More Guns Less Crime Thesis

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Kal-Tec, Kimber, Seecamp, Sig Sauer, Smith & Wesson, Taurus, and Walther. Guns in both calibers have streamlined, polymer frames and high-capacity magazines (greater than 10 rounds). However, since in most shooting situations, very few shots are fired, the classic six-round revolver would be more than enough firepower in a defensive situation. As such, many would argue that high-capacity magazines, some containing 18 rounds, are simply not necessary and are just dead weight.

Francis Frederick Hawley

See also: Concealed Weapons Laws; Derringers; Handguns

Further Reading


Mining Towns and Gun Violence. See Frontier Violence

Minutemen, Modern. See Militias

Minutemen, Revolutionary. See Militias

More Guns, Less Crime Thesis

A majority of American states have now implemented laws that allow the public possession of a concealed handgun for all people without a diagnosed mental disability or felony conviction. The explosion of these “right-to-carry” (RTC) laws (25 states have adopted RTC legislation since 1990) has ignited a spirited debate among researchers about the social and economic effects of these laws. Supporters of RTC legislation suggest that by relaxing restrictions on gun carrying by ordinary citizens, criminals are forced to consider whether their next potential victim (or a bystander) has a gun that can be used to foil a crime. Thus, the threat of citizen response increases the expected cost to criminals of engaging in certain illegal acts, and hence deters crime—leading to the fittingly named “More Guns, Less Crime” (MGLC) premise.

On the other hand, opponents of virtually unrestricted gun-carrying privileges claim that increased gun possession brought about by RTC laws has pernicious externalities (effects on others over which they have no choice). For example, even if RTC laws deter some delinquents, they may also induce some criminals to carry guns themselves for protection during planned crimes, as well as to be more violent with potential victims (O'Flaherty and Sethi 2009). Furthermore, increased circulation of handguns brought on by RTC laws naturally increases criminal access to handguns, which may lead to more spontaneous shootings, accidental killings, and gun suicides, as well as increased gun thefts that further arm criminals and facilitate opportunistic criminal acts.

Both effects likely operate to at least some degree, meaning researchers may best answer the question of how RTC laws impact crime rates by empirically identifying whether either effect dominates the other. If it turns out that the net effect is a wash, researchers will be interested to know whether gun purchasers protect themselves.
against crime while pushing it on to others, or whether gun purchasers deter some crime for the populace at large but impose greater burdens on themselves.

The case for the MGLC hypothesis was first made in a highly publicized and controversial article by John Lott and David Mustard in the *Journal of Legal Studies*. In "Crime, Deterrence, and Right-to-Carry Concealed Handguns," Lott and Mustard (1997) claimed to find significant net economic and social benefits of right-to-carry laws through crime reduction. They analyzed crime data at the county level to determine if states with right-to-carry laws had lower rates of violent and property crimes than those without. (Note: violent crime categories include murder, rape, aggravated assault, and robbery; while property crimes include auto theft, burglary, and larceny.) Using econometric methods for panel data, they concluded that RTC laws (which are implemented at the state level) were the primary driving force behind falling rates of violent crime between the late 1970s and the early 1990s. Their results were based on an analysis using a statistical model of the following form:

\[ Y_{it} = \eta \text{RTC}_{ji} + \gamma X_{ijt} + \alpha_i + \theta_t + \epsilon_{it} \]  

This model isolates the effect of RTC laws on crime rates after separating the effects of other factors on crime. The dependent variable \(Y_{it}\) denotes the violent and property crime rates for county \(i\) and year \(t\) (natural logarithm of the crime rate is used, thus allowing researchers to interpret the coefficient estimate as a percentage change in the dependent variable). The explanatory variable of interest—the presence of an RTC law within a particular state \(j\) in year \(t\)—is a dummy or trend variable represented by \(\text{RTC}_{ji}\). Using this method, a calculation of \(\eta\) will yield the average effect of all right-to-carry laws nationwide. As in any econometric analysis, one must also control for factors other than RTC laws that may influence crime rates. To this end, the term \(X_{ijt}\) represents a matrix of control variables believed by Lott and Mustard to also influence criminal behavior. These factors include average income and racial and age composition, as well as another measure of criminal deterrence: a county's arrest rate. (Other researchers believe additional control variables should be used; for example, Aneja, Donohue, and Zhang [2010] argue for other measures of deterrence, such as incarceration levels or police presence). Finally, the variables \(\alpha_i\) and \(\theta_t\) indicate county and year fixed effects, respectively. “Fixed effects” account for unobserved heterogeneity across space and time. In this analysis, county-fixed effects indicate unmeasured (and time-invariant) county characteristics that may influence crime, while year-fixed effects capture secular trends in crime that cannot be accounted for by using observable policy and demographic variables.

In essence, Lott and Mustard used this “difference-in-difference” model to ascertain the average net impact of RTC laws on crime rates in the 10 RTC-adopting states over the time period 1977–1992. The change in crime in these 10 adopting states is compared with the change in crime in the non-adopting states. The implicit assumption is that the control factors will explain other crime trends across states, and the remaining differences can be attributed to the presence or absence of the RTC laws.

Lott and Mustard were unequivocal in their conclusions on the ability of gun-toting citizens to deter violent crimes, arguing that handguns are a cost-effective method of reducing crime. They further
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declared that had remaining non-RTC states enacted such legislation, over 1,400 murders and 4,100 rapes would have been avoided. A short time after the publication of this first “More Guns, Less Crime” study, Lott (1998) then made the case to the American public in a general-interest book, More Guns, Less Crime.

The Lott-Mustard analysis and the subsequently published book by Lott had immediate political effects. For example, their research was cited by 18 state attorneys general in their 2002 letter to then attorney general John Ashcroft in support of a decision to interpret the Second Amendment as protecting an individual right to possess a firearm (Pryor 2002). Lott himself used his research as evidence while advocating for the passage of state-level concealed-carry handgun legislation, providing testimony about the social benefits of RTC laws in front of state legislatures in Nebraska, Michigan, Minnesota, Ohio, and Wisconsin (Ayres and Donohue 2003).

The MGLC hypothesis also generated some initial support within the academic community. Indeed, several economists and applied statisticians have claimed to bolster Lott’s contention that right-to-carry laws—and by extension, increased gun carrying—reduce crime by raising the potential cost to criminals of committing a violent crime. For example, Plassmann and Tideman (2001) analyze the effects of RTC legislation using data on the total number of crimes (rather than crime rates). They conclude that RTC laws have strongly beneficial effects; in fact, in many cases, they find even stronger crime-reducing effects than those concluded by Lott and Mustard. The authors suggest that RTC laws are responsible for an 11.2 percent drop in murders nationwide between 1977 and 1992. Plassmann and Whitley (2003) extended the Lott-Mustard study to include data through 2000; adopting the Lott-Mustard approach, they conclude that RTC laws lead to annual reductions in murder rates between 1.5 percent and 2.3 percent per year. Moreover, they find the economic benefit from reduced crimes ranges between about $2 billion and $3 billion per year (for the first five years that such a law is in effect).

The MGLC thesis has also been met with considerable skeptical academic commentary. Almost immediately upon the release of the Journal of Legal Studies article, several analyses were published criticizing its methods and results. In most cases, researchers again used the same basic difference-and-difference approach of Lott and Mustard, but reached very different conclusions. For example, Zimring and Hawkins (1997) claimed that the comparison of crime between RTC and non-RTC states is misleading because of factors such as poverty, drugs, and gang activity, which vary significantly across gun-friendly and non-gun-friendly states. Using the same data as Lott and Mustard, Black and Nagin (1997) find that the Lott-Mustard results are highly sensitive to minor changes in their sample. For example, if Florida is excluded from the analyzed sample, the aggregate impact of RTC laws on rates of murder and rape (cited explicitly by Lott and Mustard) virtually disappears.

The list of studies rejecting the More Guns, Less Crime thesis has continued to grow over the last decade. In one of the most prominent analyses attacking the MGLC proposition, Ayres and Donohue (2003b) used the panel data approach of Lott and Mustard to illustrate the grave infirmities of the statistical evidence offered in support of the MGLC hypothesis. For instance, they showed that the effects of early RTC-adopting states are vastly different from late
adopters. When restricting the period of analysis to 1991–1999 (only analyzing the states that adopted RTC laws during the 1990s), the results actually showed uniformly positive and significant estimates suggesting that RTC laws increase crime in a number of states. They also bolstered past critiques of the Lott-Mustard study by suggesting that the results are likely driven by factors that are not considered in the model. Ayres and Donohue pointed out that crime was rising across the board from 1985 to 1992, the years at the end of Lott and Mustard’s period of analysis, and most dramatically in non-RTC states. Crime declined rapidly after 1992, however, and again more markedly in non-RTC states than in RTC states. This observed trend undermines the MGLC thesis by illustrating that estimates of the impact of RTC laws are sensitive to the time period under analysis. Ayres and Donohue (2003a) followed up their frequently cited and exhaustive study with another article pointing how statistical coding errors were driving the results of the Plassman and Whitley study. After correcting these computational mistakes, Ayres and Donohue claimed that any evidence of RTC laws reducing crime disappeared.

Further evidence undermining the MGLC thesis comes from econometric studies that directly measure how the number of guns in a county (or state) correlates with criminal activity in a given area. Mark Duggan (2001) examined this question in a prominent study using an “instrumental variables” approach. Instrumental variables are used to estimate causal relationships when the explanatory factor of interest is thought to be correlated with the regression error term. This type of correlation can occur when the dependent variable is causally related to at least one of the covariates—for example, if increasing crime causes people to purchase firearms for protection. This dilemma is referred to in applied statistics as endogeneity. One way that econometricians can sidestep the problem is by employing an instrument—that is, a variable that does not influence the dependent variable (crime) except through its relationship with the endogenous factor. Duggan uses gun magazine subscriptions as an instrument that correlates strongly with handgun ownership, but has no direct influence on crime rates. Having circumvented the plausibly endogenous relationship between gun possession and crime, Duggan concludes that a 10 percent increase in gun prevalence increases a county or state’s homicide rate by around 2 percent the following year.

In a more recent paper, Cook and Ludwig (2006) also found that high levels of gun ownership increase crime. They rely on a different proxy for handgun levels: the percentage of suicides committed using a firearm. This proxy has been demonstrated in a number of analyses to provide an accurate measure of gun ownership (Azrael, Cook and Miller 2004).

A study by Kovandzic and Marvell (2003) centers on the effects of Florida’s right-to-carry law. They examine the effects on violent crime due to increases in the number of people with concealed-carry handgun permits after the passage of the law, and find virtually no evidence that the law reduces violent crime.

In 2005, the National Research Council (NRC)—under sponsorship from the National Academy of Sciences—appointed a blue-ribbon panel of economists, statisticians, and sociologists to critically review the myriad issues related to gun violence in the United States, including the value of right-to-carry laws as a crime control measure. The committee of 16 prominent academic experts included sociologist Charles Wellford.
(the committee chair), criminologist/political scientist James Q. Wilson, and empirical economists Joel Horowitz, Joel Waldfogel, and Steven Levitt. They critically reviewed all of the past literature on RTC laws, and also conducted their own evaluation of the effects of RTC laws using county-level crime data (note that the NRC's analysis was completed for the time period 1977–2000 using data compiled by John Lott). The NRC employed the same regression techniques used by Lott and Mustard (1997) as well as Lott (1998), Ayres and Donohue (2003b), and the myriad other researchers who have written on this topic.

While there was hope that the NRC would decisively conclude whether RTC laws decrease or increase crime, the NRC's final assessment concluded that there was no evidence for the Lott-Mustard hypothesis, and, further, that it was simply not possible to ascertain the impact of these laws on crime because the results were highly sensitive to changes in model specification.

More recently, Moody and Marvell (2008) have updated the original Lott-Mustard model by adding a few arguably important criminogenic factors that were initially excluded: levels of incarceration and police force, as well as the prevalence of crack usage. They claim to demonstrate that RTC laws have reduced crime, resulting in cost savings of $28 billion for all laws passed nationwide between 1977 and 2000.

In a response to these findings, Ayres and Donohue (2009b) describe the problems with these results that are generally applicable to the Lott-Mustard approach. First, they demonstrate that it is risky to extrapolate linear crime trends for many years beyond the year of RTC passage. Second, they note the potential problems with using county data to analyze RTC laws (Maltz and Targonski [2002] argue that too much crime data at the county level is missing to allow for the proper testing of the MGLC thesis). In a follow-up study, Ayres and Donohue (2009a) analyze the MGLC thesis using state-level crime data, which has been demonstrated to be significantly more reliable than county-level crime data. They again demonstrate that the Moody-Marvell model provides no consistent evidence that RTC laws reduce crime. Rather, state-level data suggests that RTC laws may have increased aggravated assaults nationwide.

The divergence in the conclusions of MGLC studies that use essentially similar models has led researchers to question the current statistical tools used to analyze the effects of laws and public policies, and to apply new methods to explore the effects of RTC laws on crime. Strnad (2007), for example, proposes a Bayesian-model averaging as a way to sift through conflicting empirical estimates of various differing models. The Bayesian method allows researchers to adjust their assumptions about how a policy works according to the data that are collected. Given enough information, confidence in a hypothesized relationship between a factor and its outcome should become either high or low.

Bayesian-model comparison also allows researchers to collectively consider all of the plausible specifications. This method does not depend on the parameters estimated in each model. Rather, Bayesian-model averaging considers the probability of the model considering all possible parameter values. In this manner, Bayesian methods can be used to select between conflicting hypotheses. Thus, Strnad argues that the Bayesian approach provides a systematic approach for choosing an appropriate model to evaluate legislation and policy. Strnad uses the MGLC debate over which model is correct to show how Bayesian methods are applied. While Strnad's primary objective is to demonstrate the strengths of Bayesian-
model averaging, his results undermine the proposition that guns reduce crime. Strnad also finds that the two most important explanatory variables for explaining crime rates are the abortion rate and the incarceration rate.

Aneja, Donohue, and Zhang (2010) provide methodological insights that are relevant to the more traditional analysis of crime data using panel data techniques. They extensively review the methodological choices made by the National Research Council in its 2005 report on RTC laws and find numerous problems, though they echo the NRC's conclusion that there is no evidence in aggregate econometric data that would support the existence of a net crime-reducing effect of right-to-carry legislation. After their exhaustive study of how RTC laws influence the seven major categories of crime, only one consistent, statistically significant finding emerges: that RTC laws increase the rate of aggravated assault.

The "More Guns, Less Crime" thesis has generated one of the most heated academic debates over a public policy issue in recent years. Empirical researchers have used an array of statistical techniques to understand the net effects of these laws on crime. Yet after so many studies, there remains no consensus on whether RTC legislation decreases crime, increases crime, or has no meaningful net effect in either direction. Despite the forceful claims in favor of the MGLC thesis from a small continually diminishing group of researchers, it may be wise to agree with the NRC's conclusion that there is no convincing evidence that RTC laws generate any net benefits.

Given the seemingly irreconcilable differences over the truth of the MGLC hypothesis, perhaps the most valuable lesson we have learned from this academic debate relates to research methods, not policy implications. The back-and-forth has demonstrated how evaluations of policy can be extremely sensitive to researcher decisions. The morass of conflicting results on this topic has led social scientists to seriously assess whether the right methods are being used, and to explore what ways may be better for delving into controversial and policy-relevant research topics. Analyses of RTC legislation highlight an important lesson to take away from the More Guns, Less Crime debate: researchers should use caution when making strong policy-oriented prescriptions on the basis of statistical evidence—particularly prior to the emergence of a large and sophisticated critical literature.

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See also: Availability of Guns, Effects on Crime; Background Checks; Black Market for Firearms; Concealed Weapons Laws; Defensive Gun Use (DGU); Felons and Gun Control; Gun Control; Gun Control Act of 1968; Intervention Effects; Lott, John R., Jr.; Right to Self-Defense, Philosophical Bases; Safety Courses

Further Reading


Motor Vehicle Laws as a Model for Gun Laws


**Morial v. Smith & Wesson Corp.** See Lawsuits against Gun Manufacturers

**Morton Grove, Illinois.** See *Quilici v. Village of Morton Grove*

**Motor Vehicle Laws as a Model for Gun Laws**

The improvement in motor vehicle safety in the United States was deemed an important “20th century public health achievement” by the Centers for Disease Control and Prevention (CDC). Between 1952 and 1999, the U.S. death rate per motor vehicle mile fell 80 percent. And by 2009, death rates had fallen so low that fewer people died on the roads in that year than in any since 1950, even though the population has doubled, and there are far more automobiles per person. Experts do not believe that drivers