents could lead to population projections that are orders of magnitude different from the true incidence.¹⁴ For example, if one-half of one percent of the survey respondents incorrectly reported that they had used a gun to defend themselves against a criminal attack during the past year, the estimated number of defensive gun uses would be twice as high the true number.

There are many reasons that respondents' reports of defensive gun use might be exaggerated. In some cases, respondents may have misjudged the level of danger they faced when they drew their gun. Survey researchers are also familiar with two types of response bias, "telescoping" and social desirability bias, that could lead to an overstated incidence of

¹¹ There were also three incidents in which permit holders unsuccessfully attempted to use a gun in defense against a criminal attack outside the home, including one case in which a robber took the permit holder's gun away.

¹² Data cited in: Cramer CE, Kopel DB. Shall issue: The new wave of concealed handgun permit laws. *Tennessee Law Review*, 1995; 62:679-758.

¹³ Ludwig J. Concealed-gun-carrying laws and violent crime — evidence from state panel data. *International Review of Law and Economics*, 1998; 18:239-254.

¹⁴ Hemenway D. Survey research and self-defense gun use: An explanation of extreme overestimates. *Journal of Criminal Law and Criminology* 1998.

reported events such as defensive gun use. Telescoping refers to the tendency of respondents to report that salient events such as a crime victimization or a defensive gun use occurred more recently than was the case. Evidence that the Kleck-Gertz survey respondents are telescoping their recollections of their crime victimizations comes from the estimated number of robbery victimizations it produces that is nearly five times as high as the estimate derived from the National Crime Victimization Survey (NCVS). The NCVS minimizes telescoping by using shorter recall periods and a panel design that re-surveys respondents multiple times over a three-year period.

Social desirability bias refers to the tendency of respondents to over-report their actions they believe others would find admirable such as an heroic act to defend oneself or others against a criminal. There is no way to definitively determine the degree to which social desirability bias may have influenced the Kleck-Gertz estimates of defensive gun use. However, it seems likely that the nearly half of the respondents reporting defensive gun uses who indicated that they believe their defensive gun use saved their life or the life of someone else probably thought of their actions as heroic. Such incidents are regularly reported in *American Rifleman*, a monthly magazine distributed to all members of the National Rifle Association, in a manner that unequivocally portrays the incidents as heroic acts.

Given these possible sources of error, it is not surprising that surveys sometimes produce quite puzzling results. For example, in his discussion of the pitfalls of using the Kleck-Gertz survey to make population projections about the incidence of defensive gun use, David Hemenway of Harvard University cites a 1994 phone survey of 1,500 adults living in the U.S. Six percent of the respondents to this survey reported having had personal contact with aliens from another planet. This six percent could be explained, in part, by the series of questions that led up to question about contact with aliens that set up the respondent to expect that the interviewer was hoping for some alien-contact answers. In addition, some small yet non-negligible percentage of survey respondents could be expected to have mental conditions that impair their perceptions and lead them to report defensive gun incidents that did not actually happen.

Not surprisingly, the combined effects of these problems can produce population estimates that are grossly out of line with other measures of violent crime. For example, the Kleck-Gertz projection for the number of assailants wounded by armed citizens in 1992 is more than twice as high as the estimate from another study of the *total* number of people treated for gunshot wounds in a nationally representative sample of hospitals in 1994. Finally, the Kleck-Gertz survey data suggest that, in serious crimes, the victim was four times more likely than the offender to have and use a gun, a highly implausible finding given the much higher rate of gun carrying among criminals compared with other citizens.

A Re-evaluation of the Science on Guns and Violent Crime is Not Warranted

The idea that the availability of guns increased the lethality of violent crime was first established by a 1968 study of crime in Chicago by Franklin Zimring, currently a law professor at the University of California at Berkeley. Zimring showed that most homicides and other assaults stem from arguments between people, rather than premeditated gangland-style executions. In addition, he found that assaults with a firearm were much more lethal than those in which the attacker uses a knife, even though the circumstances of gun and knife attacks closely resemble each other in most respects.¹⁵ If the number of wounds inflicted is a reflection of the attackers' homicidal intentions, assailants using knives actually demonstrated greater intent to kill their victims than did the assailants who used guns. A similar conclusion was reached when Duke University professor Philip Cook compared gun and non-gun robberies in a series of studies during the '70's and '80's.^{6, 16, 17} The implication is that more guns mean more death, and policies that can keep guns from violence-prone individuals should reduce the number of homicides.

In addition to increasing the lethality of violent acts against individuals, guns enhance assailants ability to, within seconds, wound or kill many people, including children and other innocent by-standers. It is no surprise that incidents in which assailants seriously injure or kill many people with weapons other than firearms are quite rare in the U.S. where firearms are so plentiful.

As a result, policy makers and researchers have struggled to identify ways to keep guns away from those who are most likely to misuse them, while preserving access to guns for most law-abiding adults. Among the gun control measures that are designed to reduce the availability of guns to potentially dangerous individuals include regulations that require background checks to screen eligible from ineligible buyers, registration of firearms, licensing of firearm owners, and restrictions on the number of firearms that can be legally purchased. Most of these measures have not be adequately evaluated, however, there is some evidence that background checks requirements for handgun sales have some effect in reducing violent behavior by convicted felons. Policy makers have also sought to regulate gun design with the objective of minimizing public health costs associated with gun misuse. Examples of this approach include bans on guns with fully-automatic firing mechanisms and proposals to require all new handguns to come equipped with devices that prevent unauthorized use. There is also evidence that restrictions on carrying of guns in public places, particularly in high-risk settings and often with stepped-up enforcement, can significantly reduce gun violence.^{18, 19}

Although research by John Lott and Gary Kleck has challenged the prevailing view that gun regulations can reduce lethal crimes, the many limitations of Lott's and Kleck's research indicate that there is no reason to move from view of guns and violence backed by research in previous decades. Until proven otherwise, the best science indicates that more guns will lead to more deaths.

¹⁵ Zimring FE. Is gun control likely to reduce violent killings? *The University of Chicago Law Review* 1968; 35:721-737.

¹⁶ Cook PJ. Reducing injury and death rates in robbery. *Policy Analysis* 1980; 6:21-45.

¹⁷ Cook PJ. Robbery violence. *Journal of Criminal Law and Criminology* 1987; 78:357-376.

¹⁸ Sherman LW, Shaw JW, Rogan DP. *The Kansas City gun experiment*. National Institute of Justice Research in Brief. Washington, D.C.: U.S. Dept. of Justice, Office of Justice Programs, National Institute of Justice, January 1995.

¹⁹ Fagan J; Zimring FE; Kim J. Declining homicide in New York City: A tale of two trends. *Journal of Criminal Law and Criminology*, 1998 Summer; 88(4):1277-1323.