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IN THE UNITED STATES DISTRICT COURT

FOR THE SOUTHERN DISTRICT OF CALIFORNIA

VIRGINIA DUNCAN, et al.

Plaintiffs,

v.

XAVIER BECERRA, in his official capacity as Attorney General of the State of California; et al.,

Defendants.

17-cv-1017-BEN-JLB

EXHIBITS 1-15 TO THE DECLARATION OF ALEXANDRA ROBERT GORDON IN SUPPORT OF DEFENDANT ATTORNEY GENERAL XAVIER BECERRA'S OPPOSITION TO PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

Date: June 13, 2017
Time: 10:00 a.m.
Dept: 5A
Judge: Hon. Roger T. Benitez
Action Filed: May 17, 2017

Exhibit 1

The Gun Debate's New Mythical Number: How Many Defensive Uses Per Year?

Philip J. Cook; Jens Ludwig; David Hemenway

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Insights

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Editor

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THE GUN DEBATE'S NEW MYTHICAL NUMBER: *HOW* MANY DEFENSIVE USES PER YEAR?

Philip J. Cook, Jens Ludwig, and David Hemenway

In 1986, Peter Reuter suggested that the Association for Public Policy Analysis and Management (APPAM) consider offering an annual award for the "most outrageous number mentioned in a policy discussion by an elected official or agency head," with one of the criteria being that the number have "no reasonable basis" (pp. 811–812).

In this article, we discuss the candidacy of one of the more surprising numbers to surface in the course of America's gun debate: that 2.5 million Americans use a gun defensively against a criminal attacker each year [Kleck and Gertz, 1995]. News items,[1] editorial writers,[2] even the Congressional Research Service [Bea, 1994] have mentioned the 2.5 million defensive gun uses (DGUs) as established fact. This number is considerably higher than our best estimate of the number of crimes committed each year with a firearm (1.3 million) [U.S. Department of Justice, Bureau of Justice Statistics, 1996b], and has been used as an argument against regulations that would restrict widespread firearms ownership. The implicit notion seems to be that if there are more legitimate uses than criminal uses of guns against people, then widespread gun ownership is a net plus for public safety.

[1] One article begins, "That's right. Owning a gun, presuming you know how to use it, may be good for you" [Harper, 1996]. See also Witkin [1994].
[2] See Kumenta [1995].

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For reasons documented in this article, we believe that the 2.5 million figure is an example of what Max Singer has termed a "mythical number" [Singer, 1971]. Singer notes, "[E]ven responsible officials, responsible newspapers, and responsible research groups pick up and pass on as gospel numbers that have no real basis in fact. . . . [B]ecause an estimate has been used widely by a variety of people who should know what they are talking about, one cannot assume that the estimate is even approximately correct" (p. 9).

Estimates for the number of defensive gun uses are likely to be substantially overstated because of the problem of "false positives" [Hemenway, 1996]. This source of bias is a common problem in survey estimates of rare events, but largely unrecognized or ignored. We recount the evidence which indicates that the 2.5 million DGU estimate is far too high, and suggest that implications for both the policy debate over gun regulation, and for survey research.

Survey Results on Self-Defense

What distinguishes this remarkable statistic is the entirely respectable source and estimation method. We usually think of mythical numbers as coming from obviously flawed procedures, generated by advocates seeking attention for the problem of homelessness or heroin addiction or youthful predators or some other cause [Reuter, 1984, 1986].

In contrast, the DGU estimate was calculated by researchers affiliated with a major research university (Professors Gary Kleck and Marc Gertz of Florida State University), using widely accepted methods and published in a topflight, peer-reviewed criminology journal (Northwestern University Law School's *Journal of Criminal Law and Criminology*). Although many mythical numbers may be debunked by simply probing beneath the press reports to identify the source, such is not the case with the DGU figure.

In particular, Kleck and Gertz conducted a telephone survey of almost 5000 American adults in 1993, with the specific intent of examining the defensive-gun-use issue. On the basis of the survey responses, Kleck and Gertz were able to generate a range of estimates depending on the exact definition and judgments concerning the credibility of responses. Their now-famous estimate of 2.5 million is at the conservative end of this array of possibilities.

Their survey appears to have been conducted according to current standards, and the results have been reproduced in several subsequent surveys.[3] In 1994, for example, the National Institute of Justice sponsored a telephone survey of 2600 American adults examining gun ownership and uses, including defensive gun uses [Cook and Ludwig, 1996]. This National Survey of Private Ownership of Firearms (NSPOF) incorporated a sequence of DGU questions very similar to that used by Kleck and Gertz. Each respondent was asked, "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?" Respondents who reported experiencing a defensive gun use were then asked 30 additional questions concerning their most recent DGU. Two of us (Cook and Ludwig) have analyzed these data, and report on them here.[4]

[3] Three nationally representative random-digit-dial telephone surveys of adults have focused on the issue of self-defensive gun use, asking questions similar to those of Kleck and Gertz. In addition to the survey reported next, there was a survey of 800 gun owners and 400 nonowners in 1994 sponsored by the Centers for Disease Control [Hemenway and Azrael, 1996a] and a survey of 1905 adults in 1996 sponsored by the National Institute of Justice [Hemenway and Azrael, 1996b].

[4] For details concerning survey design and results, see Cook and Ludwig [1997].

When we follow the example of Kleck and Gertz and exclude all respondents whose most recent DGU was part of military or law-enforcement work, who did not report a specific crime or use of the gun as part of the incident, or who did not actually see a perpetrator, we estimate 1.5 million defensive gun users. (Because many of the relevant respondents said that they experienced more than one, we estimate a total of 4.7 million defensive gun uses per annum.) Thus, our estimate, based on the NSPOF, is in the same ballpark as that propounded by Kleck and Gertz. The difference could plausibly be due to sampling error. Kleck and Gertz's DGU estimates do not appear to be artifacts of any particular computational or weighting decisions made in their analysis. If there is a problem here, it is intrinsic to the method.

Some Troubling Implications

One check on the credibility of these DGU estimates is made possible by the detailed follow-up questions included in both these surveys. In the NSPOF, respondents were asked whether they fired their guns, and if so, whether they managed to hit the mark. The responses to this item from our 19 "genuine" defensive gun users, multiplied by our sampling weights, imply that approximately 132,000 perpetrators were either wounded or killed at the hands of armed civilians in 1994. That number, it turns out, is just about the same as the total of all people who were shot and killed or received treatment for nonfatal gunshot wounds in an emergency room that year—yet we know that almost all of those are there as a result of criminal assault, suicide attempt, or accident.[5] There is no trace in these official statistics of the wounded assailants.

Respondents are also asked to report the circumstances under which they were provoked into using their gun. From the NSPOF, we estimate that 322,000 used a gun to defend against a would-be rapist. But that is more than the total number of rapes and attempted rapes estimated from the best available source, the National Crime Victimization Survey (NCVS)![6]

Similar puzzles are found in Kleck and Gertz's findings [Hemenway, 1996]. Our closer examination of the DGU reports in the NSPOF suggests that almost half of the incidents appear to contain some internal inconsistency, or otherwise do not make sense. We are persuaded that surveys of this sort generate estimates that grossly exaggerate the true number of DGUs. The most likely explanation provides an important insight about the limitations of the survey method.

Why Surveys Overestimate Defensive Gun Use

Surveys which include questions about DGUs are trying to estimate a rare event, in which even a small false-positive rate will lead to a relatively large overestimate. Medical epidemiologists have traditionally been much more alert to this problem than have survey researchers. As one of many possible examples, consider the Breast Cancer Screening Project conducted some years ago by the Health Insurance Plan of greater New York [Hennekens and Buring,

[5] About 100,000 people were nonfatally shot and treated in an emergency room or hospital in 1992 [Annest et al., 1995], and an additional 16,000 were shot and killed in criminal homicides [U.S. Department of Justice, Federal Bureau of Investigation, 1995].

[6] The NCVS is a large (48,000 households) survey that has been conducted by the U.S. Census Bureau since 1973. It is by far the most expensive and best-designed survey of its kind.

1987, p. 332]. In a total of almost 65,000 screening examinations (mammography plus physical exam), 1115 women were "positive" and followed up with biopsies. As it turned out, 983 (92 percent) of these positive tests were false, in the sense that they were not confirmed in the follow-up. Yet this result is not an indictment of mammography—indeed, the false-positive rate was only 1.5 percent. But that was sufficient, given the rarity of the true positives (less than 0.3 percent) to ensure that most positive results would be false, and that the estimated prevalence of breast cancer from this initial screen would far exceed the true prevalence.

Of course, in any survey there is a possibility of false negatives as well as false positives. Kleck and Gertz emphasize this possibility, arguing that because many respondents may worry that their defensive actions were somehow illegal, they will not admit to them during the survey interview. Kleck and Gertz argue that this effect should outweigh any other misreporting effects and lead to, if anything, an underestimate of the annual number of defensive uses.

Yet by any measure, including the Kleck–Gertz estimate, defensive gun use is a relatively rare event. If 0.5 percent of adults experience a DGU each year, in a survey of 1000 adults only about five would logically have the opportunity to provide a false negative. On the other hand, for 995 of the 1000 respondents, the only logically possible misclassification error is a false positive—and there are good reasons why some might falsely claim to have used a gun in self-defense. For one, using a gun defensively against a criminal may be a genuinely heroic act, and is often portrayed as such in movies and occasionally so in the nightly news.

Take, for example, the case of Dorothy Newton, who shot two robbers on the street in Richmond after having been wounded herself in a robbery one year earlier. The *Washington Post* reports that, although Newton had mixed feelings about the incident, the reaction of many in Richmond has been decidedly less ambiguous.[7] The *Richmond Times Dispatch* wrote in an editorial: "The thought of cocky young predators scurrying like scalded dogs is one decent people find immensely satisfying."[8]

The falsehood may stem from real events, given that survey respondents typically wish to present themselves favorably to interviewers [Sudman and Bradburn, 1974]. The falsehood may also stem from confusion on the part of the respondent: memories fade, and they also distort. "Telescoping," for example, is a common problem in survey research, where respondents who are asked to report about events occurring during the previous year will report an event that in fact happened 13 months or more earlier.[9] Actual experience may be revised in the telling, or may even elide with fiction. Given the prevalence of relevant mental disorders,[10] a nationally representative sample would include a number who were delusional, senile, or intoxicated—people unlikely to be reliable reporters in social science surveys.

[7] See Bowles [1996].
[8] See "Newton's Law," *Richmond Times-Dispatch*, June 7, 1996, p. A16.
[9] In the National Crime Victimization Survey, which questions the same households every six months concerning their epxerience with crime during the previous six months, rates of reported victimization in the first-time panel are typically over 50 percent higher than the bounded rates of subsequent surveys [Cantor, 1989].
[10] 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," which includes 2 million adults with schizophrenic disorders and 4.9 million with what are classified as severe cognitive impairments [Bourndon et al., 1994].

An additional possible source of false DGU reports is strategic responses by gun owners. With around 3 million National Rifle Association (NRA) members [Kleck, 1993, p. 370], it would not be surprising to have as much as 1 percent of respondents who are both aware of the ongoing empirical debate on this topic and feel a vested interest in the perpetuation of high DGU estimates.[11]

Is More Better?

About 40 percent of American households currently own a gun, and 14 million people routinely carry one when they go out [Cook and Ludwig, 1997]. Would we be better-off if these figures were, say, 80 percent and 28 million carriers? No doubt that would increase the number of DGUs, however defined or measured. But what would be the net benefit?

The difficulty in answering this question arises in part because of the ambiguous nature of many gun uses that are reported as "defensive" by respondents. Among the incidents in the NSPOF that meet the Kleck and Gertz-type criteria for "genuine" defensive gun uses, in almost one third the most serious crime reported by the respondent is a fight or attack. Assigning fault in a violent encounter can be a daunting problem even to a detective who has a chance to interview everyone involved, let alone a survey interviewer who is asking a few questions of just one of the combatants. In a recent telephone survey of 1905 adults [Hemenway and Azrael, 1996b], 13 respondents reported a defensive gun use against a criminal attacker. In contrast, 38 respondents indicated that a gun had been displayed against them in a hostile manner during an argument or some other circumstance. We suspect that many of the 38 gun users involved in these hostile brandishings would have claimed self-defense if they had been contacted by telephone.

Moreover, it is difficult in many cases to determine whether the gun use leads to an outcome that is better in some sense than what *would have* happened had a gun not been available. For the DGU reports in the NSPOF, a theft or trespass is the most serious crime reported in one out of every five cases. In such instances, is society necessarily made better-off when someone uses a gun rather than dials 911?

In our judgment, the most important effects of more guns would not show up in the DGU statistics at all. Some robbers or burglars, fearing the increased risk of confrontation with an armed victim, might retire (or switch to auto theft), and others might decide to arm themselves more heavily and act more aggressively in committing their crimes. Both of these effects, deterrence and escalation, are plausible, and the net effect is not obvious from armchair theorizing. One empirical study suggested that the murder rate in robbery tends to be higher in cities with many gun owners than in cities with relatively few [Cook, 1979]. In any event, these behavioral considerations, important as they may be, do not figure in the DGU calculus. Taking a broader view, we conclude that more guns may lead to more DGUs, but not necessarily to safer streets and homes.

Some Concluding Thoughts

The survey is a well-developed measurement tool which performs satisfactorily for a variety of purposes. But something goes wrong in the effort to use surveys

[11] Thanks to David Kennedy for this observation.

to estimate defensive gun uses. False positives are always a problem, and if the event is rare enough, then they may swamp the truth. What is to be done?

One possibility has long been incorporated in the National Crime Victimization Survey (NCVS), conducted for the U.S. Department of Justice by the Census Bureau [U.S. Department of Justice, Bureau of Justice Statistics, 1996a]. In this survey the false-positive problem is minimized by the design of the questionnaire. The only respondents who are asked whether they attempted to defend themselves in a crime are those who indicated that they had been the victim of a crime in which they had direct contact with the perpetrator. Limiting the DGU question to this small group changes the false-positive arithmetic dramatically. The resulting estimate for the annual number of DGUs (1992–1994) is about 108,000, a small fraction of the Kleck–Gertz estimate.

Another approach is suggested by ordinary practice in medical screening: When an initial test comes out positive, a follow-up test is usually applied to distinguish "true" from "false" positives. If knowing the true prevalence is sufficiently important, then it is worthwhile devising systems for distinguishing true from false positives after the initial screen.

Determining the social value of reported gun uses will be at least as difficult as overcoming the false-positive problem. More detailed information about the entire sequence of events, including the respondent's actions prior to using a gun, is necessary. Another interesting exercise would start with a sample of gun uses that are reported to the police, and interview each of the participants. Comparisons between these responses and the results of the police investigation may provide some sense of the ways in which survey reports are "shaded."

Meanwhile, the myth that there are millions of legitimate DGUs each year influences public opinion and helps fuel the bandwagon to liberalize regulations on gun possession and carrying. With respect to gun regulation, 2.5 million is the wrong answer to the wrong question.

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REFERENCES

Annest, Joseph L., James A. Mercy, Delinda R. Gibson, and George W. Ryan (1995), "National Estimates of Nonfatal Firearm-Related Injuries: Beyond the Tip of the Iceberg," *Journal of the American Medical Association* 273(22), pp. 1749–1754.

Bea, Keith (1994), *Issue Brief: Gun Control,* Congressional Research Service, Washington, DC (Order Code IB94007: revised September 19).

Bourndon, Karen, Donald Rae, William Narrow, Ronald Manderscheid and Darrel Regier (1994), "National Prevalence and Treatment of Mental and Addictive Disorders," in *Mental Health, United States, 1994,* U.S. Department of Health and Human Services, Center for Mental Health Services, pp. 22–35.

Bowles, Scott (1996), "A Gun at Her Head Forced Her Hand," *Washington Post*, June 28, pp. A1–A15.

Cantor, David (1989), "Substantive Implications of Longitudinal Design Features: The National Crime Survey as a Case Study," in Daniel Kasprzyk et al. (eds.), *Panel Surveys* (New York: Wiley).

Cook, Philip J. (1979), "The Effect of Gun Availability on Robbery and Robbery Murder: A Cross-Section Study of Fifty Cities," *Policy Studies Review Annual, Volume 3* (Beverly Hills, CA: Sage Publications), pp. 743–781.

Cook, Philip J. and Jens Ludwig (1996), *Guns in America: Results of a Comprehensive Survey on Firearms Ownership and Use* (Washington, DC: Police Foundation).

Harper, James (1996), "Survey Gives Gun Owners Due Credit," *St. Petersburg Times*, April 10, p. 3B.

Hemenway, David (in press), "Survey Research and Self-Defense Gun Use: An Explanation of Extreme Overestimates," *Journal of Criminal Law and Criminology*.

Hemenway, David and Deborah Azrael (1996a), "Use of Guns in Self-Defense: Results of a National Telephone Survey," Harvard University Working Paper.

Hemenway, David and Deborah Azrael (1996b), "An Armed Society is a Polite Society? Survey Results," Harvard University Working Paper.

Hennekens, Charles H. and Julie E. Buring (1987), *Epidemiology in Medicine* (Boston: Little, Brown).

Kleck, Gary (1993), "Bad Data and the 'Evil Empire': Interpreting Poll Data on Gun Control," *Violence and Victims* 8(4), pp. 367–376.

Kleck, Gary and Marc Gertz (1995), "Armed Resistance to Crime: The Prevalence and Nature of Self-Defense with a Gun," *The Journal of Criminal Law and Criminology* 86(1), pp. 150–187.

Kumenta, Michael (1995), "Gun Ownership: A Constitutional Query," *San Diego Union-Tribune*, June 25, p. G3.

Reuter, Peter (1984), "The (Continuing) Vitality of Mythical Numbers," *the Public Interest* 79, pp. 135–147.

Reuter, Peter (1986), "The Social Costs of the Demand for Quantification," *Journal of Policy Analysis and Management* 5(4), pp. 807–824.

Singer, Max (1971), "The Vitality of Mythical Numbers," *The Public Interest* 23, pp. 3–9.

Sudman, Seymour and Norman M. Bradburn (1974), *Response Effects in Surveys: A Review and Synthesis* (Chicago: Aldine).

U.S. Department of Justice, Bureau of Justice Statistics (1996a), *Criminal Victimization in the United States, 1993: A National Crime Victimization Survey Report* (Washington, DC: Bureau of Justice Statistics).

U.S. Department of Justice, Bureau of Justice Statistics (1996b), *Criminal Victimization 1994*, NCJ–158022 (Washington, DC: Bureau of Justice Statistics).

U.S. Department of Justice, Federal Bureau of Investigation (1995), *Crime in the United States 1994* (Washington, DC: U.S. Government Printing Office).

Witkin, Gordon (1994), "The Great Debate: Should You Own a Gun?" *U.S. News and World Report*, August 15, pp. 24–31.

References

Survey Research and Self-Defense Gun Use: An Explanation of Extreme Overestimates

David Hemenway

The Journal of Criminal Law and Criminology (1973-), Vol. 87, No. 4. (Summer, 1997), pp. 1430-1445.

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Armed Resistance to Crime: The Prevalence and Nature of Self-Defense with a Gun

Gary Kleck; Marc Gertz

The Journal of Criminal Law and Criminology (1973-), Vol. 86, No. 1. (Autumn, 1995), pp. 150-187.

Stable URL:

http://links.jstor.org/sici?sici=0091-4169%28199523%2986%3A1%3C150%3AARTCTP%3E2.0.CO%3B2-E

The Social Costs of the Demand for Quantification

Peter Reuter

Journal of Policy Analysis and Management, Vol. 5, No. 4. (Summer, 1986), pp. 807-812.

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Exhibit 2

56 UCLA L. Rev. 1443

UCLA Law Review
June, 2009

Symposium
The Second Amendment and the Right to Bear Arms After D.C. v. Heller
Eugene Volokh [a1]

IMPLEMENTING THE RIGHT TO KEEP AND BEAR ARMS FOR SELF-DEFENSE: AN ANALYTICAL FRAMEWORK AND A RESEARCH AGENDA

How should state and federal constitutional rights to keep and bear arms be turned into workable constitutional doctrine? I argue that unitary tests such as "strict scrutiny," "intermediate scrutiny," "undue burden," and the like don't make sense here, just as they don't fully describe the rules applied to most other constitutional rights.

Rather, courts should separately consider four different categories of justifications for restricting rights: (1) Scope justifications, which derive from constitutional text, original meaning, tradition, or background principles; (2) burden justifications, which rest on the claim that a particular law doesn't impose a substantial burden on the right, and thus doesn't unconstitutionally infringe it; (3) danger reduction justifications, which rest on the claim that some particular exercise of the right is so unusually dangerous that it might justify restricting the right; and (4) government as proprietor justifications, which rest on the government's special role as property owner, employer, or subsidizer.

I suggest where the constitutional thresholds for determining the adequacy of these justifications might be set, and I use this framework to analyze a wide range of restrictions: "what" restrictions (such as bans on machine guns, so-called "assault weapons," or unpersonalized handguns), "who" restrictions (such as bans on possession by felons, misdemeanants, noncitizens, or 18-to-20-year-olds), "where" restrictions (such as bans on carrying in public, in places that serve alcohol, or in parks, or bans on possessing in public housing projects), "how" restrictions (such as storage regulations), "when" restrictions (such as waiting periods), "who knows" regulations (such as licensing or registration requirements), and taxes and other expenses.

***1445 Introduction**

The Second Amendment, the Supreme Court has held, secures an individual right to keep and bear arms for self-defense.[1] Whether or not the federal right will be applied to the states, at least forty state constitutions secure a similar right.[2] But how should courts translate this right into workable constitutional doctrine?

***1446** In this Article, I offer a few thoughts towards answering this question (chiefly in Part I), and apply those thoughts to some areas in which the question needs answering (chiefly in Part II). I sometimes offer my views on how particular gun-rights controversies should be resolved, but more often I just suggest a structure for analyzing those controversies and chart an agenda for future research.

In particular, I argue that the question should not be whether federal or state right-to-bear-arms claims ought to be subject to strict scrutiny, intermediate scrutiny, an undue burden standard, or any other unitary test.[3] Rather, as with other constitutional rights, courts should recognize that there are four different categories of justifications for a restriction on the right to bear arms.

1. Scope. A restriction might not be covered by the constitutional text, the original meaning of the text, the traditional understanding of what the text covers, or the background legal principles establishing who is entitled to various rights.

2. Burden. A restriction might only slightly interfere with rightholders' ability to enjoy the benefits of the right, and thus might be a burden that doesn't rise to the level of unconstitutionally "infring[ing]" the right.

3. Danger Reduction. A restriction might reduce various dangers (in the case of arms possession, chiefly the dangers of crime and injury) so much that the court concludes that even a substantial burden is justified. This is where talk of intermediate scrutiny or strict scrutiny would normally fit, though, as Part I.C argues, such labels likely obscure more than they reveal.

***1447** 4. Government as Proprietor. The government might have special power stemming from its authority as proprietor, employer, or subsidizer to control behavior on its property or behavior by recipients of its property.

Paying attention to all four of these categories can help identify the proper scope of government authority. For instance, even if some kinds of gun bans are presumptively unconstitutional, under something like strict scrutiny or a rule of per se invalidity, it doesn't follow that less burdensome restrictions must be judged under the same test. Conversely, the conclusion that certain kinds of restrictions should be upheld even when they might not pass muster under a demanding form of review shouldn't lead courts to entirely reject that demanding review for all restrictions.[4]

Breaking down the possible elements of the constitutional test into these categories can also tell us which analogies from one restriction to another are sound. For example, if the limitation on minors' possessing guns is a matter of scope--stemming from the background legal principle that minors' constitutional rights are narrower than adults' rights--this would suggest that the validity of bans on possession by minors offers little support for bans on possession of handguns by 18-to-20-year-olds.[5] On the other hand, if the limitation is a matter of the danger posed by ownership by relatively immature people, then the analogy between under-18-year-olds and 18-to-20-year-olds becomes more plausible.

And laying out these categories can help us notice and evaluate analogies to other constitutional rights. Many of the disputes that arise in the context of gun control debates are similar to those arising in other fields, such as free speech, abortion rights, and property rights. Consider, for instance, debates about whether the presence of ample alternative means for self-defense should justify a restriction on one means,[6] whether gun possession may be taxed,[7] or whether

waiting periods are constitutional.[8] Understanding exactly why these types of restrictions are upheld or struck down elsewhere can inform the discussion about how they should be treated where gun rights are involved.

* * *

*1448 A few notes on the limits of this Article: First, let me repeat that this Article offers a framework for gun rights doctrine, and a research agenda for further inquiry about the constitutionality of some particular gun controls. It does not offer an exhaustive analysis of each regulation, or an answer about which regulations are sound. But I hope the framework, and some brief sketches of how the framework would apply in each area, will prove useful to those who are working on such questions.

Second, the Article focuses solely on the right to keep and bear arms for self-defense. The constitutional provisions I discuss may have other components,[9] for instance a right to keep arms that would deter government tyranny, or in seven states a "right to keep and bear arms . . . for hunting and recreational use."[10] But those components are left for other articles.

Third, the framework that the Article proposes would lead to the upholding even of some laws that I think are unlikely to do much good, and may even do some harm. But not all unwise laws are unconstitutional; and, conversely, not all that is constitutionally permitted should in fact be implemented.

Fourth, the Article tries to discuss the right to bear arms under both the federal Constitution (whether or not the right is eventually incorporated against the states) and state constitutions. But state constitutions often have different wording and different histories: For instance, a general discussion of whether waiting periods are constitutional says little about the Florida right-to-bear-arms provision, which expressly authorizes a three-day waiting period.[11] Nonetheless, broadly discussing a multistate law of the right to bear arms--or of search and seizure, civil jury trial rights, and other constitutional rights--can be helpful, so long as we recognize that there may be differences among states significant enough to override any general theoretical framework we develop.

I. A Framework for Thinking About Constitutional Rights Doctrine

Say a restriction is challenged under a constitutional rights provision, such as the freedom of speech, the right to jury trial, the right to marry, or the right to keep and bear arms. There are at least four general categories of reasons why the restriction might be upheld.

*1449 A. Scope

Sometimes, a constitutional right isn't violated by a restriction because the restriction is outside the terms of the right as set forth by the constitution. The restriction may still implicate some of the central concerns that prompted the recognition of the right, but the constitutional text, the original meaning, or our understanding of background constitutional norms may lead us to conclude that the right is narrower than its purposes may suggest.

1. Text

This is clearest when the right is expressly textually limited: If someone seeks a jury trial in a federal case in which an injunction is requested, he will lose because an injunction demand doesn't constitute a "suit[ ] at common law."[12] Much could still be said for a jury trial in such cases as a policy matter, but the constitutional text forecloses such arguments in Seventh Amendment cases.

Likewise, the First Amendment's protection of "freedom of speech" may well--for functional and original meaning reasons--extend to symbolic expression.[13] But at some point conduct may be so different from "speech" that it will not be protected, for instance when the conduct isn't in a conventionally expressive medium and isn't intended to or likely to convey a particular message.[14]

Similarly, a restriction on carrying concealed weapons can't violate the Colorado state constitutional right to keep and bear arms, which expressly states, "nothing herein contained shall be construed to justify the practice of carrying concealed weapons."[15] And a hypothetical Connecticut ban on gun possession by noncitizens can't violate the Connecticut Constitution, which secures a right to bear arms to "[e]very citizen."[16]

***1450** 2. Original Meaning

Those who believe that original meaning is relevant to constitutional interpretation (including those who see it as relevant but not dispositive) may also find a right's scope to be limited by the original meaning.[17] Thus, for instance, the Jury Trial Clause has been interpreted to exclude "petty crimes"--despite the text's reference to "all criminal prosecutions"--because such an exception has apparently been accepted from the late 1700s to the present.[18] Similarly, the criminal procedure amendments have been interpreted to not apply to military justice, or to the detention of enemy combatants.[19] And District of Columbia v. Heller interpreted "arms" in light of what the Court saw as the Framing-era meaning of the term.[20]

3. Tradition

Some, especially Justice Scalia, view tradition as an important source of a right's scope. This could be because traditions that start near the Framing are evidence of original meaning.[21] Or it could be because "the principles adhered to, over time, by the American people"[22] are independently constitutionally relevant (though not necessarily dispositive, for instance if they clash with clear textual command or clearly demonstrated original meaning). In Justice Scalia's words,

> The provisions of the Bill of Rights were designed to restrain transient majorities from impairing long-recognized personal liberties. They did not create by implication novel individual rights overturning accepted political norms. Thus, when a practice not expressly prohibited by the text of the Bill of Rights bears the endorsement of a long tradition of open, widespread, and unchallenged use that dates back to the beginning of the Republic, we have no proper basis for striking it down. Such a venerable and accepted tradition is not to be laid on the examining ***1451** table and scrutinized for its conformity to some abstract principle of First Amendment adjudication devised by this Court. To the contrary, such traditions are themselves the stuff out of which the Court's principles are to be formed. They are, in these uncertain areas, the very points of reference by which the legitimacy or illegitimacy of other practices are to be figured out. When it appears that the latest "rule," or "three-part test," or "balancing test" devised by the Court has placed us on a collision course with such a landmark practice, it is the former that must be recalculated by us, and not the latter that must be abandoned by our citizens. I know of no other way to formulate a constitutional jurisprudence that reflects, as it should, the principles adhered to, over time, by the American people, rather than those favored by the personal (and necessarily shifting) philosophical dispositions of a majority of this Court.[23]

Likewise, the Court has held that tradition is relevant by itself--even when it isn't evidence of original meaning--in determining which rights, whether substantive or procedural, are protected by the Due Process Clause.[24] And of course Burkeans, and those with Burkean tendencies (which judges tend to possess as a professional norm), tend to see tradition as a presumptive guide.

There has been less written about tradition as a guide to constitutional meaning than about original meaning as a constitutional guide. I suspect more scholars and judges think original meaning is presumptively normatively binding than think the same about tradition (as opposed to just following tradition because they tend to follow precedent). And I myself am not sure what to think about tradition as an independently binding constitutional norm. But it is a possible source for defining the scope of a constitutional right, especially given that the traditionalist Justice Scalia is the author of Heller and that Heller's approval of "longstanding" (but not Framing-era) restraints on felons and of concealed carry laws is consistent with Justice Scalia's broader endorsement of tradition.

4. Background Legal Principles

Constitutional rights are drafted against a background of legal principles, often ones that aren't tied to the particular right. The freedom of speech, ***1452** for instance, generally doesn't include a right to speak on others' property, even though such speech is indeed restricted through government action (trespass law).[25] The freedom to hire a lawyer doesn't include a right to pay him with money that isn't rightly your own.[26] Likewise, the right to bear arms doesn't apply to possession of arms on private property against the property owner's wishes.[27] Nor does it preclude the seizure of arms, alongside other property, in satisfaction of a money judgment against the owner, though some states do indeed statutorily exempt some weapons from such execution.[28]

One could argue that such actions are constitutional because trespassing or failing to satisfy judgments is so harmful that those laws trump the freedom of speech or the right to keep and bear arms. But I don't think that's right. Laws aimed at stopping greater harms, such as the risk of violence or interference with national war efforts, often don't trump those constitutional rights.[29] Rather, the actions described above are constitutional because constitutional rights have always been understood as involving a right to use one's own property to accomplish one's goal, not the property of others or the property that lawfully becomes that of others as a result of a lawsuit.[30] This is the background legal principle against which the rights have been enacted and interpreted.

The same is true as to who counts as a rightholder: Prisoners lose many constitutional rights, surely including the right to bear arms,[31] alongside much of their Fourth Amendment rights and Free Speech Clause rights.[32] That's not said in the text of the Constitution, but it's widely accepted as a background legal principle that was likely embodied in the original meaning and in longstanding tradition.

***1453** Minors have some constitutional rights, like many aspects of the freedom of speech, but they don't have the right to sexual autonomy or to access sexually themed publications, and they have weaker versions of other rights, such as the right to marry or the right to abortion.[33] Noncitizens found outside the U.S. are seen as lacking Fourth Amendment rights;[34] the same logic would necessarily strip them of Second Amendment rights. Enemy combatants lack most constitutional rights,[35] though they have some due process rights once they are captured.[36]

All these scope restrictions reflect background legal principles reasonably assumed to be part of the original meaning of the right to bear arms, or of its meaning as traditionally understood. And this is so even if the principles were usually discussed or assumed in the context of rights generally, rather than being discussed with regard to the right to bear arms specifically.

5. Why It's Helpful to Distinguish Scope-Based Restrictions From Burden-Based Restrictions or Reducing-Danger-Based Restrictions

Because scope-based restrictions often flow from particular drafting decisions, there is less need for courts to logically reconcile them with other restrictions, and less justification for arguing by analogy from those restrictions to others. If, for instance, courts rely on a danger reduction argument to conclude that a concealed carry ban is constitutional, that might well set a precedent for other restrictions justified by a desire to reduce danger (for instance, waiting periods for acquiring guns). But if courts conclude that a concealed carry ban is constitutional because the state constitution expressly excludes concealed carry from the right to bear arms, or because that has been seen as a traditional limitation on the right, that conclusion should offer little room for arguments by analogy. So long as neither the text nor tradition allows waiting periods, the textual or traditional endorsement of concealed carry bans offers little support for waiting periods.

***1454 B. Burden**

1. Generally

A restriction may also be justified on the grounds that it imposes a less than substantial burden on the exercise of a right, and therefore doesn't unconstitutionally "infringe[ ]" the right even though it regulates the right's exercise.[37] The mildness of the burden, the argument would go, means that it's unnecessary for the government to prove that the law would indeed likely materially reduce some harm. Rather, the mildly burdensome law would be treated as categorically constitutional, at least so long as it is not outright irrational.

We see this approach in many constitutional doctrines. The government may require that people get a marriage license, and pay a modest amount for it, because these minor restrictions do not infringe the right to marry; the heightened scrutiny that's applied to substantial burdens on the right to marry isn't applied here.[38] More controversially, the government may require that a woman seeking an abortion be given certain information and that she wait twenty-four hours before the procedure because the Court has concluded that these are not "substantial obstacle[s]" to her exercising her right to get an abortion.[39] Similarly, religious freedom provisions that secure a substantive right to religious exemptions apply only to "substantial burden[s]" on religious practice.[40]

We likewise see a substantial burden threshold in the lower scrutiny applied to content-neutral restrictions on speech that regulate only the "time, place, or manner" of speech and leave open "ample alternative channels" for ***1455** expression.[41] The availability of ample alternative channels makes the restrictions into lesser burdens than a broader ban would be. The restrictions' content neutrality provides a natural political check on their growth, since people with many different views will be affected by them; this political check will likely limit the risk that a particular kind of speech will be subjected to many small burdens that will add up to a larger burden.[42] And the restrictions' content neutrality makes the burden qualitatively less troubling to the Justices, because the restrictions aren't contrary to the equality norm that the Justices have sensibly read into the Free Speech Clause.[43]

As Part I.C.2.d below notes, the time, place, and manner inquiry requires some showing that even laws that impose only small burdens will reduce danger. In this respect, the time, place, and manner test is different from the substantial burden tests mentioned in the preceding paragraph. But it is still similar to those other tests in that it requires an inquiry into the magnitude of the burden in deciding what kind of danger reduction showing, if any, must be made.

Many of the cases upholding restrictions on low-value or no-value speech--such as false statements of fact, obscenity, fighting words, and child pornography--also reason that the restrictions impose only a slight burden on the values that the Free Speech Clause protects.[44] When the Court says that "there is no constitutional value" in false statements of fact, obscenity, or fighting words, it's suggesting that restrictions on such speech do not materially interfere with the marketplace of ideas, democratic self-government, or even constitutionally valuable self-expression, and thus do not substantially burden free speech rights.[45]

***1456** 2. In Right-to-Bear-Arms Cases

A similar inquiry into the magnitude of the burden on a constitutional right is visible in Heller's discussion of why the handgun ban is unconstitutional. Consider, for instance, the Court's distinction between unconstitutional handgun bans and potentially constitutional gun safety laws: "Nothing about [Framing-era] fire-safety laws"--the laws that the dissent points to as evidence that the right to bear arms should be read as allowing handgun bans-- "undermines our analysis; they do not remotely burden the right of self-defense as much as an absolute ban on handguns. Nor, correspondingly, does our analysis suggest the invalidity of laws regulating the storage of firearms to prevent accidents."[46] Likewise, in distinguishing the handgun ban from colonial laws that imposed minor fines for unauthorized discharge of weapons, the Court pointed out that "[t]hose [colonial] laws provide no support for the severe restriction in the present case."[47]

Earlier in the opinion, the Court similarly justified striking down the handgun ban on the grounds that the ban is a "severe restriction." In the process, the Court favorably quoted an old case distinguishing permissible "regulati[on]" from impermissible "destruction of the right" and from impermissible laws that make guns "wholly useless for the purpose of defence."[48] The Court did not discuss what analysis would be proper for less "severe" restrictions, likely because it had no occasion to. But its analysis suggested that the severity of the burden was important.

And the Court's explanation of why the handgun ban is unconstitutional even if long guns are allowed is likewise consistent with an inquiry into how substantially a law burdens the right to bear arms:

> It is no answer to say, as petitioners do, that it is permissible to ban the possession of handguns so long as the possession of other firearms (i.e., long guns) is allowed. It is enough to note, as we have observed, that the American people have considered the handgun to be the quintessential self-defense weapon. There are many reasons that a citizen may prefer a handgun for home defense: It is easier to store in a location that is readily accessible in an emergency; it cannot easily be redirected or wrestled away by an attacker; it is easier to use for those without the upper-body strength to lift and aim a long gun; it can be pointed at a ***1457** burglar with one hand while the other hand dials the police. Whatever the reason, handguns are the most popular weapon chosen by Americans for self-defense in the home, and a complete prohibition of their use is invalid.[49]

The Court is pointing out that handguns are popular for a reason: For many people, they are the optimal self-defense tool, and bans on handguns make self-defense materially more difficult. The handgun ban, then, is a material burden on the right to bear arms in self-defense.

Parts of the Court's analysis do focus on whether the law bans "an entire class of 'arms,'" or whether handguns are actually popular, which might seem like inquiry into something other than the magnitude of the burden on self-defense.[50] Likewise, in free speech law, the Court has sometimes asked whether a law bans an "entire medium of expression."[51]

But on its own, asking whether the law bans "an entire class of 'arms'" or an "entire medium" of expression can't yield a determinate answer. How can we decide whether, say, a hypothetical ban on revolvers bans "an entire class of 'arms'" or only a subclass of the broader class of handguns? How can we decide whether a ban on possessing firearms with obliterated serial numbers bans "an entire class of 'arms'" or only a subclass? [52] How can we decide whether a ban on window signs (unconstitutional) or residential picketing (constitutional) bans an "entire medium" of expression or only a subclass of the broader medium of signs or demonstrations? [53]

For example, say a law banned black or silver handguns (or purely mechanical handguns) and required all new handguns to be fluorescent orange (or electronic and personalized to be fired only by the owner). The ***1458** constitutionality of this law should not be much affected by the historical or esthetic circumstance of whether black and silver handguns, or mechanical handguns, are the most popular form of weapon, or are seen as a separate "class of 'arms.'" Rather, the "entire medium" and "entire class" formulations should be seen as shorthand proxies for an inquiry into the functional magnitude of the restriction: whether the measures "significantly impair the ability of individuals to communicate their views to others," [54] or whether they significantly impair the ability of people to protect themselves.

Many state right-to-bear-arms cases likewise look to the magnitude of the burden on self-defense. Some do so only loosely, by asking whether a restriction is a "reasonable regulation" or a prohibition. [55] This is probably the dominant test in the state cases, and it does seek to sort at least the most severe burdens (prohibitions) from less severe ones, though many cases tend to set the unconstitutionality threshold very high--allowing anything short of a prohibition--with a vague additional requirement of "reasonableness," whatever that might mean. [56] But other cases are more explicit, upholding gun controls unless they "materially burden" the right to bear arms in self-defense, [57] or unless they "frustrate the purpose" of the right to bear arms, which is to say substantially burden people's ability to defend themselves. [58]

As the previous subsection suggests, we can also borrow from the First Amendment time, place, and manner restriction test, and articulate the substantial burden inquiry as an inquiry into the presence of "ample alternative channels" for exercising the right. [59] While a restriction on certain gun types might be justifiable as a manner restriction that leaves open ample alternative ***1459** channels, [60] a ban on carrying guns in public can't be justified as a place restriction: It leaves people without ample alternative means of defending themselves in public places. [61]

3. Risks and Benefits of a Burden Threshold

One difficulty with a substantial burden threshold, of course, is that people will disagree about the normative question of how large a burden must be to qualify as substantial (or whatever other term one uses for such thresholds, such as "grave" or "serious"). Still, the problems with determining whether a burden is substantial should be less than the problems with defining "reasonableness" or "balancing." Among other things, the substantiality inquiry requires comparisons along a single dimension--a judgment of how much a law's interference with self-defense compares to benchmark interferences considered by past cases--rather than a balancing of incommensurable quantities such as burden and danger reduction. [62] (Such balancing is also often called for under reasonableness tests, if the tests ask whether the burden the law imposes is reasonable in light of its benefits.) But there's no doubt that there'll be controversy about the substantiality inquiry, just as there's controversy about how large a burden on abortion rights must be to qualify as substantial, [63] or about how ample the alternative channels left open by content-neutral time, place, or manner speech restrictions must be. [64]

Another difficulty is that people will disagree about the empirical question of just how much of a burden a particular restriction will impose. The answer should often be fairly clear, [65] and this estimate should often be easier than ***1460** estimates of whether a gun control law will reduce the danger of gun crime and gun injury. Estimating the burden on self-defense will require considering how a particular hypothetical defense scenario is likely to play out under different

regulatory schemes--for instance, how self-defense with a shotgun might be harder than self-defense with a handgun--as well as having a rough sense for how often the scenario will occur. Estimating the burden will not, however, require predicting how many criminals will comply with the law (always hard to measure or even guess) or trying to separate causation from mere correlation in empirical studies. Nonetheless, I should again acknowledge that the judgment about just how much a law will interfere with self-defense will sometimes be difficult and controversial.

Finally, a third difficulty is the danger that many small, less-than-substantial burdens will aggregate into a substantial burden. In the words of an 1822 court decision striking down a ban on carrying concealed handguns, "if the act be consistent with the constitution, it can not be incompatible with that instrument for the legislature, by successive enactments, to entirely cut off the exercise of the right of the citizens to bear arms." [66] This might be one reason that the Court has generally concluded that content-based speech restrictions are constitutionally suspect even when they impose only slight burdens on communication. [67] But courts can avoid this, I think, by considering each burden together with others, and asking (for instance) whether the remaining legal classes of guns--or legal means of carrying guns--indeed provide ample channels for self-defense that are pretty much as good as those that would have been offered by the prohibited guns. [68]

More importantly, though, despite these difficulties, I don't think courts are at all likely to reject the burden threshold and take the view that any gun restriction is an unconstitutional infringement of the right. As noted above, restrictions on other rights are often held constitutional if the burden is seen as not substantial. The exceptions tend to be equality rights, such as racial or sexual equality, or equality of ideas where content-based speech restrictions are involved; but I expect that judges will treat the right to bear ***1461** arms more like the liberty rights, which tend to be subject to a substantial burden threshold, than like the equality rights, which are not.

Judges also seem especially likely to adopt a substantial burden threshold as to the right to bear arms because judges are rightly worried about gun crime and gun injury, and are likely to want to leave legislatures with some latitude in trying to fight crime in ways that interfere little with lawful self-defense. A substantial burden threshold would give legislatures the power to experiment without requiring a court to estimate the effectiveness of the law in preventing future crime and injury--estimation that Part I.C argues is likely to be especially hard.

Finally, the mantra that not all regulations are prohibitions has been commonplace in American right-to-bear-arms law for over 150 years, [69] with only a few departures. [70] The judges who are most likely to take at least a moderately broad view of the right--judging by Heller, usually the more conservative judges--are also the judges who are most likely to take such traditions seriously.

So courts are likely to look at the degree to which a gun control law burdens self-defense, and are likely to uphold laws that impose only a modest burden. The best way to protect self-defense rights, I think, is to acknowledge that courts are likely to find slight burdens to be constitutional, to focus on defining the threshold at which the burden becomes substantial enough to be presumptively unconstitutional, and to concretely evaluate the burdens imposed by various gun restrictions.

C. Danger Reduction

The government often tries to justify substantial burdens on constitutional rights by arguing that such burdens significantly reduce some grave danger. Courts sometimes accept this by saying that a constitutional right may be restricted when the restriction is necessary to serve a compelling government interest, or is substantially related to an important government interest. But such phrases often obscure more than they reveal. The real inquiry is into whether and when a right may be substantially burdened in order to materially reduce the danger flowing from the exercise of the right, and into what sort of proof must be given to show that the substantial restriction will indeed reduce the danger.

*1462 1. Per Se Invalidation, at Least for Especially Serious Burdens

To begin with, certain kinds of restrictions are unconstitutional even when they seem likely to substantially reduce some grave dangers. I discuss this in detail elsewhere,[71] but clear examples are offered by the right to trial by criminal jury, the right to counsel, and some similar rights: Even if mandating bench trials, for instance, were necessary to effectively serve a compelling government interest in most effectively punishing and preventing certain crimes, the jury trial right still couldn't be abrogated.

There are, of course, some scope limits on the jury trial right stemming from the original meaning of the provision, for instance as to criminal trials in petty cases (even though the government interest in making such trials cheaper and quicker is probably not compelling),[72] or as to the enforcement of military law against military combatants.[73] But once a particular situation is found to be within the historical scope of the jury trial right, a jury trial must be afforded, even if mandating bench trials were the most effective way to reduce the danger posed by certain kinds of criminals.

The same is true for some kinds of especially burdensome speech restrictions[74] or interferences with the autonomy of religious institutions.[75] Though the Court sometimes uses the language of strict scrutiny in such cases, many of its decisions can only be explained as applying a principle that certain kinds of burdens on speech rights or religious institutions are per se unconstitutional.[76]

District of Columbia v. Heller implicitly adopted such a rule of per se invalidation of especially severe burdens, I think, when it struck down the handgun ban. In the heart of the Court's analysis of the ban's validity, Justice Scalia wrote:

> Under any of the standards of scrutiny that we have applied to enumerated constitutional rights [except the rational basis test], banning from the home "the most preferred firearm in the nation to 'keep' and use for protection of one's home and family," would fail constitutional muster.
>
> *1463 Few laws in the history of our Nation have come close to the severe restriction of the District's handgun ban. . . .
>
> . . . .
>
> The very enumeration of the right takes out of the hands of government--even the Third Branch of Government--the power to decide on a case-by-case basis whether the right is really worth insisting upon. A constitutional guarantee subject to future judges' assessments of its usefulness is no constitutional guarantee at all. Constitutional rights are enshrined with the scope they were understood to have when the people adopted them, whether or not future legislatures or (yes) even future judges think that scope too broad. . . . The Second Amendment . . . [, l]ike the First, . . . is the very product of an interest-balancing by the people--which Justice Breyer would now conduct for them anew. And whatever else it leaves to future evaluation, it surely elevates above all other interests the right of law-abiding, responsible citizens to use arms in defense of hearth and home. . . .

. . . .

> . . . [T]he enshrinement of constitutional rights necessarily takes certain policy choices off the table. These include the absolute prohibition of handguns held and used for self-defense in the home. Undoubtedly some think that the Second Amendment is outmoded in a society where our standing army is the pride of our Nation, where well-trained police forces provide personal security, and where gun violence is a serious problem. That is perhaps debatable, but what is not debatable is that it is not the role of this Court to pronounce the Second Amendment extinct. [77]

Absent here is any inquiry into whether the law is necessary to serve a compelling government interest in preventing death and crime, though handgun ban proponents did indeed argue that such bans are necessary to serve those interests and that no less restrictive alternative would do the job. [78] The Court concludes that "the enshrinement of constitutional rights necessarily takes" "severe restriction[s]" "off the table," and that the Second Amendment "surely elevates above all other interests the right of law-abiding, responsible citizens to use arms in defense of hearth and home." The statement that "Under any of the standards of scrutiny that we have applied to enumerated constitutional rights, banning from the home 'the most preferred firearm in the nation to "keep" and use for protection of one's home and family,' would fail constitutional muster" suggests that even tests such as intermediate or ***1464** strict scrutiny are in practice rules of per se invalidation of laws that sufficiently "severely" burden the right.

The matter might be different if it came to some truly extraordinary danger. [79] The rules the Bill of Rights sets forth should cover the great majority of risks, but it's not clear that such rules--developed with an eye towards ordinary dangers--can deal with dangers that are hundreds of times greater. [80] This is why the usual Fourth Amendment rules related to suspicionless home searches might be stretched in cases involving the threat of nuclear terrorism. [81] It's why we continue to have a debate about the propriety of torture in the ticking nuclear time bomb scenario. [82] It's why, in a somewhat different context, the Constitution provides for the suspension of habeas corpus in cases of rebellion or invasion. [83] And it's why courts are and probably should be willing to reduce normal free speech protections when it comes to the publication of information that can help readers build nuclear bombs or create smallpox epidemics. [84]

But while this rationale may justify, for instance, bans on the possession of arms of mass destruction or surface-to-air-missiles, those bans are already outside the scope of the right as defined by Heller, [85] and are in any event not substantial burdens on self-defense. [86] The right to keep and bear weapons that are roughly as dangerous as civilian firearms will definitionally exclude the extraordinarily dangerous weapons. And while it will indeed protect ordinarily dangerous guns, this ordinary danger is precisely what the right to bear arms expressly contemplates.

2. The Two Versions of Strict Scrutiny

A different approach to danger reduction arguments is sometimes implemented using the strict scrutiny test: Rights may indeed be substantially ***1465** burdened, the claim goes, so long as the burden is genuinely necessary to serve a compelling government interest. Where other less restrictive means can serve the compelling interest pretty much equally, the more restrictive means will be unnecessary and therefore unconstitutional. But where only the more restrictive means can provide the reduction of danger that the government seeks, those means will indeed be constitutional. [87]

a. The Shape of the Underlying Factual Debate

The difficulty is that we often won't know if the proposed law is really necessary to reduce various dangers. And this is especially true as to the right to keep and bear arms: People notoriously disagree about whether gun control laws will indeed reduce total injury and crime, especially since such evaluations require one to predict both (1) the possible decrease in injury and crime stemming from the controls and (2) the possible increase in injury and crime stemming from the interference with lawful self-defense.

Gun control proponents argue that only banning guns, or removing guns from certain places, or limiting guns in other ways will prevent certain kinds of crimes. And they suggest that lawful self-defense isn't really that effective, or that it won't be much interfered with by the proposals (even fairly burdensome ones, such as bans on public carrying of handguns).

Gun control opponents argue that the gun restrictions largely won't disarm those who misuse guns, since the misusers are criminals who won't comply with gun laws any more than they comply with laws banning robbery, rape, or murder.[88] And they argue that any possible slight decline in injuries caused by people who do comply with gun laws, or in accidental injuries or in suicides (to the extent suicides are legitimately weighed against lawful self-defense) will be more than offset by the increase in crime and injury stemming from lost opportunities for effective self-defense.

Scientific proof of any of these theories is very hard to get. There are no controlled experiments that can practically and ethically be run. "Natural experiments" stemming from differences in policies and in gun ownership rates among different cities, states, or countries are subject to many confounding factors, such as culture and background crime rates. Many studies purport to show some statistically significant effects, even controlling for ***1466** various factors. But many other studies argue the contrary, and point to failures to control for other important factors.

Thus, for instance, some claim that international comparisons show that private gun ownership is strongly correlated with homicide rates.[89] Even if true, this isn't proof that laws reducing gun ownership will reduce the danger, since the correlation doesn't prove a causal relationship, given the possibility of uncontrolled-for confounding cultural factors. Moreover, even if high private gun ownership did cause high homicide rates, it's not clear that banning or otherwise restricting guns would be effective in reducing the danger:[90] Perhaps any reduction will primarily affect law-abiding citizens and won't disarm the criminals who are causing the crime.

And beyond this, the most comprehensive recent study of the subject, reviewing twenty-one Western countries, including the U.S., found no statistically significant correlation between gun ownership levels and total homicides or suicides.[91] Perhaps such a correlation, or even causation, does exist but is hidden by random noise; the study doesn't disprove the empirical case for gun control. But the study's results do highlight the weaknesses of previous studies that found significant correlations in smaller samples, and claimed to therefore support the empirical case for gun control.

More strikingly, even much simpler questions, such as how often guns are used in self-defense, remain unanswered, with studies from credible sources yielding results that differ by a factor of thirty. Leading gun control criminologist Gary Kleck conducted a survey in the 1990s that yielded an estimate of roughly 2.5 million per year.[92] The National Criminal Victimization Survey conducted a survey in the 1990s, based on which it estimated the total at 80,000 per year.[93] Another leading gun control criminologist, Phil Cook, conducted a survey that yielded raw numbers quite close to Kleck's 2.5 million. But Cook's bottom ***1467** line was that the numbers might be skewed by unreliable reporting, and that the actual number is unknown and possibly unknowable.[94]

Those are just two examples, but they are characteristic of the field. A National Research Council 2004 report, Firearms and Violence: A Critical Review, reports that there is basically no sound scientific data supporting either gun control or

gun decontrol proposals (such as broadened availability of concealed carry permits).[95] The same is true of the Centers for Disease Control 2005 report, Firearms Laws and the Reduction of Violence: A Systematic Review.[96] Both reports do argue that with the proper research design, statistically reliable results could indeed be obtained.[97] But given that we don't have adequate results after at least thirty-five years of serious work on the matter, it's not clear that even a fresh research agenda will yield definitive conclusions any time soon.

b. The Consequences for Strict Scrutiny

Because of this uncertainty, the application of strict scrutiny to gun controls ends up turning on how courts evaluate empirical claims of likely danger reduction. Courts might take a few different approaches in their evaluations.

1. One approach would be to require some substantial scientific proof to show that a law will indeed substantially reduce crime and injury (and that other alternatives, such as liberalizing concealed carry, won't do the job). The Court has at times suggested that this was a necessary part of strict scrutiny,[98] and lower courts have as well. For instance, courts have struck down bans on the distribution to minors of works that contain violent (but ***1468** not sexual) imagery. Though the government has argued that the bans are necessary to serve the compelling interest in reducing crime, courts have generally demanded strong social science proof of this, and have rejected existing studies as methodologically inadequate.[99]

If courts accept such an approach in right-to-bear-arms cases (at least ones involving a substantial burden), then this test will likely be tantamount to per se invalidation: As the National Research Council and Centers for Disease Control reports point out, such scientific proof of effectiveness is absent.[100]

2. Another approach to ostensibly strict scrutiny would be to simply require a logically plausible theory of danger reduction that many reasonable people believe. This test would likely uphold virtually any gun control law, including a total ban on all guns: One can make a logically plausible argument that anything short of complete gun prohibition will fail to prevent thousands of crimes and killings.

Even a total handgun ban, for instance, would leave people able to kill their housemates with rifles and shotguns, or illegally take those guns out of the house for criminal purposes (perhaps with the barrels illegally sawn down for greater concealability). Only a complete gun ban would prevent that harm. And, the argument would go, guns are so rarely used for self-defense that the loss of valuable self-defense will be more than compensated for by the gain in crime and injury prevention. Proven? Absolutely not. Correct? Not in my view. But logically plausible? Yes, given a certain view of likely behavior by criminals and by law-abiding citizens.

Some laws might be hard to support if a logically plausible theory were required: For instance, as I argue in Part II.A.2, so-called "assault weapons" are not materially more dangerous than other kinds of weapons, so anyone who is denied an "assault weapon" will almost certainly substitute another gun that is equally lethal. It's therefore hard to see how assault weapons bans will do much to reduce danger of crime or injury.[101] But many people, including many legislators, obviously don't share my view; and I expect many judges will find these other views to be at least credible. So this sort of strict scrutiny will in practice be little different from a rational basis test.

***1469** 3. Finally, courts could rely on their own common sense judgments of when a particular law will likely reduce danger, and demand empirical evidence only when a litigant is promoting a view that doesn't comport with the court's common sense judgment.[102] The Court and lower courts have at times used this approach in strict scrutiny cases,[103] for instance upholding some restrictions that restrict adult access to sexually themed speech in the name of protecting minors' psychological well-being without any scientific evidence that access to such speech will indeed harm the minors.[104]

Such an approach would yield results in gun control cases that are impossible to predict. And it's hard to see why this approach would have much to recommend it, given that there's little reason why judges' intuitions about the danger of guns would be particularly reliable.

I should acknowledge that this sort of approach has been applied in some areas of free speech law, and I can't say the sky has fallen from this sort of decisionmaking. Perhaps such intuitive decisionmaking is in some measure inevitable, where deference to the legislature is undesirable because a constitutional right is involved and where insistence on empirical proof is unappealing because such proof is often unavailable.

***1470** But it's nonetheless hard to see this level of judicial discretion as particularly appealing, at least outside areas that are viewed as largely peripheral to the constitutional right that's involved. And the strength of modern free speech protection, at least where content-based restrictions on core protected speech are involved, has chiefly stemmed from the Court's adopting a per se invalidation regime even while it talks about strict scrutiny. [105]

c. Intermediate Scrutiny

Intermediate scrutiny, the other common test used to evaluate reducing-danger arguments, is likely to suffer from the same problems as strict scrutiny.

In principle, intermediate scrutiny differs from strict scrutiny in two ways. First, intermediate scrutiny allows restrictions that serve merely important and not compelling government interests. [106] That's unlikely to be relevant to gun controls, since virtually every gun control law is aimed at serving interests that would usually be seen as compelling--preventing violent crime, injury, and death. [107]

Second, intermediate scrutiny allows restrictions that are merely substantially related to the government interest rather than narrowly tailored to it. In one prominent intermediate scrutiny context--the scrutiny applicable to restrictions on commercial advertising--this has played out as a requirement that the law be merely a "reasonable fit" with the government interest rather than that it be the least restrictive means of serving the interest. [108]

But applying this lower tailoring requirement would likely yield the same problems discussed in the previous subsections. If the substantial relationship or the reasonable fit has to be proven through social science, such proof would likely be as unavailable or unpersuasive as it would be if the court applied strict scrutiny. If the substantial relationship or reasonable fit claim has to be merely intuitively persuasive to reasonable legislators, that requirement would nearly always be satisfied. And if the claim has to be intuitively persuasive to the reviewing judge, there's little reason to think that the judge's intuitions are going to be particularly sound. [109]

***1471** d. Different Levels of Danger-Reduction Showings for Different Levels of Burden

So far, I've talked about "low burden" justifications separately from "preventing danger" justifications. But a court could demand different levels of preventing danger arguments to justify different degrees of burden.

For instance, where content-neutral speech restrictions are involved, restrictions that impose severe burdens (because they don't leave open ample alternative channels) must be judged under strict scrutiny, but restrictions that impose only modest burdens (because they do leave open ample alternative channels) are judged under a mild form of intermediate scrutiny. [110] Ballot access regulations are likewise subject to strict scrutiny if they "impose a severe burden on associational rights," but to a much weaker level of scrutiny if they "impose[ ] only modest burdens." [111]

On the other hand, in some areas meaningful scrutiny is reserved only for restrictions that impose a sufficiently grave burden, and remaining restrictions are subject to minimal rationality review. That, for instance, is what is done with the right to abortion after Planned Parenthood v. Casey: [112] If the law ***1472** is seen as imposing a "substantial obstacle" to a woman's getting an abortion (or having the purpose to impose such a substantial obstacle), then it's categorically invalidated, but if it is seen as imposing merely a minor burden, then it's upheld unless it is seen as simply irrational. [113] Likewise, under religious accommodation regimes, whether the Sherbert/Yoder-era [114] Free Exercise Clause regime or the regimes in those states in which the state constitutions are interpreted to track Sherbert and Yoder, a substantial burden led to a weak form of strict scrutiny, while minor burdens led to minimal rationality review. [115]

There are thus many possible options for the right to bear arms. The Court could adopt a Casey-like undue burden test, under which substantial burdens are struck down but less-than-substantial burdens are upheld. The Court could adopt a test under which substantial burdens are struck down but less-than-substantial burdens are still evaluated under a mild form of intermediate scrutiny. The Court could adopt a test under which very serious burdens are categorically struck down, substantial but less serious burdens are evaluated under some demanding form of strict scrutiny, and less-than-substantial burdens are evaluated under a mild intermediate scrutiny. Or it could adopt some other mix.

My sense is that there'll be plenty of trouble getting courts to adopt meaningful scrutiny even of substantial burdens. [116] The chances of getting courts to adopt meaningful scrutiny of mild burdens are thus very low; judges are understandably reluctant to strike down democratically enacted laws, especially ones that are both aimed at crime control and seen as imposing little burden on law-abiding citizens. Nor do I see much to be gained from requiring such modest scrutiny when the burden on self-defense is indeed slight. It's probably best for courts (and for those who are recommending doctrine to courts) to save their energy and their willingness to fight a battle ***1473** with the legislative and executive branches for those situations where the law does indeed substantially burden self-defense.

D. Government Proprietary Role

A restriction might also be justified because the government is acting not as sovereign--outlawing, taxing, or imposing liability on private citizens' behavior--but as subsidizer, landlord, employer, and the like. This distinction has been most clearly developed in free speech cases: If I wear a jacket with a vulgarity printed on it, the government may not throw me in prison, but it likely may fire me from my government job, especially if I wear the jacket to work. [117] It might even be able to bar such jackets from certain "nonpublic forum" property. [118]

Likewise, the government may not criminalize abortions, but it may bar them from government-owned hospitals, or even from hospitals built on land leased from the government. [119] The government as employer has more power to search its employees' offices than it does to search private citizens' offices, and more power to search people entering government buildings than it does to search people entering private buildings. [120] The government as employer has more power to restrict its employees' choices to send their children to private schools than it does as to private citizens' choices. [121] The same is likely true for other rights, such as the right to marry, or the right to religious freedom under state constitutions that follow the Sherbert/Yoder model. [122]

Some might argue that such restrictions are permissible because they are not that burdensome, given that people can still exercise the right (for instance, get an abortion) off government property. [123] Or some might argue that the government has an especially strong reason for imposing the restriction (for instance, the desire to keep government workplaces running smoothly).

***1474** But many of the decisions are most plausibly explained by a judgment that even burdensome restrictions may be more restricted by the government as proprietor than by the government as sovereign, even when the government interest is the same. For instance, insulting labor picketing (for instance, with signs calling strikebreakers "scabs" or "traitors") outside a government office, or similarly unpleasant public-issue picketing, might affect employees' morale more than would one coworker's rudeness. The picketing, though, is generally protected, even when it substantially hurts morale; the coworker speech (on the job or even off the job) is often unprotected. [124]

And having such separate standards for different government roles may well make sense, both to give the government more power when it comes to accomplishing its democratically determined goals on its property and with its wage payments, and to keep this power from bleeding over to controls of private citizens' behavior on private property. Draft office employees shouldn't be able to interfere with office morale by telling their colleagues that the draft is slavery, or interfere with office efficiency more broadly by telling would-be registrants the same. But similarly morale-reducing speech by picketers outside the door, or by influential media commentators or political leaders, should be protected despite its effect on draft office efficiency. [125] A unitary standard might overprotect speech by employees but, just as likely, it might end up underprotecting speech by private citizens.

For some classes of government property the government might not have special powers acting as proprietor. Free speech doctrine, for instance, treats the government acting as proprietor of "traditional public fora"--chiefly public sidewalks and public parks--the same as the government acting as sovereign. [126] Fourth Amendment doctrine generally applies to public sidewalks to the same extent that it applies to unenclosed places on private property. The First and Fourth Amendments might also apply to the inside of public housing, much the same way as they apply to privately owned homes. [127] And constitutional rights that inherently involve government ***1475** adjudicative processes, such as the right to a jury trial, are naturally not diminished by the government's owning the courtroom. Nonetheless, there is both precedent and reason for allowing the government acting as proprietor extra power to restrict the exercise of many constitutional rights on its property.

This suggests that separate government-as-proprietor standards may likewise be proper for the right to keep and bear arms, whether in government buildings, by government employees, in government-owned parks, in government-owned housing, and so on. [128] Some constraints on government power as proprietor may also be proper, since people's need for self-defense can remain even on government property. And it may well be that for some of this property (such as public housing or national parks) the constitutional analysis should be no different than on private property. But there is little reason to assume that the rule should always be precisely the same whether the gun possession is on private property or on government-owned property.

II. Applying the Framework to Various Gun-Control Laws

This framework, I hope, can help us analyze a wide range of gun control laws-- and the analyses can help us reflect on whether the framework is helpful.

A. "What" Bans: Bans on Weapon Categories

1. Scope

Let me begin with bans on categories of weapons, weapons parts, or ammunition: machine guns, .50 caliber weapons, handguns, semiautomatic "assault weapons," cheap and supposedly low-quality "Saturday Night Specials," magazines with room for more than 10 rounds, nonfirearms such as knives and billy clubs, or nonlethal defensive devices such as

stun guns (e.g., Tasers) or irritant sprays (e.g., pepper spray). Such bans naturally raise a scope question: What sorts of "arms" are protected by the right to keep and bear arms?

***1476** a. The "Usually Employed in Civilized Warfare" Test

Some early cases took the view that "arms" covered only arms that were "usually employed in civilized warfare," [129] "in distinction from those which are employed in quarrels and brawls and fights between maddened individuals." [130] Under this definition, some 1800s cases read the right as excluding, among other things, daggers, "sword-cane[s]," and "belt or pocket pistol[s] or revolver[s]." [131]

This, however, is not the meaning that makes the most sense for a right to keep and bear arms that is at least partly aimed at protecting self-defense. Nor is it the textual meaning: As Heller pointed out, arms in the late 1700s generally meant "weapons of offence, or armour of defence," [132] or "any thing that a man wears for his defence, or takes into his hands, or useth in wrath to cast at or strike another." [133]

Nor have I seen any evidence that a more limited definition became solidly accepted in the subsequent decades, as new state constitutions were adopted; some courts did take the "civilized warfare" view, but many did not. [134] And functionally, if the right protects arms used for self-defense, it's not clear why such defensive arms should be limited to those that are also used in civilized warfare. Heller expressly rejected the notion that "only those weapons useful in warfare are protected," [135] and while Heller isn't dispositive of the ***1477** meaning of state constitutional provisions, I expect it to be influential, [136] and the reasons just given suggest that it was correct.

b. The "Descended From Historically Personal-Defense Weapons" Test

The Oregon courts have taken the view that "arms" covers only those weapons that, "as modified by [their] modern design and function, [are] of the sort commonly used by individuals for personal defense" at or before the time the Oregon Constitution was adopted in 1859. [137]

This doesn't fix the technology at the 1859 level: A switchblade, for instance, was held to be a protected weapon even though it contains a spring that knives in 1859 didn't possess. [138] But the Oregon Court of Appeals has essentially concluded that, to be protected, a modern weapon must be a "technological advancement" on an 1859-era personal-defense weapon, rather than a "modification[ ]" of a more modern military weapon. [139] In particular, the court held that semiautomatic weapons--including but not limited to the "assault weapons" at issue in that case--don't qualify as constitutionally protected arms. [140] Revolvers and other guns, on the other hand, would qualify for constitutional protection.

The trouble with this kind of reasoning is that all civilian firearms are in some ways both modifications of military firearms and technological advancements on past civilian firearms. A semiautomatic handgun or rifle, for instance, can correctly be described as a technological advancement on the ordinary revolver or rifle owned by 1859 Oregonians. [141] At the same time, modern civilian semiautomatic handguns can also be described as a modification of military weapons. Semiautomatics are built on the concept that the recoil caused by the firing of one round can automatically load the next round, a concept that's also at the heart of automatic weapons. [142]

***1478** Most guns labeled "assault weapons" today are semiautomatic versions of more modern automatic weapons, rather than of the late 1800s varieties. [143] But there too one could equally describe them as technological advancements

on earlier civilian handguns and rifles, especially the late 1800s semiautomatics, as well as modifications of military weapons. Civilian and military small arms technology have always developed hand in hand.

Nor is the Oregon Court of Appeals' alternative formulation, which asks "whether the drafters would have intended the constitutional protection to apply if they had envisioned the technological advancements and the reasons for which those advancements were made," [144] particularly helpful. I tend to agree with the Oregon Court of Appeals' dissenting opinion that, under this very test, semiautomatics would be protected. "It is hard to conceive that the pioneer family facing an attacking foe would have chosen the one shot ball and powder musket over a firearm that gave them the ability to fire repeatedly," [145] and it's hard to conceive that Oregonians' representatives would have treated the more effective firearm as not falling within the constitutional term "arms."

In any case, the Oregon Court of Appeals' test seems to me to be a largely indeterminate inquiry. We have some equipment, such as legal dictionaries and contemporaneous sources, for figuring out the 1791 or 1859 meanings of particular legal terms. But it's hard to see how we can reliably guess what legislators in 1859 would have done had they envisioned certain changes in weapons technology.

c. The "of the Kind in Common Use" "by Law-Abiding Citizens for Lawful Purposes" Test

Heller defines arms to exclude "weapons not typically possessed by law-abiding citizens for lawful purposes, such as short-barreled shotguns." [146] Some ***1479** state cases have used similar definitions. [147] But it's not quite clear how this test is to be applied, for six reasons.

1. Typical possessor vs. is possession typical? It's not clear whether "typically possessed by law-abiding citizens for lawful purposes" requires that the typical possessor of the weapon be a law-abiding citizen with lawful purposes, or that possession of the weapon be a typical (that is, common) practice. [148] The two are different, since a rare weapon that is overwhelmingly used for lawful purposes (e.g., an expensive or antique hunting rifle) would fit the first definition--its typical possessor would likely be a lawful hunter--and not the second, since possession of it would be highly atypical. My sense is that the first definition, focusing on the characteristics of the typical possessor, is the more natural reading of the phrase. Yet the phrase is offered as an interpretation of United States v. Miller's "arms . . . of the kind in common use" language, which supports the second definition, focusing on how typical possession is.

2. Uncertainty about the typical possessor. It will often not be clear who might be the typical possessor of the weapon; one can hardly do a survey of owners of a particular kind of gun, asking them whether they possess it for lawful purposes. Nor is perceived utility for self-defense and hunting a good proxy for whether a gun is "typically possessed by law-abiding citizens for lawful purposes," given that collecting and recreational shooting are "lawful purposes." Gun collecting may seem like a strange hobby to many, but likely about a million law-abiding Americans engage in it. [149] So while few people would choose (for instance) a semiautomatic version of an AK-47 rifle for home defense or for hunting, this doesn't tell us whether its "typical [ ] possess[or]" is a criminal or a law-abiding collector.

3. Definition of weapon category. How common a weapon is depends on how specifically it is defined. Handguns are in common use, but particular brands of handguns are less common, and some are uncommon, simply because they come from small companies or are of unusual caliber or design. Likewise, some so-called "assault weapons" are indeed not that commonly owned; [150] semiautomatic versions of the AK-47 rifle, for instance, likely make ***1480** up a small fraction of the total gun stock owned by law-abiding citizens. But the same could equally be said of virtually any specific kind of gun, except the most popular.

4. Uncertainty about gun stocks. There are also no censuses of weapons. Surveys give us an approximate sense of how many households own guns generally, or handguns in particular,[151] but they don't give us many more details than that. Nor does gun tracing data help, because there's no reason to think that traced guns are even close to a representative sample of all guns. Guns found at crime scenes are disproportionately likely to be traced, so guns that are more popular with law-abiding citizens will be underrepresented, as would more expensive guns that are less likely to get left behind.[152] And we're even more in the dark about the prevalence of nearly all weapons other than guns, such as fighting knives and billy clubs.

5. Defensive devices that are often not owned as weapons. Some defensive weapons aren't primarily owned as weapons; a home defender may pick up a sharp kitchen knife when no other weapon is close to hand.[153] Knives and baseball bats are very common, but knives and baseball bats owned specifically for defensive purposes are doubtless much less so. Which then should count for the "in common use" /"typically possessed . . . for lawful purposes" inquiry?

6. The difficulty with a "dangerous and unusual weapons" test. Heller does seem to offer one clue to what its test might mean--that the weapons ought not be "dangerous and unusual":

> We also recognize another important limitation on the right to keep and carry arms. Miller said, as we have explained, that the sorts of weapons protected were those "in common use at the time." We think that limitation is fairly supported by the historical tradition of prohibiting the carrying of "dangerous and unusual weapons." See 4 Blackstone 148-149 (1769); [other treatises and cases].[154] ***1481** But the sources Heller cites--some of which say "dangerous and unusual weapons" and some of which say "dangerous or unusual weapons"[155] --don't really discuss what sorts of weapons could historically be possessed. As Heller admitted, the historical tradition is focused on carrying, and carrying only in the circumstances where the carrying is so open that it is "terrifying."[156] The cited Blackstone passage, which the other treatises and cases closely echo,[157] makes this clear:
>
> > The offence of riding or going armed, with dangerous or unusual weapons, is a crime against the public peace, by terrifying the good people of the land; and is particularly prohibited by the statute of Northampton, 2 Edw. III. C. 3 upon pain of forfeiture of the arms, and imprisonment during the king's pleasure: in like manner as, by the laws of Solon, every Athenian was finable who walked about the city in armour.[158]

Even carrying normally dangerous arms was punishable if it was done in a way that indicated a likely hostile intent, perhaps simply by the unusualness of the behavior, as in the Athenian example. Conversely, even possessing unusually dangerous weapons at home wouldn't be covered if the weapons were hidden at home and thus were not terrifying to observers.

d. An Unusual Dangerousness Test

My main point in this Article is to identify questions and possible answers, not to propose any definitive solutions. Nonetheless, I'd like to offer a possible interpretation of "arms" that might be relatively consistent with the concerns expressed in Heller, with the bottom-line conclusion that Heller endorsed (no protection for sawed-off shotguns and machine guns), and with many aspects of Heller's language.

As I noted above, whether a weapon is in common use depends a lot on how generally one defines the weapon: for instance, as a handgun generally, or as a Glock 17 in particular. At the same time, if one says that a form of arms is protected if weapons of this general level of practical dangerousness [159] are in common use, the answer is more definite. This is especially so if one further ***1482** refines this (though at the expense of moving a little further beyond Heller's language) to whether this weapon is no more practically dangerous than what is in common use among law-abiding citizens. [160]

Machine guns are more dangerous in their likely effects than are those guns that are in common use among law-abiding citizens. They not only fire very quickly, but they are harder to shoot in a discriminating way, at least in their fully automatic mode. [161]

Likewise, short-barreled shotguns are practically more dangerous than the kinds of guns that are in common use among law-abiding citizens, because they combine a lethality close to that of a shotgun--at least at the short distances characteristic of the typical criminal attack--with a concealability close to that of a handgun.

On the other hand, if we're talking about a particular sort of handgun that is not materially more dangerous than a typical handgun would be, then it would qualify as a type of arm covered by the constitutional provisions. This is so even if this particular variety happened to be rare (for instance, because it came from a small or new manufacturer). And this decision wouldn't require speculation--and speculation is all that it could be--about whether the typical owner of the handgun is a criminal or a law-abiding citizen.

This test (is the weapon not more materially dangerous than what is in common use among law-abiding citizens?) would thus be consistent with Heller's examples, and would use the elements Heller pointed to--common use, unusualness, dangerousness, and use by law-abiding citizens for lawful purposes--though in a somewhat different mixture from the one Heller set forth. Not a perfect way of reading a case, but, for the reasons given above, there might not be a perfect way of reading Heller on this point.

This leaves one more question: What happens when a particular type of arm--for instance a knife or billy club, or nonlethal weapon such as a stun gun or pepper spray--is less dangerous than the guns that are in common use?

I'm inclined to agree with the Oregon courts--and some other recent authorities--in concluding that these should be considered arms alongside ***1483** guns. [162] First, the literal definition of arms isn't limited to firearms, and laws from the Framing era used arms to refer both to firearms and to non-firearm weapons. [163] Second, if one purpose of the right is to preserve people's ability to use weapons in self-defense, it's hard to see why only the more lethal self-defense weapons should qualify as arms and be protected by the right. And third, many devices other than firearms, even if not necessarily designed as weapons, are indeed commonly used by law-abiding citizens for self-defense, just because those devices (clubs, knives, and the like) are often the only things at hand when the need for self-defense arises. [164]

2. Burden

As I said, bans on particular kinds of arms naturally raise a scope question; but the analysis shouldn't be limited to this question only. Among other things, ***1484** banning some categories of arms might not substantially burden people's right to self-defense, because the remaining categories will be pretty much as effective without being materially harder to use or materially more expensive. [165]

This is clearest when we look at bans on so-called "assault weapons." Such bans have been hotly controversial, but the dispute about them is largely symbolic. The laws generally define assault weapons to be a set of semiautomatic weapons

(fully automatic weapons have long been heavily regulated, and lawfully owned fully automatics are very rare and very expensive [166]) that are little different from semiautomatic pistols and rifles that are commonly owned by tens of millions of law-abiding citizens. "Assault weapons" are no more "high power" than many other pistols and rifles that are not covered by the bans. [167] Definitions of assault weapons reflect this functional similarity: They often focus on features that have little relation to dangerousness, such as folding stocks, pistol grips, bayonet mounts, flash suppressors, or (for assault handguns but not assault rifles) magazines that attach outside the pistol grip or barrel shrouds that can be used as hand-holds. [168]

It's therefore hard to see how assault weapons bans would do much to decrease crime, since even a criminal who complies with the ban could easily find an unbanned gun that is as criminally useful as the unbanned gun, and is ***1485** as dangerous to victims as is the banned gun. [169] The class of assault weapons is indeed not "typical," at least in the sense of common use. [170] But there is no reason to think that most assault weapons owners have them for criminal purposes. And assault weapons are not more dangerous than the usual gun, which in my view makes them fit within the category of "arms."

Nonetheless, the availability of close substitutes for assault weapons--the very reason why assault weapons bans are unlikely to work--also makes it hard to see how assault weapons bans would materially interfere with self-defense, [171] at least given definitions such as those in the 1994 federal statute. [172] And the reasons the Court gave for why handgun bans are impermissible--that handguns are "easier to hold and control (particularly for persons with physical infirmities), easier to carry, easier to maneuver in enclosed spaces, [or easier to handle while] still hav[ing] a hand free to dial 911"--do not apply to assault weapons bans: Assault weapons are no more ***1486** useful for self-defense than are many other handguns, rifles, and shotguns that aren't prohibited by assault weapons bans. [173] Assault weapons bans might well be pointless, and might offend gun owners who want the freedom to choose precisely what sorts of guns they own. But this need not make assault weapons bans unconstitutional, if the courts focus on whether the law substantially burdens self-defense.

Nor can one draw much from the Court's conclusion in the Free Speech Clause context that "one can[not] forbid particular words without also running a substantial risk of suppressing ideas in the process." [174] Though this is likely true as to particular words, the Court has concluded that certain means of expression--such as residential picketing, or the use of sound trucks--can indeed be forbidden without running a substantial risk of suppressing ideas. [175] Not all restrictions on the use of some devices to exercise a constitutional right are unconstitutional burdens on that right. And it's likewise possible to forbid certain kinds of guns without running a substantial risk of materially interfering with the ability to use arms in self-defense. [176]

As Part I.C.2.d pointed out, in a few constitutional fields--for instance, the review of content-neutral speech restrictions--even mild burdens on a right are judged under a relatively deferential form of intermediate scrutiny; it is possible that assault weapons bans would fail even that mild scrutiny. But, for the reasons discussed in Part I.C.2.d, it seems unlikely that courts will adopt anything more than rational basis scrutiny for minor burdens on self-defense. And while it is conceivable that bans that focus on matters such as pistol grips or bayonet mounts might fail rational basis scrutiny, [177] I doubt that this ***1487** would happen, given the deference given to legislative factual judgments under minimum rationality review. [178]

This is also why a machine gun ban shouldn't be seen as violating the right to keep and bear arms for self-defense, even setting aside the Court's conclusion that machine guns aren't arms. Machine guns are no more useful for self-defense than are nonautomatic guns in all but a tiny fraction of civilian uses. [179]

3. Danger Reduction

Finally, some weapons bans might materially reduce various dangers to law-abiding citizens; consider, for instance, the ban on private possession of surface-to-air missiles. But this sort of ban would be independently justifiable through a scope argument: The weapons are certainly much more dangerous and uncommon than the machine guns and short-barreled shotguns that Heller concluded were outside the scope of "arms." More broadly, it's hard to imagine any such weapon that is unusually dangerous but that would fit within the scope of "arms" as Heller defined it.

That, of course, leaves the normally dangerous weapons, such as handguns, rifles, and shotguns. These weapons are indeed dangerous, and some people believe that entirely banning them will materially diminish the danger of crime and death.

But as Heller correctly concluded, right to bear arms provisions embody the judgment that the danger posed by private ownership of the normally dangerous weapons is justified by the benefits of gun ownership for, among other things, private self-defense. This is much like the constitutional judgment that the danger posed by First-Amendment-protected speech praising violence, or by criminals who are harder to catch as a result of the Fourth Amendment or harder to prosecute as a result of the Fifth and Sixth Amendments, is justified by the benefits that those constitutional provisions ***1488** yield. So it seems to me that if a weapon is within the scope of "arms," because it is not unusually dangerous, avoiding-danger arguments can't be used to justify bans on such weapons.

4. A Quick Review of Weapons Bans

This allows us to quickly go through some commonly proposed weapons bans, though much of what follows has already been foreshadowed above.

a. Handguns are of course protected arms under Heller; and, as Heller correctly concludes, a handgun ban so interferes with many people's ability to defend themselves that it constitutes a grave burden.[180] Some old cases that use the "civilized warfare" test for the scope of arms have concluded that handguns may indeed be banned,[181] but as I've argued above, this is not a sound test for rights provisions that cover self-defense purposes; and in any event, modern militaries do routinely use handguns.

b. Machine guns, short-barreled shotguns, and still more dangerous military weapons (such as surface-to-air missiles or grenade launchers) are outside the scope of "arms," and may thus be banned.[182] Moreover, such bans do not substantially burden the right to keep and bear arms for self-defense.[183]

c. Short-barreled or otherwise sawed-off rifles would likely be arms simply because they aren't materially different from handguns, which certainly qualify as arms. A handgun is just a very short-barreled rifle (some rifles even have pistol grips), and it's hard to see why a short-barreled rifle would be materially more dangerous than the even more concealable handgun. But for the same reason it's hard to see why a ban on short-barreled rifles would materially burden the right to keep and bear arms in self-defense, when handguns remain available.[184]

***1489** d. Assault weapons bans would generally be constitutional, if the right is seen as unconstitutionally infringed only when a law substantially burdens self-defense. Semiautomatic assault weapons are functionally virtually identical to other semiautomatics, and are as much arms as are other semiautomatics.[185] But bans on such weapons don't substantially burden the right to keep and bear arms for self-defense, precisely because equally useful guns remain available. Such a ban would be unconstitutional only if the courts conclude that even less-than-substantial burdens on self-defense must

be justified by some showing of likely reduction of danger, or unless courts conclude that assault weapons bans are entirely irrational. [186]

e. Bans on silencers and .50 caliber ammunition would also likely be constitutional because they don't materially burden self-defense. [187]

f. Large-capacity magazine bans are a closer question. [188] A gun with a larger than usual capacity magazine is in theory somewhat more lethal than a gun with a 10-round magazine (a common size for most semiautomatic handguns), but in practice nearly all shootings, including criminal ones, use many fewer rounds than that. [189] And mass shootings, in which more rounds are fired, usually progress over the span of several minutes or more. [190] Given that removing a magazine and inserting a new one takes only a few seconds, a mass murderer--especially one armed with a backup gun--would hardly be stymied by the magazine size limit. It's thus hard to see large magazines as materially more dangerous than magazines of normal size.

Still, these same reasons probably mean that the magazine size cap would not materially interfere with self-defense, if the cap is set at 10 or so rather than materially lower. First, recall that until recently even police officers would routinely carry revolvers, which tended to hold only six rounds. Those revolvers were generally seen as adequate for officers' defensive needs, though of course there were times when more rounds are needed. Second, the ability to switch magazines in seconds, which nearly all semiautomatic weapons possess, should suffice for the extremely rare instances when more rounds were needed (though to take advantage of this, the defender would have to make a habit of carrying both the gun and a spare magazine).

***1490** g. Bans on small, relatively cheap guns (including so-called "Saturday-Night Specials") might be unconstitutionally substantial burdens if the alternatives that they leave would be materially more expensive. [191] What extra expense qualifies as "material" is of course hard to tell, but as Part II.F discusses, this is not a constitutionally insurmountable problem. Similar issues arise with regard to regulations of abortion, speech, the right to marry, and the like. Moderate fees, and regulations that indirectly impose moderate cost increases, are generally seen as permissible burdens, but at some point the fee becomes sufficient to make the law into an unconstitutional burden.

h. Bans on knives or billy-clubs would, under the framework I propose, count as restrictions on arms. The question would be whether the ban substantially burdens people's ability to defend themselves--quite possible, given that firearms tend to be much more expensive than knives and clubs, and given that clubs may be preferred by some defenders precisely because they are less lethal than firearms [192]--and whether there's some credible danger reduction argument in favor of restricting knives and clubs when guns are protected. [193]

i. Bans on shotguns should be unconstitutional, even if handguns are available. Many people keep a shotgun rather than a handgun for home defense, and many self-defense experts recommend shotguns. [194] With shotguns, there is less chance of missing, and their great lethality makes them even more effective at scaring away home invaders.

As Heller points out, handguns are for many people easier to store, easier to handle, harder to take away, and easier to hold with one hand while calling 911 with the other. [195] But this just reflects that handguns may be materially more effective self-defense weapons for some people in some contexts while shotguns may be materially more effective self-defense weapons for others (something that can't be said as to assault weapons, which are almost ***1491** entirely interchangeable with their non-assault cousins). Allowing only shotguns would substantially burden some people's rights to defend themselves, while allowing only handguns would substantially and similarly burden other people's rights.

j. Bans on electric stun guns and irritant sprays are dealt with in a separate article. [196]

5. A Special Case: "Personalized Gun" Mandates

Some have urged laws requiring that all new guns be personalized--designed so they can be fired only by an authorized user. Such personalization could, for instance, use fingerprint technology or wireless sensing of whether the user is wearing some electronic identification ring. In theory, if personalized guns became common, child gun accidents would become rare, and perhaps gun theft would become somewhat rarer, too. (I say "somewhat" because many thieves or resellers of stolen guns will likely know how to disconnect the electronics in a way that leaves the gun operational.) What's more, this could happen without compromising people's ability to defend themselves, something that distinguishes such proposals from handgun bans, carry bans, and locked storage requirements. [197]

Whether these requirements are constitutional should, I think, turn on whether they make guns materially more expensive, slower to fire, or unreliable. Say, for instance, that a personalized gun costs $1000, often fails to fire until after many seconds of fumbling, or requires monthly battery changes and is unusable if the battery isn't changed. Or say the gun receives its "OK to fire" signal through wireless radio from a ring worn by the owner, and there are cheap devices that would jam such transmissions and would thus let criminals effectively disarm any defender. Requiring that such guns be used-- as opposed to the more robust mechanical guns that are now common--would substantially burden self-defense. So if personalization requirements are upheld, they would have to be upheld under a danger reduction theory, if such a theory is accepted as a justification for substantial burdens on self-defense.

On the other hand, say the extra cost is relatively modest, the technology is highly reliable, and the batteries are extremely long-lived (or perhaps have an audible alarm reminding a user that they need replacing), or the gun is ***1492** designed so that, if the electronics fails, the gun is left operational as a mechanical weapon. (This sort of low cost / high reliability outcome seems quite possible as the technology matures.) Then the requirement probably wouldn't be a substantial burden, and should be upheld.

One possible way of estimating whether personalized gun requirements substantially burden self-defense is by looking at what police departments are doing. [198] Police officers can especially benefit from carrying personalized guns, because about 10 percent of all police officer fatalities involving shootings happen with the officer's own weapon. [199] Sometimes the shooter might have his own weapon and might use the officer's weapon just to make tracing harder; but sometimes the shooter starts out unarmed and seizes the gun from the officer in a struggle. If the officer has a personalized gun, the officer's life could be saved.

At the same time, police officers are also vulnerable to many of the reliability risks associated with switching from proven mechanical technology to new and unproven electronic technology. They don't want guns that fail to fire at the critical moment, or that can be disabled electronically.

So if police departments are ready to use personalized guns, and the personalizing technology doesn't increase the gun cost too much, then requiring such guns for civilians probably won't substantially burden civilian self-defense just as it won't substantially burden law enforcement. But if personalized guns aren't reliable enough for police departments, then requiring them would likewise impose a substantial burden on civilian self-defense (though some civilians might still choose to accept this substantial burden in order to get other benefits, for instance if they have small children at home and estimate that the danger of the child's accidentally misusing the gun is higher than the danger of the gun's being unusable at the crucial moment).

One state, New Jersey, has actually enacted a law mandating that, within roughly two and a half years after "personalized handguns" become "available for retail sales," sales of other handguns will be prohibited in New Jersey. [200] But while

the law is triggered only when the Attorney General finds that personalized handguns are about as reliable as mechanical handguns,[201] the law ***1493** nonetheless doesn't apply to guns sold to the police until a separate commission endorses police use.[202] This may breed some skepticism about whether the Attorney General's initial finding of reliability is itself entirely reliable.

The law also doesn't consider the guns' affordability. In principle, the ban on selling unpersonalized handguns could be triggered even when personalized handguns cost many thousands of dollars. So there's some reason to suspect that the New Jersey ban on unpersonalized handguns, when it takes effect, might indeed substantially burden the right to keep and bear arms in self-defense. But it's impossible to tell until the personalized handguns exist, and their reliability and cost can be assessed.

B. "Who" Bans: Bans on Possession by Certain Classes of People

1. The Bans

Federal law bans gun possession by people guilty of certain illegal conduct-- felonies, unlawful drug use, illegal presence in the U.S., or misdemeanor domestic violence.[203] Some laws cover other kinds of misdemeanors,[204] and include misdemeanants released on probation.[205]

***1494** Federal law also bans gun possession by people who are the targets of protective orders, which are generally assumed to rest on a finding (by a preponderance of the evidence[206]) that the subject has acted violently, or poses a credible threat of violence.[207] And federal law bans the transfer of guns to anyone who is under indictment for a felony, which generally just requires a grand jury finding (usually in a nonadversarial proceeding) of probable cause to believe the person is guilty.[208] Some states ban gun possession, and not just gun acquisition, by people who are under indictment;[209] federal law does the same as to people indicted for murder, kidnapping, or various sex crimes, including possession of child pornography.[210]

Federal law essentially forbids nonimmigrant aliens from possessing guns.[211] Some states ban gun possession by all noncitizens.[212]

Federal law and the laws of many states also largely ban gun possession by under-18-year-olds (though possession of long guns is often allowed with ***1495** the permission of a parent or guardian).[213] New York City bars gun possession by 18-to-20-year-olds as well;[214] Illinois bars gun possession by 18-to-20-year-olds, except with the permission of a parent, and sometimes not even then.[215] And many other states bar handgun possession by 18-to-20-year-olds.[216] Federal law doesn't ban such possession, but it does bar gun dealers from selling handguns to 18-to-20-year-olds, which makes handguns available to 18-to-20-year-olds only by the good graces of a nondealer third party who is willing to sell to them.

Finally, government employers may sometimes ban both on-duty[217] and off-duty[218] gun possession by employees. I will not discuss this further in this Article, but I flag it here as a question for further research: How much extra power should the government as an employer have to control gun possession ***1496** by its employees, and if one seeks analogies from other fields, such as free speech law, how can such analogies be sensibly drawn?[219]

2. Burden

An individual right to keep and bear arms for self-defense is substantially burdened whenever an individual is entirely barred from owning a gun, or even entirely barred from owning a handgun.[220] It is a mistake to treat such total bans as "relatively minor" restrictions,[221] or assume that there's no infringement of the right to bear arms simply because non-firearm "arms" are available.[222] Perhaps such total bans are ultimately found to be justifiable burdens, but they are certainly substantial burdens.

***1497** Some of the statuses that trigger the laws--minority, alienage, being under indictment, being a felon in those states that allow for restoration of civil rights some years after the conviction--are temporary, and may expire in years or even months. But denying people the ability to defend themselves with firearms for that long remains a substantial burden on self-defense. To be upheld, then, the bans must be justified either by a scope argument (that the constitutional right explicitly or implicitly excludes the prohibited class of people) or by a danger reduction argument (that people in the prohibited class are so unusually dangerous that even a total ban on their gun possession is constitutional).

3. Scope and Danger Reduction

Naturally, the scope and danger reduction arguments are often related, because any textual or original-meaning limitations on who possesses the right will often stem from the perception that certain people aren't trustworthy enough to possess firearms. The Idaho right to bear arms, for instance, enacted in its current form in 1978, expressly states that the provision shall not "prevent the passage of legislation providing penalties for the possession of firearms by a convicted felon."[223]

Even provisions that do not have such explicit language might have been enacted with a background assumption that some people are not entitled to the full range of constitutional rights. Consider, for instance, the rights of minors. Though no right-to-bear-arms provision expressly excludes minors, it seems likely that such provisions were enacted with an understanding that minors might not have the same constitutional rights as adults. This background understanding likely reflects a judgment that minors aren't mature enough to fully appreciate the consequences of their actions, a judgment that could apply to minors' potential dangerousness to others, as well as to themselves.

At the same time, the scope and danger reduction justifications are importantly different. For one, they look to two different kinds of authorities. Scope justifications rest on a conclusion that some past authorities responsible for the scope of the constitutional provision--usually those who enacted the provision, but possibly those who maintained a particular tradition throughout American history--view certain people as untrustworthy (presumably because they are dangerous). Danger reduction justifications rest on a conclusion that the legislature and the reviewing court view certain people as untrustworthy, notwithstanding a constitutional text, original meaning, ***1498** and historical tradition that would secure the constitutional rights of those people as much as the rights of the rest of us.

Relatedly, scope justifications are less subject to being extended by analogy. If felon bans are upheld on the grounds that felons have historically been seen as outside the scope of various constitutional rights, then felon bans would offer a poor analogy for bans on possession by misdemeanants (even violent misdemeanants), or people who are under indictment and thus haven't yet been convicted. Scope arguments that exclude those categories of people would have to be made independently, and the prohibition on possession by felons would offer only a weak analogy.

But if felon bans are upheld on the grounds that felons pose an unusual danger to society, then many other categories of people might be seen as posing a comparable danger. This is especially so because many felonies are nonviolent crimes and their perpetrators probably pose a comparatively small danger of gun violence. If this small danger is enough to support a reducing danger argument in favor of a gun ban, then a wide range of other people could likewise be disarmed on a reducing danger theory.

I'm not sure which theory is right, though my instincts push me towards scope justifications, precisely because scope justifications are less likely to be broadened by analogy. But in any event, the decision about which theory to use is important.

4. Bans Justified by Individualized Finding of Likely Past Criminal Behavior or Future Danger

We therefore need more research on the historical scope limitations on the right to bear arms.

a. Felons. As to bans on gun possession by felons, the question is likely to be academic: Heller expressly held that such bans are constitutional. Nor did it distinguish between people convicted of violent felonies and those convicted of, say, fraud. Dozens of state court decisions likewise take the view that felons (even those convicted of nonviolent felonies) lack a constitutional right to keep and bear arms. [224]

***1499** Felons may need arms for lawful self-defense just as much as the rest of us do. Moreover, bans on felon possession of firearms also affect their law-abiding spouses, girlfriends and boyfriends, and other housemates: Those people might be unable to safely possess guns in their homes because of the possibility that their felon housemate will be seen as "constructive[ly] possess[ing]" the gun, [225] and that they themselves will therefore be seen as criminally aiding this illegal possession. [226] Nonetheless, the understandable worry about felon recidivism probably makes it unlikely that the settled law on the subject will change, though a few judges have expressed some dissenting views. [227]

***1500** b. "[Non-]Peaceable Citizens." The more practically important question concerns extensions of the ban from felons to violent misdemeanants [228] and to nonviolent misdemeanants. [229] Some historical references say that the right to keep and bear arms encompassed only "peaceable citizens" or "virtuous citizens," [230] and some recent scholarship and recent government arguments suggest that this justifies restrictions that go beyond felons and at least to violent misdemeanants. [231] The question is whether this was indeed a historically understood limitation.

c. People Found Dangerous by Preponderance of the Evidence or Under a Probable Cause Standard. A related question would be the extent to which this historical exclusion of the nonpeaceable or nonvirtuous has covered those who haven't been criminally convicted--or, if one focuses on the preventing danger theory, to what extent it should cover them. May the right to bear arms be restricted simply based on a finding by a preponderance of the evidence that the target poses a danger of violence? [232] What if the finding is at a hearing conducted without notice to the target? [233] May the right be restricted on a finding of probable cause by a grand jury handing down an indictment, a context where the defendant has no opportunity even to introduce exculpatory ***1501** evidence? Two courts have held such a restriction violates the right to bear arms, but two others have held otherwise. [234]

d. People Found "Unsuitable" by Police Departments. Massachusetts law provides that people may get or keep permits to carry handguns--which are also required for simple possession of handguns at home--only so long as the police department finds them to be "suitable person[s]." [235] The police department may make this judgment based on its own conclusions about the person's likely past misconduct or future dangerousness, with only a highly deferential review by judges. [236] Police departments have in fact sometimes revoked such licenses based on charges that had been "dismissed or otherwise ***1502** resolved without a finding of guilt" [237] and on unadjudicated criminal complaints that "never ended in convictions [and] that . . . were essentially all brought by one person." [238] The denials or revocations are also sometimes based in part on whether the "person habitually associates with persons who violate the law or otherwise engage in inappropriate behavior, including verbal behavior" [239] or on whether the person "refused to cooperate in the police investigation concerning . . . several shooting incidents." [240]

Other states have similar rules, whether as to permits to possess firearms or permits to carry them; some provide for de novo review by courts,[241] while in others courts review police decisions deferentially, and set them aside only if they are found to be arbitrary or capricious.[242] Do such decisions have to involve a more concrete finding of dangerousness than just a conclusion that the person is not "a suitable person"? Does there have to be some judgment using an explicit quantum of proof, such as by a preponderance of the evidence? Moreover, should such decisions be reviewed de novo by the judiciary, as is required in some constitutional contexts?[243] This too bears further investigation.

***1503** e. People found to be physically incapable of safely using firearms. A few statutes limit gun possession by those who are seen as too "physical[ly] infirm[ ]" to "safe[ly] handl[e]" firearms.[244] I have seen virtually no cases or commentary on this, though one case, In re Breitweiser, suggests that sometimes this standard might be misapplied to handicapped people who are capable of safely using weapons but require special adaptive tools for doing so.[245]

5. Bans Without Individualized Findings of Likely Past Violence or Future Danger

a. Side Effects of Attempts to Disarm the Dangerous: Bans on Gun Possession by People Subject to Restraining Orders Without Findings of Misconduct or Dangerousness

New Jersey law prohibits gun possession by "any person whose firearm is seized pursuant to the 'Prevention of Domestic Violence Act of 1991' and whose firearm has not been returned."[246] This was likely aimed at people whose firearm hadn't been returned because of a finding of domestic violence, made by a preponderance of the evidence in a civil proceeding.

But in M.S. v. Millburn Police Department,[247] a New Jersey appellate court held this applied more broadly, to anyone whose firearm has not been returned.[248] M.S. and his wife had both filed domestic violence complaints against each other, and each had agreed to have restraining orders issued against the other. The prosecutor sought the forfeiture of M.S.'s guns, and "M.S. signed a consent judgment, permitting him to sell the five weapons to a registered firearms dealer,"[249] without admitting guilt. Some time after he sold his firearms, the restraining orders were vacated, and apparently no finding as to any violence ***1504** on M.S.'s part was ever made.[250] Nonetheless, because M.S.'s firearms hadn't been returned--with no finding or admission of M.S.'s likely guilt--M.S. was permanently barred from having guns under New Jersey law.

The following year, the New Jersey Supreme Court reversed the ruling, concluding that the statute should be read as applying only when the firearms aren't returned because of a finding or admission of guilt.[251] This basically places the New Jersey law on a similar footing with laws that bar gun possession based on a restraining order entered upon a finding of past violence or future danger.[252] But for over a year, New Jersey law appeared to bar certain people from possessing guns even without any such finding.

The same might sometimes happen under the federal statute that bans possession of guns by people subject to restraining orders. The federal statute applies when the order

> (B) restrains such person from harassing, stalking, or threatening an intimate partner . . . or child . . ., or engaging in other conduct that would place an intimate partner in reasonable fear of bodily injury to the partner or child; and

> (C) (i) includes a finding that such person represents a credible threat to the physical safety of such intimate partner or child; or
>
> (ii) by its terms explicitly prohibits the use, attempted use, or threatened use of physical force against such intimate partner or child that would reasonably be expected to cause bodily injury.[253]

The use of "or" between (C)(i) and (C)(ii) suggests that the law could bar gun possession even when there is no finding of a credible threat or of past violence, and all that is present is a prohibition on "use, attempted use, or threatened use of physical force."

And a judge might not think much about issuing an order barring the use of injury-causing force even without a finding of threat or past misconduct: After all, such force is already generally illegal (setting aside self-defense, which would likely be implicitly exempted), so why not prohibit it?[254] In such ***1505** a case, barring firearms possession solely because the order exists, unbacked by any findings of dangerousness or misbehavior, must violate the right to bear arms.

Some courts that have considered the federal statute quoted above have concluded that no-use-of-force orders will indeed be based on a factual finding of threat:

> Congress legislated against the background of the almost universal rule of American law that for a temporary injunction to issue: "There must be a likelihood that irreparable harm will occur. Speculative injury is not sufficient; there must be more than an unfounded fear on the part of the applicant. Thus, a preliminary injunction will not be issued simply to prevent the possibility of some remote future injury. A presently existing actual threat must be shown. However, the injury need not have been inflicted when application is made or be certain to occur; a strong threat of irreparable injury before trial is an adequate basis."
>
> We conclude that Congress in enacting section 922(g)(8)(C)(ii) proceeded on the assumption that the laws of the several states were such that court orders, issued after notice and hearing, should not embrace the prohibitions of paragraph (C)(ii) unless such either were not contested or evidence credited by the court reflected a real threat or danger of injury to the protected party by the party enjoined.[255]

Some states (perhaps many or even almost all) might only authorize such orders when some finding of threat or past violence has been made.[256] And some might demand a persuasive showing of violent conduct precisely because they want to avoid improperly restricting a person's right to bear arms.[257]

On the other hand, at least some courts seem willing to enter orders simply based on "verbal[ ] abus[e]" that consists of "insulting and foul language [used] to humiliate and degrade."[258] Likewise, even statutes that ostensibly ***1506** require a finding of domestic violence could be satisfied simply by "a communication . . . in offensively coarse language" made "with purpose to harass,"[259] or based on "making annoying telephone calls, directly or indirectly destroying personal property and 'contacting, either directly or indirectly, by mail or otherwise, coming within a specified distance

of, or disturbing the peace of the other party . . . .'" [260] And under the Vermont statute, a person's supposed future dangerousness could be determined not just based on the person's past unlawful conduct, but also based on the person's past lawful use of nondeadly force to defend property. [261]

Moreover, the physical conduct required for the statutes (which of course only require a showing by a preponderance of the evidence) may often be quite ambiguous. In one case, for instance, the target of the order "grabbed [the petitioner's] arm" and then "stormed out." [262] In another, the target of the order was found to have "[p]hysically blocked [a] pathway to prevent [the petitioner] from entering the house" and "subjected [the petitioner] to extreme psychological abuse." [263]

In a third, a domestic protective order was issued against a woman who quickly backed out from a driveway when the petitioner and his son were in the way on a small riding mower, and "stopped within a few feet" of the petitioner and the son--possibly a threat but possibly just an incident of unsafe driving. [264] Moreover, the order applied to the driver's husband as well ***1507** as to the driver herself, though there was no finding of any violence on the husband's part. In another case, though reversed on appeal, a judge issued a restraining order against a woman based simply on her briefly remaining at a party in her boyfriend's apartment after he had ordered her to go; she had just learned of the boyfriend's infidelity while at the party, started to cry and yell at the unfaithful boyfriend, and then did not obey his order to "Get the F[expletive] out of [the] house." [265]

Other courts allow the issuance of restraining orders when the target has long been out of the state or even out of the country--or perhaps even has always lived outside the state and the country--and was thus outside what would normally be the court's jurisdiction under the Due Process Clause. [266] Such nonresidents might find it too burdensome to return to defend themselves against the factual allegations, one common explanation for why personal jurisdiction is generally required in the first place. [267] A finding of past violence or future threat may thus be based on a one-sided presentation in a context where the legal system would otherwise not treat the defendant's rights as being forfeited by a decision not to appear.

It thus seems to me that there might well be cases in which the right to bear arms is denied to the targets of restraining orders even in the absence of a credible finding of threat or violence. Whether this is true needs further research. And if the research reveals that such prohibitions are indeed sometimes imposed, it seems to me that they would likely be unconstitutional. It's hard to see how the scope of the right to bear arms can be understood as excluding people simply because they're subject to a court order that has been entered with no finding of past violence or future dangerousness. [268]

***1508** b. Proxies for Likely Inadequate Judgment: Bans on Gun Possession by Under-18-Year-Olds, the Mentally Ill, Mentally Retarded, the Drug-Or-Alcohol-Addicted, and 18-to-20-Year-Olds

Scope and Burden. Many (but not all) states generally ban gun possession by under-18-year-olds, [269] though such states tend to have exceptions for hunting and target shooting with a parent's permission. These laws are serious burdens on the ability of under-18-year-olds to defend themselves. Older minors are just as likely to be violently attacked as are younger adults (and much more so than older adults), and 12-to-17-year-old girls are substantially more likely to be raped than young adult women. [270] Moreover, both male and female minors are often without adult protection, whether at home or in public places.

Nonetheless, it is also highly plausible that even older minors are more likely to misuse their guns, chiefly because their capacities for impulse control and thoughtful judgment haven't fully matured. This avoiding danger argument is of course the justification for age cutoffs for various decisions, whether decisions that may jeopardize the minors' own safety, or ones (such as about driving or drinking) that may jeopardize third parties. [271] And because the ***1509** drafters of the

Second Amendment likely saw this danger, it also seems to me that such bans on gun possession by minors can be justified by a scope argument: Minors generally have, and historically have had, lesser constitutional rights than do adults, [272] and the same should apply to the right to possess deadly weapons. [273]

***1510** For related reasons, I suspect that those whose judgment is seen as compromised by mental illness, [274] mental retardation, or drug or alcohol addiction [275] have historically been seen as less than full rightholders, alongside those whose judgment is compromised by youth. [276] But again, some solid historical research would be more helpful than either scholars' or judges' speculation.

But what about 18-to-20-year-olds? The New York City ban on all gun ownership by 18-to-20-year-olds surely qualifies as a substantial burden. [277] So must the Illinois law, which bans gun ownership by 18-to-20-year-olds whose parents are dead, felons, or nonresident aliens, and conditions other 18-to-20-year-olds' rights on their parents' permission. [278] And under Heller, the same should be true for the more common restrictions on handgun ownership and acquisition by 18-to-20-year-olds: [279] The availability of long guns as a self-defense option wouldn't undo the "sever[ity of the] restriction," for the same reasons that it didn't do so in Heller. [280]

***1511** Yet regardless of the burden, there is also the scope question: Should constitutional rights be seen as fully vesting at age 18, or at age 21, in keeping with the historical tradition of 21 being the age of majority? The rule that majority begins at 21 endured until the early 1970s, [281] so most right-to-bear-arms provisions were thus enacted while 18-to-20-year-olds were technically treated as minors. [282] And the same issue arises as to other rights as well: Consider, in the First Amendment context, a recent proposal to set 21 as the age of consent for being filmed or photographed naked or in sexual contexts, [283] and the possibility that this is already the law in Mississippi and as to under-19-year-olds in Nebraska. [284] Consider the Nebraska requirement of parental consent for marriage of under-19-year-olds. [285] Or consider the Alaska law barring possession of marijuana by under-19-year-olds even though the Alaska Supreme Court has interpreted the Alaska Constitution's right to privacy as securing adults' right to possess small quantities of marijuana at home. [286]

I'm skeptical about this argument, because the pre-1970s cases that I've seen involving lesser constitutional rights for minors--lesser free speech rights, lesser religious freedom rights, and lesser criminal procedure rights-- involved age cutoffs of 18 or less. [287] Whatever setting the age of majority at 21 might ***1512** have meant for purposes such as contracting, parental authority, and the like, it seems not to have affected those other constitutional protections. At the same time, for much of our nation's history, the right to contract was seen as an important constitutional guarantee, and that right was not fully secured to 18-to-20-year-olds. The matter of the historical constitutional rights of 18-to-20-year-olds warrants more research.

Danger reduction. The 18-to-20-year-old issue illustrates the importance of figuring out precisely why the less controversial restrictions on the under-18-year-olds and the mentally infirm are constitutional. If the reason for upholding the ban on possession by under-18-year-olds is the historical scope of constitutional rights, then that reason probably will not carry over to other age groups. It certainly wouldn't carry over to, say, 22-year-olds. (In St. Louis, one can't carry a gun on a public street until one is 23. [288]) And it wouldn't even carry over to 18-to-20-year-olds, unless they were historically not seen as full rightsholders for the purposes of most constitutional rights, or of the right to keep and bear arms in particular.

But if the ban on possession by under-18-year-olds is upheld under a danger reduction argument, which is to say based on the plausible but unproven speculation that banning possession by 17-year-olds will diminish crime in a way that somehow outweighs the diminution in 17-year-olds' legitimate ability to defend themselves, then that argument could

easily be applied more broadly. Most obviously, the same argument could be made, about as plausibly, about 18-year-olds or even 22-year-olds. There's a reason why auto insurance companies charge higher rates all the way up to age 25. And gun death rates remain within 10 percent of their age 18 levels into the late 20s, [289] though the need for self-defense remains high then as well.

Moreover, the danger reduction argument could equally justify similar bans for any demographic group that can plausibly be seen as potentially more dangerous. Presumably race-based restrictions and likely even sex-based restrictions would violate the Equal Protection Clause, [290] though of course violent ***1513** crime is highly correlated with sex, and in considerable measure with race. [291] But similar arguments could also be made about people who live in especially high-crime cities, or who don't have high school degrees, or who have other possible demographic correlates of gun misuse.

It seems to me that these danger reduction arguments ought to be rejected. At least absent overwhelming statistical evidence, I don't think that any class of mentally competent adults should be denied constitutional rights based on their demographic characteristics, as opposed to things they have personally done. But in any event, this question, and the relationship between the rights of 17-year-olds, 20-year-olds, and 22-year-olds, illustrates the importance of distinguishing restrictions justified by the scope of the right from those justified by a danger reduction rationale.

c. Bans on Gun Possession by Noncitizens

If bans on gun ownership by noncitizens are constitutional, they have to be constitutional on scope grounds. Reducing-danger grounds will not work: Noncitizens with guns are no more dangerous than citizens with guns. [292]

As to some jurisdictions' right-to-bear-arms provisions, the scope question is clear. Some states expressly secure the right only to citizens. [293]

Others expressly secure the right to any person; consider, for instance, the Colorado provision: "The right of no person to keep and bear arms in defense of his home, person and property, or in aid of the civil power when thereto legally summoned, shall be called in question . . . ." [294] The phrase "no person" is clear and broad. [295] The Colorado and Michigan Supreme Courts have indeed relied on state right-to-bear-arms provisions to strike down bans on gun possession by noncitizens. [296]

But some constitutional provisions, including the Second Amendment, secure a "right of the people." And the Court held in United States v. Verdugo- ***1514** Urquidez [297] that "the people" (as opposed to "person") is a "term of art" that "refers to a class of persons who are part of a national community or who have otherwise developed sufficient connection with this country to be considered part of that community." [298] Likewise, Heller described "the people" as referring "to all members of the political community"--"not an unspecified subset," but also not persons who are outside the political community. [299]

I'm inclined to say that "the right of the people" should be read in the Second Amendment the same way it has been read in the First and Fourth Amendments: as including the nation's lawful guests, though not applying to those who are largely unconnected with the country, for instance because they are aliens in foreign countries, [300] or perhaps because they are illegally present in the United States. [301] The right to bear arms is in part aimed at self-defense, something valuable to all people and not just to citizens. Given that the American constitutional tradition generally secures individual rights to citizens as well as noncitizens (though not to people in foreign countries), the Second Amendment right to bear arms in self-defense should be treated the same way.

But whether or not I'm right on this, the scope of the phrase "the people" is the key question here. Resolving the matter by just asserting that the law is a regulation rather than a prohibition, as the Utah Supreme Court did in a *1515 cursory decision,[302] would be a mistake; so would concluding that disarming noncitizens is somehow necessary to materially reduce danger of crime or injury.

Finally, I should note that it's possible that state laws that discriminate against noncitizens when it comes to gun possession or gun carrying might violate the Equal Protection Clause, which has been interpreted as requiring strict scrutiny of some (but not all) state discrimination against noncitizens.[303] But I leave that question to others.

C. "Where" Bans: Prohibition on Possession in Certain Places

Many laws prohibit most people from possessing guns in certain places, such as on all public streets, in bars, in parks, and in public housing projects.[304] Naturally, these laws are by definition lesser burdens than are total bans on possession. But they are nonetheless serious burdens: Whenever people are in the prohibited places--places where they have a right to be, and often have a practical need to be--they are barred from protecting themselves with a firearm.

And of course people's ability to protect themselves elsewhere is no substitute for their ability to protect themselves where they are. Some rights, such as free speech, may be only slightly burdened by laws that bar speech in some places but allow it in many other places. But self-defense has to take place wherever the person happens to be. Nearly any prohibition on having arms for self-defense in a particular place (I note some exceptions below) is a substantial burden on the right to bear arms for self-defense. Perhaps the burden can be justified on scope or danger reduction grounds,[305] but it is indeed a serious burden.

*1516 1. Bans on All Gun Carrying

Heller stated that bans on concealed carry of firearms are so traditionally recognized that they must be seen as constitutionally permissible.[306] This tradition does indeed go back to 1813 and the following decades, at least in some Southern and border states, as well as in Indiana,[307] and by the end of the 19th century the constitutionality of such bans had become pretty broadly accepted.[308] A few state court cases have struck down such bans,[309] but most courts have upheld them, and many state constitutions expressly authorize them.

The same cannot, however, be said about general bans on carrying firearms in public, which prohibit open as well as concealed carrying. Heller expressly concluded that "the right to . . . bear arms" referred to carrying arms.[310] Ten state *1517 constitutions strongly imply this, by protecting "bear[ing] arms" but expressly excluding "carrying concealed weapons."[311] Other constitutions don't mention carrying as such, but they do use the word "bear." And many courts applying state constitutional provisions have held or suggested that carrying in public is generally constitutionally protected,[312] though some courts have disagreed.[313]

*1518 Such protection, of course, makes sense when the right is (at least in part) a right to keep and bear arms in self-defense: Often, people need to defend themselves against robbers, rapists, and killers outside and not just in the home.[314] Two-thirds of all rapes and sexual assaults, for instance, happen outside the victim's home, and half happen outside anyone's home.[315] The percentages are even greater for robberies and assaults.[316] So a ban on carrying weapons outside the home--especially in places that one practically needs to frequent, such as the streets on the way to work or to buy groceries--is a serious burden on the right, more so than the ban on handgun possession struck down in Heller (which would have at least left open some possibility of self-defense with shotguns or rifles).

Some states ban unlicensed carrying of loaded weapons, even when they are carried openly, but allow the carrying of unloaded weapons. A few courts have upheld such laws on the grounds that they let a would-be defender carry both the weapon and ammunition, and load it when needed.[317] But seconds count when one is attacked, especially in public, where one might not have the warnings that are sometimes available in the home (the breaking window, the barking dog, the alarm). While loading a gun may take only several seconds, especially if the ordinance allows the carrying of loaded ***1519** magazines so long as the magazine is outside the weapon,[318] those will often be seconds that the defender doesn't have.[319]

So these laws are substantial burdens on the right to defend oneself, and carrying arms is within the scope of the right, alongside home possession. The question is whether bans on carrying can be justified on a rationale that they avert so much danger that the restriction on self-defense is an acceptable price to pay. I don't believe they can.

To begin with, bans on carrying loaded weapons that let people carry ammunition as well as a gun seem unlikely to avert much danger. An enraged driver can generally quickly load a weapon, even while driving,[320] and several seconds' delay will likely be less of a barrier to an attacker (who usually gets to choose the moment of attack) than to a defender. A would-be armed robber could load a weapon in seconds before going into a liquor store, so that he won't be committing a gun crime pretty much until he's actually committing the robbery itself. And while a ban on loaded carry might avert some gun accidents, it seems to me that preventing gun accidents--which are over ten times less common than deliberate gun injuries[321]--would not justify such a serious loss of self-defense rights.

Bans on carrying loaded weapons that require people to carry the guns or ammunition in locked cases might do more to prevent road rage killings, or to increase the chances that a would-be gun criminal is caught after he removes the gun from a locked case but before he is about to use it. But they seem unlikely to prevent the great majority of gun crime, which is committed by criminals who ignore gun laws just as they ignore other laws[322] and ***1520** who are unlikely to be stopped and arrested for a gun law violation by the police before the crime is committed.

And such bans would essentially deny people the ability to defend themselves in public places using firearms--the tools that are likely to be the most effective for self-defense, and that the criminal attackers are already likely to possess. That seems to me to be an unacceptable burden on a constitutionally protected right, even if one in principle accepts some power to substantially burden self-defense in order to reduce danger of crime or injury. As the National Academy of Sciences and Centers for Disease Control reports suggest, a regime in which pretty much all law-abiding citizens can get licenses to carry concealed guns has not been shown to cause any increase in net crime or death.[323]

This having been said, I must acknowledge that my guesses about the degree to which such laws block lawful and effective self-defense, and the degree to which they prevent criminal attacks, are indeed just guesses. I've read a lot of criminological work on guns, and I designed and four times taught a seminar on firearms regulation policy, which mostly focused on the criminological data. But given the lack of empirical data, an educated guess is all I see available in this field.

My inclination in such situations is to defer to the constitutional judgment embodied in the right to bear (not just to keep) arms, and more broadly to a presumption that people should be free to have the tools they need for self-defense until there is solid evidence that possession of those tools will indeed cause serious harm. And, as I noted above, many courts have taken the same view by holding that there is a constitutional right to openly carry weapons; Heller's discussion of the phrase "keep and bear" points in the same direction. Still, I expect that this will be a major area of debate in courts in the coming years.

***1521** 2. Bans on Concealed Carry, Revisited

To be sure, any discussion of open carry rights has a certain air of unreality. In many places, carrying openly is likely to frighten many people, and to lead to social ostracism as well as confrontations with the police.[324] Most people are aware that many neighbors own guns, and even that many people are licensed to carry concealed guns and many others carry them illegally,[325] but this abstract knowledge doesn't cause much worry. But when a gun is visible, it occupies people's attention in a way that statistical realities do not. This is likely to deter many people from carrying a gun.[326]

There is indeed an "open carry movement" of people who deliberately wear guns openly, as a means of trying to normalize such behavior and of making a statement in favor of gun possession.[327] But this is like people who wear T-shirts that say "I had an abortion."[328] A few people choose to disclose such facts to make a political point. Yet most people are reluctant to make such disclosures, and would be reluctant to engage in the underlying behavior if they had to publicly disclose it.

And the Court has recognized that requirements of disclosure to the government may substantially burden constitutional rights when they trigger ***1522** social pressure that deters constitutionally protected behavior. For instance, the right to anonymous speech and anonymous group membership stems largely from concerns that mandated identification of speakers will lead to a risk of ostracism and police harassment, and will thus deter speech.[329] Likewise, banning concealed carry in public places, coupled with the social pressures against open carry, will likely deter many people from carrying guns in public places altogether--and will thus substantially burden their ability to defend themselves.

What's more, the historical hostility to concealed carry strikes me as inapt today. The classic argument was captured well by the Richmond, Virginia Grand Jury in 1820:

> On Wearing Concealed Arms
>
> We, the Grand Jury for the city of Richmond, at August Court, 1820, do not believe it to be inconsistent with our duty to animadvert upon any practice which, in our opinion, may be attended with consequences dangerous to the peace and good order of society. We have observed, with regret, the very numerous instances of stabbing, which have of late years occurred, and which have been owing in most cases to the practice which has so frequently prevailed, of wearing dirks: Armed in secret, and emboldened by the possession of these deadly weapons, how frequently have disputes been carried to fatal extremities, which might otherwise have been either amicably adjusted, or attended with no serious consequences to the parties engaged.
>
> The Grand Jury would not recommend any legislative interference with what they conceive to be one of the most essential privileges of freemen, the right of carrying arms: But we feel it our duty publicly to express our abhorrence of a practice which it becomes all good citizens to frown upon with contempt, and to endeavor to suppress. We consider the practice of carrying arms secreted, in cases where no personal attack can reasonably be apprehended, to be infinitely more reprehensible than even the act of stabbing, if committed during a sudden affray, in the heat of passion, where the party was not previously armed for the purpose.
>
> We conceive that it manifests a hostile, and, if the expression may be allowed, a piratical disposition against the human race--that it is ***1523** derogatory from that open, manly, and chivalrous character, which it should be the pride of our countrymen to maintain unimpaired--and that its fatal effects have been too

> frequently felt and deplored, not to require the serious animadversions of the community. Unanimously adopted.
>
> JAMES BROWN, Foreman. [330]

Carrying arms, the theory went, was "one of the most essential privileges of freemen," but "open, manly, and chivalrous" people wore their guns openly, "for all the honest world to feel." [331] Carrying a gun secretly was the mark of "evil-disposed men who seek an advantage over their antagonists." [332] And requiring that people carry openly imposed no burden on self-defense, precisely because open carry was so common that it wasn't stigmatized.

Today, open carrying is uncommon, and many law-abiding people naturally prefer to carry concealed (in the many states where it is legal). Concealed carrying is no longer probative of criminal intent. If anything, concealed carrying is probably more respectful to one's neighbors, many of whom are (sensibly or not) made uncomfortable by the visible presence of a deadly weapon. Nor is there any particular reason to think that concealed carrying increases lethal quarrels by suckering people into thinking that they can safely argue with a person who they think is unarmed. We should be aware now that strangers might well be armed, whether lawfully or not. And the very people who are most likely to turn an argument into a gunfight--for example, gang members--are probably especially unlikely to comply with an open-carry-or-no-carry mandate.

So it seems unlikely that there's a credible danger reduction case to be made for mandating that carrying be done openly rather than concealed--except insofar as one argues that all carrying is dangerous, and that mandating open carry is good precisely because it will deter carrying even by the law-abiding. Yet that is an argument that the right to bear arms in self-defense should foreclose. If my analysis in the previous section is correct, and a right to bear arms generally includes the right to carry, then it ought to include the right to carry concealed.

I must acknowledge, though, that longstanding American tradition is contrary to this functional view that I outline. For over 150 years, the right to bear arms has generally been seen as limited in its scope to exclude concealed carry. Constitutional provisions enacted after this consensus emerged ***1524** were likely enacted in reliance on that understanding. If Heller is correct to read the Second Amendment in light of post-enactment tradition and not just Founding-era original meaning, this exclusion of concealed carry would be part of the Second Amendment's scope as well. [333] And if the Second Amendment is incorporated via the Fourteenth Amendment, its scope as against the states might well be properly defined with an eye towards how the right to bear arms was understood in 1868, [334] when the concealed-carry exception was apparently firmly established.

There is a response to be made against this scope argument: The historical exclusion, the response would go, was contingent on the social conventions of the time--the social legitimacy of open carry, and the sense that concealed carry was the behavior of criminals--and this exclusion is no longer sustainable now that the conventions are different. [335] If this response is persuasive, then for the reasons I argue above a ban on concealed carry should indeed be seen as a presumptively unconstitutional substantial burden on self-defense. But overcoming the scope objection would be an uphill battle, as Heller itself suggests.

3. Bans on Carry Into Places Where Alcohol Is Served or Sold

Many states ban carrying weapons into places where alcohol is served or sold. [336] This generally includes restaurants and sometimes even convenience stores, and not just bars. [337]

***1525** It also strips people of the ability to have a gun present for self-defense not just at the restaurant, store, or bar, but also on the way to and from their cars (or their homes, for those who walk or take public transportation). A gun might be comparatively unnecessary for people who want to go into a restaurant, because a rape or an assault inside the establishment might be relatively unlikely. But an attack outside the restaurant, on the way to the car, may be much more likely, especially if the restaurant has no parking lot of its own, or if the jurisdiction bars firearms even from alcohol licensees' parking lots;[338] the tools for self-defense are therefore more necessary on the way from the restaurant to the car. And given that there's no sign that restaurants, bars, and convenience stores are likely to set up some sort of gun check or locker system, a ban on gun carrying in such places is likely to disarm the law-abiding on their ways to and from these places as well as inside them.

So the burden here seems fairly substantial: To remain able to defend oneself, one has to avoid not just bars but a wide range of restaurants and stores. It's much less substantial than the burden imposed by laws that prohibit all carrying in public places, because it applies to many fewer places. But in and on their way immediately to and from those places, law-abiding citizens are stripped of the ability to bear arms in self-defense.

So the question is again whether the law might still be justified on the theory that it reduces danger. But here any such judgment is even more speculative than it usually is. I'm pretty sure that there's no good data on (1) the number of gun crimes that happen within places that serve alcohol, (2) the number of such gun crimes that are committed by people who are likely to comply with gun control laws, (3) the number of accidental gun injuries in such places, (4) the number of defensive gun uses that happen inside such establishments, or on the way from the establishment to a parking place, in those jurisdictions that allow the carrying of guns in such establishments, or (5) comparative crime rates in states that do and don't allow such carrying, controlling for various possible confounding factors.

We can guess that guns are more likely to be abused by drunk people, but not how often. We can guess that some of this abuse will be by people who would comply with gun control laws when sober, and thus not carry the gun into the bar--though we can also guess that much will be by people who ***1526** wouldn't comply with gun control laws at all. We can guess that guns will sometimes be needed for lawful self-defense on the way to and from such places, and possibly even in such places, but again not how often. It really is all guesswork when it comes to the danger reduction argument, especially as to this less studied sort of restriction.

4. Bans on Carry Into Places With Effective Security Screening and Internal Security, Such as Airports and Courthouses

In a few places, there is pretty thorough protection, through a combination of effective security screening using metal detectors, a substantial law enforcement presence, and the presence of many law-abiding citizens who would witness any crime. This is why violent crime inside airport security cordons, and inside courthouses that screen for weapons, seems to be rare (though of course not unheard of, especially since some extremely violent and determined criminals could steal weapons from police officers and marshals).[339]

In such places, a ban on civilian weapons seems likely to be a modest burden on lawful self-defense, perhaps low enough to fall below the constitutional threshold.[340] Most supposed "gun-free zones" are zones in which guns are outlawed but in which criminals still find it easy to have them. But the post-security-screening areas of courthouses and airports may indeed be nearly gun-free zones (as far as civilian possession is concerned),[341] and largely crime-free zones.

This having been said, I should note that the problem raised in the previous subsection--that banning guns in a place also prevents people from having guns available on their way to and from the place--is present here, too. Given this, the "insubstantial burden" argument should only apply to those courthouses and airports that provide lockers for gun storage. If such lockers aren't provided, the justification for gun possession restriction would have to flow from the "government as proprietor" argument (discussed below) or from a danger reduction argument.

*1527 5. Bans on Carrying in Other Privately Owned Places

Some jurisdictions ban, and sometimes have long banned, carrying guns into certain kinds of places, such as schools (including private schools), churches, polling places, and the like. [342] Heller similarly, though rather cryptically, endorsed "laws forbidding the carrying of firearms in sensitive places such as schools and government buildings." [343] Heller didn't discuss whether this would be limited to public schools and government buildings, in which case the law might be justified by the government's power as proprietor (discussed two subsections below). But the general reference to schools (which on its face includes private schools), and the description of places as "sensitive" rather than just government-owned, at least leaves open the possibility that Heller is endorsing such prohibitions on carrying into "sensitive" privately owned buildings.

These laws substantially burden self-defense. While violent crime against adults on private school and church property is fairly rare, it is not unheard of, especially once one includes open spaces such as parking lots. [344] The question must be whether the carry bans might nonetheless be justified because of (1) the historical exclusion of certain places from the right to bear arms, or (2) some sufficient evidence that the prohibition on gun carrying in those places will considerably reduce the aggregate danger of crime and injury (taking into account the decline in lawful self-defense opportunities). It seems to me that future research should focus on those questions, rather than dismissing the burden on the right to bear arms as immaterial, or just assuming that the language in Heller gives the government carte blanche to ban guns in schools, government buildings, or other places.

*1528 6. Bans on Carrying Within One Thousand Feet of a School

The federal Gun-Free School Zones Act bans gun possession, except on private property, within one thousand feet of any school. [345] The Act exempts possession by those with a state gun license, [346] but many states allow unlicensed open carry, [347] Alaska and Vermont allow unlicensed concealed carry, [348] many states don't give someone an option to get a gun possession license, and many more don't allow 18-to-20-year-olds to get concealed carry licenses. [349] In these states, gun carrying on public streets and sidewalks within one thousand feet of a school is effectively barred by federal law. [350]

California and Wisconsin laws likewise prohibit open carrying within one thousand feet of a school, even when the gun is unloaded. [351] (Outside those zones, California law generally allows unloaded open carry, [352] and Wisconsin *1529 law generally allows even loaded open carry. [353]) Louisiana law in effect prohibits carrying by 18-to-20-year-olds within one thousand feet of a school or university, except in a car, and provides that "[l]ack of knowledge that the prohibited act occurred . . . within one thousand feet of school property shall not be a defense." [354] In Aurora (Illinois), carrying of firearms, stun guns, and even pepper spray is banned within one thousand feet of a school or university. [355]

These school zone statutes substantially burden people's ability to defend themselves. Many people live and work within one thousand feet of schools, and may need to defend themselves in that area even if they never set foot on school property. I know of no longstanding tradition of treating several blocks around a school as a "sensitive place[]" in which people are stripped of their right to keep and bear arms in self-defense, including at night when self-defense is most necessary and school is not even in session. And if a reducing danger argument is inadequate to justify gun bans on public streets generally (see Part II.C.1), it's hard to see how it would be adequate to justify gun bans on public streets within several blocks of a school.

7. Bans on All Gun Possession on Government Property (Setting Aside Streets and Sidewalks)

Some government-run housing projects impose lease conditions barring tenants from possessing any guns in their apartments.[356] Illinois allows firearms ***1530** in public housing, but bans stun guns.[357] Aurora (Illinois) bans possession in public housing of firearms, stun guns, and even pepper spray.[358] Louisiana and Lincoln (Nebraska) domestic violence shelters ban both guns and stun guns.[359] Guns are also banned on other government property,[360] including places where the risk of crime may be quite substantial, such as government-owned parks (both city parks and national parks).[361] How much extra power should the government's role as proprietor give it in such situations?[362]

I don't know what the right answer is, but I can point to two wrong or at least incomplete answers. The first comes from a court that used a danger reduction rationale to uphold a ban on gun possession in public housing projects:

> While the right to possess arms is acknowledged within the Michigan Constitution, this right is subject to limitation. Jurisprudence in this state has consistently maintained the right to keep and bear arms is not absolute. This Court has determined that "the constitutionally guaranteed right to bear arms is subject to a reasonable exercise of the police power." The state has a legitimate interest in limiting access to weapons.
>
> ***1531** It is recognized that public housing authorities have a legitimate interest in maintaining a safe environment for their tenants. Infringements on legitimate rights of tenants can be justified by regulations imposed to serve compelling state interests which cannot be achieved through less restrictive means. Restrictions on the right to possess weapons in the environment and circumstances described by plaintiff are both in furtherance of a legitimate interest to protect its residents and a reasonable exercise of police power. This is particularly true given defendant's failure to make any allegation she feels physically threatened or in danger as a resident of plaintiff's complex necessitating her possession of a weapon to defend herself.[363]

This can't be a sound argument, because it doesn't explain why public housing projects are any different from private housing, where the right to keep and bear arms is indeed protected under the Michigan Constitution.[364] After all, the right to bear arms is constitutionally protected even though the government has a legitimate interest in "maintaining a safe environment" for everyone, and there are few "environment[s] and circumstances" in which guns lose their dangerousness.[365]

***1532** The second wrong (or at least incomplete) approach comes from the Oregon Attorney General's opinion that a ban on gun possession in public housing would be unconstitutional:

> It is well settled that the government may not condition entitlement to public benefits, whether gratuitous or not, upon the waiver of constitutional rights that the government could not abridge by direct action. The United States Supreme Court has repeatedly upheld that principle under the United States Constitution. . . .
>
> . . . Although the Oregon Supreme Court has not ruled on the issue directly, from [various state court] authorities we believe that, if faced squarely with the question, the court would hold that this "unconstitutional condition" principle applies under the Oregon Constitution. . . .
>
> Eligibility for low-income housing provided by a housing authority plainly is a public benefit or privilege. Subject to certain federal limitations, a housing authority lawfully may condition eligibility for low-income

> housing on satisfaction of income criteria and other factors designed to ensure that only responsible tenants reside in that housing. However, we conclude that a housing authority may not require an otherwise-eligible individual to surrender rights under article I, section 27 in order to obtain low-income housing. [366]

The problem here is that, though all the cases cited by the Oregon Attorney General indeed rejected government demands that someone waive a constitutional right to get a benefit, many other cases uphold such demands. [367] A plea bargain may be conditioned on a waiver of the right to trial. Welfare benefits, or membership on a high school sports team, may be conditioned on a waiver of some parts of the recipient's rights to be free from searches without probable cause. [368] A government paycheck may be conditioned on a promise not to reveal certain things the employee learns in confidence. [369]

More broadly, the government may sometimes refuse to allow the exercise of constitutional rights on its property, especially setting aside traditionally open places such as parks and sidewalks. It could, for instance, insist that abortions not be performed in government-owned hospitals. [370] It could bar a wide range of speech in government buildings. [371]

*1533 Public housing might be treated specially, because it is a home as well as a government building, [372] or because it is the sort of government benefit that is unusually important to those who use it. This has been the view of cases striking down at least certain kinds of speech restrictions [373] and search and seizure policies in public housing. [374] But still, while the Oregon Attorney General probably reached the right result in concluding that public housing authorities can't require their tenants to surrender the right to bear arms, the unconstitutional conditions analysis in that opinion too categorically rejects the government-as-landlord claim, just as the Michigan opinion quoted above too categorically rejects the constitutional right claim.

It's not clear to me how other public property should be treated: Should the government be allowed to ban guns on government-owned recreational land, whether a city park or a national park, either by insisting that people who want to use the land must waive their right to bear arms, or by otherwise concluding that there is no right to bear arms in such places? [375] As a condition of going onto a public university campus, which might have a considerable amount of open space and parking areas where crime is not uncommon? [376] In public university dorm rooms, where one state attorney general's opinion suggests gun possession is constitutionally protected? [377] As a condition of going onto a public primary or secondary school campus, or into a government office building, especially when this requires walking unarmed through a potentially dangerous parking structure? Courts need to work out a government-as-proprietor doctrine for the right to bear arms much as they have done for the freedom of speech.

*1534 D. "How" Restrictions: Rules on How Guns Are to Be Stored

1. Requirements That Guns Be Stored Locked or Unloaded

The D.C. gun ban required that even long guns be stored locked and unloaded. [378] Other states require that all guns be stored locked if minors under a certain age (often sixteen) can access them. [379]

Such laws substantially burden self-defense. Even if the gun can be unlocked in several seconds (something such laws generally allow [380]), a defender might not have those seconds. [381]

The laws are aimed at danger reduction, especially to children. And it is plausible that the storage requirements will prevent some suicides, accidents, or even crimes by children. [382] But it is also plausible that they will prevent life-saving

defensive actions by adults, including defensive actions that save the very children whom the law is trying to protect. The empirical evidence is unsettled. [383]

So it's hard to see how one can definitively either say that the substantial burden is justified by the danger that the laws reduce, or dismiss, the possibility that the laws will indeed materially reduce aggregate crime and injury. As in the other examples, much depends on what kind of showing of danger reduction--empirical proof, mere plausibility, or something in *1535 between [384]--is treated as sufficient justification, if substantial burdens can indeed be justified by a danger reduction argument.

E. "When" Restrictions: Rules on Temporarily Barring People From Possessing Guns

1. Restrictions on Possession While Intoxicated

Many states bar possession of a firearm while intoxicated. Now a drunk man may need self-defense as much as the rest of us, and perhaps even more. [385] But he is also especially likely to endanger innocent people--whether bystanders or people whom he mistakenly identifies as threatening him--and he is especially unlikely to successfully defend himself. [386] And to the extent that the scope of the right to bear arms has historically excluded the mentally infirm, there seems to be little reason to treat those who are briefly mentally infirm as a result of intoxication differently from those who are permanently mentally infirm as a result of illness or retardation. [387]

A difficulty would arise if the law covered not just gun handling or carrying, but gun possession in the home while the homeowner is home and intoxicated. If every gun owner becomes a felon when he drinks too much at home, or must somehow find a friend who will soberly store the gun elsewhere on such occasions, [388] then millions of people will be felons. [389]

*1536 It's not entirely clear how this problem fits with the constitutional framework outlined above. My inclination is to say that while there may be a strong enough tradition of treating the mentally infirm as too unreliable to possess guns, and the tradition might extend to treating the temporarily mentally infirm as similarly too unreliable, the tradition likely doesn't extend to a usually sober person's possession of a gun in his home while he's drunk. I would also think that requiring gun owners to refrain from normally accepted social drinking practices, to do all their serious drinking outside the home, or to temporarily move their guns outside their homes on party nights creates a substantial burden. But at the same time people can avoid or sharply decrease this burden by entirely or largely refraining from a behavior that, while legal and socially acceptable, is hardly necessary or praiseworthy; perhaps that should affect our judgment about the burden's substantiality.

Fortunately we can largely avoid this issue, at least for now, since nearly all the statutes on the subject cover only "carry[ing]" or "personal possession." [390] The one exception that I've seen, the Missouri statute stating that a person is guilty of a crime if he knowingly "[p]ossesses or discharges a firearm or projectile weapon while intoxicated," [391] is likely just inartfully drafted: Though accompanying statutes use "possesses" broadly, likely broadly enough to include storing inside one's home, [392] this statute is labeled "Unlawful use of weapons," and generally covers discharging, carrying, or brandishing a weapon (or setting a spring gun). I expect that Missouri courts would therefore narrowly interpret "possesses" in this statute, as covering only having on one's person and not simply having a gun stored somewhere in the home.

2. Restrictions on, or Sentence Enhancements for, Possessing Firearms While Possessing Drugs or Committing Another Crime

Many states ban possession of guns while possessing drugs or committing a crime. If read broadly, these could be seen as "when" restrictions, prohibiting all gun possession during the commission of a crime.

***1537** The right to keep and bear arms in lawful self-defense doesn't include the right to use those arms in a crime.[393] And this would include using the guns in ways short of firing or even brandishing them (for instance, by carrying them in case one wants to fire or brandish them, which might well embolden the criminal and deter others who know that this criminal is armed).

On the other extreme, keeping a gun for self-defense in a way that's unconnected to the crime should generally be seen as the exercise of one's constitutional right[394]--consider, for instance, a person who possesses a gun for home defense while engaged in consensual sex with someone under the age of consent, or while committing a fraud at work.

One can hypothesize ways in which even this sort of gun possession could help one commit a crime, for instance to resist arrest in the event that one is caught, or to threaten witnesses or coconspirators should such a threat be necessary. But so long as such possible misuse of a gun is entirely speculative, and not part of either the defendant's behavior during the crime or clearly planned future behavior, those hypotheses shouldn't suffice to turn constitutionally protected behavior into criminal behavior. And the exercise of constitutionally protected rights in ways that are unconnected with criminal conduct generally can't be used to enhance the sentence for such criminal conduct.[395]

This in fact is how many courts have analyzed this, in the "nexus" line of cases: When a gun is not possessed on the person, gun possession can only be treated as criminal or used to enhance a sentence if there is an adequate connection between the possession and the crime.[396] In particular, "mere proximity or mere constructive possession is insufficient to establish that a defendant was armed at the time the crime was committed": "[T]he weapon must be easily accessible and readily available for use," "whether to facilitate the commission of the crime, escape from the scene of the crime, protect ***1538** contraband or the like, or prevent investigation, discovery, or apprehension by the police."[397] This test is far from perfectly clear, and needs more scholarly attention. But it seems like a reasonable first cut aimed at making sure that criminals are punished for their criminal behavior, and not for their constitutionally protected behavior.

3. Waiting Periods

Some jurisdictions require a "cooling-off" period before a gun may be delivered to the purchaser.[398] Others apply this only to handguns.[399] The rationale for such laws is to prevent impulsive killings or suicides by people who are angry or despondent and who might calm down after a few days.

It's hard to see how handgun-only cooling-off periods will materially reduce danger of impulsive crime or injury. It's as easy to commit suicide with a shotgun as with a handgun,[400] and for a crime of passion a shotgun will often be equally effective, too. Though long guns are not as concealable as handguns, and are thus worse for daily carrying or for inconspicuously possessing while waiting for passersby to rob, they can be quite sufficient for a crime of passion, for which they can be concealed briefly under a coat or in a bag. All-gun waiting periods might in principle be effective, if the buyer is an otherwise law-abiding citizen who wouldn't just turn to the black market instead. But even that has not been proven; as with so many "danger reduction" arguments, the social science evidence on the effectiveness of cooling-off periods is inconclusive.[401]

Other states delay people's ability to receive a gun, or to get a license that's required to receive or possess a gun, in order to give the police time to ***1539** perform a more thorough background check. The times on this vary dramatically--two days in Wisconsin (only for handguns), up to thirty days in Massachusetts (for all firearms), and up to six months in New

York (only for handguns).[402] The federal background check is generally instant, but can take several days to complete if someone with the same name as the applicant is on the prohibited list.[403] Are these waiting periods substantial burdens on self-defense?[404]

In one way, they are: A person covered by the waiting period is entirely unable to defend himself for days, weeks, or (in New York) months. An attack that requires self-defense can happen during the waiting period just as easily as it can happen during other times.

Moreover, in some situations, the attack may be especially likely during the waiting period: A person's attempt to buy a gun may be prompted by a specific threat, one that could turn into an actual attack in a matter of days or hours. If a woman leaves an abusive husband or boyfriend, who threatens to kill her for leaving, she may need a gun right away[405] and not ten days or six months later.

On the other hand, being disarmed for 0.1 percent of one's remaining life[406] is less of a burden than being disarmed altogether. And waiting periods have been found to be constitutionally permissible as to other rights. The Supreme Court has upheld--over heated dissent--a 24-hour waiting period for abortions, justified by a cooling-off rationale.[407] A short-lived Ninth Circuit decision that recognized a right to assisted suicide said that "reasonable, though ***1540** short, waiting periods to prevent rash decisions" would be constitutional,[408] and the Oregon assisted suicide statute indeed provides a 15-day waiting period.[409]

Likewise, a waiting period is often required for sterilization,[410] though there might well be a constitutional right to undergo sterilization as part of one's right to control one's procreation.[411] In many states it takes from one to five days to get a marriage license,[412] though I know of no cases considering whether this violates the right to marry.[413]

The Supreme Court has also held that a state may require people to register to vote fifty days before the election,[414] for much the same investigatory reasons that are offered for some background-check-based waiting periods. Cities are generally allowed to require that demonstration and parade permit applications be filed some days in advance.

On the other hand, there are substantial limits on how long a waiting period can be, and on when such waiting periods may be imposed. Lower courts have suggested the upper bound for demonstration and parade permits might be three or four days.[415] Forty-eight-hour waiting periods for abortions have been found to pose "substantial burdens," even though Casey upheld a twenty-four-hour waiting period.[416] Even where prisoners and military members are involved--a context where the government generally has very broad ***1541** authority--lower courts have struck down six-month and one-year waiting periods before a soldier or an inmate may marry.[417]

And lower courts have also suggested that even if some substantial advance notice may normally be required for demonstration permits, there has to be a special exception for spontaneous expression occasioned by breaking events.[418] Likewise, there has to be a special exception to abortion waiting periods for medical emergencies.[419] This would suggest that a similar exception might have to be required for handgun permits when the applicant can point to a specific, recently occurring threat--such as the applicant's leaving an abusive boyfriend who threatened to kill her if she left.[420]

These other constitutional rights are not perfect analogies. A three-day delay in voting, marrying, or demonstrating won't leave you unprotected against a deadly attack. Conversely, erroneously authorizing someone to vote when he's a convicted felon is less likely to cause serious harm than erroneously authorizing that same person to buy a gun. Nonetheless, this catalog of decisions at least suggests that (1) waiting periods on the exercise of constitutional ***1542**

rights need not always be seen as unconstitutional, and (2) courts are and should be willing to decide which waiting periods are excessive.

F. Taxes, Fees, and Other Expenses

Taxes on guns and ammunition, or gun controls that raise the price of guns and ammunition, or bans on inexpensive firearms would be substantial burdens if they materially raised the cost of armed self-defense. (The $600 tax discussed by Cook, Ludwig & Samaha,[421] justified by an assertion that "keeping a handgun in the home is associated with at least $600 per year in externalities," is one example; a proposed Illinois requirement that gun owners be required to buy a $1 million insurance policy is another.[422]) "The poorly financed [self-defense] of little people," like their "poorly financed causes,"[423] deserves constitutional protection as much as the self-defense of those who can afford technologically sophisticated new devices or high new taxes. This is true whether the tax or expensive control is imposed on gun owners directly, or on gun sellers or manufacturers, just as a restriction on abortion can be a substantial burden even if it's imposed on doctors and not on the women who are getting the abortions.[424]

High gun taxes should remain presumptively impermissible even if they are based on some (doubtless controversially calculated) estimate of the public ***1543** costs imposed by the average handgun: Such an average--like the cost of an insurance policy--takes into account both the very low cost stemming from guns that are always properly used by their owners, and the very high cost stemming from guns that are used in crime. The law-abiding owners thus are not just being required to "internalize the full social costs of their choices,"[425] even if you take into account as a "cost" the possibility that any gun will be stolen by a criminal. They are also being required to internalize the social costs of choices made by criminal users of other guns--much as if, for instance, all speakers were charged a tax that would be used to compensate those libeled by a small subset of speakers, or were required to buy a $1 million libel insurance policy before speaking.

Nonetheless, some modest taxes might not amount to substantial burdens, as a review of taxes and fees on other constitutional rights illustrates. Taxes based on the content of speech are unconstitutional, regardless of their magnitude.[426] But this is a special case of the principle that discrimination based on certain kinds of characteristics--race, sex, religiosity, or the content or viewpoint of speech--is unconstitutional. Setting aside these special areas of constitutionally forbidden discrimination, and setting aside poll taxes, which were constitutional until the Twenty-Fourth Amendment forbade them, other kinds of taxes, fees, and indirect costs imposed on the exercise of constitutional rights are often permissible.

The government may require modest content-neutral fees for demonstration permits or charitable fundraising permits, at least if the fees are tailored to defraying the costs of administering constitutionally permissible regulatory regimes.[427] The same is true for marriage license fees[428] and filing fees for political candidates (though the Court has held that the right to run for office is in some measure protected by the First Amendment).[429] The same is doubtlessly true of costs involved in getting permits to build on your own property, a right protected by the Takings Clause.[430]

***1544** Likewise, regulations of the right to abortion are not rendered unconstitutional simply because they increase the cost of an abortion. The Court so held when upholding a 24-hour waiting period even though it required some women in states with very few abortion providers to stay in a hotel overnight or miss a day of work,[431] and when upholding viability testing requirements that might have marginally increased the cost of an abortion.[432] So long as the extra costs don't amount to "substantial obstacle[s]" to a woman's getting an abortion, they are constitutional.[433]

At the same time, when a cost is high enough to impose a substantial obstacle to the exercise of a right for a considerable number of people,[434] it is unconstitutional. This is likely also true when a cost goes materially beyond the cost of administering the otherwise permissible regulatory scheme.[435] And if a law substantially burdens rightholders who are relatively poor, an exemption would likely be constitutionally required.[436]

I acknowledge that any such regime necessarily creates linedrawing problems and poses the danger that a genuinely substantial burden will be missed by judges who are deciding how much is too much. But, first, there is ample precedent for such tolerance for modest fees in other constitutional rights contexts, and it thus seems neither likely nor normatively appealing for the courts to conclude that the right to bear arms is more protected than these other rights. Second, the caselaw from those other areas can provide guideposts for the linedrawing process. And third, the caselaw from those other areas (as well as the general logic of the substantial burden threshold) supports a constitutional requirement that poor applicants be exempted from fees--say, fees that dramatically increase the cost of a new gun, or that are required for periodic reregistration of an old gun--that are substantial for them even if relatively minor for others.

***1545 G. Restrictions on Sellers**

The right to keep and bear arms in self-defense protects those who would use the arms in self-defense, not those who would sell such arms. Similarly, the right to an abortion protects those women who want abortions, not abortion providers. The freedom of speech protects speakers and listeners, not sellers of the paper or computer hardware that make certain kinds of speech possible.[437]

Restrictions on the sales transactions that enable the exercise of these constitutional rights should be evaluated based on whether they impose a substantial burden on the exercise of the protected right.[438] A ban on gun sales, or a heavy tax on such sales, would be unconstitutional,[439] just as a ban on engaging in the business of providing abortions would be, because it would make it much harder for would-be gun owners to get guns. But laws allowing gun sales only by particular kinds of sellers or in particular places would not be unconstitutional unless they actually make guns substantially costlier or harder to get.

H. "Who Knows" Restrictions: Government Tracking Regulations, Including Nondiscretionary Licensing, Background Checks, Registration, and Ballistics Tracking Databases

Governments impose various tracking regulations on arms possession or carrying--nondiscretionary licensing regimes (either for possession or carrying),[440] instant background checks, registration requirements,[441] serial number ***1546** requirements,[442] requirements that guns be test-fired and the marks they leave on bullets recorded,[443] or requirements that all new semiautomatic guns must "microstamp" the ejected brass with the gun's serial number.[444] If the regulations contain some restrictions, such as waiting periods, fees, or denials of licenses to certain people (either as a class or in government officials' discretion[445]), those might be substantial burdens. But the tracking regulation itself is not much of a burden on self-defense; a person is just as free to defend himself with a registered gun as he would be if the gun were unregistered.[446]

In one high-profile area of constitutional law, such requirements are indeed forbidden: Most speakers don't need to get licenses, or register their speech, or submit their typewriters for testing so that their anonymous works can be tracked back to them. Likewise, tracking requirements for abortions would likely be unconstitutional.[447]

*1547 But this is not the normal rule for constitutional rights. Even speakers may sometimes need to register or get licensed. Parade organizers may be required to get permits.[448] Gatherers of initiative signatures may be required to register with the government,[449] and so may fundraisers for charitable causes, though such fundraising is constitutionally protected.[450] People who contribute more than a certain amount of money to a candidate may be required to disclose their identities to the candidate, who must in turn disclose those identities to the government;[451] lower courts have held the same as to people who contribute to committees that support or oppose ballot measures.[452] The contribution disclosure requirements have been judged (and upheld) under a moderately strong form of heightened scrutiny; the other disclosure requirements have been upheld under lower level of scrutiny.

Likewise, the Constitution has been interpreted to secure a right to marry, but the government may require that people get a marriage license. The Takings Clause bars the government from requiring people to leave their land unimproved and thus valueless, but the government may require a building permit before improvements are made.

People have a right to vote, under all state constitutions and, in practice, under the federal Constitution, but they may be required to register to vote. Whom they voted for has been kept secret, at least for a hundred years, but whether they voted and what party they belong to is known to the government, and is often even a matter of public record. Many of these requirements are instituted to prevent crime (chiefly fraud) or injury (such as the injury stemming from unsafe construction).

This of course leaves the question of what the right to bear arms is most like: those rights for which government tracking can't be required, or those rights for which it can be. I'm inclined to think that it is more like the trackable rights, and that it is the untrackable rights that are the constitutional outlier.

The rule barring licensing requirements for many kinds of speakers is in large part historical, stemming from an era when such licenses were discretionary and used to control which viewpoints might be expressed. It persists largely because of a continuing concern that some viewpoints may be so unpopular with the government or the public that people who are known to convey *1548 those viewpoints will face retaliation.[453] Even so, some kinds of speakers may have to identify themselves to the government, when the speech poses serious concerns about fraud or corruption. The same worry about retaliation, coupled with a longstanding tradition of privacy of medical records, likely provides the cause for the no tracking rule for abortions.

Gun owners as a group have faced some hostility from the government and the public, but gun ownership is very common behavior, and there's safety in numbers: It seems unlikely that the government will retaliate against the tens of millions of gun owners in the country, who represent 35 to 45 percent of all American households. Gun carrying is both rarer and, if required to be done openly, more likely to viscerally worry observers.[454] But mere gun ownership, if disclosed to the government rather than to the public at large,[455] is not likely to yield a harsh government reaction, and registration requirements are thus unlikely to deter ownership by the law-abiding.

It's true that certain kinds of guns are rare and especially unpopular. But as I've argued above, the right to bear arms in self-defense should be understood as protecting a right to own some arms that amply provide for self-defense, not a right to own any particular brand or design of gun. (In this respect, it differs from the right to speak, which includes the right to convey the particular viewpoint one wishes to convey. Many kinds of arms are fungible for self-defense purposes in a way that viewpoints are not fungible for free speech purposes.)

It is not impossible that the government will want to go after gun owners, chiefly to confiscate their guns. This could happen if the government shifts to authoritarianism, and thus doesn't care about constitutional constraints and at the same time wants to seize guns in order to diminish the risk of violent resistance. Or it could happen if a future Supreme

Court concludes the individual right to bear arms is not constitutionally protected, and Congress enacts a comprehensive gun ban.[456]

*1549 Some have argued that the Free Speech Clause ought to be interpreted from a "pathological perspective," with an eye towards creating a doctrine that would serve free speech best even in those times when the public, the government, and the courts are most hostile to unpopular speakers.[457] Should the Second Amendment be interpreted the same way?

Here we may be getting to a topic that's outside the scope of this Article, because it requires us to think about whether the Second Amendment retains a deterrence-of-government-tyranny component as well as a self-defense component. I'm inclined to be skeptical of the ability of private gun ownership to constrain the government in truly pathological times. I'd like to think that an armed citizenry would provide a material barrier to such pathologies, but I doubt that this would in fact be so, especially given the size and power of modern national government. Nonetheless, figuring this out requires thinking through the deterrence-of-government-tyranny rationale, something I have not done for this Article.

For now, I'll leave things at this: The tracking requirements likely don't themselves impose a substantial burden on the right today. Such tracking requirements aren't generally unconstitutional as to other rights, though they are sometimes unconstitutional as to some rights. And the key question is the extent to which current doctrine should be crafted with an eye towards a future time when the doctrine or government practice may be very different than it is today.

Conclusion

Right-to-bear-arms controversies will likely arise especially often after District of Columbia v. Heller. It is possible that judges will respond to them simply by deciding intuitively what counts as a reasonable regulation, as state courts have often done with regard to state right-to-bear-arms controversies.

My hope, though, is that courts can do better, and decide the questions more reflectively--by looking closely at the scope of the right, at the burden the regulation imposes, at evidence on whether the regulation will actually reduce danger of crime and injury (and at the normative arguments about what sorts of evidence, if any, should suffice), and at any special role the government may be playing as proprietor. It's hard to predict what answers the courts will give, or to be confident that the answers will be the right ones. But at least it would be a good start for courts to ask the right questions.

Footnotes

a1 Gary T. Schwartz Professor of Law, UCLA School of Law (volokh @law.ucla.edu). Many thanks to Amy Atchison, Cheryl Kelly Fischer, John Frazer, Wesley Gorman, Gene Hoffman, June Kim, Michael O'Shea, Tammy Pettinato, Stephanie Plotin, Vicki Steiner, C.D. Tavares, Vladimir Volokh, and John Wilson for their help.

1 District of Columbia v. Heller, 128 S. Ct. 2783, 2799 (2008). It might also secure an individual right to keep and bear arms for other purposes as well, but that is a topic outside the scope of this Article.

2 Eugene Volokh, State Constitutional Rights to Keep and Bear Arms, 11 Tex. Rev. L. & Pol. 191, 192 (2006). The number will likely rise to at least forty-one in 2010, when Kansas voters consider recasting the Kansas rights to bear arms as a clearly individual-rights provision. See Kan. S. Con. Res. 1611, 2009 Sess. (Kan. 2009), available at http:// www.kslegislature.org/bills/2010/2009_1611.pdf (placed on the ballot by a 39-1 vote in the state senate and by a 116-9 vote in the state house). And the number might be increased by one more, to include Virginia, if one takes the view of a 2006 Virginia Attorney General's opinion, Va. Op. Att'y Gen. No. 05-078 (2006) (treating the Virginia Constitution's right to bear arms as individual). But cf. 1993 Va. Op. Att'y Gen. 13 (concluding that "judicial interpretation of the Second Amendment...applies equally to" the Virginia right to bear arms provision, and concluding, given the federal Second Amendment caselaw of the time, that this

meant that the Virginia right to bear arms was only a collective right). And it might rise by one more if Hawaii's right to bear arms is interpreted as an individual right, a matter that is not settled. See State v. Mendoza, 920 P.2d 357, 367 (Haw. 1996).

3 See, e.g., Sayoko Blodgett-Ford, The Changing Meaning of the Right to Bear Arms, 6 Const. L.J. 101, 172-73 (1995) (calling for strict scrutiny of state gun restrictions and intermediate scrutiny of federal gun restrictions); Brannon P. Denning & Glenn H. Reynolds, Telling Miller's Tale: A Reply to David Yassky, Law & Contemp. Probs., Spring 2002, at 113, 120 (suggesting that government regulation of machine guns may be constitutional if it "survive[s] strict scrutiny," and seemingly accepting strict scrutiny as the generally proper test for gun controls); Mark Tushnet, Permissible Gun Regulations After Heller: Some Speculations About Method and Outcomes, 56 UCLA L. Rev. 1425, 1426 (2009) (predicting that courts "will circle around a standard of review akin to either rational basis with bite or intermediate scrutiny, and that the Supreme Court...will use rational basis with relatively weak bite"); Gerard E. Faber, Jr., Casenote, Silveira v. Lockyer: The Ninth Circuit Ignores the Relevance and Importance of the Second Amendment in Post-September 11th America, 21 T.M. Cooley L. Rev. 75, 89 (2004) ("Had the court recognized an individual right to bear arms, the [California assault-weapon ban] would be subject to strict scrutiny, a far more demanding standard.").

4 Cf. Tushnet, supra note 3, at 1428-29 (implicitly assuming that courts will adopt a unitary test, and concluding that courts will opt for a deferential test rather than strict scrutiny, "because of concern that such a standard [strict scrutiny] imperils too many well-established...gun regulations" such as "[t]he ban on possession of guns by convicted felons").

5 See infra Part II.B.5.b.

6 See infra Part I.B.

7 See infra Part II.F.

8 See infra Part II.E.3.

9 See District of Columbia v. Heller, 128 S. Ct. 2783, 2801 (2008).

10 Del. Const. art. I, §20; Neb. Const. art. I, §1; Nev. Const. art. I, §11(1); N.M. Const. art. II, §6; N.D. Const. art. I, §1; W. Va. Const. art. III, §22; Wis. Const. art. I, §25.

11 Fla. Const. art. I, §8.

12 U.S. Const. amend. VII.

13 See Eugene Volokh, Symbolic Expression and the Original Meaning of the First Amendment, 97 Geo. L.J. 1057 (2009).

14 See, e.g., Rumsfeld v. Forum for Academic & Institutional Rights, Inc., 547 U.S. 47, 65-67 (2006).

15 Colo. Const. art. II, §13; Douglass v. Kelton, 610 P.2d 1067, 1069 (Colo. 1980); see also Watson v. Stone, 4 So. 2d 700, 701-03 (Fla. 1941) (concluding that then-existing provision that "the Legislature may prescribe the manner in which [arms] may be borne" allowed the legislature to require a license to carry a weapon in public); cf. State v. Grob, 690 P.2d 951, 953-54 (Idaho 1984) (applying a state constitutional clause authorizing the legislature to provide "minimum sentences for crimes committed while in possession of a firearm," and punish illegal "use of a firearm").

16 Conn. Const. art. I, §15.

17 See, e.g., Klein v. Leis, 795 N.E.2d 633 (Ohio 2003) (relying on an originalist argument about the Ohio Constitution's right-to-bear-arms provision, which had been reenacted in 1874); State v. Willis, 100 P.3d 1218 (Utah 2004) (same as to the Utah provision, enacted in 1984); King v. Wyo. Div. of Criminal Investigation, 89 P.3d 341, 351-52 (Wyo. 2004) (same as to the Wyoming provision, enacted in 1889).

18 See District of Columbia v. Clawans, 300 U.S. 617, 624 (1937); Felix Frankfurter & Thomas G. Corcoran, Petty Federal Offenses and the Constitutional Guaranty of Trial by Jury, 39 Harv. L. Rev. 917, 969-70 (1926).

19 Hamdi v. Rumsfeld, 542 U.S. 507 (2004); Johnson v. Eisentrager, 339 U.S. 763 (1950).

20 128 S. Ct. 2783, 2816-17 (2008).

21 See, e.g., Printz v. United States, 521 U.S. 898, 905-16 (1997); Marsh v. Chambers, 463 U.S. 783, 791-92 (1983).

22 Rutan v. Republican Party of Ill., 497 U.S. 62, 96 (1990) (Scalia, J., dissenting).

23 Id. at 95-96 (footnote omitted); see also Michael W. McConnell, Tradition and Constitutionalism Before the Constitution, 1998 U. Ill. L. Rev. 173 (defending a similar approach in which tradition has independent constitutional significance); Michael W. McConnell, The Right To Die and the Jurisprudence of Tradition, 1997 Utah L. Rev. 665, 682-85 (likewise).

24 Washington v. Glucksberg, 521 U.S. 702, 720-22 (1997); Medina v. California, 505 U.S. 437, 445-47 (1992).

25 See Hudgens v. NLRB, 424 U.S. 507 (1976). A few state courts take a different view under their state constitutions, but they are a small minority, see State v. Viglielmo, 95 P.3d 952, 963-64 (Haw. 2004) (discussing cases), and even those decisions apply only to a small set of private property (chiefly large shopping malls), see Golden Gateway Ctr. v. Golden Gateway Tenants Ass'n, 29 P.3d 797, 810 (Cal. 2001).

26 Caplin & Drysdale, Chartered v. United States, 491 U.S. 617, 626 (1989).

27 See, e.g., Winters v. Concentra Health Servs., Inc., No. CV075012082S, 2008 WL 803134, at *4 (Conn. Super. Ct. Mar. 5, 2008).

28 See, e.g., An Act to Protect the Owners of Firearms, Jan. 26, 1869 (noting in the preamble that the act is partly justified by concerns about constitutional rights), quoted in Matthew P. Deady & Lafayette Lane, The Organic and Other General Laws of Oregon 613 (Portland, E. Semple 1874) (codified as to the substance at Or. Rev. Stat. §18.362 (2007)).

29 See, e.g., New York Times Co. v. United States (Pentagon Papers Case), 403 U.S. 713 (1971); Brandenburg v. Ohio, 395 U.S. 444 (1969).

30 See, e.g., Caplin & Drysdale, 491 U.S. at 626.

31 See, e.g., State v. Barnes, 708 P.2d 414 (Wash. Ct. App. 1985).

32 See, e.g., Thornburgh v. Abbott, 490 U.S. 401 (1989).

33 See infra Part II.B.5.b.

34 United States v. Verdugo-Urquidez, 494 U.S. 259 (1990).

35 See, e.g., Johnson v. Eisentrager, 339 U.S. 763, 784 (1950) (arguing that it can't be the case that "during military occupation irreconcilable enemy elements, guerrilla fighters, and 'were-wolves' could require the American Judiciary to assure them freedoms of speech, press, and assembly as in the First Amendment, right to bear arms as in the Second, security against 'unreasonable' searches and seizures as in the Fourth, as well as rights to jury trial as in the Fifth and Sixth Amendments," since "[s]uch extraterritorial application of organic law would have been so significant an innovation in the practice of governments that, if intended or apprehended, it could scarcely have failed to excite contemporary comment").

36 Hamdi v. Rumsfeld, 542 U.S. 507 (2004).

37 U.S. Const. amend. II.

38 See infra note 428; see also Boy Scouts of Am. v. Dale, 530 U.S. 640, 683-84 (2000) (concluding that only a law that "serious[ly] burden[s]" or "significant[ly]" "affect[s]" or "substantial[ly] restrain[s]" a group's ability to express its views should be seen as violating the right of expressive association).

39 Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833, 885-87 (1992) (opinion of O'Connor, Kennedy, and Souter, JJ.). I don't agree with the claim in Tushnet, supra note 3, at 1436, that "[t]o the extent that one can extract something from the abortion cases, it is that the undue-burden standard might require rational basis with bite, intermediate scrutiny, or more likely something in between." Rather, I read Casey as saying that if the law imposes a substantial burden--an inquiry that focuses

on the magnitude of the burden, not the importance or legitimacy of the government interest--it is per se unconstitutional, and that if it doesn't impose a substantial burden (and isn't intended to impose a substantial burden), it is judged only under the rational basis test and is thus almost always constitutional.

40 See, e.g., Shepherd Montessori Ctr. Milan v. Ann Arbor Charter Twp., 746 N.W.2d 105, 106 (Mich. 2008). For an excellent treatment of substantial burden thresholds, see Alan Brownstein, How Rights Are Infringed: The Role of Undue Burden Analysis in Constitutional Doctrine, 45 Hastings L.J. 867 (1994).

41 Ward v. Rock Against Racism, 491 U.S. 781, 791 (1989).

42 See Eugene Volokh, Speech as Conduct: Generally Applicable Laws, Illegal Courses of Conduct, "Situation-Altering Utterances," and the Uncharted Zones, 90 Cornell L. Rev. 1277, 1305-10 (2005).

43 Id. at 1304-05.

44 See, e.g., Gertz v. Robert Welch, Inc., 418 U.S. 323, 340 (1974) (explaining the false statements of fact exception by reasoning that "there is no constitutional value in false statements of fact," because they do not "materially advance[] society's interest in 'uninhibited, robust, and wide-open' debate on public issues"); Paris Adult Theatre I v. Slaton, 413 U.S. 49 (1973) (doing likewise for the obscenity exception); Chaplinsky v. New Hampshire, 315 U.S. 568 (1942) (doing likewise for the fighting words exception); New York v. Ferber, 458 U.S. 747 (1982) (doing likewise for the child pornography exception).

45 Gertz, 418 U.S. at 340. Some of these First Amendment decisions may also be partly "scope" cases, for instance when they rely on assertions about the historical exclusion of obscenity from constitutional protection, see, e.g., Roth v. United States, 354 U.S. 476, 482-85 (1957), or danger reduction cases, see, e.g., Ferber, 458 U.S. at 749, 757. But much speech that can cause comparable harms remains protected, on the premise that it is valuable, that restricting it would therefore substantially burden public debate, and that the speech therefore must be protected despite the harm it might cause. See Eugene Volokh, Freedom of Speech, Permissible Tailoring and Transcending Strict Scrutiny, 144 U. Pa. L. Rev. 2417 (1996). It is largely the perceived lesser value of false statements, fighting words, and the like that makes the restrictions into lesser burdens on free-speech interests, and thus makes the restrictions constitutional.

46 District of Columbia v. Heller, 128 S. Ct. 2783, 2819-20 (2008).

47 Id. at 2820.

48 Id. at 2818.

49 Id. at 2818 (citations omitted).

50 The same is true of the reasoning in the decision affirmed in Heller, Parker v. District of Columbia, 478 F.3d 370, 400 (D.C. Cir. 2007). Parker reasoned:

The District contends that since it only bans one type of firearm, "residents still have access to hundreds more," and thus its prohibition does not implicate the Second Amendment because it does not threaten total disarmament. We think that argument frivolous. It could be similarly contended that all firearms may be banned so long as sabers were permitted. Once it is determined--as we have done--that handguns are "Arms" referred to in the Second Amendment, it is not open to the District to ban them. See [State v. Kerner, 107 S.E. 222, 225 (N.C. 1921)] ("To exclude all pistols...is not a regulation, but a prohibition, of...'arms' which the people are entitled to bear."). Indeed, the pistol is the most preferred firearm in the nation to "keep" and use for protection of one's home and family.

51 See City of Ladue v. Gilleo, 512 U.S. 43, 55 (1994); see also Capitol Square Review & Advisory Bd. v. Pinette, 515 U.S. 753, 803 (1995) (Stevens, J., dissenting).

52 See United States v. Marzzarella, 595 F. Supp. 2d 596, 599 (W.D. Pa. 2009) (concluding, in my view correctly, that such a ban "imposes a burden on gun ownership that is practically negligible when compared to the District of Columbia's complete ban on operable firearms within the home").

53 Gilleo, 512 U.S. at 55;Frisby v. Schultz, 487 U.S. 474 (1988).

54 Gilleo, 512 U.S. at 55;id. at 55 n.13 (quoting Geoffrey Stone, Content-Neutral Restrictions, 54 U. Chi. L. Rev. 46, 57 (1987)).

55 See, e.g., Mosher v. City of Dayton, 358 N.E.2d 540, 543 (Ohio 1976).

56 For an absurd example of how high the unconstitutionality threshold has at times been set, see State v. Wilburn, 66 Tenn. 57 (1872). Andrews v. State, 50 Tenn. (3 Heisk.) 165 (1871), struck down a statute banning open carrying of handguns, on the grounds that the state right to bear arms provision protected such carrying. But in Wilburn, the court upheld a similar statute because it had exactly one exception--for army pistols carried "openly in [one's] hands." Wilburn, 66 Tenn. at 62. A requirement that, to carry a gun, one must constantly have it in one's hands, is obviously a very serious burden on the right, one that makes exercise of the right largely impractical. Yet the court nonetheless upheld the requirement as a permissible "regulat[ion]." Id.

57 See, e.g., Lacy v. State, 903 N.E.2d 486, 490 (Ind. Ct. App. 2009) (upholding a ban on switchblades because it does not "materially burden" the right to bear arms for self-defense).

58 Dano v. Collins, 802 P.2d 1021, 1022 (Ct. App. Ariz. 1990), review granted, Jan. 15, 1991, review dismissed as improvidently granted, 809 P.2d 960 (Ariz. 1991).

59 See, e.g., Gilleo, 512 U.S. at 56-57 (quoting Clark v. Cmty. for Creative Non-Violence, 468 U.S. 288, 293 (1984)).

60 Cf., e.g., United States v. Marzzarella, 595 F. Supp. 2d 596, 606 (W.D. Pa. 2009) (suggesting that a ban on the possession of guns with obliterated serial numbers should be judged under a standard comparable to that "applicable to content-neutral time, place and manner restrictions," and upholding it partly because it "le[ft] open ample opportunity for law-abiding citizens to own and possess guns within the parameters recognized by Heller").

61 See infra Part II.C.1; see also Eugene Volokh, Time, Place, and Manner Restrictions, in Free Speech Law and Elsewhere (unpublished work in progress, on file with author).

62 See Eugene Volokh, Freedom of Speech, Shielding Children, and Transcending Balancing, 1997 Sup. Ct. Rev. 141, 167-94.

63 Compare, e.g., Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833, 886-87 (1992) (opinion of O'Connor, Kennedy, and Souter, JJ.) (holding that a 24-hour waiting period for abortions is not a substantial burden on the right to abortion), with id. at 937 (Blackmun, J., dissenting) (arguing that it is a substantial burden).

64 Compare, e.g., Members of the City Council v. Taxpayers for Vincent, 466 U.S. 789, 812 & n.30 (1984) (holding that a ban on posting leaflets on city-owned utility poles left open ample alternative channels, though the alternatives were likely considerably more expensive), with id. at 819 (Brennan, J., dissenting) (arguing that this did not leave open ample alternative channels).

65 See, for instance, the discussion of weapon category bans in Part II.A.

66 Bliss v. Commonwealth, 12 Ky. (2 Litt.) 90, 92 (1822); see also Eugene Volokh, The Mechanisms of the Slippery Slope, 116 Harv. L. Rev. 1026, 1105-14 (2003) (discussing "small change tolerance slippery slopes").

67 See Volokh, supra note 42, at 1305-10.

68 Cf. Arnold v. City of Cleveland, 616 N.E.2d 163, 173 (Ohio 1993) (acknowledging that "the city...would have violated [the right to bear arms] if it had banned all firearms," and concluding that there is no reason to think "that by banning certain firearms ['assault weapons'] 'there is no stopping point' and legislative bodies will have 'the green light to completely ignore and abrogate an Ohioan's right to bear arms").

69 See, e.g., Owen v. State, 31 Ala. 387 (1858).

70 For one such departure, see Bliss, 12 Ky. (2 Litt.) at 91-92.

71 See Eugene Volokh, Beyond Strict Scrutiny: Per Se Invalidation of Certain Kinds of Burdens on Certain Constitutional Rights (unpublished work in progress, on file with author).

72 See sources cited supra note 18.

73 See sources cited supra note 19.

74 See Eugene Volokh, Freedom of Speech, Permissible Tailoring and Transcending Strict Scrutiny, 144 U. Pa. L. Rev. 2417 (1996).

75 See Eugene Volokh, A Common-Law Model for Religious Exemptions, 46 UCLA L. Rev. 1465, 1496 (1999).

76 See Volokh, supra note 71.

77 District of Columbia v. Heller, 128 S. Ct. 2783, 2817-22 (2008) (citations omitted).

78 See, e.g., Brief of the American Academy of Pediatrics et al. as Amici Curiae in Support of Petitioners at 5, District of Columbia v. Heller, 128 S. Ct. 2783 (2008) (No. 07-290), 2008 WL 157189.

79 See Richard H. Fallon, Jr., Strict Judicial Scrutiny, 54 UCLA L. Rev. 1267, 1271, 1304 (2007) (noting that "[o]ne stringent version [of the Court's strict scrutiny test] allows infringements of constitutional rights only to avert catastrophic or nearly catastrophic harms").

80 See Eugene Volokh, Crime-Facilitating Speech, 57 Stan. L. Rev. 1095, 1209-12 (2005).

81 See, e.g., Michael Stokes Paulsen, The Constitution of Necessity, 79 Notre Dame L. Rev. 1257, 1279 (2004).

82 See, e.g., Alan Dershowitz, Why Terrorism Works 141, 158-63 (2002); Oren Gross, Are Torture Warrants Warranted? Pragmatic Absolutism and Official Disobedience, 88 Minn. L. Rev. 1481 (2004); Christopher Slobogin, The World Without a Fourth Amendment, 39 UCLA L. Rev. 1, 48-49 (1991). See generally Torture: A Collection (Sanford Levinson ed., 2004).

83 U.S. Const. art. I, §9, cl. 2.

84 See supra note 80.

85 See infra Part II.A.1.

86 See infra Part II.A.2 (discussing machine gun bans).

87 See Volokh, supra note 74, at 2422, 2431.

88 Cf. Watchtower Bible & Tract Soc'y of N.Y., Inc. v. Village of Stratton, 536 U.S. 150, 169 (2002) (expressing skepticism that a permit requirement for door-to-door political solicitors would reduce the danger that criminals will pose as solicitors).

89 Nicholas Dixon, Why We Should Ban Handguns in the United States, 12 St. L. U. Pub. L. Rev. 243, 248 (1993); Martin Killias, International Correlations Between Gun Ownership and Rates of Homicide and Suicide, 148 Can. Med. Ass'n J. 1721, 1723 (1993).

90 See David B. Kopel, Peril or Protection? The Risks and Benefits of Handgun Prohibition, 12 St. Louis U. Pub. L. Rev. 285, 294-319, 344-49, 353-59 (1993).

91 Martin Killias et al., Guns, Violent Crime, and Suicide in 21 Countries, 43 Can. J. Criminology 429 (2001). The study did show a correlation between gun ownership levels and some categories of gun homicide and gun suicide, but that doesn't show that lower gun ownership is correlated with reduced danger: If the total homicide and suicide rate remains the same, but gun homicides or suicides are replaced by an equal number of nongun homicides or suicides--for instance, because a decrease in gun homicides is offset by an increase in nongun homicides that would have otherwise been prevented by self-defense using guns, or because suicides shift from guns to other highly lethal means--the total harm remains the same.

92 Gary Kleck & Mark Gertz, Armed Resistance to Crime: The Prevalence and Nature of Self-Defense With a Gun, 86 J. Crim. L. & Criminology 150, 184-86 (1995).

93 Michael R. Rand, U.S. Dep't of Justice, Guns and Crime 1, 2 (1994).

94 See Philip J. Cook & Jens Ludwig, Guns in America: Results of a Comprehensive National Survey on Firearms Ownership and Use 68-76 (1996); cf. Tom W. Smith, A Call for a Truce in the DGU War, 87 J. Crim. L. & Criminology 1462, 1462-69 (1997) (describing the debate, and suggesting that the right answer is somewhere in the mid-to-high hundreds of thousands).

95 See Nat'l Research Council, Firearms and Violence: A Critical Review 7-8 (2004); see also Tushnet, supra note 3, at 1427 ("[I]t is quite difficult to show with any moderately persuasive social-science evidence that discrete and moderate gun regulations...do much if anything to advance public policies favoring reduction in violence, reduction in gun violence, reduction in accidents associated with guns, or pretty much anything else the public thinks the regulations might accomplish.").

96 Robert A. Hahn et al., Firearms Laws and the Reduction of Violence: A Systematic Review, 28 Am. J. Prev. Med. 40, 59 (2005) ("Review of eight firearms laws and law types found insufficient evidence to determine whether the laws reviewed reduce (or increase) violence.").

97 See Nat'l Research Council, supra note 95, at 7-9; Hahn et al., supra note 96, at 59, 61.

98 See, e.g., Nixon v. Shrink Mo. Gov't PAC, 528 U.S. 377, 391-93 (2000) (applying something short of strict scrutiny, but not far short).

99 See, e.g., Video Software Dealers Ass'n v. Schwarzenegger, 556 F.3d 950, 962-64 (9th Cir. 2009); Am. Amusement Mach. Ass'n v. Kendrick, 244 F.3d 572, 578-79 (7th Cir. 2001) (Posner, J.).

100 See supra notes 95-97 and accompanying text.

101 Even Charles Krauthammer, a noted supporter of gun bans and of the assault weapons ban in particular, acknowledged as much. See Charles Krauthammer, Disarm the Citizenry. But Not Yet., Wash. Post, Apr. 5, 1996, at A19.

102 Consider, for instance, State v. Brown, 859 N.E.2d 1017 (Ohio Ct. App. 2006), which involved a law requiring that concealed carry licensees traveling in cars have their guns either holstered and in plain sight on the person, or stored in a locked glove compartment or case. The Ohio state right-to-bear-arms rule asks courts to decide whether a regulation is "reasonable," something that requires more than the extremely deferential federal rational basis test. See Arnold v. City of Cleveland, 616 N.E.2d 163, 171 (Ohio 1993). The majority upheld the law as "reasonable," on the grounds that "[t]hese restrictions reduce the possibility of the loaded firearm being acquired by a third person" and "alert[approach police] officer[s] that a loaded firearm in the vehicle." Brown, 859 N.E.2d at 1020. The dissent concluded that the law was not "reasonable," because "the majority's views are contrary to common sense and physical realities" because "[a] third person can just as readily reach out and grab a firearm from a driver's unlocked holster as he can take that firearm from a closed [but unlocked] glove compartment" and "the real risk to law enforcement officers...is the criminal element, who do not bother with such matters as permits, visible holsters, or closed glove compartments." Id. at 1022 (Grendell, J., concurring and dissenting in part). With no requirement of scientific evidence, the case became a battle of the judges' intuitions.

103 See, e.g., Burson v. Freeman, 504 U.S. 191, 207-08 (1992) (plurality opinion). See also Nixon, 528 U.S. at 391, which reasoned that "[t]he quantum of empirical evidence needed to satisfy heightened judicial scrutiny of legislative judgments will vary up or down with the novelty and plausibility of the justification raised"; Nixon applied a standard that was somewhat less demanding than strict scrutiny, but my sense is that the quote from Nixon also expresses how the Court has behaved in cases such as Burson and Sable Communications of Cal., Inc. v. FCC, 492 U.S. 115 (1989).

104 See, e.g., Sable Communications, 492 U.S. 115;Crawford v. Lundgren, 96 F.3d 380 (9th Cir. 1996); Dial Info. Servs. Corp. of N.Y. v. Thornburgh, 938 F.2d 1535 (2d Cir. 1991); Info. Providers' Coal. for Def. of the First Amendment v. FCC, 928 F.2d 866 (9th Cir. 1991); Am. Booksellers v. Webb, 919 F.2d 1493 (11th Cir. 1990).

105 See Volokh, supra note 74, at 2425-38, 2452-54.

106 See, e.g., United States v. Virginia, 518 U.S. 515, 533 (1996); Bd. of Trs. of State Univ. of N.Y. v. Fox, 492 U.S. 469, 478 (1989).

107 Cf., e.g., Sable Communications, 492 U.S. at 126 (treating the prevention of physical and even psychological injury to minors as a compelling interest).

108 See, e.g., Fox, 492 U.S. at 480.

109 Consider, for instance, United States v. Schultz, No. 1:08-CR-75-TS, 2009 U.S. Dist. LEXIS 234 (N.D. Ind. Jan. 5, 2009), which involved the federal felon-in-possession ban as applied to someone who had been convicted only of felony failure to pay child support. The court concluded that the Equal Protection Clause required intermediate scrutiny, even of a restriction on possession by felons. But the court quickly upheld the law under intermediate scrutiny because "[p]ersons who have committed felonies are more likely to commit crimes than those who have not," id. at *15-16, and because the defendant's claim that "[t]here is no empirical data suggesting that persons convicted of non-violent felonies...are more likely to seek guns or use them than other, non-convicted person" lacked a sufficient "factual basis" that would "persuade[the court] that these factual assertions are correct." Id. at *16 n.6.

Thus, the court largely relied on its intuitions that the recidivism rates for criminals generally (a statistic that the court did cite, see id. at *16 n.4 (citing Bureau of Justice Statistics, U.S. Dep't of Justice, Recidivism of Prisoners Released in 1994 1 (2002), available at http:// www.ojp.usdoj.gov/bjs/pub/pdf/rpr94.pdf)) also apply to violent recidivism--the sort that might be in some measure prevent a gun possession ban--by non-violent felons, including ones guilty only of failure to pay child support. Perhaps that's so, on the grounds that people who break one law are materially more likely to break others, even very different ones. Perhaps it's not. But all the court had to rely on was its intuition.

The court also separately concluded that "the challenged statute still substantially relates to the important governmental objective of public safety," id. at *16 n.6 (quoting Response to Government's Reply at 2, United States v. Schultz, No. 1:08-CR-75-TS, 2009 U.S. Dist. LEXIS 234 (N.D. Ind. Jan. 5, 2009) (No. 1:08-CR-75)), even if nonviolent felons don't have a higher gun crime rate than violent felons. But that was not legally sound, since if a law is so substantially overinclusive--if it covers millions of nonviolent felons, whose actions don't implicate the government interest, together with violent felons, whose actions do implicate the interest--then it would fail intermediate scrutiny. See, e.g., Supreme Court of N.H. v. Piper 470 U.S. 274, 285 n.19 (1985); Cent. Hudson Gas & Elec. Corp. v. Pub. Serv. Comm'n of N.Y., 447 U.S. 557, 569-70 (1980); Craig v. Boren, 429 U.S. 190, 199-02 (1976).

110 See generally Geoffrey R. Stone, Content-Neutral Restrictions, 54 U. Chi. L. Rev. 46 (1987).

111 Wash. State Grange v. Wash. State Republican Party, 128 S. Ct. 1184, 1191-92 (2008).

112 505 U.S. 833 (1992).

113 See id. at 877 (opinion of O'Connor, Kennedy, and Souter, JJ.) ("A finding of an undue burden is a shorthand for the conclusion that a state regulation has the purpose or effect of placing a substantial obstacle in the path of a woman seeking an abortion of a nonviable fetus."); Gonzales v. Carhart, 550 U.S. 124, 158 (2007) (concluding that abortion procedure regulations that don't "impose an undue burden" on the right to an abortion need only have a "rational basis"). The plurality did state that a law could also be unconstitutional if it is intended to impose a substantial burden, presumably even if it fails to do so. See Casey, 505 U.S. at 877. But in any event, if the abortion restriction does not impose a substantial burden, and is not intended to impose such a burden, it is judged under rational basis scrutiny.

114 Sherbert v. Verner, 374 U.S. 398 (1963); Wisconsin v. Yoder, 406 U.S. 205 (1972).

115 See, e.g., Jimmy Swaggart Ministries v. Bd. of Equalization, 493 U.S. 378 (1990).

116 See, e.g., Brannon P. Denning & Glenn H. Reynolds, Heller, High Water(mark)? Lower Courts and the New Right to Keep and Bear Arms, 60 Hastings L.J. (forthcoming 2009) (manuscript at pt. II, on file with author) (discussing how the right to bear arms has been read quite narrowly even after Heller).

117 See Waters v. Churchill, 511 U.S. 661, 672 (1994) (plurality opinion).

118 See Int'l Soc'y for Krishna Consciousness, Inc. (ISKCON) v. Lee, 505 U.S. 672, 678-79 (1992) (holding that content-based restrictions are permitted on government "nonpublic forum" property, so long as they are reasonable and viewpoint-neutral).

119 Webster v. Reproductive Health Servs., 492 U.S. 490 (1989).

120 See, e.g., O'Connor v. Ortega, 480 U.S. 709 (1987).

121 E.g., Fyfe v. Curlee, 902 F.2d 401, 405 (5th Cir. 1990) (applying the government employee free speech analysis from Pickering v. Bd. of Ed., 391 U.S. 563 (1968)); Stough v. Crenshaw County Bd. of Educ., 744 F.2d 1479, 1480-81 (11th Cir. 1984) (likewise).

122 See, e.g., Montgomery v. Carr, 101 F.3d 1117 (6th Cir. 1996); Eugene Volokh, Intermediate Questions of Religious Exemptions--A Research Agenda With Test Suites, 21 Cardozo L. Rev. 595, 635 (1999).

123 See, e.g., Webster, 492 U.S. at 509.

124 See, e.g., Connick v. Myers, 461 U.S. 138 (1983); see also Waters v. Churchill, 511 U.S. 661, 674 (1994) (plurality opinion) ("The restrictions [on speech imposed by the government as employer] are allowed not just because the speech interferes with the government's operation. Speech by private people can do the same, but this does not allow the government to suppress it.").

125 See Robert C. Post, Constitutional Domains: Democracy, Community, Management 234-35, 237 (1995) (discussing the constitutional foundation for giving the government some extra power when it is acting as manager of its own property).

126 See, e.g., ISKCON v. Lee, 505 U.S. 672, 678 (1992).

127 See, e.g., Pratt v. Chicago Hous. Auth., 848 F. Supp. 792 (N.D. Ill. 1994) (holding that the Fourth Amendment barred warrantless sweeps through public housing projects); Resident Action Council v. Seattle Hous. Auth., 174 P.3d 84 (Wash. 2008) (evaluating restriction on public housing residents' posting materials on the outside of their apartment doors the same way the U.S. Supreme Court had evaluated restriction on private residents' rights to post materials in their windows). Resident Action Council involved the outside of public housing units, but its reasoning would apply at least as forcefully to speech inside such units.

128 See infra Part II.C.7.

129 Aymette v. State, 21 Tenn. (2 Hum.) 154, 158 (1840); Fife v. State, 31 Ark. 455, 458 (1876) (quoting Aymette, 21 Tenn. (2 Hum.) at 158).

130 Fife, 31 Ark. at 459 (citing 2 Joel Prentiss Bishop, Commentaries on the Criminal Law §124 (3d ed. 1865)).

131 Id. (citing Andrews v. State, 50 Tenn. (3 Heisk.) 165 (1871)); see also Aymette, 21 Tenn. (2 Hum.) at 161; Tenn. Op. Att'y Gen. No. 08-19 (2008) (following Tennessee precedent to conclude that "switchblades, sword canes, and pocket pistols" are not covered by the right to bear arms). But see Andrews, 50 Tenn. (3 Heisk.) at 187 (suggesting that the "pistol known as the repeater is a soldier's weapon" and is therefore constitutionally protected even under the "civilized warfare" test); Glasscock v. City of Chattanooga, 11 S.W.2d 678 (Tenn. 1928) (relying on Andrews to strike down a ban on carrying "any pistol"); English v. State, 35 Tex. 473, 476 (1872) (applying the "arms of a militiaman or soldier" test, but concluding that "holster pistols" qualify).

132 District of Columbia v. Heller, 128 S. Ct. 2783, 2791 (2008) (quoting 1 Samuel Johnson, Dictionary of the English Language (4th ed. 1773)).

133 Id. at 2791 (quoting 1 Timothy Cunningham, A New and Complete Law Dictionary (2d ed. 1771)). This casts doubt on the conclusion in Walker v. State, 222 S.W.3d 707, 711 (Tex. App. 2007), that body armor isn't covered by the right to bear arms. Nonetheless, Walker's upholding of the ban on felons' possessing body armor might still be constitutional on the theory that felons are excluded from the scope of the right to bear arms, see infra Part II.B.4; United States v. Bonner, No. CR 08-00389 SBA, 2008 WL 4369316, at *4 (N.D. Cal. Sept. 23, 2008).

134 See, e.g., Owen v. State, 31 Ala. 387 (1858); Nunn v. State, 1 Ga. 243 (1846); State v. Jumel, 13 La. Ann. 399 (1858).

135 128 S. Ct. at 2815.

136 See Denning & Reynolds, supra note 116, at pt. III.D.

137 State v. Delgado, 692 P.2d 610, 612 (Or. 1984).

138 Id.

139 Or. State Shooting Ass'n v. Multnomah County, 858 P.2d 1315, 1319-22 (Or. Ct. App. 1993).

140 Id. at 1319.

141 Firearms designers in the 1800s had to solve a fundamental problem: How does one easily allow multiple shots, whether at enemy soldiers or civilian attackers, without the need to manually reload or even manually chamber a new round? The revolver, invented in the early 1800s, was one popular solution to that problem, but the rotating cylinder was inherently limited in capacity, so designers kept looking for new technological advancements, and found one in the semiautomatic.

142 The military has long been an early adopter of much new firearms technology, and the first broadly used fully automatic military weapon was likely the Maxim gun, developed for military use in the 1880s; semiautomatic civilian weapons quickly followed, by 1893. Merrill Lindsay, One Hundred Great Guns 196-97 (1967); Pollard's History of Firearms 294 (Claude Blair ed., 1983); see generally David B. Kopel, Clayton E. Cramer & Scott G. Hattrup, A Tale of Three Cities: The Right to Bear Arms in State Supreme Courts, 68 Temp. L. Rev. 1177, 1199-1200 (1995) (faulting the Oregon test on similar grounds). (The Gatling gun, patented in 1862, was crank-operated and thus was probably not technically an "automatic weapon" as the term is now understood. Lindsay, supra, at 196; Pollard's History of Firearms, supra, at 293.)

143 See Gary Kleck, Targeting Guns: Firearms and Their Control 110 (1997).

144 Or. State Shooting Ass'n, 858 P.2d at 1320.

145 Id. at 1327 (Edmonds, J., concurring in part and dissenting in part).

146 District of Columbia v. Heller, 128 S. Ct. 2783, 2815-16 (2008).

147 See, e.g., Lacy v. State, 903 N.E.2d 486, 492 (Ind. Ct. App. 2009); City of Akron v. Williams, 172 N.E.2d 28, 30 (Ohio Mun. Ct. 1960); State v. Kessler, 614 P.2d 94, 99 (Or. 1980) (likewise); Burks v. State, 36 S.W.2d 892, 894 (Tenn. 1931); State v. Duke, 42 Tex. 455, 458 (1875).

148 See State v. Graves, 700 P.2d 244, 248 (Or. 1985) (likewise noting that the phrase "commonly used [for a certain purpose]" can mean either "generally or usually used" for that purpose in the sense of most users' having that purpose, or "frequently used" in the sense of the use being frequent).

149 See Cook & Ludwig, supra note 94, at 39 tbl.4.6.

150 See Jim Stewart & Andrew Alexander, Assault Weapons Muscle in on the Front Lines of Crime, reprinted in Firepower: Assault Weapons in America (1989) (reporting on BATF's guess about assault weapon prevalence); see Tenn. Op. Att'y Gen. No. 89-54 (1989) (opining that an assault weapons ban would be constitutional because assault weapons are not "the usual arms of the citizen of the country").

151 See, e.g., Kleck, supra note 143, at 112-18, 141-42 (1997) (citing data suggesting that only 5 percent or less of all privately owned guns fall in the category of "'assault weapons'").

152 Id. at 112.

153 The National Crime Victimization Survey (NCVS) reports that non-gun weapons are used defensively more often than are guns. See data run on 1992-2005 NCVS datasets by Joe Doherty of the UCLA School of Law (on file with author). The NCVS might capture only a small fraction of defensive actions, see Kleck, supra note 143, at 152-53, so the comparison is only suggestive, not dispositive. But the data shows that non-gun defensive actions are not uncommon in absolute terms, and suggests that they are not uncommon even when compared to defense with guns.

154 District of Columbia v. Heller, 128 S. Ct. 2783, 2817 (2008) (citations omitted).

155 See, e.g., William Blackstone, 4 Commentaries *148-49 (using "or") (emphasis added).

156 Id.

157 State v. Lanier, 71 N.C. 288, 288-89 (1874), didn't itself involve weapons, but it mentioned "the offence of going armed with dangerous or unusual weapons" in passing and cited State v. Huntley, 25 N.C. (3 Ired.) 418 (1843), which followed the Blackstone passage.

158 Blackstone, supra note 155, at *148-49.

159 I say "practical dangerousness" to focus on dangerousness as the weapon is likely to be used in a typical criminal or defensive shooting, as opposed to the hypothetical dangerousness in the hands of a perfect marksman.

160 Cf. Rinzler v. Carson, 262 So. 2d 661, 665-66 (Fla. 1972) (upholding a machine gun ban on the grounds that the legislature "can determine that certain arms or weapons may not be kept or borne by the citizen," when they are "too dangerous to be kept in a settled community by individuals, and...which, in times of peace, find[their] use by...criminal[s]").

161 Because each shot generates recoil that moves the gun barrel, and because the fully automatic firing makes it impossible to aim again after each shot, a machine gun's shots tend to cover a much larger area than a non-automatic weapon's shots would. A shotgun also has a considerable spread, but shotgun pellets go a considerably shorter distance than do machine gun bullets.

162 See, e.g., State v. Delgado, 692 P.2d 610 (Or. 1984) (striking down a ban on possessing and carrying switchblades); State v. Blocker, 630 P.2d 824 (Or. 1981) (striking down a ban on carrying billy clubs in public); State v. Kessler, 614 P.2d 94 (Or. 1980) (striking down a ban on possessing of billy clubs); Barnett v. State, 695 P.2d 991 (Or. Ct. App. 1985) (striking down a ban on possessing blackjacks); see also Hill v. State, 53 Ga. 472, 474-75 (1874) (taking the view that "swords" and "bayonets" are protected because they "are recognized in civilized warfare"); Ex parte Thomas, 97 P. 260, 262, 265 (Okla. 1908) (following Hill and finding likewise); City of Akron v. Rasdan, 663 N.E.2d 947 (Ohio Ct. App. 1995) (treating a ban on public carrying of knives as implicating the right to bear arms, though concluding that the ban was a "reasonable regulation" and thus did not violate the constitutional provision); 1986 Fla. Op. Att'y Gen. 2 (concluding that stun guns qualify as "arms" under the state right-to-bear-arms provision); cf. City of Seattle v. Montana, 919 P.2d 1218, 1222 (Wash. 1996) (noting the question of whether knives are protected but not reaching it); Concealed Handgun Permits, Alaska Op. Att'y Gen. (Inf.) 209 (1994) (suggesting that the Alaska courts may conclude that knives are protected, though not making a definitive prediction). But see State v. Kerner, 107 S.E. 222, 224 (N.C. 1921) ("[None of a] 'bowie knife, dirk, dagger, slung-shot, loaded cane, brass, iron or metallic knucks or razor or other deadly weapon of like kind'...except 'pistol' can be construed as coming within the meaning of the word 'arms' used in the constitutional guaranty of the right to bear arms.").
Those decisions that reject constitutional protection for non-firearms tend to do so on the grounds that those weapons are customarily used for criminal purposes--an approach that I argue against above--and not on the grounds that "arms" necessarily covers only firearms. See, e.g., Lacy v. State, 903 N.E.2d 486, 492 (Ind. Ct. App. 2009) (holding that switchblades are unprotected because they "are primarily used by criminals and are not substantially similar to a regular knife or jackknife"); State v. Swanton, 629 P.2d 98, 98 (Ariz. Ct. App. 1981) (holding that nunchakus are not arms, because "arms" is limited to "such arms as are recognized in civilized warfare and not those used by a ruffian, brawler or assassin"); People v. Brown, 235 N.W. 245, 246-47 (Mich. 1931) (upholding a ban on, among other things, blackjacks, because they are "too dangerous to be kept in a settled community by individuals" and their "customary employment by individuals is to violate the law," but concluding that the legislature may not ban arms which "by the common opinion and usage of law-abiding people, are proper and legitimate to be kept upon private premises for the protection of person and property," and stressing in the law's defense that the law "does not include ordinary guns, swords, revolvers, or other weapons usually relied upon by good citizens for defense or pleasure" (emphasis added)).

163 See District of Columbia v. Heller, 128 S. Ct. 2783, 2791 (2008).

164 See supra text accompanying note 153.

165 This doesn't resolve the matter under state constitutions that protect a "right to keep and bear arms...for hunting and recreational use," see supra note 10, or under any right to keep and bear arms to deter government tyranny, to the extent such a right is recognized under some constitutional provision. But those aspects of the right to bear arms are outside the scope of this Article.

166 See, e.g., Kleck, supra note 143, at 108-10; Rusty Marks, Machine Guns Rumble Mountains, Shinnston Range Attracts Shooters of Automatic Arms, Charleston Gazette (W. Va.), June 19, 2004, at 1A ("Fully automatic weapons cost anywhere from a few thousand dollars to tens of thousands of dollars each, and there are stiff federal licensing fees that must be paid by machine gun owners.").

167 See, e.g., Kleck, supra note 143, at 121-24 (explaining why that notion is mistaken).

168 See, e.g., Violent Crime Control and Law Enforcement Act of 1994, Pub. L. No. 103-322, §110102(b), 108 Stat. 1796, 1997 (1994) (expired 2004, id. §110105(2)). Even Carl Bogus, one of the leading supporters of broad gun control (including a near-total ban on handgun possession in large cities) and a former member of the Brady Campaign board, agrees that the focus on these features is "largely cosmetic," Carl T. Bogus, Gun Control and America's Cities: Public Policy and Politics, 1 Alb. Gov't L. Rev. 440, 463, 468 n.189, 469 (2008). Likewise, Charles Krauthammer, a proponent of total handgun bans, labeled the assault weapons ban "phony gun control," and said, "The claim of the advocates that banning these 19 types of 'assault weapons' will reduce the crime rate is laughable....Dozens of other weapons, the functional equivalent of these 'assault weapons,' were left off the list and are perfect substitutes for anyone bent on mayhem." Krauthammer, supra note 101. A statute that restricts guns that take large capacity fixed-size magazines, and restricts interchangeable large capacity magazines--as the 1994 Act did only in small part--might have noncosmetic effects, though I doubt it. See Bogus, supra, at 469; infra pp. 1487-88. But any focus on pistol grips and the like is sure to have no material effect on crime.

169 See generally David B. Kopel, Rational Basis Analysis of "Assault Weapon" Prohibition, 20 J. Contemp. L. 381, 388-401 (1994).

170 See supra note 150.

171 See, e.g., Robertson v. City & County of Denver, 874 P.2d 325, 333 (Colo. 1994) (upholding the assault weapons ban because it was not an "onerous restriction," given that "there are literally hundreds of alternative ways in which citizens may exercise the right to bear arms in self-defense" and "the barriers...created [by the law] do not significantly interfere with this right"); Benjamin v. Bailey, 662 A.2d 1226, 1232-35 (Conn. 1995) (upholding the assault weapons ban because the right to bear arms secures only a right to possess weapons adequate for self-defense, not any weapons that one might choose, and the assault weapons ban "does not frustrate the core purpose" of the right to bear arms); Arnold v. City of Cleveland, 616 N.E.2d 163, 173 (Ohio 1993) (upholding the assault weapons ban but noting need "to allow for the practical availability of certain firearms for purposes of hunting, recreational use and protection"); Nelson Lund, The Past and Future of an Individual's Right to Bear Arms, 31 Ga. L. Rev. 1, 71 (1996) (agreeing that assault weapons bans would not materially interfere with self-defense, but concluding that they should be struck down because they are irrational); Kopel et al., supra note 142, at 1211-12 (likewise).

172 Because the term "assault weapon" has no inherent technical definition, it's in principle possible for virtually any firearm to be so labeled by a legislature. Thus, for instance, the proposed Assault Weapons Ban and Law Enforcement Protection Act of 2007, H.R. 1022, 110th Cong., § 3(a) (2007) (proposing 18 U.S.C. §921(a)(30)(L)), defined "assault weapon" to include (among other things) "a firearm based on the design of such a firearm, that is not particularly suitable for sporting purposes, as determined by the Attorney General. In making the determination, there shall be a rebuttable presumption that a firearm procured for use by the United States military or any Federal law enforcement agency is not particularly suitable for sporting purposes, and a firearm shall not be determined to be particularly suitable for sporting purposes solely because the firearm is suitable for use in a sporting event." Nearly all handguns might have been labeled "assault weapons" under this proposed law, on the theory that they are not "particularly suitable for sporting purposes" in the sense of hunting, that the possibility of using them for target shooting doesn't count because "a firearm shall not be determined to be particularly suitable for sporting purposes solely because the firearm is suitable for use in a sporting event" and that their primary purpose is defensive rather than sporting. Such a ban would be broad enough to substantially burden people's ability to defend themselves, and the analysis in the text--which rests on the much narrower scope of most past and present assault weapon bans--would not apply.

173 District of Columbia v. Heller, 128 S. Ct. 2783, 2818 (2008) (explaining why handguns may make more convenient self-defense tools than long guns).

174 Cohen v. California, 403 U.S. 15, 26 (1971).

175 See, e.g., Frisby v. Schultz, 487 U.S. 474 (1988); Kovacs v. Cooper, 336 U.S. 77 (1949), reaffirmed by Ward v. Rock Against Racism, 491 U.S. 781, 796 (1989).

176 The dissenting opinion in Arnold, 616 N.E.2d at 176 (Hoffman, J., dissenting), takes the view that any "outright prohibition of possession"-- including "possession of certain types of arms"--"as opposed to mere regulation of possession" must be judged under "strict scrutiny." But it doesn't explain why a requirement that people use one category of arms instead of another virtually equivalent category of arms should be viewed as a presumptively unconstitutional "prohibition" or "infringe[ment],"

id. at 176, 177, even though the requirement does not materially interfere with keeping arms for self-defense. And it requires a judgment about what constitutes a "type[] of arms" that is often indeterminate, see supra text accompanying note 51.

177 See Kasler v. Lungren, 72 Cal. Rptr. 2d 260 (1998) (concluding that challengers should be able to introduce evidence to show that a ban is irrational), rev'd sub nom. Kasler v. Lockyer, 2 P.3d 581 (Cal. 2000); Kasler, 2 P.3d at 605-06 (Kennard, J., concurring in part and dissenting in part) (likewise); Kopel, supra note 169, at 381 (arguing that assault weapons bans fail the rational basis test).

178 See Minnesota v. Clover Leaf Creamery Co., 449 U.S. 456, 469-70 (1981) (setting forth a rule of extreme deference to legislatures' factual conclusions); Kasler, 2 P.3d 581 (upholding an assault weapons ban under the rational basis test); Robertson v. City & County of Denver, 874 P.2d 325 (Colo.1994) (likewise).

179 Even when several people are attacking you, a semiautomatic pistol or even a revolver will let you fire several times within a few seconds, and likely remain more accurate than a fully automatic weapon. The firing of the first round from a fully automatic will cause recoil that throws off the accuracy of all subsequent rounds during the same trigger-pull. See supra Part II.A.1.d. Moreover, the fully automatic firing mode can empty the magazine in under a second, which would leave you unable to aim and shoot more. (Machine guns are useful in warfare, where you might need to lay down a field of fire, but that almost never arises in civilian self-defense.) So machine guns create extra hazard to passersby without providing any real self-defense benefits.

180 Accord State v. Kerner, 107 S.E. 222, 225 (N.C. 1921) (dictum) (concluding that a total ban on handguns would be unconstitutional). But see State v. Bolin, 662 S.E.2d 38, 39 (S.C. 2008) (concluding that a ban on handguns didn't substantially burden the right to bear arms, though only in the course of evaluating a handgun ban that was limited to 18-to-20-year-olds).

181 E.g., Ex parte Thomas, 97 P. 260, 262-64 (Okla. 1908). Bolin, 662 S.E.2d at 39, held that a ban on under-21-year-olds' possessing handguns didn't violate the right to bear arms because it "[did] not prevent a person under the age of 21 from possessing other types of guns"; but as I note infra note 280, I think Heller was correct in concluding that handgun bans impose a substantial burden on the right to bear arms, even when people remain free to possess rifles or shotguns.

182 See, e.g., Carson v. State, 247 S.E.2d 68, 73 (Ga. 1978) (upholding ban on short-barreled shotguns); State v. LaChapelle, 451 N.W.2d 689, 691 (Neb. 1990) (same); State v. Fennell, 382 S.E.2d 231, 233 (N.C. Ct. App. 1989) (same).

183 See 51 N.C. Op. Att'y Gen. 60, 65 (1981) (concluding machine guns aren't covered by the right to bear arms because they are "not a weapon designed for the general use of the populace").

184 See, e.g., Cal. Penal Code §§12278, 12280 (West Supp. 2009) (banning .50 caliber rifles); State v. Astore, 258 So. 2d 33, 34 (Fla. Dist. Ct. App. 1972) (upholding ban on short-barreled rifles).

185 See supra Part II.A.2.

186 See supra p. 1486.

187 See People v. Brown, 235 N.W. 245 (Mich. 1931) (upholding ban on silencers).

188 Cf. id. (upholding ban on magazines that have room for more than sixteen rounds); City of Cincinnati v. Langan, 640 N.E.2d 200 (Ohio Ct. App. 1994) (upholding ban on rifle magazines that have room for more than 10 rounds).

189 See Kleck, supra note 143, at 119-20.

190 See id. at 144.

191 See infra Part II.F for a discussion of when taxes and indirect cost increases substantially burden the right to bear arms.

192 See the discussion in Eugene Volokh, Nonlethal Self-Defense, (Almost Entirely) Nonlethal Weapons, and the Rights to Keep and Bear Arms, Defend Life, and Practice Religion, 62 Stan. L. Rev. (forthcoming 2010) (manuscript pt. III), available at http:// www.law.ucla.edu/volokh/nonlethal.pdf, about why bans on nonlethal weapons may substantially burden people's right to bear arms in self-defense, even when firearms are allowed. The same analysis would in considerable measure apply to bans on weapons such as clubs, which are more lethal than stun guns and pepper sprays but much less so than firearms or knives.

193 See the discussion in id. (manuscript pt. II.A), about the arguments for banning nonlethal weapons but allowing firearms (arguments that are not irrational, though in my view quite unpersuasive); some of the same arguments would apply to bans on knives and clubs.

194 See generally Massad Ayoob, Legends and Myths of the Home Defense Shotgun, Guns, May 2000, at 16; Firearms Tactical Institute, Tactical Briefs #10 (Oct. 1998), http://www.firearmstactical.com/briefs10.htm.

195 District of Columbia v. Heller, 128 S. Ct. 2783, 2818 (2008).

196 See Volokh, supra note 192.

197 See generally Cynthia Leonardatos, Paul H. Blackman & David B. Kopel, Smart Guns/Foolish Legislators: Finding the Right Public Safety Laws, and Avoiding the Wrong Ones, 34 Conn. L. Rev. 157 (2001).

198 For a related approach as to the definition of "arms" more broadly, and not just as to the burden inquiry, see Michael P. O'Shea, The Right to Defensive Arms After District of Columbia v. Heller, 111 W. Va. L. Rev. 349, 391-93 (2009).

199 Uniform Crime Reporting Program, FBI, Law Enforcement Officers Killed and Assaulted 14 (1998), available at http://www.fbi.gov/ucr/killed/98killed.pdf (1989-98 data).

200 N.J. Stat. Ann. §§2C:58-2.4, 2C:58-2.5 (West 2005).

201 Id. §2C:39-1(dd) ("No make or model of a handgun shall be deemed to be a 'personalized handgun' unless the Attorney General has determined, through testing or other reasonable means, that the handgun meets any reliability standards that the manufacturer may require for its commercially available handguns that are not personalized or, if the manufacturer has no such reliability standards, the handgun meets the reliability standards generally used in the industry for commercially available handguns.").

202 Id. §2C:58-2.5(b), (d).

203 18 U.S.C. §922(g) (2006).

204 See, e.g., 720 Ill. Comp. Stat. Ann 5/24-3.1(a)(2) (West 2003 & Supp. 2008) (barring possession of any gun by 18-to-20-year-olds if they have "been convicted of a misdemeanor other than a traffic offense"); Mass. Ann. Laws ch. 140, §§129B(1)(e), 131(d)(i)(e), ch. 94C, §§32L, 34 (LexisNexis 2007) (barring possession of any firearms by anyone who had ever been convicted of any drug crime (except possession of one ounce or less of marijuana), though allowing rifle and shotgun possession for people guilty only of nonviolent drug possession after five years pass from the end of their term of imprisonment, probation, or parole supervision); N.J. Stat. Ann. §2C:58-3(c)(1),:1-4 (West 2005) (barring possession of any firearms by anyone who has ever been convicted of a crime that carries a maximum sentence of over six months in jail); Dayton, Ohio, Code of Ordinances §§ 138.11, 138.14(C), (D) (2009) (banning possession of any firearms by anyone with "more than one conviction of any offense involving drunkenness within one year prior to his/her application for firearm owner's identification card" or anyone "with more than one conviction of disorderly conduct, or the state equivalent of such offense, within two years prior to his/her application for firearm owner's identification card"). See Mosher v. City of Dayton, 358 N.E.2d 540, 544 (Ohio 1976) (Celebrezze, J., dissenting) (noting that the city ordinance upheld by the majority banned possession by people with more than one conviction in the preceding year as to drunkenness or drug abuse); Ohio Rev. Code Ann. §2923.13(A)(3) (West 2006) (banning possession even by misdemeanants convicted of "illegal possession" of "any drug of abuse," though leaving courts discretion to lift this restriction under Ohio Rev. Code Ann. §2923.14 (West 2006) if "[t]he applicant has led a law-abiding life since his discharge or release [from imprisonment, probation, and parole], and appears likely to continue to do so").

205 See, e.g., State v. Hopkins, No. 2005AP1482-CR, 2005 WL 2739081, at *3 (Wis. Ct. App. Oct. 25, 2005) (upholding no-firearms probation conditions for someone who pled guilty to misdemeanor theft and misdemeanor trespass to dwelling, because the defendant "might graduate from non-violent, albeit intrusive, anti-social acts to things more serious" and because the defendant's "taste of not being able to have a gun may spur him to mend his ways and become a wholly law-abiding member of our community"). As a general matter, the constitutional rights of probationers may generally be restricted about as much as the constitutional rights of inmates. See, e.g., Johnson v. State, 659 N.E.2d 194, 200 (Ind. Ct. App. 1995).

206 See, e.g., Ind. Code Ann. §34-26-5-9(f) (LexisNexis 2008); Sinclair v. Daly, 672 S.E.2d 672, 673-74 (Ga. Ct. App. 2009); Uttaro v. Uttaro, 54 Mass. App. 871, 873 (2002).

207 See 18 U.S.C. §922(d)(8) (2006); United States v. Emerson, 270 F.3d 203, 261-62 (5th Cir. 2001).

208 18 U.S.C. §922(d)(1), (n).

209 See, e.g., Haw. Rev. Stat. Ann. §134-7(b) (LexisNexis 2006); Ohio Rev. Code Ann. §2923.13 (West 2006); Wash. Rev. Code Ann. § 9.41.040(2)(a)(iv) (West Supp. 2009); State v. Winkelman, 442 N.E.2d 811, 814 (Ohio Ct. App. 1981) (upholding such a ban, though noting that it imposes only a "temporary limitation," with provision for relief "[s]hould the temporary limitation work an undue hardship upon the indicted party"), overruled on other grounds, State v. Frederick, Nos. CA88-07-111, CA88-07-118, 1989 WL 80493, at *3 (Ohio Ct. App. July 17, 1989).

210 18 U.S.C. § 3142(c)(1)(B)(viii) (2006).

211 See 18 U.S.C. §922(g)(5)(B). In this discussion, I'll omit minor exceptions, such as for noncitizens with certain hunting licenses or ones who are engaged in targetshooting.

212 See, e.g., Mass. Ann. Laws ch. 140, §130 (LexisNexis 2007). Guam also bans gun possession by any noncitizens, Guam Code Ann. tit. 10, §60108(b)(2) (1993), and a federal statute extends the entire Bill of Rights (except the Tenth Amendment) to Guam, 48 U.S.C.A. §1421b(u) (West 2003). The Guam noncitizen possession ban may thus be challenged without resolving whether the Second Amendment binds the states via the Fourteenth Amendment. But see United States v. Lewis, Crim. No. 2008-45, 2008 WL 5412013, at *4 (D.V.I. Dec. 24, 2008) (reasoning, in my view unpersuasively, that a similar federal statute extending the Bill of Rights to the Virgin Islands only extended the same Second Amendment right as applies against state governments, and thus didn't secure an individual right to bear arms because the Second Amendment has not been incorporated against states).

213 See, e.g., Dozier v. State, 709 N.E.2d 27, 31 (Ind. Ct. App. 1999) (upholding ban on possession of a handgun by under-18-year-olds).

214 N.Y. Penal Law §400.00 (McKinney 2008) (providing minimum age of 21 for license to possess a handgun); N.Y. City Admin. Code §10-303 (1996) (providing that licenses to possess a rifle or a shotgun must be issued if the applicant is 21 or above and satisfies certain other criteria); NYPD, Permits | Rifle/Shotgun Permit Information, http:// www.nyc.gov/html/nypd/html/permits/rifle_licensing_information.shtml (last visited May 20, 2009) (asserting that no license to possess a rifle or a shotgun will be issued to under-21-year-olds).

215 430 Ill. Comp. Stat. Ann. §§65/2(a)(1), 65/4(a)(2)(i) (West Supp. 2008), bars gun ownership or possession by under-21-year-olds unless they have the written consent of a parent or guardian, and the parent or guardian is not himself disqualified from owning guns. This entirely bars 18-to-20-year-olds from possessing a gun if their parents are dead, or if the living parent or parents are felons, nonimmigrant aliens, mental patients, or otherwise disqualified from owning a gun in Illinois. It also conditions other 18-to-20-year-olds' rights on the permission of their parents, something that is not normally done with regard to the exercise of constitutional rights by adults.

216 See, e.g., Conn. Gen. Stat. Ann. §§29-34, -36f (West 2003 & Supp. 2008); see also N.M. Stat. §30-7-2.2 (2004) (banning possession of handguns by anyone under nineteen).

217 See Ariz. Op. Att'y Gen. No. I01-011 (2001) (opining that such a restriction should be constitutional).

218 See, e.g., Simons v. Gillespie, 2008 WL 3925157 (C.D. Ill. Aug. 1, 2008) (noting possibility of constitutional problem with a police department's barring an employee "from possessing or carrying firearms without prior authorization from the Chief of Police"); Nassau County (N.Y.) District Attorney, Assistant District Attorney Applicant Information & Instruction Form 5, http://www.nassaucountyny.gov/agencies/DA/Docs/PDF/AppInfoForms.pdf (last visited Feb. 26, 2009) ("I understand that assistant district attorneys are not permitted to apply for a handgun permit nor own or possess a handgun while employed by the Nassau County District Attorney. Any exception to this policy must be in writing and approved by the District Attorney."). For a case that should be easy, because it involved a less than substantial burden on self-defense, see Lally v. Dep't of Police,

306 So. 2d 66 (La. Ct. App. 1974), in which the court upheld a police department rule that when police officers carry guns off-duty, the guns they carry must be .38s or .357s.

219 The First Amendment analogy would be to Pickering v. Board of Ed., 391 U.S. 563 (1968), which held that a government employer was constrained by the Constitution in firing an employee for his speech, but that the employer may nonetheless fire the employee if the speech is sufficiently potentially disruptive to its mission, and to Waters v. Churchill, 511 U.S. 661, 677 (1994) (plurality opinion), which held that a government employer may make such a judgment based on the facts as it reasonably believes them to be. It seems to me that Connick v. Myers, 461 U.S. 138 (1983), which held that there ought to be no First Amendment scrutiny of discipline based on speech on matters of purely private concern, is not analogous here. First, it is hard to see how a "private concern" /"public concern" line would apply to the right to keep and bear arms in self-defense. Second, the Connick Court's underlying rationale, which is that allowing a First Amendment claim whenever an employment decision was made based partly on private-concern speech would turn a vast range of employment decisions into federal lawsuits, id. at 147, doesn't apply to the right to keep and bear arms (at least off the job), since very few government employment decisions would normally turn on the exercise of that right. For a similar analogy to Pickering as to a different constitutional right, see the cases involving government employees' rights to send their children to private schools, cited supra note 121.

220 See supra Part I.B.2.

221 See State v. Owenby, 826 P.2d 51, 53 (Or. Ct. App. 1992) (upholding ban on gun possession by the mentally ill on the grounds that it was a "relatively minor" restriction).

222 See People v. Swint, which defended a ban on gun possession by felons this way:

> We also note that while [the Michigan Constitution] ensures a Michigan citizen's right to keep and bear "arms," that term is not defined. Black's Law Dictionary (6th ed.), p. 109, defines "arms" as "[a]nything that a man wears for his defense, or takes in his hands as a weapon." While [the statute] only precludes a former felon's use, possession, receipt, sale or transportation of a "firearm," it is silent regarding other "weapons." Arguably, [the statute] does not completely foreclose defendant's constitutional right to bear "arms," i.e., nonfirearm weapons, in defense of himself...."[A]s long as our citizens have available to them some types of weapons that are adequate reasonably to vindicate the right to bear arms in self-defense, the state may proscribe the possession of other weapons without infringing on" the constitutional right to bear arms. Accordingly, we find that the constitutional right to bear arms contained in [the Michigan Constitution] does not guarantee defendant the right to possess a firearm after defendant is convicted of a felony.

572 N.W.2d 666, 670-71 (Mich. Ct. App. 1997) (citation omitted). But non-gun weapons are not "adequate reasonably to vindicate the right to bear arms in self-defense" at anywhere near the effectiveness of firearms. Id. at 671. A ban on felons' possession of guns, if it is to be upheld, should be upheld despite its burden on self-defense, not because it doesn't much burden self-defense.

223 Idaho Const. art. I, §11.

224 See, e.g., Mason v. State, 103 So. 2d 341, 343 (Ala. 1958) (Coleman, J., dissenting); Morgan v. State, 943 P.2d 1208 (Alaska Ct. App. 1997); People v. Blue, 544 P.2d 385 (Colo. 1975); State v. Brown, 571 A.2d 816 (Maine 1990); People v. Swint, 572 N.W.2d 666 (Mich. Ct. App. 1997); State v. Ricehill, 415 N.W.2d 481 (N.D. 1987); see also United States v. Schultz, 2009 U.S. Dist. LEXIS 234 (N.D. Ind. Jan. 5, 2009) (rejecting a Second Amendment argument as to someone convicted of felony refusal to pay child support). For the few dissenting views, see United States v. Abner, 2009 WL 103172 (M.D. Ala. Jan. 14, 2009) (concluding that the federal ban on gun possession by felons "has a strikingly large scope--a scope that might be arguably called into question by a fair reading of Heller's rationale"); Posey v. Commonwealth, 185 S.W.3d 170, 183-84 (Ky. 2006) (Scott, J., concurring in part and dissenting in part); State v. Amos, 343 So. 2d 166, 170 (La. 1977) (Calogero, J., dissenting); Britt v. State, 649 S.E.2d 402, 410 (N.C. Ct. App. 2007) (Elmore, J., dissenting); City of Akron v. Williams, 172 N.E.2d 28, 31 (Ohio Mun. Ct. 1960); Long v. State, 339 S.W.2d 215, 219 (Tex. Crim. App. 1960) (Davidson, J., dissenting). Some cases suggest that there is a constitutional right for a felon to pick up or borrow a gun for immediate self-defense, though not to possess it for defending himself against unspecified future threats. E.g., Conaty v. Solem, 422 N.W.2d 102, 104 (S.D. 1988). Finally, People v. Ford, 568 P.2d 26, 28 (Colo. 1977), suggests that felons generally have a right to possess guns, so long as they can show that the "purpose in possessing weapons was the defense of...home, person, and property," but later cases suggest that this applies only when there was a specific threat to which the felon was responding. See, e.g., People v. Barger, 732 P.2d 1225, 1226 (Colo. App. 1986).

225 Cf. Alaska Stat. §11.61.200(a)(10) (2008) (expressly barring felons from "resid[ing] in a dwelling knowing that there is a firearm capable of being concealed on one's person or a prohibited weapon in the dwelling," though providing an exception for felons who get an apparently discretionary "written authorization to live in a dwelling in which there is a concealable weapon described in this paragraph from a court of competent jurisdiction or from the head of the law enforcement agency of the community in which the dwelling is located"). There are limits on the constructive possession doctrine, for instance if the housemate keeps the gun locked in a combination-locked safe. But such practices can substantially burden the housemate's gun possession, both by making guns hard to access in an emergency and by increasing the cost, especially for long guns that require large safes.

226 This is especially likely in jurisdictions which allow criminal liability for aiding criminal conduct whenever the defendant knowingly aids another's conduct, without a further requirement that the defendant purposefully aid the conduct. Compare, e.g., Ind. Code Ann. §35-41-2-4 (West 2004) ("A person who knowingly or intentionally aids...another person to commit an offense commits that offense."); W. Va. Code §17C-19-1 (2004) (likewise); Wyo. Stat. Ann. §6-1-201(a) (2007) (likewise); Backun v. United States, 112 F.2d 635 (4th Cir. 1940) (treating knowing help as aiding and abetting); People v. Spearman, 491 N.W.2d 606, 610 (Mich. Ct. App. 1992) (likewise), overruled as to other matters by People v. Veling, 504 N.W.2d 456 (Mich. 1993), with Ala. Code §13a-2-23 (2004) (defining only intentional aiding as aiding and abetting); Colo. Rev. Stat. Ann. §18-1-603 (West 2008) (likewise); 18 Pa. Cons. Stat. Ann. §306 (West 2004) (likewise); Tex. Penal Code Ann. §7.02 (Vernon 2004) (likewise); United States v. Pino-Perez, 870 F.2d 1230, 1235 (7th Cir. 1989) (likewise); United States v. Peoni, 100 F.2d 401 (2d Cir. 1938) (likewise). See generally Grace E. Mueller, Note, The Mens Rea of Accomplice Liability, 61 S. Cal. L. Rev. 2169 (1988). They might also be civilly liable for possessing a firearm where a felon might be able to access it. Compare Estate of Heck v. Stoffer, 786 N.E.2d 265, 270-71 (Ind. 2003) (holding that parents of a fugitive may be liable for leaving their gun where it was available for the fugitive to steal, logic that would apply equally to nonfugitive convicted felons), with Lelito v. Monroe, 729 N.W.2d 564, 567 (Mich. Ct. App. 2006) (holding, in a civil lawsuit, that felon-in-possession statutes "impose no duty on the felon's friends, family, neighbors, etc....to suppress their own lawful access to firearms when a felon is present").

227 See supra note 224.

228 See, e.g., 18 U.S.C. §922(g)(9) (2006) (banning possession by people convicted of domestic violence misdemeanors); United States v. Li, No. 08-CR-212, 2008 U.S. Dist. LEXIS 100867, *6 (E.D. Wis. Sept. 22, 2008) (upholding §922(g)(9)); Mosher v. City of Dayton, 358 N.E.2d 540, 543 (Ohio 1976) (upholding ban on possession by violent misdemeanants).

229 See supra note 204.

230 See 2 Bernard Schwartz, The Bill of Rights: A Documentary History 681 (1971) (quoting Samuel Adams' proposal for a right-to-bear-arms constitutional amendment, made during the Massachusetts Ratifying Convention, which would have limited protection to "peaceable citizens"); id. at 665 (discussing a proposal for a right-to-bear-arms constitutional amendment, made during the Pennsylvania Ratifying Convention, which would have limited the right to exclude disarming "for crimes committed, or real danger of public injury from individuals"); see, e.g., State v. Hirsch, 114 P.3d 1104, 1131 (Or. 2005) (using these sources as a justification for upholding bans on gun possession by felons); Don B. Kates, Jr., The Second Amendment: A Dialogue, Law & Contemp. Probs., Spring 1986, at 143, 146 (likewise); Glenn Harlan Reynolds, A Critical Guide to the Second Amendment, 62 Tenn. L. Rev. 461, 480 (1995) (likewise).

231 See Don B. Kates & Clayton E. Cramer, The Second Amendment: Scope and Criminological Considerations 17-18, http://works.bepress.com/clayton_cramer/3 (last visited Apr. 5, 2009) (so arguing); Li, 2008 U.S. Dist. LEXIS 100867, at *6 (quoting the government's argument).

232 See, e.g., Kampf v. Kampf, 603 N.W.2d 295, 298 n.3 (Mich. Ct. App. 1999); see also Nelson Lund, The Ends of Second Amendment Jurisprudence: Firearms Disabilities and Domestic Violence Restraining Orders, 4 Tex. Rev. L. & Pol. 157, 189 (1999) ("[A] strong case can be made for upholding that part of [18 U.S.C.] §922(g)(8) that imposes a firearms disability on persons who are under a domestic violence restraining order because a court has found that they represent a credible threat to the physical safety of their domestic partner or child.").

233 Kampf, 603 N.W.2d at 297.

234 Compare United States v. Arzberger, Nos. 08 Cr. 894 (AKH), 08 Mag. 1876 (JCF), 2008 WL 5453739, at *10-11 (S.D.N.Y. Dec. 31, 2008) (holding that a mandatory no-firearms condition for pretrial release of people accused of possessing child pornography was unconstitutional, in the absence of "an independent judicial determination" of "whether such a condition [was] reasonably necessary in his case to secure the safety of the community"), and United States v. Kennedy, No. CR08-354-RAJ-JPD, 2008 WL 5517643 (W.D. Wash. Nov. 25, 2008) (same), with State v. Winkelman, 442 N.E.2d 811 (Ohio Ct. App. 1981) (upholding such a ban, though noting that it imposes only a "temporary limitation," with provision for relief "[s]hould the temporary limitation work an undue hardship upon the indicted party"), overruled on other grounds by State v. Frederick, Nos. CA88-07-111, CA88-07-118, 1989 WL 80493 (Ohio Ct. App. July 17, 1989), and State v. In, 18 P.3d 500, 503 (Utah Ct. App. 2000) (also stating that such a ban is constitutional, but without a detailed explanation).
State v. Spiers, 79 P.3d 30 (Wash. Ct. App. 2003), struck down a ban on ownership of guns while under indictment, but partly because other laws that allowed a ban on possession of guns under those circumstances were "sufficient to protect public safety":
It should be kept in mind that, separate from the challenged ownership provision, the State may prohibit a defendant from possessing guns. RCW 9.41.040(1)(b)(iv) (contains prohibition on possession that is unchallenged here); CrR 3.2(d)(3) (on showing that defendant poses substantial danger). Thus, in analyzing Spiers's rights, this court examines whether it is reasonably necessary to prohibit Spiers's gun ownership rights in addition to his gun possession rights.
Id. at 34-35. But while the first cited provision covers anyone "free on bond or personal recognizance pending trial, appeal, or sentencing for a serious offense as defined in RCW 9.41.010," Wash. Rev. Code Ann. § 9.41.040(1)(b)(iv) (West 2003) (current version at Wash. Rev. Code Ann. § 9.41.040(2)(a)(iv) (West Supp. 2009)), the second is limited to situations where there is "a showing that there exists a substantial danger that the accused will commit a violent crime or that the accused will seek to intimidate witnesses, or otherwise unlawfully interfere with the administration of justice," Wash. Sup. Ct. Crim. R. 3.2(d)(3) (West Supp. 2009). It is therefore not clear to what extent the Spiers court approved of bans on possession by all indictees, by those indicted for serious offenses (a fairly large category defined in Wash. Rev. Code Ann. §9.41.010(12) (West 2003), which covers both violent offenses and some nonviolent offenses), or by those who "pose [] substantial danger."

235 Mass. Ann. Laws. ch. 140, §131 (LexisNexis 2007).

236 Chief of Police of Shelburne v. Moyer, 453 N.E.2d 461, 464 (Mass. App. Ct. 1983) (providing that a police chief's decision may be set aside only if it is "arbitrary, capricious, or an abuse of discretion").

237 Tucci v. Police Dep't of Wareham, No. 07-P-1409, 2008 WL 2595923, at *1-2 (Mass. App. Ct. July 2, 2008) (upholding revocation of permit); see also Stavis v. Carney, No. Civ.A. 99-349-A, 2000 WL 1170090, at *8 (Mass. Super. Ct. July 31, 2000) (noting the revocation of permit but not reaching a final conclusion on the merits).

238 Roddy v. Leominster Dist. Court, No. 03457, 2005 WL 2539851, at *2 (Mass. Super. Ct. Sept. 2, 2005) (upholding revocation of permit).

239 Stavis, 2000 WL 1170090, at *7.

240 Brief of the Defendant-Appellee, Godfrey v. Fritts, No. 91-P-1460, at 9 (Mass. App. Ct. Apr. 7, 1992) (listing this as the "sole[]" reason for the revocation of the license); Godfrey v. Chief of Police of Wellesley, 616 N.E.2d 485, 488 (Mass. App. Ct. 1993) (upholding the revocation). The police had been investigating a series of shootings in town, and had gotten tips that the shootings might have been committed by Godfrey's brother using Godfrey's gun. Brief of the Defendant-Apellee, supra, at 4-5. But the government's brief in the case specifically declined to point to any finding by the police department that Godfrey had likely committed any crime, or had been complicit in his any crime on his brother's part. Rather, it asserts that "All that the Chief knew is that Godfrey declined at all relevant times to answer any questions whatsoever as a part of the Department's ongoing investigation into the incidents," id. at 13; see also id. at 9, 16, and that this sufficed as a justification for the license revocation.

241 See, e.g., Heindlmeyer v. Ottawa County Concealed Weapons Licensing Bd., 707 N.W.2d 353, 361 (Mich. Ct. App. 2005); Kozerski v. Steere, 433 A.2d 1244, 1245 (N.H. 1981); Weston v. State, 286 A.2d 43, 47 (N.J. 1972); Moats v. Pennsylvania State Police, 782 A.2d 1102, 1104-05 (Pa. Commw. Ct. 2001).

242 See, e.g., Snowden v. Handgun Permit Review Bd., 413 A.2d 295, 298-99 (Md. Ct. Spec. App. 1980); Denora v. Safir, 711 N.Y.S.2d 900, 900 (App. Div. 2000).

243 Compare, e.g., Jacobellis v. Ohio, 378 U.S. 184, 190 n.6 (1964) (lead opinion by Brennan, J.) ("Even in judicial review of administrative agency determinations, questions of 'constitutional fact' have been held to require de novo review."); Crowell v. Benson, 285 U.S. 22, 60 (1932) (taking a similar view); Simonson v. Iowa State University, 603 N.W.2d 557, 561 (Iowa 1999) (likewise), with NLRB v. Gissel Packing Co., 395 U.S. 575, 620 (1969) (providing for deferential review of expert agency's decisions restricting speech of employers or unions); Hamdi v. Rumsfeld, 542 U.S. 507, 534 (2004) (providing for some deference to a military tribunal's determination that someone was an enemy combatant).

244 See N.J. Stat. Ann. §2C:58-3(c)(3) (West 2005); Guam Code Ann. tit 10, § 60108(b)(7) (1993). For similar provisions in statutes limiting the issue of concealed carry licenses, see also Ark. Code Ann. §5-73-309(4) (2005); Fla. Stat. Ann. §790.06(2)(c) (West 2007); Kan. Stat. Ann. §75-7c04(a)(3) (Supp. 2008); La. Stat. Ann. §40:1379.3(C)(5) (2008); Miss. Code Ann. §45-9-101(2)(c) (2004); Neb. Rev. Stat. §69-2432(3) (2003); Wyo. Stat. Ann. §6-8-104(b)(iii) (2007).

245 2007 WL 845916, at *1 (N.J. Super. Ct. App. Div. Mar. 22, 2007) (upholding trial court's reversal of a police department's decision to deny someone a permit to possess a shotgun for hunting, because he was "partially paralyzed," had "limited use of his left arm and hand," and had "partially limited" "left side peripheral vision").

246 N.J. Stat. Ann. §2C:58-3(c)(8) (citation omitted).

247 930 A.2d 481, 484 (N.J. Super. Ct. App. Div. 2007), rev'd, 962 A.2d 515 (N.J. 2008).

248 Id.

249 Id. at 482.

250 Id. at 482-83; see Video of Oral Argument (No. A-80-07) (Sept. 23, 2008), available at http://njlegallib.rutgers.edu/supct/args/A_80_ 07.php (not noting any finding of violence on M.S.'s part).

251 M.S. v. Millburn Police Dep't, 962 A.2d 515, 524-25 (N.J. 2008).

252 Though not exactly the same footing, because the New Jersey law's prohibition is permanent--much like a prohibition based on a criminal conviction--and not just for the duration of the restraining order.

253 18 U.S.C. §922(g)(8) (2006).

254 See Pearson v. Pearson, 488 S.E.2d 414, 428 (W. Va. 1997) (Workman, C.J., dissenting) (noting that "[b]oilerplate mutual restraining orders" that bind both partners are "all too often" issued "without a proper evidentiary foundation," perhaps because "[o]n first glance, they seem harmless").

255 United States v. Emerson, 270 F.3d 203, 262 (5th Cir. 2001) (emphasis, footnote, and citation omitted).

256 See id. at 262-63 (concluding that Texas law so requires); see also In re Marriage of Yates, 148 P.3d 304, 317 (Colo. App. 2006); M.B. v. H.B., No. CS02-04668, 2003 WL 22265053, at *4-5 (Del. Fam. Ct. May 2, 2003); Murphy v. Okeke, 951 A.2d 783, 790 (D.C. 2008); Uttaro v. Uttaro, 768 N.E.2d 600, 604 (Mass. App. Ct. 2002); Pearson, 484 S.E.2d at 424.

257 See M.B., 2003 WL 22265053, at *4; see also Moore v. Moore, 657 S.E.2d 743, 747-48 & nn.3-4 (S.C. 2008).

258 Green v. Green, No. 269, 1997 WL 67315 (Del. Oct. 14, 1997) (upholding such an order, and summarily rejecting the target's state right-to-bear-arms claim, even though the Delaware Constitution expressly secures a right to bear arms in self-defense). See also Lujan ex rel. Lujan v. Casados-Lujan, 87 P.3d 1067, 1068-69, 1071 (N.M. Ct. App. 2003), which issued such an order based on a stepmother's "continuous verbal abuse and belittlement" of her 14-year-old stepson (though also mentioning a possible implicit threat "inasmuch as [the wicked stepmother] was always bragging about hitting people, and [the stepson] was fearful that she would hit him"). The court concluded that "the language...could be interpreted as symbolizing an aggressiveness and threat of physical and emotional domination that comes well within the provisions of [N.M. Rev. Stat. §40-13-2](C)(2), (4), and (10)," a statute that defined "domestic abuse" to include incidents that result in "severe emotional distress," "a threat causing imminent fear of bodily injury," and "harassment." The Lujan court noted that "the special commissioner told Respondent that she would not be subject to firearms restrictions," 87 P.3d at 1071, but this seems to have been a misstatement on the commissioner's part: 18 U.S.C. §922(g)(8) would indeed apply in such a situation, see Lujan

v. Casados, No. D0117DV200200105 (N.M. Super. Ct. Feb. 25, 2002) (order of protection) (expressly prohibiting the use or threat of force that would result in bodily injury, which would trigger §922(g)(8), and expressly noting to the target that "federal law prohibits you from possessing or transporting firearms or ammunition while this order is in effect").

259 N.J. Stat. Ann. §§ 2C:25-19(a)(13), 2C:25-29, 2C:33-4 (West 2005).

260 See, e.g., Anderson v. Weakland, No. A104837, 2004 WL 1574529, at *2-3 (Cal. Ct. App. July 14, 2004) (upholding a domestic protective order that expressly barred firearms possession, expressly asserting that such orders can be issued based on "abuse" short of "physical abuse or bodily injury," and giving the material quoted in the text as examples of what could constitute "abuse").

261 Raynes v. Rogers, 955 A.2d 1135, 1139-40 (Vt. 2008).

262 Saladino v. Harms, No. 05-1785, 2006 WL 1897166, at *1 (Iowa Ct. App. July 12, 2006).

263 Kie v. McMahel, 984 P.2d 1264, 1267 (Haw. Ct. App. 1999). These were the only incidents of "domestic abuse" that the court found.

264 Acosta v. Wilder, No. D041293, 2004 WL 206288 (Cal. Ct. App. Feb. 4, 2004). The targets of the order, the Acostas, had apparently been the subject of a campaign of harassment on petitioner Wilder's part, including "intimidating the Acostas' son, repeatedly telephoning the Acosta residence, making threats, and stating racial and disparaging statements about the Acostas." Id. at *2. (A restraining order was also issued against Wilder.) This may have led the court to assume that the driver's behavior was deliberate retaliation; but such an inference is hard to reliably draw.

265 See Murphy v. Okeke, 951 A.2d 783, 786 (D.C. 2008) (describing the circumstances); id. at 790-91 (reversing the order).

266 See Bartsch v. Bartsch, 636 N.W.2d 3 (Iowa 2001). But see T.L. v. W.L., 820 A.2d 506 (Del. Fam. Ct. 2003).

267 18 U.S.C. §922(g)(8)(A) (2006) applies only to orders "issued after a hearing of which such person received actual notice, and at which such person had an opportunity to participate," but doesn't specifically require that the court had personal jurisdiction over the person.

268 See Lund, supra note 232, at 163 (taking the same view).

269 See, e.g., Cal. Penal Code §§12072, 12078 (Deering Supp. 2009) (banning selling or giving a firearm to a minor, except as to loans of no more than thirty days with the parent's permission, or longer loans for limited reasons that don't include self-defense). For examples of the minority view generally allowing possession of handguns by under-18-year-olds, see Mont. Code Ann. §45-8-344 (2007) (age 14) and Vt. Stat. Ann. tit. 13 §4008 (1998) (age 16). See also N.Y. Penal Law §§265.00(3), 265.05, 400.00 (McKinney 2008) (setting the age at 16 for long guns); N.C. Gen. Stat. §§14-269.7, -316 (2007) (setting the age at 12 for long guns).

270 Bureau of Justice Statistics, U.S. Dep't of Justice, Criminal Victimization in the United States, 2006 Statistical Tables, tbl.4 (2006), http://www.ojp.usdoj.gov/bjs/pub/pdf/cvus06.pdf. The equal or higher victimization of older minors compared to adults applies even if one focuses only on victimization by strangers. See id. at tbls.4, 29.

271 The driving age is generally 16 rather than 18, even though many more 16- and 17-year-olds die in car accidents than in gun accidents, gun suicides, or gun homicides, but this lower driving age is likely a concession to the practical reasons why parents want children to have cars (especially to travel to work and school), and not a considered judgment that 16-year-olds are generally mature enough to be entrusted with a wide range of adult responsibility where the use of deadly weapons is involved. See Insurance Inst. for Highway Safety, US Licensing Systems for Young Drivers, May 2009, http://www.iihs.org/laws/pdf/us_licensing_systems.pdf (summarizing driving ages in various states, with thirty-three pegged at exactly age 16 and forty-six being between age 15 and age 16); Nat'l Ctr. for Injury Prevention & Control, Ctrs. for Disease Control & Prevention, WISQARS Leading Causes of Death Reports, 1999-2006, http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html (last visited May 6, 2009) (2001-05 data for 16-to-17-year-olds) (reporting about 35 fatal gun accidents, 260 gun suicides, and 500 gun homicides per year); Nat'l Safety Council, Injury Facts 104 (2009) (reporting that there were 700 16-year-old drivers and 1100 17-year-old drivers involved in fatal accidents in 2007, though the total number of deaths caused would be a little less than 1800 since the 1800 double-counts accidents in which two 16- or 17-year-old drivers were involved but only one fatality resulted);

E-mail from Lyn Cianflocco, National Highway Traffic Safety Administration, to Cheryl Kelly Fischer, UCLA Law Library (Mar. 24, 2009, 12:09 PST) (on file with author) (reporting, using 2007 data, a total of 844 "fatalities in motor vehicle traffic crashes involving at least one 16 year old driver" and 1408 where at least one 17-year-old was involved).

272 Minors, for instance, generally don't have the constitutional right to sexual autonomy, to marry, or to beget children, and are limited in their abortion rights. See Lawrence v. Texas, 539 U.S. 558, 578 (2003) (recognizing adults' right to sexual autonomy and implicitly adults' right to beget children, but specifically noting that the case did not involve minors); Hodgson v. Minnesota, 497 U.S. 417 (1990) (holding that minors have narrower abortion rights than do adults); Kirkpatrick v. Eighth Judicial Dist. Court ex rel. County of Clark, 64 P.3d 1056, 1060 (Nev. 2003) (holding that minors do not have the right to marry); In re R.L.C., 643 S.E.2d 920 (N.C. 2007) (likewise as to sexual autonomy and implicitly the right to beget children). For a rare decision to the contrary, see B.B. v. State, 659 So. 2d 256 (Fla. 1995), holding that 16-year-olds have a constitutional right to have sex with each other, though not with adults.

The law's support for parental control over their minor children, something that would be a grave interference with liberty as to adults, tracks that. See, e.g., Cal. Welf. & Inst. Code §601 (West 2008) (threatening a child "who persistently or habitually refuses to obey the reasonable and proper orders or directions of his or her parents, guardian, or custodian" with being adjudged a "ward of the court"); Minn. Stat. Ann. §609.06 subdiv. 1(6) (West 2003) (exempting reasonable force used by parents from criminal assault law); id. §609.255 (West 2003) (defining false imprisonment to exclude conventional parental restraint of children); Brekke v. Wills, 23 Cal. Rptr. 3d 609, 613 (Ct. App. 2005) (upholding an injunction barring a sixteen-year-old girl's ex-boyfriend, whom her mother considered a bad influence, from contacting her, partly on grounds that injunction helped protect "[mother's] exercise of her fundamental right as parent to direct and control her daughter's activities"); L.M. v. State, 610 So. 2d 1314 (Fla. Dist. Ct. App. 1992) (affirming the lower court's order, as condition of juvenile's probation, that he obey his mother); Model Penal Code §3.08 (Proposed Official Draft 1962) (providing that parents' use of force is justified when done for "the purpose of safeguarding or promoting the welfare of the minor").

The same is in some measure true for explicitly secured rights, such as free speech rights, at least where it comes to sexually themed expression. See Ginsberg v. New York, 390 U.S. 629, 636-37 (1968). And the law has long allowed children to be adjudged delinquent and basically imprisoned through the juvenile justice system, without the standard constitutional guarantees applicable to criminal proceedings. See McKeiver v. Pennsylvania, 403 U.S. 528, 545-51 (1971). This has been rationalized on the grounds that the proceedings are civil rather than criminal, see, e.g., Ex Parte Crouse, 4 Whart. 9 (Pa. 1839), but it was precisely the presumed incapacity of the child that justified such civil proceedings.

On the other hand, when it comes to criminal prosecutions as opposed to juvenile court proceedings, minors have apparently generally had the same constitutional rights as adults. See Edward W. Spencer, A Treatise on the Law of Domestic Relations §628, at 549 (1911). And some sorts of constitutional rights, such as the right to have some judicial hearing before any imprisonment, including through the juvenile justice system, have apparently also been long extended to minors. See, e.g., Silas Jones, An Introduction to Legal Science 63 (New York, J.S. Voorhies 1842).

273 See, e.g., Glenn v. State, 72 S.E. 927 (Ga. Ct. App. 1911) (upholding ban on carry license for under-18-year-olds). I suggest in Volokh, supra note 192, that the result might be different for generally nondeadly weapons, such as pepper spray or stun guns.

274 See, e.g., United States v. McRobie, No. 08-4632, 2009 WL 82715 (4th Cir. Jan. 14, 2009) (upholding 18 U.S.C. §922(g)(4) (2006), which bans gun possession by persons committed to a mental institution, by citing Heller's approval of bans on possession by "the mentally ill"); Foss v. Town of Mansfield, No. 03-P-1457, 2004 WL 2150984 (Mass. App. Ct. Sept. 17, 2004) (upholding revocation of handgun license based on the licensee's depression, which led to a suicide threat and brief hospitalization).

275 See State v. Oaks, 594 S.E.2d 788, 793 (N.C. Ct. App. 2004) (striking down court order permanently barring firearms possession by a person who had admitted to habitually using marijuana, on the grounds that "we cannot affirm an order that apparently presumes that he will always be an unlawful user of controlled substances, and therefore may never possess firearms").

276 For instance, the sufficiently mentally ill may have conservators appointed for them, and thus be stripped of the right to dispose of their property. Their criminal trials may be delayed while they are incompetent, despite the Speedy Trial Clause. See, e.g., United States v. Mills, 434 F.2d 266, 271 (8th Cir. 1970); Langworthy v. State, 416 A.2d 1287, 1293-94 (Md. Ct. Spec. App. 1980). Sex with those who are so mentally ill or mentally retarded that they can't fully appreciate the consequences of their actions may likely be criminalized, see, e.g., Lawrence v. Texas, 539 U.S. 558 (2003) (repeatedly stressing the rights of "consenting adults"); Anderson v. Morrow, 371 F.3d 1027, 1032-33 (9th Cir. 2004) ("The Lawrence Court held that the Due

Process Clause of the Fourteenth Amendment protects the right of two individuals to engage in fully and mutually consensual private sexual conduct. The holding does not affect a state's legitimate interest and indeed, duty, to interpose when consent is in doubt."), even though similar bans on competent adults would interfere with the right to have children and the right to sexual autonomy.

277 See supra note 215.

278 See id.

279 See supra notes 215-216 and accompanying text.

280 The South Carolina Supreme Court did hold that a ban on handgun possession by under-21-year-olds didn't violate the state constitutional right to bear arms, "because persons under the age of 21 have access to other types of guns." State v. Bolin, 662 S.E.2d 38, 39 (S.C. 2008). (The court went on to still strike down the ban, because it violated S.C. Const. art. XVII, §14, which provided that "[e]very citizen who is eighteen years of age or older...shall be deemed sui juris and endowed with full legal rights and responsibilities." Id. at 39-40.) But I think Heller has the better view here, for reasons given in Part II.A.4; courts should recognize that handgun bans impose a substantial burden on state constitutional rights to keep and bear arms in self-defense as well as on the federal right.

281 See Larry D. Barnett, The Roots of Law, 15 Am. U. J. Gender Soc. Pol'y & L. 613, 681-86 (2007). A few states had the age of majority set at 18 for women, but 21 for men. Id. In the early 1970s, almost all the states lowered the age of majority to 18. Id.

282 The exceptions are Alaska, Delaware, Maine, Nebraska, Nevada, New Hampshire, North Dakota, West Virginia, and Wisconsin, which enacted right-to-bear-arms provisions (or in the cases of Alaska and Maine, an expressly individual right-to-bear-arms provision) for the first time after the age of majority was decreased, and Florida, Idaho, Louisiana, New Mexico, and Utah, which substantially revised the texts of their individual right-to-bear-arms provisions after the age of majority was decreased. See Volokh, supra note 2. Note that in one of these states, Nebraska, the age of majority is 19 rather than 18. Neb. Rev. Stat. §43-2101 (2004).

283 Garance Franke-Ruta, Age of Innocence Revisited, Wall St. J., May 4, 2007, at W11.

284 Mississippi law provides that "[t]he term 'minor,' when used in any statute, shall include any person, male or female, under twenty-one years of age," and then bans encouraging minors to participate in pornography production. Miss. Code Ann. §§1-3-27, 97-3-54.1(1)(c) (2005). Nebraska bans encouraging minors to participate in pornography production, Neb. Rev. Stat. §§28-707, 28-831 (Supp. 2006), and defines "minor" to be under 19 unless otherwise specified, Neb. Rev. Stat. §43-2101 (2004); State v. Johnson, 695 N.W.2d 165, 174-75 (Neb. 2005); cf. Neb. Rev. Stat. §28-807 (1995) (defining "minor" to "mean any unmarried person under the age of eighteen years," but limiting the definition to §28-807 through §28-829, the sections having to do with the distribution or display of pornography to minors).

285 See Neb. Rev. Stat. §§42-105, 43-2101 (2004).

286 Allam v. State, 830 P.2d 435 (Alaska Ct. App. 1992) (upholding such a law).

287 See McKeiver v. Pennsylvania, 403 U.S. 528 (1971) (age 18 for proceedings in juvenile court without a jury under one statute, see Pa. Stat. Ann. §243(2) (West 1965) (repealed 1972) and age 16 under another, see N.C. Gen. Stat. §110-21 (1943) (repealed 1973)); Ginsberg v. New York, 390 U.S. 629 (1968) (age 17 for receipt of sexually themed materials); Prince v. Massachusetts, 321 U.S. 158 (1944) (age 18 for girls, 12 for boys, for the right to sell literature--including literature that one felt a religious obligation to distribute--on public streets); Abe Fortas, Equal Rights--for Whom?, 42 N.Y.U. L. Rev. 401, 406 (1967) (age 18 for delinquency adjudications through the juvenile justice system, which generally omitted many constitutional protections).

288 Missouri law only allows people age 23 and above to get a license to carry concealed firearms, Mo. Ann. Stat. §571.101(2)(1) (West Supp. 2009), and St. Louis bars all open carrying of firearms on public streets, St. Louis, Mo., Rev. Code § 15.130.040 (2008).

289 Nat'l Ctr. for Injury Prevention & Control, Ctrs. for Disease Control & Prevention, WISQARS Injury Mortality Reports, 1999-2006, http:// webappa.cdc.gov/sasweb/ncipc/mortrate10_sy.html (last visited Apr. 5, 2009) (select injury cause "firearm," years 1999 to 2006, custom age range 15 to 39, output group "age").

290 See, e.g., Craig v. Boren, 429 U.S. 190 (1976) (finding a denial of equal protection in a law allowing 18-to-20-year old women, but not men, to purchase 3.2 percent beer).

291 See, e.g., Bureau of Justice Statistics, supra note 270, at tbls.38, 40.

292 If anything, noncitizens face a slightly greater deterrent than citizens do, because they risk deportation as well as criminal punishment if they misuse their guns. A very few noncitizens pose special national security threats, but those people--saboteurs and terrorists--are precisely the ones who would have the least trouble evading gun laws.

293 See, e.g., Ala. Const. art. I, §26; Ariz. Const. art. II, §26; Ark. Const. art. II, §5.

294 Colo. Const. art. II, §13.

295 The right to keep and bear arms when "legally summoned" to "aid... the civil power" is limited to those whom the government chooses by law to summon, and might thus exclude noncitizens (and others). But the right to keep and bear arms in defense of home, person, and property is not so limited.

296 People v. Nakamura, 62 P.2d 246 (Colo. 1936); People v. Zerillo, 189 N.W. 927, 928 (Mich. 1922) (interpreting a provision that "[e]very person has a right to bear arms for the defense of himself and the state").

297 494 U.S. 259 (1990).

298 Id. at 265.

299 District of Columbia v. Heller, 128 S. Ct. 2783, 2790-91 (2008). Heller also repeatedly spoke of the right of the people to bear arms as a right of "citizens," see United States v. Guerrero-Leco, No. 3:08cr118, 2008 WL 4534226, at *1 & n.2 (W.D.N.C. Oct. 6, 2008) (stressing this in holding that illegal aliens aren't covered by the Second Amendment), but this alone means little. "Citizen" is often used casually to mean any person, especially contrasted with a government official. Heller itself said, for instance, that "we do not read the Second Amendment to protect the right of citizens to carry arms for any sort of confrontation, just as we do not read the First Amendment to protect the right of citizens to speak for any purpose," 128 S. Ct. at 2799, even though the First Amendment has long been read as applying to noncitizens. Bridges v. Wixon, 326 U.S. 135, 148 (1945). Likewise, the Court has discussed the Sixth Amendment as "protect[ing] a right of citizens," Doggett v. United States, 502 U.S. 976 (1991), even though it expressly applies to any "accused" and has always been understood as covering noncitizen criminal defendants as well as citizens. See also United States v. Gouveia, 467 U.S. 180, 195 (1984) (same as Doggett); Berkemer v. McCarty, 468 U.S. 420, 435 n.22 (1984) (speaking of "a citizen's Fifth Amendment rights," though the relevant Fifth Amendment clause speaks generally of the right of "any person"). None of this suggests that "citizen" always means "person"; it plainly doesn't. But it does suggest that the Court may casually speak of the rights of "citizens," in a case in which citizenship status is not at issue, without deliberately choosing to limit the right to citizens to the exclusion of aliens.

300 See, e.g., Verdugo-Urquidez, 494 U.S. at 274-75 (holding that the Fourth Amendment does not apply to aliens in foreign countries).

301 See United States v. Boffil-Rivera, No. 08-20437-CR-Graham/Torres, 2008 U.S. Dist. LEXIS 84633 (S.D. Fla. Aug. 12, 2008) (holding that the Second Amendment does not protect illegal aliens); Guerrero-Leco, 2008 WL 4534226 (likewise).

302 State v. Vlacil, 645 P.2d 677 (Utah 1982).

303 See Pratheepan Gulasekaram, Aliens With Guns: Equal Protection, Federal Power, and the Second Amendment, 92 Iowa L. Rev. 891 (2007), for an extended treatment. State courts have split on the Equal Protection Clause question. For decisions holding that bans on noncitizen gun possession or carrying violate the Equal Protection Clause, see People v. Rappard, 28 Cal. App. 3d 302, 305 (Ct. App. 1972) (concealed carry); Chan v. City of Troy, 559 N.W.2d 374, 376-77 (Mich. Ct. App. 1996) (possession); State v. Chumphol, 634 P.2d 451 (Nev. 1981) (concealed carry). For decisions upholding such bans, see Patsone v. Pennsylvania, 232 U.S. 138, 143 (1914) (possession); State v. Vlacil, 645 P.2d 677, 679-81 (Utah 1982) (possession); State v. Hernandez-Mercado, 879 P.2d 283, 287-90 (Wash. 1994) (possession).

304 Some of these exempt certain categories of people, such as bodyguards, or give the police discretion to give certain people licenses; but the laws remain broad bans on public possession by those people who aren't fortunate enough to be exempted or licensed.

305 See Volokh, supra note 61.

306 See District of Columbia v. Heller, 128 S. Ct. 2783, 2816 (2008).

307 See Clayton E. Cramer, Concealed Weapon Laws of the Early Republic 143-52 (1999).

308 See, e.g., Robertson v. Baldwin, 165 U.S. 275, 281-82 (1897):
The law is perfectly well settled that...the 'Bill of Rights[' was] not intended to lay down any novel principles of government, but simply to embody certain guaranties and immunities which we had inherited from our English ancestors, and which had, from time immemorial, been subject to certain well-recognized exceptions, arising from the necessities of the case. In incorporating these principles into the fundamental law, there was no intention of disregarding the exceptions, which continued to be recognized as if they had been formally expressed. Thus,...the right of the people to keep and bear arms (Article 2) is not infringed by laws prohibiting the carrying of concealed weapons....

309 See the Indiana, Kentucky, Vermont, and West Virginia cases cited infra note 312.

310 128 S. Ct. at 2793; see also O'Shea, supra note 198, at 377-79.
Michael C. Dorf, Does Heller Protect a Right to Carry Guns Outside the Home?, 59 Syracuse L. Rev. 225, 231-33 (2008), makes what is essentially a scope argument for "confin[ing]" the right to bear arms "to home possession," based on "the fact that the Court's individual rights jurisprudence more broadly treats the home as special." But the cases that article cites, Stanley v. Georgia, 394 U.S. 557 (1969), Griswold v. Connecticut, 381 U.S. 479 (1965), and Lawrence v. Texas, 539 U.S. 558, 562 (2003), are inapposite. Stanley protected home possession even of material--obscenity-- that the Court had, earlier and later, said lacks constitutional value. See, e.g., Paris Adult Theatre I v. Slaton, 413 U.S. 49, 67 (1973); Roth v. United States, 354 U.S. 476, 484 (1957). Nothing in Stanley suggests that constitutionally valuable speech can only be possessed in the home, and not in public; Stanley sets forth a narrow form of extra protection for obscenity, not a reason for restriction of constitutionally valuable speech. Stanley thus offers no analogy for restriction of guns in public, when those guns can be used for constitutionally valuable self-defense.
Likewise, Griswold and Lawrence dealt with conduct (sex and contraception) that has throughout American history been restricted to private places; moreover, restricting such conduct to private places doesn't materially burden the values that the Court pointed to as justifying recognition of the right-- people remain free to plan their reproductive lives, engage in martial intimacy, and use sex to create intimate relationships even if they must do so in private. Barring the possession of guns for self-defense in public, on the other hand, does seriously burden the ability to defend oneself, for the reasons discussed in the following pages: Self-defense at home is no substitute for self-defense on a public sidewalk when the sidewalk is where you are attacked; having sex at home is for nearly all of us an adequate substitute for having sex on the sidewalk. And of course the legal tradition, both the constitutional tradition I note below and the broader tradition of legally allowed carrying (though often with a license requirement), has been to allow gun possession in most public places but to forbid sex in most public places. In this respect, original meaning and tradition both point to treating gun rights very differently from sexual rights.

311 Colo. Const. art. II, §13; Idaho Const. art. I, §11; Ky. Const. §1; La. Const. art. I, §11; Miss. Const. art. III, §12; Mo. Const. art. I, §23; Mont. Const. art. II, §12; N.M. Const. art. II, §6; N.C. Const. art. I, §30; Okla. Const. art. II, §26; see also Tenn. Const. art. I, §26 (authorizing the legislature to "regulate the wearing of arms with a view to prevent crime," which suggests that "bear[ing] arms" includes "wearing" them, which is to say carrying them in public, though subject to regulations); Tex. Const. art. I, §23 (same).

312 For cases or attorney general opinions holding or suggesting that there is a right to carry openly, see State v. Reid, 1 Ala. 612, 619 (1840) (dictum), reaffirmed, Hyde v. City of Birmingham, 392 So. 2d 1226, 1228 (Ala. Crim. App. 1980); Dano v. Collins, 802 P.2d 1021 (Ariz. Ct. App. 1990), review granted but later dismissed as improvidently granted, 809 P.2d 960 (Ariz. 1991); Nunn v. State, 1 Ga. 243 (1846), reaffirmed, Strickland v. State, 72 S.E. 260, 264 (Ga. 1911); In re Brickey, 70 P. 609 (Idaho 1902); Holland v. Commonwealth, 294 S.W.2d 83, 85 (Ky. 1956) (dictum); State v. Chaisson, 457 So. 2d 1257 (La. Ct. App. 1984); City of Las Vegas v. Moberg, 485 P.2d 737 (N.M. Ct. App. 1971); State v. Kerner, 107 S.E. 222 (N.C. 1921); State v. Nieto, 130 N.E. 663, 664 (Ohio 1920) (dictum), reaffirmed, Klein v. Leis, 795 N.E.2d 633, 638 (Ohio 2003);

Glasscock v. City of Chattanooga, 11 S.W.2d 678 (Tenn. 1928); State ex rel. City of Princeton v. Buckner, 377 S.E.2d 139 (W. Va. 1988); La. Op. Att'y Gen. No. 80-992 (1990); Wisconsin Department of Justice Advisory Memorandum (Apr. 20, 2009), http://www.doj.state.wi.us/news/files/FinalOpenCarryMemo.pdf. For cases holding the right extends even to carrying a concealed weapon, though perhaps regulated through a nondiscretionary licensing regime, see Kellogg v. City of Gary, 562 N.E.2d 685, 705 (Ind. 1990); Schubert v. DeBard, 398 N.E.2d 1339 (Ind. Ct. App. 1980); Bliss v. Commonwealth, 12 Ky. (2 Litt.) 90 (1822), abrogated as to concealed carry but not as to open carry by Ky. Const. of 1850, art. XIII, §25; State v. Rosenthal, 55 A. 610, 610-11 (Vt. 1903); State v. Vegas, Case No. 07 CM 687 (Cir. Ct. Milwaukee County Sept. 24, 2007), available at http://www.law.ucla.edu/volokh/vegas.pdf (concluding that under State v. Hamdan, 665 N.W.2d 785 (Wis. 2003), the right to bear arms may include the right to concealed carry in some narrow circumstances, especially where the person is engaging in dangerous activity such as delivering pizzas in high-crime areas). Oregon courts take the view that the right extends to carrying weapons openly, but allows restrictions on carrying loaded guns, so long as the law allows the carrying of both an unloaded gun and ammunition. See State v. Delgado, 692 P.2d 610, 614 (Or. 1984) (striking down total ban on carrying switchblade knives); Barnett v. State, 695 P.2d 991 (Or. Ct. App. 1985) (per curiam) (striking down a total ban on carrying blackjacks); State v. Boyce, 658 P.2d 577, 578-79 (Or. Ct. App. 1983) (upholding a requirement that handguns be carried unloaded).

Chaisson struck down a very limited carrying ban--one that applied only while hunting frogs at night--but its reasoning suggested that there was a constitutional right to carry for self-defense (including self-defense against alligators). 457 So. 2d at 1259; see also State v. Chandler, 5 La. Ann. 489, 490 (1850) (taking this view with regard to the Second Amendment). City of Lakewood v. Pillow, 501 P.2d 744 (Colo. 1972), also struck down a carry ban because it was broad enough to ban gun stores, ban people "from transporting guns to and from such places of business," and ban people from "possess[ing] a firearm in a vehicle or in a place of business for the purpose of self-defense"; the court concluded that "[s]everal of these activities are constitutionally protected," which suggests that carrying in a car might have been protected. Id. This is consistent with the Colorado right to bear arms' express exclusion of "the practice of carrying concealed weapons," Colo. Const. art. II, §13, which suggests that carrying weapons unconcealed would be presumptively protected.

All these cases speak of carrying in most public places; they often leave room for restrictions on carrying in particular places, such as businesses that serve liquor, churches, or polling places. See infra note 342.

313 See City of Cape Girardeau v. Joyce, 884 S.W.2d 33 (Mo. Ct. App. 1994); Pierce v. State, 275 P. 393 (Okla. Crim. App. 1929); Commonwealth v. Ray, 272 A.2d 275, 278-79 (Pa. Super. Ct. 1970), vacated 292 A.2d 410 (Pa. 1972); Masters v. State, 685 S.W.2d 654 (Tex. Crim. App. 1985) (per curiam); see also In re Bastiani, 2008 WL 5455690, at *2 (N.Y. County Ct. Dec. 15, 2008) (applying Second Amendment). But see Cockrum v. State, 24 Tex. 394, 401-02 (1859) (taking the view that the right to bear arms includes the right to carry them); Galloway v. State, 69 S.W.2d 89, 90 (Tex. Crim. App. 1933) (per curiam) (likewise).

314 See Robert Dowlut & Janet A. Knoop, State Constitutions and the Right to Keep and Bear Arms, 7 Okla. City U. L. Rev. 177, 215-16 (1982); Lund, supra note 171, at 73-74.

315 Bureau of Justice Statistics, supra note 270, at tbl.61.

316 Id.

317 E.g., Boyce, 658 P.2d at 578-79.

318 The ordinance in Boyce applied whenever a person carried a loaded magazine together with an unloaded gun, see Portland, Or., Municipal Code §14A.60.010(B) (2009), but some such statutes only apply when the ammunition is physically present in or attached to the gun, see, e.g., Cal. Penal Code §§12001(a)(1), (c), (j), 12031(a)(1), (g) (West 2000 & Supp. 2009); People v. Clark, 53 Cal. Rptr. 2d 99, 104 (Ct. App. 1996); Case Alert Memorandum From Paul R. Coble, Law Firm of Jones & Mayer, to All California Police Chiefs and Sheriffs, (Dec. 4, 2008), http:// www.hoffmang.com/firearms/carry/CPOA-Client-Alert-12042008.pdf.

319 A requirement that one carry the gun unloaded would be much more burdensome than the requirement that one carry only a 6- or 8-round magazine, and reload if that magazine is emptied, see supra pp. 1487-88. The initial loading would be required whenever the gun is needed for self-defense; the reloading would be required only in the very rare circumstances, see id., when more than six or eight rounds are needed.

320 Not while driving very safely, but presumably those enraged enough to contemplate shooting would be enraged enough to depart from the safest course of driving conduct.

321 Nat'l Ctr. for Injury Prevention & Control, supra note 289 (intent or manner of the injury 'unintentional,' cause or mechanism of the injury 'firearm,' years 1999 to 2005); id. (intent or manner of the injury 'homicide,' cause or mechanism of the injury 'firearm,' years 1999 to 2005).

322 Cf. Watchtower Bible & Tract Soc'y of N.Y., Inc. v. Village of Stratton, 536 U.S. 150, 169 (2002) (rejecting the government's argument that a licensing requirement for door-to-door noncommercial solicitors was necessary to stop criminals who might pretend to be such solicitors, by pointing out that criminals would likely just shift to pretending to "ask for directions or permission to use the telephone" or to "pos[ing] as surveyers [sic] or census takers"); McIntyre v. Ohio Elec. Comm'n, 514 U.S. 334, 352-53 (1995) (rejecting the government's argument that a ban on anonymous speech was necessary to prevent fraud and libel, by pointing out that the defrauders and libelers would likely not abide by the requirement that they sign their true names, and would instead "use false names and addresses in an attempt to avoid detection").

323 Nat'l Research Council, supra note 95, at 150; Hahn et al., supra note 96, at 54. Even Philip Cook, probably the leading American pro-gun-control criminologist, takes the view that "Whether the net effect of relaxing concealed-carry laws is to increase or reduce the burden of crime, there is good reason to believe that the net [change] is not large," and that concealed carry permit holders "are at fairly low risk of misusing guns, consistent with the relatively low arrest rates observed to date for permit holders." Philip J. Cook, Jens Ludwig & Adam M. Samaha, Gun Control After Heller: Threats and Sideshows From a Social Welfare Perspective, 56 UCLA L. Rev. 1041, 1082 (2009). This should be at least as true as to a regime that allowed open carry, perhaps with a nondiscretionary licensing scheme (much like the nondiscretionary licensing scheme that Cook is discussing when he refers to concealed carry permit holders).

324 See State v. Hamdan, 665 N.W.2d 785, 809 (Wis. 2003) ("Requiring a storeowner who desires security on his own business property to carry a gun openly or in a holster is simply not reasonable. Such practices would alert criminals to the presence of the weapon and frighten friends and customers."). And the risk of frightening others would remain even when someone is carrying outside his property, though State v. Cole, 665 N.W.2d 328, 344 (Wis. 2003), holds that this burden on the right is justifiable when the carrying is outside one's business.

325 In Texas, for instance, over 300,000 people have concealed carry licenses. See Texas Department of Public Safety, Demographic Information (Jan. 5, 2009), http://www.txdps.state.tx.us/administration/crime_ records/chl/PDF/ ActLicAndInstr/ActiveLicandInstr2008.pdf. In Florida, the number is over 500,000. See Florida Department of Agriculture and Consumer Services, Number of Licensees by Type, http:// licgweb.doacs.state.fl.us/stats/licensetypecount.html (last visited May 11, 2009). This is only about 1.5-3 percent of the adult population, but chances are that someone in Texas or Florida will come across a concealed carry licenseholder every day.

326 One piece of evidence for this is that, in states that allow concealed carry, 1 to 4 percent of the adult population gets a license. See, e.g., supra note 325. But in states that allow only open carry, open carry appears to be much rarer. As in NAACP v. Alabama ex rel. Patterson, 357 U.S. 449 (1958)--where the Court found a First Amendment problem with the government's forcing the NAACP to list its members--"it is not sufficient to answer...that whatever repressive effect compulsory [self-identification of gun carriers] follows not from state action but from private community pressures. The crucial factor is the interplay of governmental and private action, for it is only after the initial exertion of state power represented by the [open-carry requirement] that private action takes hold." Id. at 463.

327 See, e.g., Donna Lewinwand, Four States Considering Open-Carry Gun Laws, USA Today, Feb. 12, 2009, at 3A; OpenCarry.org, A Right Unexercised Is a Right Lost, http://opencarry.org (last visited Mar. 6, 2009).

328 See, e.g., Mary Bowers, Getting It Off Your Chest, Guardian (U.K.), Apr. 23, 2008, (Comment & Features), at 16.

329 See, e.g., Buckley v. Am. Constitutional Law Found., Inc., 525 U.S. 182, 199 (1999); McIntyre v. Ohio Elec. Comm'n, 514 U.S. 334, 341-42 (1995); NAACP v. Alabama ex rel. Patterson, 357 U.S. at 462-63.
Police stops of someone who is carrying openly might not be ill-motivated the way that police harassment of unpopular speakers might be: A police officer might be reasonably interested in a visibly armed person's intentions, even if being openly armed isn't a crime. But the burden on the exercise of constitutional rights stemming from such police reaction remains present.

330 On Wearing Concealed Arms, Daily Nat'l Intelligencer, Sept. 9, 1820, at 2 (paragraph breaks added).

331 Willie Nelson, Pancho & Lefty, on Pancho & Lefty (Sony Records 1990) ("Pancho was a bandit boy / his horse was fast as polished steel / He wore his gun outside his pants / for all the honest world to feel"). This is a modern source, of course, but one that also captures well the 1800s sentiments.

332 State v. Smith, 11 La. Ann. 633 (1856).

333 See District of Columbia v. Heller, 128 S. Ct. 2783, 2815-17 (2008).

334 See, e.g., Akhil Reed Amar, The Second Amendment: A Case Study in Constitutional Interpretation, 2001 Utah L. Rev. 889, 907-09.

335 Under this view, the right to bear arms should now be read as protecting concealed carry, albeit perhaps with a shall-issue licensing scheme, see infra Part II.H, though not necessarily protecting open carry, which unduly worries observers and can be prohibited without interfering with people's ability to defend themselves by concealed carry. Some states in fact allow licensed concealed carry, and make licenses broadly available to law-abiding adults, but ban open carry. See, e.g., Ark. Code Ann. §§5-73-301, - 309, -315 (Supp. 2007) (providing for broadly available licenses to carry concealed firearms); Ark. Code Ann. §5-73-120 (2005) (otherwise banning the carrying of firearms, including open carrying).

336 See, e.g., State v. Dees, 669 P.2d 261, 264 (N.M. Ct. App. 1983) (upholding this as a reasonable regulation); Clark v. State, 527 S.W.2d 292, 294 (Tex. Ct. App. 1975) (doing likewise); Second Amendment Found. v. City of Renton, 668 P.2d 596 (Wash. Ct. App. 1983) (likewise); Tenn. Op. Att'y Gen. No. 04-020 (2000) (taking the view that such a regulation is constitutionally permissible).

337 See, e.g., State v. Lake, 918 P.2d 380, 382-83 (N.M. Ct. App. 1996) (upholding such a law even when "sales of liquor were not permitted at the time [the gun carrier] was in the store and he did not intend to purchase or possess alcohol within the store," using a tenuous argument based on the hypothetical risk that some other patron may be drunk and come back to the store while the gun carrier is there).

338 Compare, e.g., City of Baton Rouge & East Baton Rouge Parish, La. Code of Ordinances §13:95.3(a), (c) (2009) (banning guns from the premises of places "where alcoholic beverages are sold and/or consumed on the premises," and specifically including parking lots) with Mich. Comp. Laws Ann. §28.425*o*(1)(d), (3) (West Supp. 2009) (banning guns from the premises of bars or taverns "where the primary source of income of the business is the sale of alcoholic liquor by the glass and consumed on the premises," but specifically excluding parking lots).

339 See, e.g., Shaila Dewan, Suspect Kills 3, Including Judge, at Atlanta Court, N.Y. Times, Mar. 12, 2005, at A1.

340 See, e.g., United States v. Davis, No. 05-50726, 2008 U.S. App. LEXIS 26934 (9th Cir. Nov. 21, 2008) (upholding conviction for carrying a gun onto an airplane); Minich v. County of Jefferson, 919 A.2d 356, 360-61 (Pa. Commw. Ct. 2007) (upholding county's decision to ban members of the public from bringing guns into a courthouse).

341 I say "nearly" because no security system is foolproof. See, e.g., Jeannette Rivera-Lyles et al., Man Sneaks 14 Guns Into Jet's Cabin at OIA, Orlando Sentinel, Mar. 7, 2007, at A1.

342 See Isaiah v. State, 58 So. 2d 53, 56 (Ala. 1912) (McClellan, J., concurring); Strickland v. State, 72 S.E. 260, 264 (Ga. 1911); Hill v. State, 53 Ga. 473 (1874); State v. Shelby, 2 S.W. 468 (Mo. 1886), characterizing State v. Wilforth, 74 Mo. 528 (1881); State v. Kerner, 107 S.E. 222, 225 (N.C. 1921); Walter v. State, 16 Ohio C.C. (n.s.) 523, 524 (Cir. Ct. 1905); Andrews v. State, 50 Tenn. (3 Heis.) 165 (1871); English v. State, 35 Tex. 473, 478-79 (1872); Weapon Searches in Courthouses, Alaska Op. Att'y Gen. (Inf.) 241 (1991).

343 128 S. Ct. 2783, 2816-17 (2008); see also William Van Alstyne, The Second Amendment and the Personal Right to Arms, 43 Duke L.J. 1236, 1254 (1994) (defending a broad view of the right to bear arms, but suggesting that restrictions on carrying guns "in courtrooms or in public schools" are constitutional).

344 See, e.g., Kristin Bender, Suspect Faces Trial in Wife's Shooting at Oakland Church, Oakland Trib., Mar. 14, 2008.

345 18 U.S.C.A. §§921(a)(25), 922(q) (West 2000 & Supp. 2008). An earlier version of the Act was struck down on Commerce Clause grounds by United States v. Lopez, 514 U.S. 549 (1995), but the statute was reenacted to prohibit possession of a "firearm that has moved in or that otherwise affects interstate or foreign commerce," and this has since been upheld against a Commerce Clause challenge, see, e.g., United States v. Dorsey, 418 F.3d 1038 (9th Cir. 2005). For the rare case considering the constitutionality of the Act under the Second Amendment, see United States v. Lewis, Crim. No. 2008-45, 2008 WL 5412013, at *2 (D.V.I. Dec. 24, 2008) ("It is beyond peradventure that a school zone, where Lewis is alleged to have possessed a firearm, is precisely the type of location of which Heller spoke. Indeed, Heller unambiguously forecloses a Second Amendment challenge to that offense under any level of scrutiny."); Government's Opposition to Defendant's Motion to Suppress at 2, United States v. Lewis, Crim. No. 2008-45, 2008 WL 5412013 (D.V.I. Dec. 24, 2008) (noting that the gun was found in the car defendant was driving, with no mention that the car was actually being driven on school property).

346 18 U.S.C. §§922(q)(2)(B)(i)-(ii) (2006).

347 See Nat'l Rifle Ass'n Inst. for Legislative Action, Compendium of State Firearm Laws (2003), http://www.nraila.org/media/misc/Compendium.htm.

348 See Nat'l Rifle Ass'n Inst. for Legislative Action, Fact Sheet: Right-to-Carry (2008), http://www.nraila.org/Issues/FactSheets/Read.aspx?ID=18.

349 Montana tries to avoid the effect of the federal law by providing, in Mont. Code Ann. §45-8-360 (2007), that "[i]n consideration that the right to keep and bear arms is protected and reserved to the people in Article II, section 12, of the Montana constitution, a person who has not been convicted of a violent, felony crime and who is lawfully able to own or to possess a firearm under the Montana constitution is considered to be individually licensed and verified by the state of Montana within the meaning of the provisions regarding individual licensure and verification in the federal Gun-Free School Zones Act." This, though, likely doesn't exempt Montanans from the federal Act, which seems to require some individualized investigation for each license: 18 U.S.C. §922(q)(2)(B)(ii) (2006) exempts license-holders only if "the law of the State or political subdivision requires that, before an individual obtains such a license, the law enforcement authorities of the State or political subdivision verify that the individual is qualified under law to receive the license."

350 One can fault the federal government for this, or fault the state governments for not providing an easy licensing system that allows people to get licenses that would exempt them from federal law. But in any event, gun carrying is indeed banned within one thousand feet of schools in those states, albeit by a combination of federal and state legal regimes.

351 Cal. Penal Code §626.9 (West Supp. 2009); Wis. Stat. Ann. §948.605 (West 2008).

352 See supra note 318.

353 See Nat'l Rifle Ass'n Inst. for Legislative Action, supra note 347.

354 La. Rev. Stat. Ann. §14:95.2(A), (C)(5), (E) (2004). The law applies to people of all ages, but excludes carrying under a concealed handgun permit; such permits are unavailable to 18-to-20-year-olds, La. Rev. Stat. Ann. §40:1379.3(C)(4) (2008). The law exempts "[a]ny constitutionally protected activity which cannot be regulated by the state, such as a firearm contained entirely within a motor vehicle," La. Rev. Stat. Ann. §14:95.2(C)(5), but this just means that 18-to-20-year-olds may carry near a school only if the right to bear arms is read as protecting such carrying. There is also an exception for university students possessing firearms in their dormitory rooms, or on their way to or from their cars. Id. §14:95.2(C)(8).

355 Aurora, Ill., Code of Ordinances §29-43(a)(4), (12) (2009).

356 See, e.g., Doe v. Portland Hous. Auth., 656 A.2d 1200, 1201 (Me. 1995) (holding such a lease condition to be preempted by state firearms law); Stipulation Re Settlement, Doe v. S.F. Hous. Auth., No. 3:08-cv-03112-THE (N.D. Cal. June 27, 2008) (agreeing to eliminate such a lease condition); Richmond Tenants Org., Inc., v. Richmond Redevelopment & Hous. Auth., 751 F. Supp. 1204 (E.D. Va. 1990) (upholding such a lease condition against a statutory challenge, but not considering the Virginia Constitution's right to bear arms), aff'd, 947 F.2d 942, 1991 WL 230214 (4th Cir. 1991) (unpublished); H.R. 4062, 103d Cong. (1994) (proposing that public housing tenants be allowed to vote on whether to ban gun possession in the projects in which they live); S.B. 730, Gen. Assem., Jan. Sess. (Conn. 1995) (proposing ban on gun possession in public housing); Tex. Op. Att'y Gen. DM-71 (1991) (concluding such a lease condition is barred by state law); Robert Dowlut, Bearing Arms

in State Bills of Rights, Judicial Interpretation, and Public Housing, 5 St. Thomas L. Rev. 203, 212-14 (1993) (describing and criticizing such a policy in Chicago); Lloyd L. Hicks, Guns in Public Housing: Constitutional Right or Prescription for Violence?, 4 J. Affordable Housing & Community Dev. L. 153, 163 (1995) (discussing these policies without closely analyzing the constitutional question).

357 See 720 Ill. Comp. Stat. Ann. §§5/24-1(a)(10) (West 2003); Volokh, supra note 192 (discussing how the right to bear arms, as well as other rights, should apply to restrictions on stun gun possession and irritant spray possession).

358 Aurora, Ill., Code of Ordinances §29-43(a)(4), (12).

359 La. Admin. Code tit. 4, § 1729(B)(3)(c)(iv) (2009); Lincoln, Neb., Mun. Code § 9.36.140 (2008).

360 See, e.g., Estes v. Vashon Maury Island Fire Prot. Dist. No. 13, No. 55950-8-I, 2005 WL 2417641 (Wash. Ct. App. Oct. 3, 2005) (upholding a ban on possession by visitors to fire stations).

361 In 2006, for instance, there were 11 homicides in national parks, see Crime in National Parks, Wash. Post, Feb. 28, 2008, available at http:// www.washingtonpost.com/wp-dyn/content/graphic/2008/02/28/GR2008022800363.html, though there were only 13.2 million overnight stays. See U.S. Census Bureau, Statistical Abstract of the United States: 2009, tbl.1212 (2009), http:// www.census.gov/compendia/statab/tables/09s1212.pdf; National Park Serv., Director's Order #82: Public Use Data Collecting and Reporting Program, http:// www.nps.gov/policy/DOrders/DO-82draft.htm (last visited Apr. 5, 2009) (defining overnight stay as "[o]ne night within a park by a visitor"). If even two of the homicides were of overnight visitors (a subject on which we can only speculate, since the National Park Service doesn't collect data on whether the victims were overnight visitors), this would yield an annualized homicide rate of 5.5 per 100,000 people per year, roughly comparable to a national rate of 5.7 per 100,000 people per year. FBI, U.S. Dep't of Justice, Crime in the United States tbl.1 (2006), http:// www.fbi.gov/ucr/cius2006/data/table_01.html; E-mail From Amy Atchison, UCLA Law Library to Author (Feb. 6, 2009, 14:51 PST) (on file with author) (reporting on Atchison's conversation with the National Park Service).

362 See Mich. Coal. for Responsible Gun Owners v. City of Ferndale, 662 N.W.2d 864, 871 (Mich. Ct. App. 2003) (suggesting that the government might be able to "create gun-free zones," in case involving ban on possession in city buildings, but not definitively reaching the constitutional question because it found the ordinance was preempted); Tenn. Op. Att'y Gen. No. 04-020, at *2 (2004) (concluding that "the State has authority to prohibit or regulate the possession and use of firearms on property that it owns").

363 Lincoln Park Hous. Comm'n v. Andrew, No. 244259, 2004 WL 576260, at *3 (Mich. Ct. App. Mar. 23, 2004) (citations omitted).

364 Mich. Const. art. 1, §6, provides, "Every person has a right to keep and bear arms for the defense of himself and the state," which clearly includes an individual self-defense right. See also People v. Zerillo, 189 N.W. 927, 929 (Mich. 1922) (using this provision to strike down a ban on gun possession by noncitizens).

365 The same criticism applies to the Maine Superior Court's conclusion that a ban on gun possession in public housing is constitutional. Doe v. Portland Hous. Auth., No. CV-92-1408, 1993 Me. Super. LEXIS 359 (Me. Super. Ct. Dec. 29, 1993), rev'd on statutory grounds, 656 A.2d 1200 (Me. 1995). There too the court's reasoning would have equally upheld gun prohibitions imposed even on private property (not just government-owned property), though perhaps limited to dangerous apartment buildings: The court reasoned that the ban was a "reasonable...regulation" given that (1) the housing complexes "have unique tendencies for violence and even criminal behavior that specially threaten the health, safety and welfare of the residents," stemming from "the congregate closeness of the living arrangements and the resulting relationships among the residents[, which] tend to generate an atmosphere of volatility," and (2) the special complexes for "senior citizens and the disabled" house many people who have "mental or emotional problems" which leads "to assault, vandalism, rowdyism and similar disturbances." Id. at *19, 21-22. But it's hard to see how the Maine Constitution's expressly individual right to bear arms could rightfully be denied to non-criminal, non-mentally-ill people simply because they have the poor fortune to live around dangerous people--precisely the scenario where the right to bear arms is most useful to a law-abiding citizen.
Certain kinds of guns and ammunition may be especially dangerous in apartment buildings, whether publicly or privately owned, because the apartments are separated by only a single wall; this increases the risk that a bullet would injure or kill a neighbor. But this concern has never been seen as justifying total bans on all gun possession in all apartment buildings. And it would in any case not justify bans on shotguns, which fire small pellets that are highly unlikely to go through a wall

or retain their lethality even if they do. Likewise, it wouldn't justify bans on handguns that are loaded with special frangible ammunition, which is designed to similarly not go through walls.

366 46 Or. Op. Att'y Gen. 122, 127-28 (1988) (citation omitted).

367 See Ark. Op. Att'y Gen. No. 94-093 (1994) (expressing uncertainty about whether a ban on firearms in public housing would be unconstitutional, but not discussing the government's proprietary rights).

368 See Vernonia School Dist. 47J v. Acton, 515 U.S. 646 (1995) (discussing public high school athletes); Wyman v. James, 400 U.S. 309 (1971) (discussing welfare recipients).

369 See Snepp v. United States, 444 U.S. 507 (1980).

370 See Webster v. Reproductive Health Servs., 492 U.S. 490 (1989); see also Nordyke v. King, 563 F.3d 439, 460 (9th Cir. 2009) (citing Harris v. McRae, 448 U.S. 297, 315-16 (1980), which held that the government could refuse to fund abortions using government money, for the proposition that the government should have broad authority to restrict arms possession on government property, at least "where high numbers of people might congregate").

371 See Int'l Soc'y for Krishna Consciousness (ISKCON) v. Lee, 505 U.S. 672 (1992).

372 Cf. 46 Or. Op. Att'y Gen. 122, 131-32 (1988) (concluding that it is probably permissible to ban visitors to public housing from bringing guns).

373 E.g., Resident Action Council v. Seattle Hous. Auth., 174 P.3d 84 (Wash. 2008) (striking down ban on posting material on the outside of one's apartment door).

374 E.g., Pratt v. Chicago Hous. Auth., 848 F. Supp. 792 (N.D. Ill. 1994) (holding that warrantless searches for guns in public housing units are likely unconstitutional, and silently assuming that the Fourth Amendment rules are the same in publicly owned housing as they are in other homes).

375 See, e.g., Nordyke, 563 F.3d at 460 (taking the view that at least those parks "where high numbers of people might congregate" are "sensitive places" where the government may indeed ban private gun carrying).

376 Va. Op. Att'y Gen. No. 05-078 (2006) (ban on carrying concealed weapons by university students and employees is permissible, though not discussing possession in dorm rooms).

377 La. Op. Att'y Gen. No. 94-131 (1994) (suggesting that Second Amendment protects university student's right to possess guns in dorm rooms).

378 D.C. Code §7-2507.02 (2001).

379 See, e.g., Conn. Gen. Stat. §29-37i (2003); 46 Or. Op. Att'y Gen. No. 122, 131 (1988) (suggesting this would be constitutional, at least as to housing projects--though maybe more broadly--and as to children under 16).

380 See, e.g., Conn. Gen. Stat. §29-37i. But see District of Columbia v. Heller, 128 S. Ct. 2783, 2818-19 (2008) (taking the view that the D.C. law did not allow such actions even when self-defense was necessary, and thus presumably allowed guns to be kept at home only to be used at target ranges or for hunting).

381 See supra Part II.C.1. Fla. Op. Att'y Gen. 2000-42 (2000), opines that "[a] requirement that gun owners secure their firearms with a gun lock would not appear to interfere with that right [to bear arms]," but doesn't explain why this is so. When someone is woken in the middle of the night when an intruder is breaking into his house, even the few seconds it takes to unlock the lock may indeed be a substantial "interfere[nce]" with "[t]he right of the people to keep and bear arms in defense of themselves," Fla. Const. art. I, §8(a).

382 See Heller, 128 S. Ct. at 2819-20 (acknowledging the Framing-era laws restricting the storage of gunpowder in order to prevent fire, and noting that the Court's analysis does not "suggest the invalidity of laws regulating the storage of firearms to prevent accidents," but not discussing exactly what sorts of regulations would remain valid and what sorts would be too burdensome to be constitutional).

383 See Nat'l Research Council, supra note 95, at 217-20 (noting the conflict in the studies, and concluding that "until independent researches can perform an empirically based assessment of the potential statistical and data related problems, the credibility of the existing research cannot be assessed").

384 See supra Part I.C.2.b.

385 Cf. Robinson v. Pioche, Bayerque & Co., 5 Cal. 460, 460 (1855).

386 But see Beckett v. People, 800 P.2d 74, 83 (Colo. 1990) (Kirshbaum, J., dissenting) (asserting a constitutional right to pick up a gun for immediate self-defense even when intoxicated).

387 For cases holding that the right to bear arms doesn't apply to carrying or possession on the person while intoxicated, see Gibson v. State, Nos. A-6082, A-6162, 1997 WL 14147 (Alaska Ct. App. Jan. 17, 1997) (holding that the right does not apply to possession on the person while intoxicated, as applied in the home, but reserving the question whether this would apply to constructive possession); People v. Garcia, 595 P.2d 228, 230-31 & n.4 (Colo. 1979) (likewise as to possession on the person while intoxicated, but noting that mere ownership doesn't suffice under the statute for possession, and that possession must be determined by looking at "the proximity of the defendant to the firearm," "the ordinary place of storage of the firearm," "the defendant's awareness of the presence of the firearm," and "locks or other physical impediments which preclude ready access to the firearm"); City of Salina v. Blaksley, 72 Kan. 230 (1905) (holding that the right does not apply as to carrying while intoxicated); State v. Shelby, 2 S.W. 468 (Mo. 1886) (likewise as to carrying while intoxicated); State v. Rivera, 853 P.2d 126, 130 (N.M. 1993) (likewise as to possessing "on the person, or in close proximity thereto, so that the weapon is readily accessible for use" while intoxicated); State v. Kerner, 107 S.E. 222, 225 (N.C. 1921) (dictum) (likewise as to carrying while intoxicated); State v. Paolantonio, No. KS-2006-0262A, 2006 WL 2406735 (R.I. Super. Aug. 15, 2005) (likewise as to carrying while intoxicated).

388 Something many friends might be reluctant to do, for instance if they have children at home and no gun safe, or if they are worried that the requester is trying to hide a gun that had been used in crime.

389 Such people are of course unlikely to be caught unless they misuse their guns while drunk. But some of them might be caught: Imagine, for instance, that someone with a grudge against an ex-lover or an ex-boss calls the police to accurately report that the person is drunk and is known to keep a gun in the home. And if the answer to that hypothetical is that the police rightly would not investigate this unless there was evidence the person was actually a danger to others, then this just reinforces the notion that a law banning possession while intoxicated is too broad.

390 See, e.g., Conn. Gen. Stat. §53-206d (2007); Idaho Code Ann. §18-3302B (2004).

391 Mo. Ann. Stat. §571.030.1(5) (West 2008).

392 E.g., id. §571.020.1 (banning possession of classes of weapons, including machine guns).

393 See, e.g., District of Columbia v. Heller, 128 S. Ct. 2783, 2812-13 (2008) (endorsing the statement in United States v. Cruikshank, 92 U.S. 542, 553 (1876), that the Second Amendment protected a right to possess guns for "a lawful purpose"); United States v. Jackson, 555 F.3d 635, 636 (7th Cir. 2009); United States v. Bowers, No. 8:05CR294, 2008 WL 5396630, at *2 (D. Neb. Dec. 23, 2008); Cockrum v. State, 24 Tex. 394, 401-03 (1859); State v. Daniel, 391 S.E.2d 90, 97 (W. Va. 1990).

394 See, e.g., Biddinger v. State, 846 N.E.2d 271, 278 (Ind. Ct. App. 2006) (holding that mere possession of a firearm may not be used as an aggravating factor at sentencing).

395 See Dawson v. Delaware, 503 U.S. 159 (1992).

396 People v. Atencio, 878 P.2d 147, 150 (Colo. Ct. App. 1994); State v. Blanchard, 776 So. 2d 1165, 1174 (La. 2001); State v. Gurske, 118 P.3d 333, 335 (Wash. 2005) (one in a long line of Washington state cases on the subject); see also Brewer v. Commonwealth, 206 S.W.3d 343, 347-48 (Ky. 2006) (relying partly on the right to bear arms in holding that a firearm may not be forfeited based on the owner's conviction of a crime unless there's a nexus between the firearm and the crime).

397 Gurske, 118 P.3d at 335-36.

398 Cal. Penal Code §§12071(b)(3)(A), 12072(c)(1) (Deering Supp. 2009); Haw. Rev. Stat. Ann. §134-2(e) (LexisNexis Supp. 2008); 720 Ill. Comp. Stat. Ann. 5/24-3(A)(g) (West 2003); R.I. Gen. Laws. §§11-47-35(a)(i), -35.1, -35.2 (Supp. 2008); Legal Community Against Violence, Regulating Guns in America: An Evaluation and Comparative Analysis of Federal, State and Selected Local Gun Laws 134 (2008), http:// www.lcav.org/library/reports_analyses/regulating_guns.asp.

399 See Fla. Stat. Ann. §790.0655(1) (West Supp. 2009); Iowa Code Ann. §724.20 (West 2003); Md. Code Ann., Pub. Safety §§ 5-123, 5-124 (LexisNexis 2003); Minn. Stat. Ann. §624.7132, subdivs. 4, 12 (West 2003); N.J. Stat. Ann. §§2C:58-2a(5)(a), -3f (West 2005); S.D. Codified Laws §23-7-9 (2006); Wis. Stat. Ann. §175.35(2)(d), (2g)(c) (West 2006); Legal Community Against Violence, supra note 398, at 134-35. The Maryland and Minnesota laws also cover so-called "assault weapons," but not most rifles and shotguns. Conn. Gen. Stat. Ann. §29-37a (West 2003) covers only long guns, not handguns.

400 Consider Ernest Hemingway and Kurt Cobain. Each year, over 30 percent of the gun suicides for which a specific gun type is reported in Injury Facts are shotgun suicides, and over 10 percent are rifle suicides. See Nat'l Safety Council, Injury Facts 17 (1999) (1994-96 data).

401 See Hahn et al., supra note 96, at 52.

402 See N.Y. Penal Law §§265.00.3, 400.00 (McKinney 2008); Mass. Ann. Laws ch. 140, §129B(3) (LexisNexis 2007); Wis. Stat. Ann. §175.35(2) (West 2006). Of course, both the background check and the cooling off period rationale only make sense when the buyer doesn't already own a gun (or if the buyer doesn't already own a handgun, assuming the check is focused on handguns). If the buyer already owns a gun, then any possible benefit in delaying his acquisition of another gun is likely to be vanishingly slight. See generally Gary Kleck, Point Blank: Guns and Violence in America 333 (1991).

403 See, e.g., U.S. Dep't of Justice, Office of Justice Programs, Background Checks for Firearm Transfers, 2005, at 4 (2006).

404 Compare Ky. Op. Att'y Gen. No. 2-271 (1982) (stating a waiting period is constitutional, without detailed discussion), and Tenn. Op. Att'y Gen. No. 89-34 (1989) (likewise), with State v. Kerner, 107 S.E. 222, 225 (N.C. 1921) (rejecting license requirement for carrying a gun because of a risk that one may immediately need to carry a gun in circumstances that leave one no time to get a permit).

405 See, e.g., 137 Cong. Rec. 10,288, 10,291 (1991) (discussing an incident in which a woman, Bonnie Elmasri, wanted to buy a gun after a death threat from her husband, was told there was a 2-day waiting period, and was killed the next day, together with her two sons, by her husband); Inge Anna Larish, Why Annie Can't Get Her Gun: A Feminist Perspective on the Second Amendment, 1996 U. Ill. L. Rev. 467, 496.

406 That's what fourteen days ends up approximately being, for a person of average age.

407 Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833 (1992).

408 Compassion in Dying v. Washington, 79 F.3d 790, 833 (9th Cir. 1996).

409 Or. Rev. Stat. §127.840 (2007).

410 E.g., 42 C.F.R. §441.253(d) (2007) (requiring a 30-day waiting period for sterilizations for which federal payment is provided).

411 See, e.g., In re Grady, 426 A.2d 467 (N.J. 1981) (so holding).

412 See Alaska Stat. §§25.05.091, 25.05.161 (2008) (three days, unless the court waives the waiting period); 750 Ill. Comp. Stat. Ann. 5/207 (West Supp. 2009) (one day, unless the court waives the waiting period); Wis. Stat. Ann. §765.08 (West 2008) (5 days, unless the county clerk waives the waiting period).

413 See In re Kilpatrick, 375 S.E.2d 794, 795 n.1 (W. Va. 1988) (noting that a challenge to a three-day waiting period was made but was not addressed in the brief and was therefore waived).

414 Burns v. Fortson, 410 U.S. 686, 687 (1973) (upholding the requirement but suggesting that "the 50-day registration period approaches the outer constitutional limits in this area").

415 See, e.g., Douglas v. Brownell, 88 F.3d 1511, 1523-24 (8th Cir. 1996) (striking down a requirement of 5 days' notice); Grossman v. City of Portland, 33 F.3d 1200, 1204-07 (9th Cir. 1994) (striking down a requirement of 7 days' notice for demonstrations, when requirement covered even small groups); NAACP v. City of Richmond, 743 F.2d 1346, 1356-57 (9th Cir. 1984) (striking down a requirement of 20 days' notice and suggesting that the upper bound might be as low as two or three days). Lower courts have also suggested that permit requirements would be impermissible for groups of a few people, who don't materially implicate the city's interests in traffic control or adequate policing. Douglas, 88 F.3d at 1524;Grossman, 33 F.3d at 1206-08;Rosen v. Port of Portland, 641 F.2d 1243, 1248 n.8 (9th Cir. 1981) (holding that even a 24-hour notice requirement would be unconstitutional for small groups).

416 See Planned Parenthood of Middle Tenn. v. Sundquist, 38 S.W.3d 1, 24 (Tenn. 2000).

417 See United States v. Nation, 9 C.M.A. 724, 727 (1958) ("For a commander to restrain the free exercise of a serviceman's right to marry the woman of his choice for six months just so he might better reconsider his decision is an arbitrary and unreasonable interference with the latter's personal affairs which cannot be supported by the claim that the morale, discipline, and good order of the command require control of overseas marriages."); Carter v. Dutton, No. 93-5703, 1994 WL 18006, at *1 (6th Cir. Jan. 21, 1994) (noting trial court decision striking down a one-year waiting period for marriages between inmates and non-inmates).

418 See, e.g., Church of the Am. Knights of the Ku Klux Klan v. City of Gary, 334 F.3d 676, 682 (7th Cir. 2003). See generally Shuttlesworth v. City of Birmingham, 394 U.S. 147, 163 (1969) (Harlan, J., concurring) ("[T]iming is of the essence in politics. It is almost impossible to predict the political future; and when an event occurs, it is often necessary to have one's voice heard promptly, if it is to be considered at all. To require Shuttlesworth to submit his parade permit application months in advance would place a severe burden upon the exercise of his constitutionally protected rights.").

419 See, e.g., Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833, 880 (1992); Women's Med. Prof'l Corp. v. Voinovich, 130 F.3d 187, 203 (6th Cir. 1997); Planned Parenthood of Del. v. Brady, 250 F. Supp. 2d 405 (D. Del. 2003).

420 Cf., e.g., Fla. Stat. Ann. §790.33(2)(d)(6) (West 2007) (exempting from the waiting period, which would normally be up to 3 days, "[a]ny individual who has been threatened or whose family has been threatened with death or bodily injury, provided the individual may lawfully possess a firearm and provided such threat has been duly reported to local law enforcement"); Minn. Stat. Ann. §624.7132 subdiv. 4 (West 2003) (providing that "the chief of police or sheriff may waive all or a portion of the five business day waiting period in writing if the chief of police or sheriff finds that the transferee requires access to a pistol or semiautomatic military-style assault weapon because of a threat to the life of the transferee or of any member of the household of the transferee"); Ohio Rev. Code Ann. §2923.1213 (West 2006 & Supp. 2008) (providing for a temporary emergency license to carry a concealed weapon when the applicant provides a sworn statement "that the [applicant] has reasonable cause to fear a criminal attack upon the [applicant] or a member of the [applicant's] family, such as would justify a prudent person in going armed," or other evidence of such a threat); cf. 18 U.S.C. §922(s)(1)(B) (2006) (exempting transferees from the waiting period for gun purchases if they stated that they "require[] access to a handgun because of a threat to the life of the transferee or any member of the household of the transferee"; this was in effect during the pre-instant-background check era, see id. §922(t)(1)).

421 Cook, Ludwig & Samaha, supra note 323, at 1085; see also Philip J. Cook & Jens Ludwig, The Social Costs of Gun Ownership, 90 J. Pub. Econ. 379, 389-90 (2006) (suggesting that such a tax might vary from $100 to $1800 per household).

422 See Ill. H.B. 0687, 96th Gen. Assem., Reg. Sess. (2009).

423 See Martin v. City of Struthers, 319 U.S. 141, 146 (1943) (striking down ban on door-to-door solicitation, partly on the grounds that "[d]oor to door distribution of circulars is essential to the poorly financed causes of little people"); see also City of Ladue v. Gilleo, 512 U.S. 43, 57 (1994) (striking down ban on display of signs at one's home, partly on the grounds that "[r]esidential signs are an unusually cheap and convenient form of communication. Especially for persons of modest means or limited mobility, a yard or window sign may have no practical substitute").

424 See Mazurek v. Armstrong, 520 U.S. 968, 972 (1997) (applying substantial burden analysis to a requirement that an abortion be performed by a physician rather than by a physician's assistant); Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833, 886 (1992) (controlling opinion of O'Connor, Kennedy, and Souter, JJ.) (applying the substantial burden analysis to a recordkeeping restriction imposed on abortion providers); id. at 884-85 (applying the substantial burden analysis to a

requirement that various information be given to the patient by physicians and not by the physicians' staff); Jackson Women's Health Org. Inc. v. Amy, 330 F. Supp. 2d 820, 824-26 (S.D. Miss. 2004) (finding a substantial burden on women's rights to an abortion in a state law that barred any place other than a hospital or a licensed ambulatory care facility from performing abortions). But see Caswell & Smith v. State, 148 S.W. 1159, 1161, 1163 (Tex. Civ. App. 1912) (upholding--in my view incorrectly--a 50 percent gross receipts tax on the sale of pistols, simply on the grounds that the law "does not infringe or attempt to infringe the right on the part of the citizen to keep and bear arms," including "the right to carry a pistol openly," and reasoning even that "absolute[] prohibit[ion]" of the business of selling pistols would be constitutional).

425 Cook, Ludwig & Samaha, supra note 323, at 1085.

426 See, e.g., Ark. Writers' Project, Inc. v. Ragland, 481 U.S. 221 (1987).

427 E.g., Sullivan v. City of Augusta, 511 F.3d 16, 35-36 (1st Cir. 2007) (demonstrations); National Awareness Found. v. Abrams, 50 F.3d 1159, 1167 (2d Cir. 1995) (charitable fundraising); Stonewall Union v. City of Columbus, 931 F.2d 1130, 1137 (6th Cir. 1991) (demonstrations).

428 See, e.g., Boynton v. Kusper, 494 N.E.2d 135, 138 (Ill. 1986) (striking down a $10 tax on marriage licenses, aimed at funding services for victims of domestic violence, but stressing in dictum that this part of the license fee "has no relation to the county clerk's service of issuing, sealing, filing, or recording the marriage license"); D'Antoni v. Comm'r, N.H. Dep't of Health & Human Servs., 917 A.2d 177, 183 (N.H. 2006) (upholding a $38 marriage license fee because the fee was less than the "incidental expenses related to issuing the licenses").

429 Lubin v. Panish, 415 U.S. 709 (1974).

430 See Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

431 Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833, 886 (1992) (plurality opinion of O'Connor, Kennedy, and Souter, JJ.).

432 Webster v. Reproductive Health Servs., 492 U.S. 490, 517-20 (1989) (plurality opinion); id. at 529-30 (O'Connor, J., concurring in part and concurring in the judgment).

433 Casey, 505 U.S. at 886.

434 See, e.g., id. at 874, 886.

435 See, e.g., Sullivan v. City of Augusta, 511 F.3d 16, 38 (1st Cir. 2007); E. Conn. Citizens Action Group v. Powers, 723 F.2d 1050, 1056 (2d Cir. 1983); Fernandes v. Limmer, 663 F.2d 619, 633 (5th Cir. 1981); see also Murdock v. Pennsylvania, 319 U.S. 105, 113-14 (1943) (so suggesting); Cox v. New Hampshire, 312 U.S. 569, 577 (1941) (likewise).

436 See Lubin v. Panish, 415 U.S. 709, 718-19 (1974) (requiring exemption from filing fee for indigent political candidates); Cent. Fla. Nuclear Freeze Campaign v. Walsh, 774 F.2d 1515, 1523 (11th Cir. 1985) (same as to demonstration permit fee).

437 The right to speak does protect bookstores, but only because they themselves (unlike the paper sellers or computer sellers) are seen as speaking by distributing material that they want to distribute.

438 See District of Columbia v. Heller, 128 S. Ct. 2783, 2816-17 (2008) (stating that "laws imposing conditions and qualifications on the commercial sale of arms" are constitutional); Or. Att'y Gen. Op. Request OP-5881 (1985) (concluding that ban on non-dealer transfers to people who aren't "personally known" to seller, and bans on non-dealers engaging in the business of selling guns, would be constitutional).

439 Compare Caswell & Smith v. State, 148 S.W. 1159, 1161, 1163 (Tex. Civ. App. 1912) (upholding a 50 percent gross receipts tax on the sale of pistols, simply on the grounds that the law "does not infringe or attempt to infringe the right on the part of the citizen to keep and bear arms," including "the right to carry a pistol openly," and reasoning even that "absolute[] prohibit[ion]" of the business of selling pistols would be constitutional), with Dowlut & Knoop, supra note 314, at 215 (arguing that Caswell & Smith was wrong, on the grounds that the tax was "confiscatory"), and Stephen P. Halbrook, The Right to Bear Arms in Texas: The Intent of the Framers of the Bill of Rights, 41 Baylor L. Rev. 629, 683 (1989) (likewise).

440 See, e.g., City of University Heights v. O'Leary, 429 N.E.2d 148 (Ohio 1981) (4-3) (upholding identification card requirement for nonresidents); Mosher v. City of Dayton, 358 N.E.2d 540 (Ohio 1976) (upholding such a requirement for possession); Photos v. City of Toledo, 250 N.E.2d 916 (Ohio Ct. Com. Pl. 1969) (same). But see O'Leary, 429 N.E.2d at 153 (Celebrezze, C.J., dissenting) (arguing that the requirement should be struck down because the law should "require that all limitations [on the right to keep and bear arms] not only be reasonable, but also necessary").

441 See, e.g., State v. Mendoza, 920 P.2d 357 (Haw. 1996) (upholding such a requirement); 50 N.C. Op. Att'y Gen. No. 69, 70 (1981) (stating registration of handguns would be constitutional, because it would be "reasonable" and "would not prohibit the right to keep and bear arms"); see also State v. Hamlin, 497 So. 2d 1369 (La. 1986) (upholding registration requirement for shotguns with barrel of less than eighteen inches).

442 See, e.g., State v. Comeau, 448 N.W.2d 595 (Neb. 1989) (upholding ban on defacing serial number); United States v. Marzzarella, 595 F. Supp. 2d 596 (W.D. Pa. 2009) (likewise).

443 These are sometimes called "ballistic fingerprinting," but this is likely too optimistic a term: The pattern of marks that a gun creates can apparently be changed quite easily, see Eugene Volokh, Crime-Facilitating Speech, 57 Stan. L. Rev. 1095, 1117 & n.100 (2005), though one might guess that a substantial number of criminals will nonetheless fail to do this.

444 Such microstamping would in principle make it easier to find which gun was used in a shooting, if the brass were found at the crime scene. See, e.g., Cal. Penal Code §12126(b)(7) (West Supp. 2009); Cook, Ludwig & Samaha, supra note 323, at 1090. It is unlikely that this will practically do much to fight crime, since people who anticipate using guns for criminal purposes will just buy either an older semiautomatic or a revolver; revolvers don't eject the brass after firing, so microstamping requirements for them would be useless. But perhaps microstamping might catch some criminals, for instance people who bought the gun for lawful purposes and thus didn't worry about microstamping, or chose a new semiautomatic (perhaps because they liked the semiautomatic's greater capacity, which is usually ten or more rounds as opposed to six to eight rounds for a typical revolver) but then used it for criminal purposes without having the time to buy another gun.

445 See, e.g., Dowlut & Knoop, supra note 314, at 216-17 (reasoning that state constitutions should be read to protect open carrying of a weapon even without a license, but on the grounds that "licensing officials can be very creative in frustrating applicants" and that the exercise of constitutional rights "'cannot be made subject to the will of the sheriff'" (quoting People v. Zerillo, 189 N.W. 927, 928 (Mich. 1922))).

446 Cf. Reynolds, supra note 230, at 481 (defending licensing laws and background checks on originalist grounds); Don B. Kates, Jr., Handgun Prohibition and the Original Meaning of the Second Amendment, 82 Mich. L. Rev. 204, 265 (1983) (likewise).

447 See, e.g., Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833, 900-01 (1992) (suggesting that reporting requirements are constitutional to the extent they "respect a patient's confidentiality and privacy").

448 See, e.g., Cox v. New Hampshire, 312 U.S. 569 (1941).

449 See, e.g., Buckley v. Am. Constitutional Law Found., Inc., 525 U.S. 182, 191-92 (1999).

450 See, e.g., Riley v. Nat'l Fed'n of the Blind of N.C., Inc., 487 U.S. 781 (1988).

451 See, e.g., Buckley v. Valeo, 424 U.S. 1 (1976).

452 See, e.g., Cal. Pro-Life Council, Inc. v. Randolph, 507 F.3d 1172 (9th Cir. 2007).

453 See, e.g., Watchtower Bible & Tract Soc'y of N.Y., Inc. v. Village of Stratton, 536 U.S. 150, 166-67 (2002).

454 See supra Part II.C.2.

455 I set aside the question whether making gun ownership or concealed carry license records public under state open records acts might be unconstitutional. See generally Kelsey M. Swanson, Comment, The Right to Know: An Approach to Gun Licenses and Public Access to Government Records, 56 UCLA L. Rev. 1579 (2009).

456 This could also happen if the right to bear arms isn't incorporated against the states, and a state doesn't have a right-to-bear-arms provision; in that case, though, the right to bear arms should not stand in the way of registration and confiscation,

precisely because there is no constitutional right to bear arms in the state. And it could happen if the right to bear arms isn't incorporated, and a state repeals its right-to-bear-arms provision after registration is implemented (or if a federal constitutional amendment is enacted to repeal the Second Amendment). But a court ought not prohibit registration on right-to-bear-arms grounds for fear that the people will later repeal the right to bear arms; the people are entitled to change the Constitution, and the current Constitution ought not be read as entrenching itself against future constitutional amendments.

457 See, e.g., Vincent Blasi, The Pathological Perspective and the First Amendment, 85 Colum. L. Rev. 449 (1985).

56 UCLALR 1443

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Exhibit 3

The Relationship Between Gun Ownership and Firearm Homicide Rates in the United States, 1981–2010

Michael Siegel, MD, MPH, Craig S. Ross, MBA, and Charles King III, JD, PhD

Objectives. We examined the relationship between levels of household firearm ownership, as measured directly and by a proxy—the percentage of suicides committed with a firearm—and age-adjusted firearm homicide rates at the state level.

Methods. We conducted a negative binomial regression analysis of panel data from the Centers for Disease Control and Prevention's Web-Based Injury Statistics Query and Reporting Systems database on gun ownership and firearm homicide rates across all 50 states during 1981 to 2010. We determined fixed effects for year, accounted for clustering within states with generalized estimating equations, and controlled for potential state-level confounders.

Results. Gun ownership was a significant predictor of firearm homicide rates (incidence rate ratio = 1.009; 95% confidence interval = 1.004, 1.014). This model indicated that for each percentage point increase in gun ownership, the firearm homicide rate increased by 0.9%.

Conclusions. We observed a robust correlation between higher levels of gun ownership and higher firearm homicide rates. Although we could not determine causation, we found that states with higher rates of gun ownership had disproportionately large numbers of deaths from firearm-related homicides. (*Am J Public Health.* Published online ahead of print September 12, 2013: e1–e8. doi:10.2105/AJPH.2013.301409)

The December 14, 2012, tragic shooting of 20 children and 7 adults in Newtown, Connecticut, brought the issue of controlling firearm-related mortality to the forefront.[1–5] The National Rifle Association responded by calling for armed guards and teachers in all schools.[6] Hundreds of teachers have flocked to gun-training classes, motivated by the contention that increasing the presence of guns can reduce firearm-related deaths.[7] Firearms are responsible for more than 31 000 deaths and an estimated 74 000 nonfatal injuries among US residents each year,[8] most of which are violence related. Understanding the relationship between the prevalence of gun ownership (and therefore the availability of guns) and firearm-related mortality is critical to guiding decisions regarding recently proposed measures to address firearm violence.

Several lines of research have explored the relationship between firearm prevalence and homicide rates.[9] Studies have shown that individual gun ownership is related to an increased risk of being a homicide victim.[10–12] These studies are limited because they only examine the individual risks or benefits of gun ownership. They cannot be used to assess whether the prevalence of gun ownership in the population affects overall homicide rates.[9] Ecological studies have correlated higher levels of gun ownership rates in the United States with higher national rates of homicide than are experienced in other countries.[13–19] Although these studies suggest a relationship between gun ownership and homicide, they are severely limited because of inadequate adjustment for confounding factors.[9]

Examination of variation in homicide rates between cities, regions, or states within the United States in relation to differences in gun ownership provides a stronger line of research. A few studies have used a time-series design to investigate the relationship between firearm ownership and homicide over a period of years, either analyzing changes over time within cities or states[20–23] or examining changes over time across states.[24–29] Several studies used cross-sectional analyses to detect a positive relationship between the prevalence of gun ownership at the neighborhood,[30] county,[31,32] regional,[31,33–36] or state level[32,34–45] and homicide rates, with control for differences in factors associated with homicide (e.g., urbanization, race/ethnicity, unemployment, poverty, crime, and alcohol use). Most data used in these studies represented only a cross-section in time; only 4 contained panel data over multiple years. Sorenson and Berk used data from 1972 to 1993,[23] Bordura examined data for 1973 to 1981,[31] Miller et al. published 3 analyses of panel data from 1988 to 1997,[34–36] and Cook and Ludwig used panel data for 1980 to 1999.[32] None of the existing panel studies examined data more recent than 1999.[32]

Studies analyzing data over long periods are valuable because they assess the effects of variation in gun availability not only between states but within states over time. Although we are aware of no multiyear studies of interstate variation in gun ownership and homicide rates since 1999, national data from the General Social Survey show that the prevalence of household gun ownership has decreased by approximately 12% since then.[46] This presents an opportunity not only to bring the existing literature up to date, but also to investigate temporal changes in gun ownership to explore its potential relationship with changes in homicide rates, within and between states. Annual, state-specific homicide data are readily available from as early as 1981 and as recently as 2010.[8] During this period, the prevalence of gun ownership decreased by about 36%.[46] Thus, it is feasible and useful to study the relationship between gun availability and homicide across states over the entire period 1981 to 2010.

We expanded on previous work by incorporating the most recent data, analyzing data over 3 decades, and controlling for an extensive panel of annual, state-specific factors that might confound the association between gun ownership and firearm homicide rates. We

examined the relationship between gun ownership and age-adjusted firearm homicide rates across all 50 states during the 30-year period 1981 through 2010, with adjustment for age, gender, race/ethnicity, urbanization, poverty, unemployment, income, education, income inequality, divorce rate, alcohol use, violent crime rate, nonviolent crime rate, hate crime rate, number of hunting licenses, age-adjusted nonfirearm homicide rate, incarceration rate, and suicide rate. To the best of our knowledge, this was the most comprehensive study to date, both in number of years in the analysis and breadth of control variables.

METHODS

We assembled a panel of annual data for 1981 to 2010 for each of the 50 states. We modeled the adjusted firearm homicide rate in a given year for a given state as a function of the gun ownership level in that state during that year, with adjustment for factors that could confound the association. We used a negative binomial regression model, entering fixed effects for each year. We accounted for clustering of observations among states with a generalized estimating equation (GEE) approach.

Variables and Data Sources

The outcome variable was the age-adjusted firearm homicide rate, obtained from the Centers for Disease Control and Prevention's Web-Based Injury Statistics Query and Reporting Systems database.[8] Although death classification changed from the 9th to the 10th revision of the *International Classification of Diseases*[47,48] during the study period, a comparability analysis showed no significant differences in the classification for either suicide or homicide.[49]

The main predictor variable was the prevalence of household firearm ownership. Because no annual survey assessed the level of household firearm ownership in all 50 states during the entire study period, we used a well-established proxy: the percentage of suicides committed with a firearm (firearm suicides divided by all suicides, or FS/S). This measure has been extensively validated in the literature[13,14,32,37,44,50–54] and has been determined to be the best proxy available of many that have been tested.[50] The ratio of firearm suicides to all suicides has been shown to correlate highly with survey measures of household firearm ownership,[13,14,32,36,50–54] including state-specific measures of firearm ownership,[36,50] and has been used extensively as a proxy for state-specific gun availability in previous studies.[32,34–37,39,43,44,54–56]

In 2001, 2002, and 2004, the Behavioral Risk Factor Surveillance System surveys measured the prevalence of household gun ownership in all 50 states. We found the correlation between our proxy measure, FS/S, and the surveillance system estimates for the 50 states for 2001, 2002, and 2004 to be 0.80.

We controlled for the following factors, which have been identified in previous literature[29,32,34–37,41–45,54,56,57] as being related to homicide rates: proportion of young adults (aged 15–29 years),[8] proportion of young males (aged 15–29 years),[8] proportion of Blacks,[8] proportion of Hispanics,[58] level of urbanization,[59] educational attainment,[60] poverty status,[61] unemployment,[62] median household income,[63] income inequality (the Gini ratio),[64] per capita alcohol consumption,[65] nonhomicide violent crime rate (aggravated assault, robbery, and forcible rape),[66] nonviolent (property) crime rate (burglary, larceny–theft, and motor vehicle theft),[66] hate crime rate,[67] prevalence of hunting licenses,[68] and divorce rate.[69] To account for regional differences, we controlled for US Census region.[70] In addition, to capture unspecified factors that may be associated with firearm homicide rates, we controlled for the annual, age-adjusted rate of nonfirearm homicides in each state.[8] We also controlled for state-specific incarceration rates[71] and suicide rates.[8] The definitions and sources of these data are provided in Table 1.

Where values of a variable in some years were missing or unavailable, we interpolated data from surrounding years or extrapolated from the 2 closest years. All interpolations and extrapolations were linear. We did not, however, impute values for the outcome variable. State-level mortality data obtained through the Web-Based Injury Statistics Query and Reporting Systems for 2008 to 2010 are subject to a stringent censoring threshold not applied for earlier years in the study period, and results are not reported if fewer than 10 homicide deaths occurred. This resulted in a total of 13 missing data points for the outcome variable during the final 3 years of the study period. We excluded these data points; therefore, our data set had a total of 1487 observations.

Model and Statistical Analysis

Because the outcome variable—the age-adjusted firearm homicide rate—was skewed rather than normally distributed, and because overdispersion was present in the data (the variance greater than the mean), we modeled this outcome with a negative binomial model, following the approach taken in previous studies.[34–36,41,55,57,72,73] Estimation of the overdispersion parameter confirmed our choice of a negative binomial model over a Poisson model,[74] following Miller et al.[34]

Clustering in our data could have arisen in 2 ways: by year (30 levels) and by state (50 levels). We entered year as a fixed effect in the regression model. This allowed us to control for any national, secular changes that could affect firearm homicide rates. To account for clustering of observations among states, we used a GEE approach.[75] This procedure accounts for correlation of data within state clusters, avoiding a type 1 error that would be introduced if this correlation were ignored.[76] We used an exchangeable (compound symmetry) working correlation matrix to model the correlation among observations within states. We used robust variance estimators (the Huber–White sandwich estimator of variance) to produce consistent point estimates[75,77] and SEs[75,77,78] even if the working correlation matrix was misspecified. Our approach followed that of Miller et al., who used a GEE approach to account for clustering by region in their study of the impact of gun ownership on suicide rates.[55]

Because our primary aim was to examine the relationship between gun prevalence and homicide rates, with adjustment for all identified potential confounding variables, we first ran a full model that incorporated all variables, regardless of their contribution to the model. To develop a final, more parsimonious model, we first entered all variables found to be significant in bivariate analyses (we used a Wald test at a significance level of .10) into 1 model. We then deleted variables found not to be significant in the presence of the other variables, assessing the significance of each

TABLE 1—Variables and Data Sources in Study of Gun Ownership and Firearm Homicide Rates: United States, 1981–2010

Variable	Definition	Source	Notes
Firearm homicides	Rate/100 000 population, adjusted to 2000 age distribution	WISQARS[8]	Missing data for NH 2008–2010; ND 2008–2010; VT 2008–2010; WY 2008, 2010; HI 2010; SD 2010
Prevalence of gun ownership	Proportion of suicides committed with a firearm	WISQARS[8]	Complete panel series[a]
Age	Percentage of population aged 15–29 y	WISQARS[8]	Complete panel series[a]
Gender	Percentage of population aged 15–29 y who are male	WISQARS[8]	Complete panel series[a]
Race/ethnicity			
Black	Percentage of Blacks in population	WISQARS[8]	Complete panel series[a]
Hispanic	Percentage of Hispanics in population	US Census Bureau[58]	Complete panel series[a]
Poverty	Percentage of population living in poverty	US Census Bureau[61]	Complete panel series[a]
Unemployment	Percentage unemployed among civilian labor force, aged ≥ 16 y	US Bureau of Labor Statistics[62]	Complete panel series[a]
Household income	Median household income (in 2010 dollars)	US Bureau of the Census[63]	Data extrapolated for 1981–1983
Educational attainment	Percentage of adults aged ≥ 25 y with college degree (≥ bachelor's)	US Census Bureau[60]	Data interpolated for 1981–1988 and 1992
Income inequality	Gini coefficient	US Census Bureau[64]	Data interpolated for 1981–1988, 1990–1998, 2000–2005; variable rescaled in final model to ease interpretation of parameter estimate
Urbanization	Percentage of population living in urbanized area or urban cluster	US Census Bureau[59]	Data interpolated for 1991–1999 and 2001–2009; data extrapolated for 1981–1989 because 1980 Census definition of urban was different
Alcohol	Per capita alcohol consumption among persons aged ≥ 14 y	National Institute of Alcoholism and Alcohol Abuse[65]	Complete panel series[a]
Violent crime	Rates of aggravated assault, robbery, and forcible rape/100 000 population	Federal Bureau of Investigation[66]	Complete panel series[a]; variable rescaled in final model to ease interpretation of parameter estimate
Nonviolent crime	Rate of property crime (burglary, larceny-theft, and motor vehicle theft)/100 000 population	Federal Bureau of Investigation[66]	Complete panel series[a]; variable rescaled in final model to ease interpretation of parameter estimate
Hate crime	Rate of hate crimes against persons/1 000 000 population	Federal Bureau of Investigation[67]	Data available for 1995–2010; data from 1995 used for 1981–1994
Divorce	Rate/1000 population	National Center for Health Statistics[69]; US Census Bureau[59]	Data interpolated for 1986 in all states, interpolated for many years for CA, GA, HI, IN, LA, and MN
Hunting licenses	Proportion of population aged ≥ 15 y licensed	US Fish and Wildlife Service[68]	Complete panel series[a]
Region	Census region	US Census Bureau[70]	Complete panel series[a]
Nonfirearm homicides	Rate/100 000 population, adjusted to 2000 age distribution	WISQARS[8]	Missing data for NH 2008–2010; ND 2008–2010; VT 2008–2010; WY 2008, 2010; HI 2010; SD 2010
Incarceration	Prisoners with sentence of > 1 y/100 000 population	Bureau of Justice Statistics[71]	Data interpolated for 1981, 1982, and 1992
Suicide	No./100 000 population	WISQARS[8]	Complete panel series[a]

Note. WISQARS = Web-Based Injury Statistics Query and Reporting Systems.
[a]All 50 states, 1981–2010.

variable with a Wald test at a significance level of .05. Finally, we added each of the excluded variables into the model, 1 at a time, to assess whether it became significant when included in a model with the other variables. We included fixed effects for year and clustering by state in all models.

As a check on the robustness of the results, we also ran a negative binomial model with fixed effects for both year and state. Because of the large number of variables in this model, we reported only the statistically significant predictors in this version of the final model. We conducted all analyses with the XTNBREG and NBREG procedures in Stata version 12 (StataCorp LP, College Station, TX).

RESULTS

Over the 30-year study period, the mean estimated percentage of gun ownership (measured by the FS/S proxy) ranged from a low of 25.8% in Hawaii to a high of 76.8% in Mississippi, with an average over all states of 57.7% (Appendix A, available as a supplement to the online version of this article at http://www.ajph.org). Among the 50 states, the average percentage of gun ownership (measured by the FS/S proxy) decreased from 60.6% in 1981 to 51.7% in 2010. By decade, this percentage declined from 60.6% in 1981 to 1990 to 59.6% in 1991 to 2000 to 52.8% in 2001 to 2010.

Over the study period, the mean age-adjusted firearm homicide rate ranged from a low of 0.9 per 100 000 population in New Hampshire to a high of 10.8 per 100 000 in Louisiana, with an average over all states of 4.0 per 100 000 (Appendix A). Among the 50 states, the average firearm homicide rate decreased from 5.2 per 100 000 in 1981 to 3.5 per 100 000 in 2010. By decade, this rate was 4.2 per 100 000 in 1981 to 1990, 4.3 per 100 000 in 1991 to 2000, and 3.4 per 100 000 in 2001 to 2010.

In a bivariate analysis (a GEE negative binomial model with year fixed effects and accounting for clustering by state, but without any other predictor variables besides gun ownership), the gun ownership proxy was a significant predictor of firearm homicide rates (incidence rate ratio [IRR] = 1.011; 95% confidence interval [CI] = 1.005, 1.018).

The final GEE negative binomial model revealed 6 significant predictors of firearm homicide rates: gun ownership proxy (IRR = 1.009; 95% CI = 1.004, 1.014), percentage Black, income inequality, violent crime rate, nonviolent crime rate, and incarceration rate (Table 2). This model indicates that for each 1 percentage point increase in the gun ownership proxy, the firearm homicide rate increased by 0.9%.

In the final model, rerun with standardized predictor variables to ease interpretation of results, the IRR for the gun ownership proxy was 1.129 (95% CI = 1.061, 1.201), indicating that for each 1-SD increase in the gun ownership proxy, the firearm homicide rate increased by 12.9% (Table 3).

After we controlled for all the measured potential confounding variables, rather than just those found significant in the final model, the gun ownership proxy was still a significant predictor of firearm homicide rates (IRR = 1.008; 95% CI = 1.004, 1.012; Table 4). This result did not change after we excluded the 6 states with missing data for homicide rates in 1 or more years. When we restricted the analysis to 2001, 2002, and 2004 (years for which the Behavioral Risk Factor Surveillance System directly measured household gun ownership in all 50 states), the magnitude of the IRR estimated with the proxy measure (FS/S) was similar to that estimated with the survey measure of state-specific household gun ownership, but it was not statistically significant. The IRR associated with gun ownership also remained the same when we executed the full model with PROC GENMOD in SAS version 9.1 (SAS Institute, Cary, NC) rather than the XTNBREG procedure in Stata. We also found little change in the results when we omitted all variables with 1 or more interpolated or extrapolated values from the analysis.

When we lagged the gun ownership proxy by 1 year, it remained a significant predictor of firearm homicide rates (IRR = 1.009; 95% CI = 1.005, 1.013; Table 4). When we lagged the gun ownership proxy by 2 years, its effect was attenuated, although still positive and significant (IRR = 1.005; 95% CI = 1.001, 1.009).

We found little change in the magnitude or significance of the parameter estimate for the gun ownership proxy variable when we introduced linear and quadratic time variables into the analysis to model temporal changes in homicide rates or when the data were weighted by the square root of state population (Table 4). Use of a Poisson rather than a negative binomial model did not alter the results.

In a negative binomial model with both year and state fixed effects, the gun ownership proxy

TABLE 2—Results of Final Model for Significant Predictors of Age-Adjusted Firearm Homicide Rate: United States, 1981–2010

Variable	IRR (95% CI)	*P*	Interpretation
Gun ownership	1.009 (1.004, 1.014)	.001	For each 1 percentage point increase in proportion of household gun ownership, firearm homicide rate increased by 0.9%
Percentage Black	1.052 (1.037, 1.068)	.001	For each 1 percentage point increase in proportion of Black population, firearm homicide rate increased by 5.2%
Gini coefficient	1.046 (1.003, 1.092)	.037	For each 0.01 increase in Gini coefficient, firearm homicide rate increased by 4.6%
Violent crime rate	1.048 (1.010, 1.087)	.013	For each increase of 1/1000 in violent crime rate, firearm homicide rate increased by 4.8%
Nonviolent crime rate	1.008 (1.003, 1.013)	.002	For each increase of 1/1000 in nonviolent crime rate, firearm homicide rate increased by 0.8%
Incarceration rate	0.995 (0.991, 0.999)	.027	For each increase of 1/10 000 in incarceration rate, firearm homicide rate decreased by 0.5%

Note. CI = confidence interval; IRR = incidence rate ratio. Final model incorporated only variables whose parameter estimates were significant at the $P < .05$ level. Model included fixed effects for year and adjustment for clustering within states.

TABLE 3—Results of Final Model for Significant Predictors of Age-Adjusted Firearm Homicide Rate, Using Standardized Predictor Variables: United States, 1981–2010

Variable	IRR (95% CI)	P	Interpretation
Gun ownership	1.129 (1.061, 1.201)	.001	For each 1-SD increase in proportion of household gun ownership, firearm homicide rate increased by 12.9%
Percentage Black	1.828 (1.536, 2.176)	.001	For each 1-SD increase in proportion of black population, firearm homicide rate increased by 82.8%
Gini coefficient	1.129 (1.007, 1.266)	.037	For each 1-SD increase in Gini coefficient, firearm homicide rate increased by 12.9%
Violent crime rate	1.154 (1.031, 1.291)	.013	For each 1-SD increase in violent crime rate, firearm homicide rate increased by 15.4%
Nonviolent crime rate	1.100 (1.036, 1.168)	.002	For each 1-SD increase in nonviolent crime rate, firearm homicide rate increased by 10.0%
Incarceration rate	0.928 (0.868, 0.992)	.027	For each 1-SD increase in incarceration rate, firearm homicide rate decreased by 7.8%.

Note. CI = confidence interval; IRR = incidence rate ratio. Final model incorporated only variables whose parameter estimates were significant at the $P < .05$ level. Model included fixed effects for year and adjustment for clustering within states.

remained a significant predictor of firearm homicide rates (IRR = 1.010; 95% CI = 1.001, 1.019). Percentage Black and violent crime rate were also significant predictors of firearm homicide in this model (data not shown).

To investigate whether our proxy measure of gun ownership also predicted non–firearm-related homicides, we repeated the analyses with the age-adjusted nonfirearm homicide rate as the outcome variable. The gun ownership proxy was not a significant predictor of nonfirearm homicide rates in either the full (IRR = 1.001; 95% CI = 0.998, 1.005; $P = .52$) or final (IRR = 0.999; 95% CI = 0.996, 1.003; $P = .78$) models (data not shown).

To address the potential problem of serial autocorrelation, we ran a set of 30 year-specific negative binomial regressions. Because of the small number of data points, we ran parsimonious models with only a few predictors. Starting with our final model, we included only covariates that were significant predictors of homicide rates in at least 2 of the year-specific regressions (percentage Black, income inequality, violent crime rate, and gun ownership proxy). The gun ownership proxy was statistically significant in 26 of the 30 year-specific models, with an IRR in these 30 regressions ranging from 1.009 to 1.022.

DISCUSSION

To the best of our knowledge, ours is the most up-to-date and comprehensive analysis of the relationship between firearm ownership and gun-related homicide rates among the 50 states. Our study encompassed a 30-year period, with data through 2010, and accounted for 18 possible confounders of the relationship between gun ownership and firearm homicide. We found a robust relationship between higher levels of gun ownership and higher firearm homicide rates that was not explained by any of these potential confounders and

TABLE 4—Effects of Gun Ownership Level on Age-Adjusted Firearm Homicide Rate: United States, 1981–2010

Gun Ownership Level	IRR (95% CI)	P
Current gun ownership		
Full model[a]	1.008 (1.004, 1.012)	.001
Excluding states with missing data[b]	1.009 (1.005, 1.014)	.001
Restricted to years 2001, 2002, and 2004[c]	1.023 (1.014, 1.032)	.001
Survey measure of gun ownership used instead of proxy measure (years 2001, 2002, and 2004 only)[d]	1.016 (0.997, 1.036)	.1
Full model executed in SAS[e]	1.009 (1.004, 1.014)	.001
Variables with interpolated or extrapolated values omitted from analysis[f]	1.009 (1.005, 1.014)	.001
Control for temporal trends in homicide rates (linear and quadratic terms for time included in model)	1.010 (1.005, 1.014)	.001
Individual data points weighted by square root of state population	1.011 (1.005, 1.017)	.001
Poisson model instead of negative binomial model	1.008 (1.004, 1.013)	.001
Gun ownership in previous years		
Lagged 1 y	1.009 (1.005, 1.013)	.001
Lagged 2 y	1.005 (1.001, 1.009)	.024

Note. CI = confidence interval; IRR = incidence rate ratio.
[a]Included fixed effects for year, adjustment for clustering within states, and controls for percentage young (aged 15–29 y), percentage young males, percentage Black, percentage Hispanic, poverty, unemployment, household income, educational attainment, income inequality, level of urbanization, alcohol consumption, violent crime rate, nonviolent crime rate, hate crime rate, divorce rate, hunting licenses, region, age-adjusted nonfirearm homicide rate, incarceration rate, and suicide rate.
[b]Excluded data from states with missing data for age-adjusted firearm homicide rate in any year: New Hampshire, North Dakota, Vermont, Wyoming, Hawaii, and South Dakota.
[c]Years for which Behavioral Risk Factor Surveillance System (BRFSS) data on household gun ownership were available.
[d]Main predictor variable was proportion of households with guns according to BRFSS in 2001, 2002, and 2004; proxy measure (firearm suicides divided by all suicides) was not used in this model.
[e]Model run with PROC GENMOD in SAS version 9.1 (SAS Institute, Cary, NC), with empirical SEs.
[f]Variables with interpolated or extrapolated values were household income, educational attainment, income inequality, level of urbanization, hate crime rate, divorce rate, and incarceration rate.

was not sensitive to model specification. Our work expanded on previous studies not only by analyzing more recent data, but also by adjusting for clustering by year and state and controlling for factors, such as the rate of nonfirearm homicides, that likely capture unspecified variables that may be associated with both gun ownership levels and firearm homicide rates.

The correlation of gun ownership with firearm homicide rates was substantial. Results from our model showed that a 1-SD difference in the gun ownership proxy measure, FS/S, was associated with a 12.9% difference in firearm homicide rates. All other factors being equal, our model would predict that if the FS/S in Mississippi were 57.7% (the average for all states) instead of 76.8% (the highest of all states), its firearm homicide rate would be 17% lower. Because of our use of a proxy measure for gun ownership, we could not conclude that the magnitude of the association between actual household gun ownership rates and homicide rates was the same. However, in a model that incorporated only survey-derived measures of household gun ownership (for 2001, 2002, and 2004), we found that each 1-SD difference in gun ownership was associated with a 24.9% difference in firearm homicide rates.

Our results were consistent with, but generally lower than, previous estimates of the effect of gun ownership on homicide rates. We were able to replicate Miller et al.'s study by restricting our analysis to 1988 to 1997 and controlling for the same variables as they did. We obtained an IRR of 1.36 (95% CI = 1.20, 1.54) for the gun ownership proxy; their result was 1.41 (95% CI = 1.27, 1.57).[34] After adjusting for clustering by state with GEEs, incorporating year fixed effects, and including additional significant predictors, we obtained an IRR of 1.17 (95% CI = 1.11, 1.24).

Limitations

We used a proxy measure of firearm ownership that did not perfectly correlate with survey-derived measures and was therefore not ideal. We have 2 reasons for believing that the observed relationship between gun ownership and homicide rates was not an artifact of the use of this proxy measure. First, when we restricted the analysis to 2001, 2002, and 2004 and relied on a survey measure of gun ownership, the parameter estimate for gun ownership was similar to (but higher than) that obtained with the proxy measure. Second, the observed relationship between the proxy measure of gun ownership and homicide rates was specific to firearm homicides. We detected no significant relationship between gun ownership and nonfirearm homicide rates.

We conducted an ecological study with large aggregates (states) representing the units of analysis. This introduced the possibility that an unknown confounder could explain the observed relationship. For this to occur, a putative confounder would have to be strongly correlated with both gun ownership and firearm homicide rates, but not highly correlated with any of the other variables we measured. Because of the number of predictor variables we incorporated in our analysis, this seems unlikely. The likelihood was lessened further by our failure to find a significant relationship between gun ownership and nonfirearm homicide rates. Nevertheless, the possibility remains that an omitted variable confounded the observed relationship.

A reverse causal association was also possible. For example, increases in firearm homicide rates could have led to efforts by state residents to acquire guns, thus increasing gun ownership levels.[9,25,29,32,34–36,41,79,80] We addressed this question with a lagged variable and found that gun ownership, lagged by either 1 or 2 years, was still a significant predictor of firearm homicide rates. This is consistent with, but does not prove, the hypothesis that changes in gun ownership rates affect subsequent firearm homicide rates. It is not possible in a panel study such as ours to determine causality. Furthermore, although this was a panel study, the variation occurred mainly in the cross section, because the differences in firearm homicide across states were greater than the changes over time.

Conclusions

Our study substantially advances previous work by analyzing recent data, examining the longest and most comprehensive panel of state-specific data to date, and accounting for year and state clustering and for a wide range of potential confounders. We found a robust relationship between gun ownership and firearm homicide rates, a finding that held whether firearm ownership was assessed through a proxy or a survey measure, whether state clustering was accounted for by GEEs or by fixed effects, and whether or not gun ownership was lagged, by up to 2 years. The observed relationship was specific to firearm-related homicide. Although we could not determine causation, we found that states with higher levels of gun ownership had disproportionately large numbers of deaths from firearm-related homicides. ■

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Contributors

M. Siegel obtained and analyzed the data. All authors conceptualized and designed the study, interpreted the results, wrote the article, and critically reviewed and commented on the article.

Human Participant Protection

Institutional review board approval was not needed for this study because secondary data sources were used.

References

1. Kellermann AL, Rivara FP. Silencing the science on gun research. *JAMA*. 2013;309(6):549–550.

2. Mozaffarian D, Hemenway D, Ludwig DS. Curbing gun violence: lessons from public health successes. *JAMA*. 2013;309(6):551–552.

3. Wintemute GJ. Tragedy's legacy. *N Engl J Med*. 2013;(5):397–399. 2013;368(19):1847.

4. Palfrey JS, Palfrey S. Preventing gun deaths in children. *N Engl J Med*. 2013;368(5):401–403.

5. Walkup JT, Rubin DH. Social withdrawal and violence—Newtown, Connecticut. *N Engl J Med*. 2013;368(5):399–401.

6. Associated Press. Transcript: statement by National Rifle Association's Wayne LaPierre. *The Republican*. December 21, 2012. Available at: http://www.masslive.com/news/index.ssf/2012/12/transcript_statement_by_nation.html. Accessed May 31, 2013.

7. Palmer K, Forsyth J. Hundreds of Texas, Ohio teachers flock to gun training. *Reuters*. January 8, 2013. Available at: http://www.reuters.com/article/2013/01/08/us-usa-guns-teachers-training-idUSBRE9070MV20130108. Accessed January 9, 2013.

8. Centers for Disease Control and Prevention. Web-based injury statistics query and reporting systems: fatal injury reports. Available at: http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html. Accessed January 9, 2013.

9. Hepburn LM, Hemenway D. Firearm availability and homicide: a review of the literature. *Aggress Violent Behav.* 2004;9(4):417–440.

10. Kellermann AL, Rivara FP, Rushforth NB, et al. Gun ownership as a risk factor for homicide in the home. *N Engl J Med.* 1993;329(15):1084–1091.

11. Bailey JE, Kellermann AL, Somes G, Banton JG, Rivara F, Rushforth NB. Risk factors for violent death of women in the home. *Arch Intern Med.* 1997;157(7):777–782.

12. Cummings P, Koepsell TD, Grossman DC, Savarino J, Thompson RS. The association between the purchase of a handgun and homicide or suicide. *Am J Public Health.* 1997;87(6):974–978.

13. Killias M. International correlations between gun ownership and rates of homicide and suicide. *Can Med Assoc J.* 1993;148(10):1721–1725.

14. Killias M. Gun ownership, suicide and homicide: an international perspective. In: del Frate A, Zvekic U, van Dijk J, eds. *Understanding Crime: Experiences of Crime and Crime Control.* Rome, Italy: UNICRI; 1993:289–303.

15. Killias M, van Kesteren J, Rindlisbacher M. Guns, violent crime, and suicide in 21 countries. *Can J Criminol.* 2001;43(4):429–448.

16. Hemenway D, Miller M. Firearm availability and homicide rates across 26 high-income countries. *J Trauma.* 2000;49(6):985–988.

17. Hemenway D, Shinoda-Tagawa T, Miller M. Firearm availability and female homicide victimization rates among 25 populous high-income countries. *J Am Med Womens Assoc.* 2002;57(2):100–104.

18. Sloan JH, Kellermann AL, Reay DT, et al. Handgun regulations, crime, assaults, and homicide: a tale of two cities. *N Engl J Med.* 1988;319(19):1256–1262.

19. Centerwall BS. Homicide and the prevalence of handguns: Canada and the United States, 1976 to 1980. *Am J Epidemiol.* 1991;134(11):1245–1260.

20. Newton GD, Zimring F. *Firearms and Violence in American Life: A Staff Report to the National Commission on the Causes and Prevention of Violence.* Washington, DC: Government Printing Office; 1969.

21. Fisher JC. Homicide in Detroit. *Criminology.* 1976;14(3):387–400.

22. McDowall D. Firearm availability and homicide rates in Detroit, 1951–1986. *Soc Forces.* 1991;69(4):1085–1101.

23. Sorenson SB, Berk R. Handgun sales, beer sales, and youth homicide, California, 1972–1993. *J Public Health Policy.* 2001;22(2):182–197.

24. Phillips L, Votey HL, Howell J. Handguns and homicide: minimizing losses and the costs of control. *J Legal Stud.* 1976;5(2):463–478.

25. Kleck G. Capital punishment, gun ownership, and homicide. *AJS.* 1979;84(4):882–910.

26. Kleck G. The relationship between gun ownership levels and rates of violence in the United States. In: Kates DB, ed. *Firearms and Violence: Issues of Public Policy.* Cambridge, MA: Ballinger; 1984:99–135.

27. Magaddino JP, Medoff MH. Empirical analysis of federal and state firearm control laws. In: Kates DB, ed. *Firearms and Violence: Issues of Public Policy.* Cambridge, MA: Ballinger; 1984:225–258.

28. Lott JR. *More Guns, Less Crime: Understanding Crime and Gun Control Laws.* Chicago, IL: University of Chicago Press; 1988.

29. Duggan M. More guns, more crime. *J Polit Econ.* 2001;109(5):1086–1114.

30. Shenassa ED, Daskalakis C, Buka SL. Utility of indices of gun availability in the community. *J Epidemiol Community Health.* 2006;60(1):44–49.

31. Bordura DJ. Firearms ownership and violent crime: a comparison of Illinois counties. In: Byrne J, Sampson RJ, eds. *The Social Ecology of Crime.* New York, NY: Springer-Verlag; 1986:156–188.

32. Cook PJ, Ludwig J. The social costs of gun ownership. *J Public Econ.* 2006;90(1–2):379–391.

33. Kaplan MS, Geling O. Firearm suicides and homicides in the United States: regional variations and patterns of gun ownership. *Soc Sci Med.* 1998;46(9):1227–1233.

34. Miller M, Azrael D, Hemenway D. Rates of household firearm ownership and homicide across US regions and states, 1988–1997. *Am J Public Health.* 2002;92(12):1988–1993.

35. Miller M, Azrael D, Hemenway D. Firearm availability and suicide, homicide, and unintentional firearm deaths among women. *J Urban Health.* 2002;79(1):26–38.

36. Miller M, Azrael D, Hemeway D. Firearm availability and unintentional firearm deaths, suicide, and homicide among 5–14 year olds. *J Trauma.* 2002;52(2):267–274; discussion 274–275.

37. Price JH, Thompson AJ, Dake JA. Factors associated with state variations in homicide, suicide, and unintentional firearm deaths. *J Community Health.* 2004;29(4):271–283.

38. Seitz ST. Firearms, homicides, and gun control effectiveness. *Law Soc Rev.* 1972;6(4):595–614.

39. Lester D. Firearm availability and the incidence of suicide and homicide. *Acta Psychiatr Belg.* 1988;88(5–6):387–393.

40. Lester D. Firearm deaths in the United States and gun availability. *Am J Public Health.* 1993;83(11):1642.

41. Miller M, Hemenway D, Azrael D. State-level homicide victimization rates in the US in relation to survey measures of household firearm ownership, 2001–2003. *Soc Sci Med.* 2007;64(3):656–664.

42. Murnan J, Dake JA, Price JH. Association of selected risk factors with variation in child and adolescent firearm mortality by state. *J Sch Health.* 2004;74(8):335–340.

43. Rosenfeld R, Baumer E, Messner SF. Social trust, firearm prevalence, and homicide. *Ann Epidemiol.* 2007;17(2):119–125.

44. Ruddell R, Mays GL. State background checks and firearms homicides. *J Crim Justice.* 2005;33(2):127–136.

45. Fleegler EW, Lee LK, Monuteaux MC, Hemenway D, Mannix R. Firearm legislation and firearm-related fatalities in the United States. *JAMA Intern Med.* 2013 May 13;173(9):732–40.

46. *A Shrinking Minority: The Continuing Decline of Gun Ownership in America.* Washington, DC: Violence Policy Center. 2011. Available at: http://www.vpc.org/studies/ownership.pdf. Accessed January 9, 2013.

47. *International Classification of Diseases, Ninth Revision.* Geneva, Switzerland: World Health Organization; 1980.

48. *International Classification of Diseases, 10th Revision.* Geneva, Switzerland: World Health Organization; 1992.

49. Anderson RN, Miniño AM, Hoyert DL, Rosenberg HM. Comparability of cause of death between *ICD-9* and *ICD-10*: preliminary estimates. *Natl Vital Stat Rep.* 2001;49(2):1–32.

50. Azrael D, Cook PJ, Miller M. State and local prevalence of firearms ownership: measurement, structure, and trends. *J Quant Criminol.* 2004;20(1):43–62.

51. Kleck G. Measures of gun ownership levels for macro-level crime and violence research. *J Res Crime Delinq.* 2004;41(1):3–36.

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

53. Kleck G. *Point Blank: Guns and Violence in America.* New York, NY: Aldine de Gruyter; 1991.

54. Hoskin AW. Armed Americans: the impact of firearm availability on national homicide rates. *Justice Q.* 2001;18(3):569–592.

55. Miller M, Azrael D, Hemenway D. Household firearm ownership and suicide rates in the United States. *Epidemiology.* 2002;13(5):517–524.

56. Kennedy BP, Kawachi I, Prothrow-Stith D, Lochner K, Gupta V. Social capital, income inequality, and firearm violent crime. *Soc Sci Med.* 1998;47(1):7–17.

57. Sumner SA, Layde PM, Guse CE. Firearm death rates and association with level of firearm purchase background check. *Am J Prev Med.* 2008;35(1):1–6.

58. *Population and Demographics.* Atlanta, GA: Southern Regional Education Board; 2013.

59. US Census Bureau. Statistical abstracts of the United States, 1981–2011. Available at: http://www.census.gov/prod/www/statistical_abstract.html. Accessed January 10, 2013.

60. US Census Bureau. Educational attainment reports and tables from previous years. Available at: http://www.census.gov/hhes/socdemo/education/data/cps/previous/index.html. Accessed January 10, 2013.

61. US Census Bureau. Historical poverty tables–people. Available at: http://www.census.gov/hhes/www/poverty/data/historical/people.html. Accessed January 10, 2013.

62. *Economic and Government Data: Employment and Unemployment in the Civilian Labor Force.* Atlanta, GA: Southern Regional Education Board; 2013.

63. *Economic and Government Data: Median Annual Income of Households.* Atlanta, GA: Southern Regional Education Board; 2013.

64. US Census Bureau. Table S4. Gini ratios by state: 1969, 1979, 1989, 1999. Available at: http://www.census.gov/hhes/www/income/data/historical/state/state4.html. Accessed January 15, 2013.

65. LaVallee RA, Yi H. *Apparent Per Capita Alcohol Consumption: National, State, and Regional Trends, 1977–2010.* Arlington, VA: CSR, Inc, and National Institute on Alcohol Abuse and Alcoholism; 2012.

66. Federal Bureau of Investigation. Uniform crime reporting statistics, 1981–2010. Available at: http://www.ucrdatatool.gov. Accessed January 22, 2013.

67. Trends in Hate. Hate crime reporting by crime and by state/region. Available at: http://trendsinhate.com/trends/hatecrimes/bycrimestateregion.html. Accessed January 22, 2013.

68. US Fish and Wildlife Service. Historical hunting license data. Available at: http://wsfrprograms.fws.gov/Subpages/LicenseInfo/Hunting.htm. Accessed January 22, 2013.

69. National Center for Health Statistics. *Divorce Rates by State: 1990, 1995, and 1999–2010.* Hyattsville, MD: Centers for Disease Control and Prevention; 2011.

70. US Census Bureau. Census regions and divisions of the United States. Available at: https://www.census.gov/geo/www/us_regdiv.pdf. Accessed January 25, 2013.

71. Bureau of Justice Statistics. *National Prisoner Statistics. Prisoner Series Reports,* 1981–2010. Washington, DC: US Department of Justice. Available at: http://bjs.gov/index.cfm?ty=pbse&sid=40. Accessed April 2, 2013.

72. Sen B, Panjamapirom A. State background checks for gun purchase and firearm deaths: an explanatory study. *Prev Med.* 2012;55(4):346–350.

73. Miller M, Azrael D, Hepburn L, Hemenway D, Lippmann SJ. The association between changes in household firearm ownership and rates of suicide in the United States, 1981–2002. *Inj Prev.* 2006;12(3):178–182.

74. Lawless JE. Negative binomial and mixed Poisson regression. *Can J Stat.* 1987;15(3):209–225.

75. Liang KY, Zeger SL. Longitudinal data analysis using generalized linear models. *Biometrika.* 1986;73(1):13–22.

76. Hedeker D, Gibbons RD, Flay BR. Random-effects regression models for clustered data with an example from smoking prevention research. *J Consult Clin Psychol.* 1994;62(4):757–765.

77. Pendergast JF, Gange SJ, Newton MA, Lindstrom MJ, Palta M, Fisher MR. A survey of methods for analyzing clustered binary response data. *Int Stat Rev.* 1996;64(1):89–118.

78. Horton NJ, Lipsitz SR. Review of software to fit generalized estimating equation regression models. *Am Stat.* 1999;53(5):160–169.

79. Kleck G, Patterson EB. The impact of gun control and gun ownership levels on violence rates. *J Quant Criminol.* 1993;9(3):249–287.

80. Hemenway D. *Private Guns: Public Health.* Ann Arbor, MI: University of Michigan Press; 2004.

Exhibit 4

JAMES ALAN FOX ■ JACK LEVIN

EXTREME KILLING

Understanding Serial and Mass Murder

Second Edition

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JAMES ALAN FOX ■ JACK LEVIN

Northeastern University

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Rather than lose his beloved children, he decided to keep them together, at least spiritually. According to police, Elizalde had told friends that he would rather kill his children than let them go.

The devoted father purchased a gallon of gasoline from a filling station some three blocks from his apartment. After returning home, he doused his sleeping children with gasoline and set them afire, one at a time. When he was sure they were dead, he set himself on fire. By killing them all, he thought he had ensured that they would be reunited in a better life after death.

When love becomes a component in the mass killer's motivation, outsiders—neighbors, friends and extended kin—are typically incredulous when learning that a seemingly loving and normal husband/father has slaughtered his wife and children before committing suicide. In July 2000, residents of the seaside suburban community of Barry, outside of Cardiff in South Wales, were shocked to discover a gruesome family annihilation in their midst. Forty-nine-year-old Robert Mochrie, often described as a "devoted family man," had hanged himself after bludgeoning to death his wife and four childen as they slept in their middle-class single-family home.

Mochrie had a 10-year history of severe depression and had seen a psychiatrist on a number of occasions. He and his wife of 23 years were no longer intimate, and one of their children was autistic. On top of everything else that went wrong, he had recently experienced a number of failed business ventures which left him in deep debt, unable to pay his bills and faced with bankruptcy. Being a "loving father and good husband," Mochrie made sure that his family members died in their sleep with a blow to the head, minimizing their pain and suffering. He then covered each body with a blanket, as though trying to protect his wife and children from the elements.

Sweet Revenge

A twisted sense of love and responsibility clearly cannot explain many cases of mass murder. Why would a 31-year-old former postal worker, Thomas McIlvane, go on a rampage in Royal Oak, Michigan, killing four supervisors before shooting himself in the head? And what would provoke a 28-year-old graduate student, Gang Lu, to execute five others at the University of Iowa before taking his own life? And why would 35-year-old Colin Ferguson open fire on a crowded Long Island train, killing six commuters? The common denominator in these three cases is the killer's desire to execute his enemies, real or imagined, for the sake of sweet revenge.

Although each case has its unique aspects, by far the most frequent motivation for mass murder is revenge—the desire to get even for perceived mistreatment by family members, a company, or a whole category of people. In all forms of revenge-motivated mass murder, the perpetrator's objective is to punish all those whom he holds responsible, directly or indirectly, for his failures and disappointments.

On August 20, 1986, the morning after being reprimanded for poor job performance, 44-year-old Patrick Henry Sherrill "gave notice" in a most unconventional way. Arriving at the Edmond, Oklahoma, post office at 6:45 a.m., the part-time letter carrier was

The case against psychiatric medications would be stronger if it weren't for the fact that killers who were being treated at the time they committed murder typically had all of the warning signs associated with such crimes. In almost every case, there was a good reason why a psychiatrist had prescribed a psychotropic drug: The killer had been profoundly depressed, disappointed, and discouraged about the future. Moreover, the actions of killers who commit a rampage are typically neither episodic nor spontaneous. Wesbecker, for example, had planned his assault for months, including accumulating an arsenal of weaponry; yet he had taken Prozac for only a few weeks before the massacre. The drug may at most have reduced his inhibitions, but it hardly inspired him to kill.

Biological or chemical factors may be useful for explaining spontaneous or impulsive acts of extreme violence, but mass killings are typically planned and methodical rather than episodic. Massacres occurring at home, work, or school typically involve a complex set of contributors, including those located in the social environment of the perpetrator.

The social environment can be toxic when it involves the violent behavior and supporting attitudes of significant others. In fact, we learn to be violent not only from being directly rewarded and punished; we learn it through the role models we imitate. Clearly, other people may serve as models of learning in many other areas of life—for example, in acquiring language, using facial expressions, and dressing for various occasions. We should probably not be surprised, therefore, that imitation also occurs in learning violent behavior—even multiple homicide.

Early on, Bandura (1977) suggested that the mass media generally, but television in particular, provide a powerful source of models for aggressive conduct. Findings obtained in a large number of studies over several decades on the effects of televised influences on behavior support this argument: They show that our popular culture—television, motion pictures, iPods, video games, and the Internet—can serve as a tutor in teaching violent styles of behavior (Murray, 2008). We really shouldn't be surprised, considering the enormous amount of time that children tune in to popular culture. The typical youngster spends, on average, more than 38 hours weekly—almost 5½ hours on a daily basis—watching TV, playing video games, listening to music, and surfing the Internet. Nearly three-quarters of the children in the United States live in a home that possesses at least three TV sets.

The impact of popular culture frequently goes unchallenged. Many parents fail to impose any restrictions on their children's viewing behavior. In fact, some 53% of all parents permit a set in their youngster's bedroom; 58% leave a set on while the family has dinner; and only 5% watch TV with their older children.

Research by David Phillips (1983) suggests strongly that media images can teach even the most violent acts. He examined the homicide rate in America immediately following televised heavyweight prizefights and found a brief but sharp increase in homicides, an overall increase of 13%. This effect seemed to peak on the third day after the prizefights, especially following heavily publicized events. The biggest third-day peak occurred after the fights that received the greatest publicity.

Models for murder can also be located in the groups to which an individual belongs. Sutherland's differential association theory contends that criminal behavior is learned during adolescence from an individual's most intimate social relations—his peers, family, and friends. Criminal skills are acquired in such groups. In addition, the individual

between the successes of individuals and their peers, Agnew recognizes the influence of what sociologists have called "relative deprivation." Moreover, chronic strain may play a major role in encouraging mass killings at school, at work, or in the family. When life's disappointments become intolerable, an individual may seek vengeance, restoration of control, and/or infamy through the barrel of a gun.

The Great Equalizer

Men have unequal access to and training in the use of handguns and rifles. Three quarters of mass murderers kill with a firearm. It is difficult to kill a large number of people at one time using other weapons, such as a knife or a club. Typically, mass killers are fascinated with guns; own large collections of rifles, including military-style assault weapons; and have the shooting skills to match.

Twenty-five-year-old Charles Whitman, for example, had grown up around firearms. His father, himself a gun aficionado, had taught Charles to hunt when he was a young boy. Charles later fine-tuned his marksmanship skills while serving in the Marines.

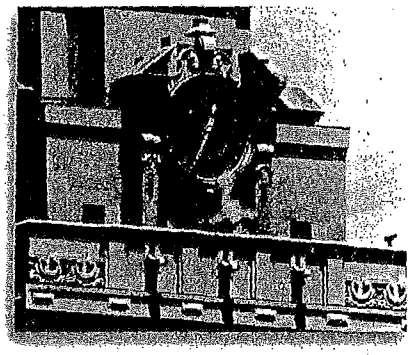

Photo 13.1 Random massacres, such as Charles Whitman's shooting spree from the University of Texas tower, attract the most attention yet are the rarest form of mass murder.

Charles Whitman's 1966 assault at the University of Texas was widely termed the "Crime of the Century," reflecting the rarity of such mass murder at the time. Of course, those who saw Whitman's crime as history-making could not have imagined what new and much deadlier slaughters lay ahead in the remaining quarter of the century. Whitman's crime may have helped to define the term *mass murder* in the American consciousness, but more recent tragedies have pushed the limits of public anxiety to the breaking point. We have witnessed massacres in schoolyards and shopping malls, trains and planes, post offices, and fast food establishments. People everywhere wonder, "Is nowhere safe?"

Several factors have coalesced recently to produce a deadly mix of resentment and despair. A growing number of middle-aged men are losing those aspects of their lives that give them meaning and support, particularly their families and their jobs. A shrinking and more competitive labor market has left thousands of men feeling hopeless and worthless. A high rate of divorce, greater residential mobility, and a general lack of neighborliness have left many men feeling very much alone. Though their crimes are reprehensible, a few of these desperate people feel that they have no place to turn and no means to resolve their problems other than use of their guns. The one problem they don't have is finding a high-powered weapon of mass destruction.

On November 1, 1991, Gang Lu, a 28-year-old Chinese-born graduate student at the University of Iowa, methodically shot and killed five people on campus whom he held responsible for denying him a coveted prize given for the top science dissertation. In advance of his massacre, Gang Lu had written to his sister in China outlining his funeral wishes, sending along the contents of the bank account he shortly wouldn't need. He also wrote a letter to the media outlining his grievance against the Physics Department and describing how his gun would help to right the terrible wrongs that had been done to him. "Private guns make every person equal, no matter what/who he/she is," he wrote. "They also make it possible for an individual to fight against a conspired/incorporated organization such as Mafia or Dirty University officials."

In the wake of virtually any large mass shooting, significant debate surfaces about the role of firearms in facilitating a bloodbath. Of course, guns didn't make Gang Lu lose out to his rival countryman, nor did they encourage his desire to kill those whom he blamed for ruining his life. However, for Gang Lu, the gun was a necessary instrument to achieve his desired outcome, and it was likely the only weapon that would do. Certainly, knives or other objects would not have made it possible to execute his entire hit list without being subdued. Explosives, on the other hand, might have provided a means of mass destruction—much like what occurred in Bath, Michigan, on May 18, 1927, when Andrew Kehoe detonated a cache of explosives hidden in the basement of a local school, killing 38 children, 5 adults, and himself. However, Gang Lu's plan was not to kill just anyone, only those intended targets for payback. A firearm was his only logical choice.

As indicated, firearms, especially high-powered ones, are the weapons used by most mass killers. Handguns and rifles are, of course, far more lethal than knives or clubs for the assailant who seeks to kill large numbers of victims in a short period of time. In countries where guns are relatively inaccessible, mass killings are far less likely to occur, even if the motivation for large-scale destruction exists. For example, China's strict gun laws prevent angry would-be mass murderers from securing a firearm and going on a deadly shooting spree. At the end of April 2010, a knife-wielding man in his forties burst into the Leicheng First Primary School in the city of Leizhou and stabbed 18 children and a teacher before being subdued by the police. All of the victims were wounded, but none suffered life-threatening injuries.

Mass murderers who seek out certain people for revenge are especially likely to use firearms because they are more predictable and controllable in their destructiveness than fire, explosives, or even poison. Thus, for their lethality and precision, the largest massacres in terms of body count almost always involve a firearm.

Because of their high-profile nature in terms of publicity (see Duwe, 2000), mass murders are often exploited for the sake of advancing some political agenda, and this is especially true when it comes to the role of firearms as a contributing factor to mass murder. Mass shootings have served as ammunition in the debate over gun control, but used, ironically enough, by advocates on both sides of the issue to further their cause.

In the wake of particularly deadly and widely publicized shootings, gun control proponents have argued that the carnage would not be so great were it not for the easy availability of high-powered firearms, especially assault weapons. By playing on public

As in high school, Harry was unpopular and was even ostracized. He had an inauspicious start at The Citadel. Harry's commanding officer (CO) was embarrassed when he mistakenly marked Harry present at formation when Harry actually had forgotten to appear. Of course, the CO took his embarrassment out on Harry, and the other cadets followed suit. As the weeks passed, Harry's peers forgot the particular incident but never reversed their opinion of him. As Harry continued to suffer from scorn, letters from his father urged him on, telling him, "No matter how tough they make it, you know you can take it" (quoted in Roesche, 1979, p. 85).

As Thanksgiving of 1976 approached, he could stand no more, and he left The Citadel for what he hoped was the last time, telling the school that his mother was sick with cancer. Military school was more than he could take: He was fed up with living the way his father wanted him to, and he was tired of being pushed, yet he couldn't bring himself to tell his father about not wanting to return to school. His father had always told him that "quitters were failures."

On November 28, Harry, Jr., returned home late, around 3 a.m., after visiting some of his former high school friends. He took a pistol, one of several in the house, and went to his parents' room, where they were asleep. He paced the room for some time, deciding what to do: Should he stand up to his father or simply release himself from the bondage? He held the gun to his father's head for 15 minutes. Finally, he fired. His mother stirred at the explosion, and he shot her. He then shot his father again. Next, he proceeded to his brothers' room. His 15-year-old brother, Ronald, lay there motionless, his eyes wide open. Harry shot and killed him. The other brother—Eric, age 12—made a rush for Harry. Harry shot him twice in the face and once in the chest, but he was still alive and struggling to get up. Harry bludgeoned him to death with the revolver and stuffed his body in a metal cabinet in the attic.

Harry, Jr.'s entire life had revolved around guns. They provided his uppermost achievement as well as his greatest tragedy. For Harry, the gun represented an instrument, a means not only to kill his persecutor but also to measure his own self-worth.

Harry's family annihilation ensured that he would never again bear the intolerable burden of his father's expectations or suffer the regimentation of military school. Instead, he would spend his adult years in a much more oppressive environment—a New Jersey state penitentiary.

Harry, Jr. received four life sentences to be served concurrently. Based on the New Jersey statute in force at the time of his murders, he became eligible for parole in 2002. However, having failed on several bids for release, he remains incarcerated.

stolen property. In October 1984, he did a 30-day stint in county jail in Woodland, California, for being an accomplice to a robbery.

Three years passed, and Purdy's behavior became increasingly outrageous. In 1987, he was arrested for indiscriminately firing a 9mm pistol in the El Dorado National Forest. On top of this, he was charged with resisting arrest for kicking a deputy sheriff and shattering a window of the patrol car with his feet. While being held in advance of trial, Purdy attempted to commit suicide by hanging himself in his jail cell and slicing open his wrist with his sharpest fingernail. But like everything else he tried, Purdy even failed at taking his own life.

By January 1989, life had become completely hopeless for Purdy. He despised almost everyone, but especially people in positions of authority and especially his "enemies," the newcomers to America's shores. Purdy had a special hatred for Southeast Asians. He often bragged about his father's conquests in the Vietnam War, slaughtering all those "gooks." Purdy fantasized about following in his dad's army bootsteps, but it would have to remain a fantasy because Patrick was only 7 years old when the U.S. forces pulled out of the Vietnam conflict.

No problem—Purdy would fight his own war against Southeast Asians. He would try one more time to achieve something big, and this time, his mission would not fail.

For weeks, Purdy had been living in Room 104 of the El Rancho Motel on the edge of Stockton, California, a riverfront agricultural city located some 80 miles east of San Francisco. He needed to concentrate, to plot his final assault on those who were to blame for his miserable existence. "General Purdy" spent hour after hour, day after day, in his "war room," manipulating the hundreds of toy soldiers, tanks, jeeps, and weapons that he had collected in order to simulate an attack and to develop an effective military strategy. There were toy soldiers everywhere: on the shelves, on the heating grates, even in the refrigerator.

Purdy prepared himself for battle as well. Perceiving a conspiracy involving people in charge, he displayed symbols of anti-Americanism boldly and loudly. He had carved the words "freedom" and "victory" into the butt of his AK-47 military assault rifle. On the camouflage shirt that he wore over his military jacket, he wrote "PLO," "Libya," and "Death to the great Satin." As reflected by the mistaken inscription for the name of the devil, spelling was never Purdy's strong suit . . . but then, he didn't seem to have any strong suit.

On Tuesday morning, January 17, Purdy donned his military flak jacket, picked up a handgun and his AK-47 semiautomatic assault rifle, and drove his 1977 Chevrolet station wagon a couple of miles to the Cleveland Elementary School in Stockton—the same elementary school he had attended from kindergarten to third grade. But things recently had begun to seem different to him, and it wasn't just having grown older. When he had lived there as a child, the neighborhood was white; now it was predominantly Asian.

Arriving at the Cleveland School just before noon, Purdy could see hundreds of young children—most of them refugees from Cambodia, Vietnam, China, and Mexico. Purdy preferred the term "boat people" when he spoke disparagingly of Asian refugees. Despite the chill in the air, the children played joyfully at recess on the blacktop in front of the brown stucco building, unaware of the war that would soon be declared.

Minority Against Majority

White males cannot, of course, claim sole ownership of resentful attitudes. Many minority Americans are angry as well: They see a racist behind every possibility for advancement. Some even envisage a large-scale conspiracy on the part of white supremacist groups, corporations, and government to deprive them of success, if not their lives. Thus, whereas Baumhammers, Williams, Lepine, Hennard, and Purdy were all members of the dominant group beating back the threat of a minority, mass murder can also serve as the weapon of a minority to retaliate for perceived oppression.

In a suburb not far from the city of Pittsburgh, a 39-year-old black resident of Wilkinsburg was at his wit's end. After a lifetime of racial insults and slights, Ronald Taylor felt that he could no longer tolerate what he believed to be the continuing racist neglect by his white maintenance man, John DeWitt. The front door of Taylor's apartment unit had remained broken for some period of time without being repaired, and Taylor fixated on his white maintenance man as the source of the problem.

On March 1, 2000, racial revenge was on Taylor's mind. Leaving his apartment, he remarked to a black neighbor living nearby that he wasn't going to hurt any black people—that he was just "out to kill white people." Taylor was true to his word. Not finding John DeWitt, he instead fatally shot a carpenter who had been working in the building. Then, he walked to a fast-food restaurant in the Wilkinsburg business district, where he shouted "White trash. Racist pig" and opened fire again, killing two and injuring two more (Levin & Rabrenovic, 2004, p. 55). All of Taylor's victims were white.

A horrific shooting that shocked New Yorkers and appeared to many as an indiscriminate shooting by a madman actually was more a carefully orchestrated hate crime. The gunman was indeed mad, but specifically because of feelings of personal slight and racial discrimination.

On any other day, it was the 5:33 local to Hicksville, but on December 7, 1993, it was the 5:33 express to hell. Hundreds of commuters, exhausted from a long workday in Manhattan, boarded the Long Island Rail Road commuter train at Penn Station, unprepared for the horror that would soon erupt in car #3. Just about 6:10 p.m., as the train raced toward Garden City in suburban Nassau County, a heavyset but gentle-looking black man rose quietly from his seat at the rear of the car and turned the weary scene into instant chaos.

Without warning, the gunman pulled from his canvas bag a Ruger P89 9mm semiautomatic pistol, a lightweight handgun known for its high velocity and accuracy, and started filling the air with gunfire. Stunned riders struggled to find cover in a death train that offered very little. The gunman slowly walked backward down the aisle, row by row, shooting alternately to his left and then his right.

Midway through the car, the assailant paused to reload with a second 15-round clip, then promptly resumed his attack. He moved to the front of the car, disappeared momentarily into the vestibule connecting to the forward car, but soon returned to finish his sweep of car #3. Fifteen rounds later, when again he stopped to reload, three heroic commuters rushed at the gunman and pinned him against a seat. Moments later, the train pulled into the Merillon Avenue Station. As terrified commuters bolted from

his job, the only activity that he found satisfying was working with his gun collection. Being without friends was not a problem—he could always count on his guns.

If only we had gun laws as strict as those in England, some Americans lament, James Huberty might never have become such a prolific mass killer. Of course, they likely have not heard of Michael Ryan, a resident of Hungerford, England, who killed 15 people and wounded just as many during a 4-hour siege through town before taking his own life. His victims included his own mother, his neighbor, and his two dogs, but most of those gunned down were perfect strangers who just happened to get in Ryan's way. Ryan was able to accomplish his tour of murder, which began at his home and ended at the school that he once attended, despite the country's rather restrictive gun laws.

Ryan, a 27-year-old good-for-nothing, had long had a bad reputation for belligerence. Despite his argumentative nature, however, he never had a brush with the law or involvement in the mental health system. Indeed, neither a criminal record nor a history of profound metal illness is a requirement for mass murder, even the indiscriminate type. Although he may have tended toward paranoia, he was far from psychotic in his thinking. Thus, each time Ryan applied to have his gun permit expanded, he was able to survive the screening process—a process that included an interview with local police to verify his sporting purpose.

By 1987, Ryan was licensed legally to own semiautomatic rifles for the sake of sportsmanship, but he viewed it as a license to murder. Ryan used his large cache of weapons that he had legally purchased under English law to take target practice on humanity. In the process, he committed the crime of the century, at least by English standards. In America, it would have been the crime of the week.

It took more than a large arsenal of weapons for Ryan to carry out his assault on his hometown. He developed the gun-handling skills through membership in a variety of gun clubs, the same memberships that earned him the legal right to own his weapons. But mass murderers don't have to join hunting clubs to become expert marksmen. Many of them are trained to handle high-powered firearms in preparation for military careers. The skills they acquire in the military for going to war prepare them in civilian life for going berserk.

When it comes to pseudo-commandos, Julian Knight of Melbourne, Australia, was as pseudo as they come. For as long as he could remember, and with his interest fostered by his adoption into a military family, the 19-year-old Aussie had focused nearly all his energies and thoughts toward a career in the military. In short, Knight was obsessed. He fashioned himself as a military man—better yet, a war hero. But the only war he would ever fight was a civil war. On August 7, 1987, along Hoddle Street in Melbourne, the "enemy" consisted of innocent strangers, 7 of whom were killed and 19 more of whom were wounded.

Unlike other pseudo-commandos, such as James Huberty and Patrick Purdy, Knight survived to become a hero in his own eyes. "I performed exactly as my Army superiors would have expected me to perform in a combat situation," reflected Knight from his jail cell. "In other circumstances I would have gotten a medal for what I did" (Time-Life Books editors, 1992, p. 70).

Knight was indeed well-trained to kill. He received his first gun, an air rifle, as a gift for his 12th birthday. Even with this relatively "harmless" initiation into weaponry, within 2 years, Knight was being trained in the use of an M16 rifle. Within 2 more years,

Exhibit 5

PRIVATE GUNS PUBLIC HEALTH

David Hemenway

with a New Afterword

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CHAPTER 4 SELF-DEFENSE USE OF GUNS

> There is little or no need for a gun for self-protection [for most Americans] because there's so little risk of crime. People don't believe it, but it's true. You just can't convince most Americans they're not at serious risk.
>
> —Gary Kleck

The previous chapters highlighted some of the costs guns impose on society. But guns also provide some safety benefits. Guns may be used to thwart criminal acts, and awareness of their presence may deter individuals from attempting to commit crimes. But how common is self-defense gun use, and how much benefit do guns really provide for our society? This chapter describes the scientific evidence available on the role of firearms in deterring crime and thwarting criminals, discusses the frequency of self-defense gun use and whether such incidents are usually socially beneficial, and considers the evidence concerning whether armed resistance against attackers makes good sense.

THE MYTH AND REALITY OF DETERRENCE

Given the claims of the gun lobby, it is perhaps surprising that there is in fact little credible evidence that guns deter crime. Criminologist Gary Kleck (1988) claims that publicized police programs to train citizens in gun use in Orlando (to prevent rape) and in Kansas City (to prevent robbery) led to reductions in crime by changing prospective criminals' awareness of gun ownership among potential victims. However, a careful analysis of the data found no evidence that crime rates changed in either location after the training (McDowall, Lizotte, and Wiersema 1991). The deterrent effects of civilian gun ownership

on burglary rates were also supposedly shown by the experiences of Morton Grove, Illinois (after it banned handguns), and Kennesaw, Georgia (after it required that firearms be kept in all homes) (Kleck 1988). Again, a careful analysis of the data did not show that guns reduced crime (McDowall, Wiersema, and Loftin 1989). Instead, in Morton Grove, the banning of handguns was followed by a large and statistically significant decrease in burglary reports (McDowall, Lizotte, and Wiersema 1991).

The fact that rural areas in the United States have more guns and less crime than urban areas has sometimes been claimed as evidence of the deterrent that firearms represent (e.g., Polsby and Kates 1998). The comparison, of course, is inappropriate. Cities in high-income countries generally experience more crime than rural areas, whatever the levels of gun ownership. A more valid comparison is between cities, between states, or between regions.

One study found a negative association between rates of gun ownership and crime rates (more guns, less crime) (Lott 1998a). However, in that study, gun ownership data came from election exit polls conducted in 1988 and 1996. These data on gun ownership levels are unreliable. According to the polling source, Voter News Service, the data cannot be used as the author uses them—to determine either state-level gun ownership levels or changes in gun ownership rates—for three reasons: (1) the survey sampled only actual voters, a minority of the adult population; (2) the gun ownership question changed between the two periods; and (3) the sample size was far too small for reliable estimates. In only fourteen states were there more than one hundred respondents to the 1996 poll, and for one such state, Illinois, the polls indicated, nonsensically, that personal gun ownership more than doubled between 1988 and 1996, from 17 to 36 percent of the adult population. Overall, the data from these exit polls indicate that gun ownership rates in the United States increased an incredible 50 percent during those eight years. Yet all other surveys of the general population show either no change or a decrease in the percentage of Americans who personally own firearms (Kleck 1997b). Analyses of guns and crime using the Voter News Service data are meaningless.

No other study finds that crime is lower in cities, states, or regions where there are more guns. Instead, the evidence indicates that where there are more guns, while there are no more robberies, there are more gun robberies and more robbery homicides (Cook 1987). Most studies find that where there are more guns, there are significantly more gun homicides and total homicides (Ohsfeldt and Morrisey 1992; Hepburn and Hemenway 2004).

A widely cited proponent of the supposed deterrent effect of guns has

claimed that when gun prevalence is high, burglars seek out unoccupied dwellings to avoid being shot (Kleck 1988, 1997b). Yet the evidence comes not from a scientific study but from a flawed comparison using different victimization surveys in different time periods for four areas—the United States, Britain, the Netherlands, and Toronto. In the United States, compared to the other three areas, a higher percentage of burglaries are committed when no one is at home. Kleck's analysis does not take into account relevant factors that might explain the association (e.g., the percentage of time in which dwellings are occupied). The areas are compared to the United States but not to each other, and only four nations/cities are examined. One could just as well argue that since cigarette consumption is higher in Japan and Stockholm than in the United States, and the Japanese and Swedish live longer than Americans, cigarettes are good for longevity.

A more reliable study used data from the Uniform Crime Reports for all fifty U.S. states for 1977–98 and data from the U.S. National Crime Victimization Survey (NCVS) for 330,000 households for 1994–98. The findings from both analyses were that U.S. counties and states with more guns have higher rates of burglary and higher per capita rates of "hot burglary" (burglary when someone is at home) (Cook and Ludwig 2003). Homes with firearm collections are considered prime targets for burglars.

Surveys of burglars in the United States do indicate that most would prefer that no one is at home—and presumably that no one is armed—when they enter the premises (Rengert and Wasilchick 1985; Wright and Rossi 1986). There is little question that professional burglars, who are among the least violent of serious criminals, want merchandise and do not want to get arrested, bludgeoned, or shot. But there is currently no credible evidence that a high prevalence of gun ownership reduces burglary or any other crime or in any way reduces potential violent confrontations.

HOW COMMON IS SELF-DEFENSE GUN USE?

Much discussion about the protective benefits of guns has focused on the incidence of self-defense gun use. Proponents of such putative benefits often claim that 2.5 million Americans use guns in self-defense against criminal attackers each year (Kleck and Gertz 1995). This estimate is not plausible and has been nominated as the "most outrageous number mentioned in a policy discussion by an elected official" (Cook, Ludwig, and Hemenway 1997, 463).

The estimate comes from a national telephone survey in which respon-

dents reported their own behavior. All attempts at external validation reveal it to be a huge overestimate (Hemenway 1997b). For example, in 34 percent of the cases in which respondents stated that they used guns for self-defense, they said they used guns to protect themselves during burglaries. If true, this would translate into guns being used in self-defense in approximately 845,000 burglaries each year. From sophisticated victimization surveys (the NCVS), however, we know that there were fewer than 6,000,000 burglaries in the year of the survey, and in only 1,300,000 of those cases was someone certainly at home. Since only 41 percent of U.S. households owned firearms, and since the victims in two-thirds of the occupied dwellings remained asleep, the 2.5 million figure requires us to believe that burglary victims used their guns in self-defense more than 100 percent of the time.

A more reasonable estimate of self-defense gun use during burglary comes from a retrospective analysis of Atlanta police department reports. Examining home invasion crimes during a four-month period, researchers identified 198 cases of unwanted entry into single-family dwellings when someone was at home (Kellermann et al. 1995). In only three cases (less than 2 percent) did a victim use a firearm in self-defense. If this figure were extrapolated nationally for the year the survey covers, it would suggest approximately twenty thousand gun uses against burglary.

If it were true, the estimate of 2.5 million self-defense gun uses per year would lead to many other absurd conclusions. There just aren't enough serious crimes for victims to use guns so many times. For example, the number of respondents who claim to have used a gun against rape and robbery attempts suggests that victims of these attempted crimes are more likely to use a gun against the offender than the attackers are to use a gun against the victim—even though the criminal chooses the time and place for the attack, most citizens do not own guns, and very few people carry guns. Similarly, the number of people who claim to use guns in self-defense and report the incident to police (64 percent in the Kleck survey) often exceeds the total number of such crimes reported to police, including all the crimes when the victim did not have a gun (Ludwig 2000).

Other results coming from this telephone survey are also grossly exaggerated. Respondents claim to have shot more than two hundred thousand criminals. Yet each year, only about one hundred thousand people total (typically victims of assaults, suicide attempts, or accidents) are treated in emergency departments for gunshot wounds (Annest et al. 1995). Kleck (1997b) makes the strange claim that most gunshot victims are criminals, and when

criminals are shot they do not seek professional medical care. But surveys of jail detainees find that even among criminals, almost all go to hospital emergency rooms for treatment of their wounds. Of more than 380 surveyed criminals in jails in California, Ohio, Nevada, Georgia, Maryland, and Washington, D.C., who had been wounded in incidents, few of which were related to their incarceration, more than 90 percent went to the hospital for treatment (May et al. 2000a; May, Hemenway, and Hall 2002).

While the survey respondents claimed to be shooting more than 200,000 criminals, FBI's Uniform Crime Reports (UCR) for that year reported only 350 justifiable homicides by private citizens, and not all of these were with firearms (U.S. Department of Justice 1993). Per week, that would mean about 3,850 shootings of bad guys—but fewer than 7 died? Even if the UCR figure may be somewhat of an underestimate (discussed later in this chapter) the wounding/death rates just don't make sense.

Respondents from this telephone survey also report being victims of more than four times the number of robberies as is estimated by the NCVS, whose purpose is to determine rates of victimization. But none of these additional robberies seem to show up in police records or in hospital admissions of injured patients.

Survey respondents in the self-defense telephone survey also claim to have used their guns to save more than four hundred thousand people a year from death. Yet only twenty-seven thousand homicides occurred in the year of the survey. In other words, for every person actually murdered, gun owners claimed to be saving fifteen (usually themselves and their families) from certain death. One might then expect that non–gun owners, of whom few are saved by guns, would have much higher rates of homicide victimization than gun owners. Yet the evidence shows that non–gun owners are less likely to be murdered than are gun owners.

It is clear that the claim of 2.5 million annual self-defense gun uses is a vast overestimate. But what can account for it? The main causes are telescoping and the false-positive problem—a matter of misclassification that is well known to medical epidemiologists. (See appendix A for a discussion of self-defense gun use and the false-positive problem.) Fortunately, the NCVS, which includes information on self-defense, drastically reduces these problems.

Housing units in the NCVS remain in the sample for three years, and residents are interviewed every six months. To eliminate telescoping—the reporting of events that occurred outside the time frame in question—inci-

dents reported in the first interview are excluded. Residents are asked in subsequent interviews only about events that occurred since the most recent interview. In surveys of criminal victimization, telescoping can increase estimates "by between 40% and 50% depending on the type of crime; the inflation rate is greatest for violent crimes" (Skogan 1990, 262; see also Cantor 1989).

More important, the NCVS properly restricts claims of self-defense gun use to those who report a threatened, attempted, or completed victimization; it cannot be a genuine self-defense gun use unless there is an actual threat. Limiting the defensive gun use issue to this group eliminates most of the false-positive problem. The resulting estimate for annual defensive gun uses is between 55,000 and 120,000 per year, less than one-twentieth of the 2.5 million figure (Cook 1991; McDowall and Wiersema 1994; National Archive 1998).

The NCVS estimate has some limitations. It does not ask about all crimes (e.g., trespassing or vandalism), but only about six serious ones—rape and sexual assault, robbery, assault, burglary, nonbusiness larceny, and motor vehicle theft. However, no one claims that instances of self-defense gun use for the minor crimes that are omitted would dramatically swell the total. We also might expect the NCVS to give an underestimate of self-defense gun use since it prompts respondents not by asking directly whether they used a gun in self-defense but only by asking, "What did you do?" and "Anything else?" However, there is little reason to expect that respondents might forget or might be unwilling to report using a gun to protect themselves against a crime that occurred within the past six months. (See appendix A on self-defense gun use.)

Whatever its limitations, it seems clear that the NCVS estimates of self-defense gun use are more valid than the private telephone survey estimates of millions of self-defense gun uses each year.

IS MORE BETTER?

A presumption exists that the higher the number of reported self-defense gun uses, the greater the benefit of guns, both to the user and to society generally. This assumption may be incorrect.

An increased likelihood of self-defense gun use may change the behavior of criminals in a perverse direction. Rather than being deterred from committing crimes, criminals may instead increasingly arm themselves in the belief

that the defender might be armed (Wright and Rossi 1986; Green 1987). Most delinquents and criminals claim that they are carrying and using guns primarily for self-protection (Wright and Rossi 1986; Hemenway et al. 1996). In a large survey of felons, half said a very important reason why they carried a gun was the chance that the victim might be armed (Wright and Rossi 1986). An arms race explains the sharp rise in homicide in many underclass neighborhoods in the late 1980s and early 1990s. Escalating murder rates increased the demand for guns for protection, which led to increases in murders, which led to further need for guns, turning these inner-city areas into "killing fields" (Wright, Sheley, and Smith 1992).

Having a gun for self-defense may also change the behavior of the gun owner in a perverse direction. For example, an individual who has a gun may become overconfident and put himself in dangerous situations he would have otherwise avoided. Even more important, he may use the gun inappropriately.

Police officers, who receive large amounts of training, are still often inadequately prepared to handle ambiguous but potentially dangerous situations. Intense stress, confusion, and fear are inherent in most possible shooting situations. Heart rates skyrocket, and it is difficult to think clearly and to act deliberately (Diaz 2001a). Not surprisingly, even police make serious mistakes. Individuals without training are likely to do much worse.

Attempts by civilians to use guns in self-defense sometimes end in catastrophe.

- A sixteen-year-old Japanese exchange student, Yoshihiro Hattori, in a suburb of Baton Rouge, Louisiana, was with an American friend on the way to a Halloween party. They missed the correct house by a few doors and rang the wrong doorbell. The frightened woman who answered the door called for her husband to get a gun. The boys left the property, but Hattori returned, probably because he mistook the homeowner's command of "Freeze" for "Please." The homeowner shot Hattori in the neck, killing him (Blakeman 2000).
- A fourteen-year-old girl jumped out of a closet and shouted "Boo" when her parents came home in the middle of the night. Taking her for an intruder, her father shot and killed her. Her last words were, "I love you, Daddy" (*Boston Globe* 1994).
- A twenty-year-old mother heard crunching noises on the gravel outside her home. Remembering reports of a recent burglary, she ran to

a bedroom and grabbed a small-caliber handgun. As she looked out the window for an intruder, the gun went off, striking her eight-month-old son in the head. The boy died seven hours later. The shooter's mother, stepfather, and thirteen-year-old sister returned home seconds after the shooting occurred (Moxley 2000).

- An eleven-year-old boy was trying to get three other boys, aged nine to eleven, to leave his trailer. He got his shotgun from his mother's room. He began arguing with his fifteen-year-old sister, and the gun went off, killing her. Neighbors said the boys had previously beaten up the eleven-year-old shooter (Vance 1999).
- A sixty-nine-year-old man critically wounded his seventy-two-year-old brother, thinking he was an intruder. The brothers lived together. The victim was shot by a .357-caliber revolver as he opened the front door (Craig 2000).
- A twenty-one-year-old woman wanted to surprise her new fiancé. With her eleven-year-old sister, she hid in his basement closet. When they jumped out, he killed her with a .40-caliber Glock handgun that he kept for protection (J. Anderson 2002).

un training in self-defense itself is not free of potential tragedy.

- A state trooper was shot and killed in a self-defense exercise by a fellow officer who forgot his gun was loaded (*Chicago Tribune* 1999).
- A co-owner of a music store was accidentally shot to death by his partner while the two men staged a mock robbery to rehearse how they would handle such an incident (*Boston Globe* 1999f).

Many reported self-defense incidents do not seem to be in society's inter-t. Our knowledge of these events comes primarily from surveys in which spondents report their side of a hostile interaction that usually occurred any months or years in the past. Still, many incidents appear to occur dur-g escalating arguments; an objective observer indeed might classify them as iminal gun uses.

Since the early 1990s, at least six private surveys have asked adults whether ey had ever used a gun in self-defense and followed up with detailed ques-ns for those who answered in the affirmative. The first survey, by Kleck and ertz (1995), produced the notorious 2.5 million estimate of self-defense gun e. Cook and Ludwig (1998) and McDowall, Loftin, and Presser (2000) ana-

lyzed two additional surveys. And the Harvard Injury Control Research Center sponsored three national telephone surveys (Hemenway and Azrael 1997, 2000; Hemenway, Miller, and Azrael 2000). The Harvard surveys seem to be the only ones to ask open-ended questions about the event. Some conclusions from the Harvard surveys follow.

First, many more people report a self-defense gun use against an animal than against a human (those surveys that find a lower rate often ask about animals only if the respondent first answered in the affirmative to "any self-defense gun use"). The main animals defended against were, in descending order, snakes, dogs, bears, raccoons, and skunks.

Second, police reported more total self-defense gun uses than did all civilians combined. This result is different from the NCVS, since, in those surveys, law enforcement officers can report using a gun in self-defense only if they personally were the victims of an attempted crime. Since police often use their weapons against criminals who have committed crimes against other people, the NCVS may miss some of the on-the-job police gun use that is reported on private surveys.

Third, excluding police, a handful of civilians report most of the self-defense incidents. For example, in a 1994 Harvard survey of eight hundred gun owners, five respondents reported 70 percent of the total self-defense gun incidents in the past five years; in a 1996 Harvard survey of nineteen hundred individuals, three respondents claimed 74 percent of the total incidents reported; and in the 1999 Harvard survey of more than twenty-five hundred adults, one respondent reported fifty self-defense gun uses (54 percent of the total incidents reported). One might ask, who are these people who continually use guns, and are all these events really self-defense?

Finally, and most importantly, many of the self-defense uses that were reported appear both illegal and undesirable. Five criminal court judges from across the United States read the thirty-five descriptions of the reported self-defense uses from the 1996 and 1999 surveys. Even assuming the gun ownership and carrying were legal and the description of the event was accurate, in more than half the cases, the majority of judges rated the self-defense gun use as probably illegal (Hemenway, Miller, and Azrael 2000). Three criminology students read a summary of the respondents' accounts from the 1996 survey and rated only 25 percent as socially desirable (Hemenway and Azrael 2000).

McDowall, Loftin, and Presser (2000) used a split-survey technique: for half of respondents, they used the NCVS approach, asking first about attempted crimes against the respondents and then about self-defense gun

use; for the other half they used the Kleck approach, asking first about self-defense. The researchers found that the second group reported many more gun uses. After analyzing the follow-up questions, they concluded that many of these incidents "relied heavily on respondent judgments about the motives of possible offenders, and motives may be murky if the respondents acted quickly. . . . The gun use may follow mistaken perceptions of innocuous actions by the supposed criminal. These cases of armed resistance would then legally amount to aggravated assaults" (14–15).

Cook and Ludwig also found in their survey that many of the incidents described by respondents as self-defense gun uses might well be illegal and were certainly of questionable social value. The authors concluded,

> Most commentators have assumed that the [defensive gun uses] 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, whether the respondent was the victim or the perpetrator, and whether the respondent's actions were otherwise legal, reasonable, and in the public interest. (1996, 58)

Information is often available on self-defense gun uses that result in death. In 2001, the UCR reported 585 justifiable homicides, 63 percent by the police. Of the 215 civilian justifiable homicides, 176 were with firearms (U.S. Department of Justice, FBI 2003). The UCR's annual justifiable homicide figure may be an underestimate since some jurisdictions also have an "excusable" homicide category, and many homicides ultimately ruled noncriminal by prosecutors or judges are reported as criminal since that is how they were treated in the initial police investigation (Kleck 1991). However, in many instances when grand juries decline to indict, the shooting remains questionable. Examples from Texas include:

- Tommy Dean Morris, fifty-four, a twenty-one-year veteran of the repossession business, was shot dead when he tried to repossess a pickup truck. The owner, who was behind on his payments, shot Morris twice with a rifle and claimed to have thought that Morris was stealing the truck (Locy 1994).
- Andrew DeVries of Scotland was fatally shot by a Houston homeowner who thought DeVries, who was knocking on the door, was try-

ing to break into the house. DeVries was intoxicated, lost, and trying to find his way back to his hotel (Locy 1994).

- Jason Williams, seventeen, was shot when a man found Williams in bed with his fourteen-year-old daughter. The father claimed he thought Williams was an intruder in his home (Locy 1994).
- Delivery driver Kenny Tavai, thirty-three, was fatally shot by Gordon Hale, forty-two, during an argument after Tavai's side mirror grazed Hale's pickup. Witnesses said Hale fired after Tavai left his car and punched Hale. Hale was the first Texan to use his legally concealed handgun in a fatal shooting (*Boston Globe* 1996).

A 1994 ABC News report on guns and self-defense also described shootings in self-defense. In one case, in Colorado Springs, Colorado, fifty-five-year-old Vern Smalley told police that seventeen-year-old Carmine Tagliere was tailgating Smalley's car. Smalley admits that the two exchanged obscene gestures. When Tagliere tried to pass Smalley on a highway on-ramp, Smalley cut him off. Smalley abruptly motioned for Tagliere to pull over, claiming to have intended to scold the youngster for his driving. Tagliere got out and angrily approached the car. Smalley reached into his glove compartment and placed a gun in his lap. Smalley says that Tagliere came up to the car and punched him in the face. Tagliere turned and started to walk away from the vehicle. Witnesses say that Smalley said something and the young man returned to the window. Smalley shot Tagliere in the neck, killing him. The jury found Smalley not guilty of murder in the second degree. Diane Sawyer summed up the various cases on the show: "By and large, victims who claim they pulled a gun in self-defense seem to get the benefit of the doubt from juries" (ABC News 1994).

Few statistics are available on nonfatal self-defense shootings. However, some illuminating results come from surveys of criminals who have been shot. For example, in one study of detainees being held for crimes in Washington, D.C., 24 percent had previously been shot. Of the shootings, 4 percent were by police, and none were by civilian victims of crime. These criminals were not shot while they were committing crimes but instead were shot while they were being victimized—such as during robberies and assaults, during arguments, or when they were caught in cross fire (May et al. 2000b). If criminals are not being shot by decent, law-abiding citizens, who are these self-defense gun users shooting?

There is no question that citizens sometimes justifiably shoot criminals.

For example, in Jacksonville, Florida, in 1997, a seventeen-year-old with a shotgun tried to rob the cashier at a restaurant full of senior citizens. The teen ordered the thirty patrons to hit the floor and told the waitress to open the cash register. Two elderly, armed patrons (one eighty-one years old) opened fire on the robber. One of the bullets hit the teen in the stomach. He fled and was subsequently arrested (*Boston Globe* 1997a). Yet even in this type of case, when there is no ambiguity about the criminal or the self-defense gun use, one wonders whether, on average, having seniors shooting in restaurants increases or decreases the chance of injury to other patrons.

Some self-defense gun uses certainly are in the public interest. However, from society's point of view, a problem exists analogous to the false-positive problem that plagues estimates of rare events. The possibility of using a gun in a socially useful manner—against a criminal during the commission of a crime—will occur, for the average person, perhaps once in a lifetime (or less often). It is an extremely rare event. By contrast, at any other moment, the use of a gun against another human is socially undesirable. Regular citizens, who are sometimes tired, angry, drunk, or afraid and who are not trained in dispute resolution, have lots of opportunities for inappropriate gun use. People engage in innumerable annoying and somewhat hostile interactions with each other in the course of a lifetime. It is not surprising that, from an objective public health perspective, false-positive "self-defense" gun uses by people who believe they are "decent, law-abiding citizens" may outnumber their legitimate and socially beneficial uses of guns (Hemenway, Miller, and Azrael 2000).

HOW EFFECTIVE IS SELF-DEFENSE GUN USE?

With respect to self-defense gun use, *effectiveness* can have two meanings: preventing the crime and catching the criminal. Some of the proponents of self-defense gun use tend to focus on the latter meaning. Tom Diaz, a writer formerly immersed in the gun culture, says gun owners often fantasize about using their guns against intruders. They fantasize about the kill. "It was almost as if they wanted someone to break in because they wanted to shoot someone. I think that's very scary, and dangerous. But that's the way people think about guns. I know because I was around it, and I talked to those people all the time" (Frey 1999).

A study of Good Samaritans—specifically, private citizens coming to the aid of victims during crimes—found that the Good Samaritans were often gun owners and gun carriers. The prime motive for the intervention was

often anger against the criminal rather than concern for the victim. The authors concluded that the Samaritans have a low boiling point and seem to see their intervention as a contest between themselves and the criminal, while the victim is the occasion rather than the reason for action. As an example, the authors provided a story from the *Los Angeles Times.*

> A motorist saw a truck strike a pedestrian and then drive away. The motorist gave chase and forced the hit-and-run driver to the side of the road. He then took out a shotgun he had in his car and held the truck driver at gunpoint until the police arrived. Meanwhile, the woman who had been hit by the truck was left lying in the road, and died an hour later in the hospital. (Huston, Geis, and Wright 1976, 64)

The second issue is whether guns are useful in trying to stop crimes. The issue is controversial. Even given a completely unambiguous interaction—when the other party is definitely a robber or assailant—whether one should resist the criminal at all is much debated. More difficult is the question of whether it makes sense to try to use a firearm to resist. Kleck claims that NCVS data show that guns help prevent robberies from being completed and reduce the chance of injury to the victim. For example, in the NCVS, while 25 percent of robbery victims who did nothing were injured, only 17 percent of those who defended themselves with a gun received a physical injury (Kleck 1997b). More pertinent NCVS data provide information on whether victims were injured after (and not before) they tried to act in self-defense. Such data indicate that using a gun may not be much better at preventing injury than various other self-defense measures. For example, victims appear no more likely to be injured once they threaten the criminal with any weapon, or call the police (table 4.1). In addition, other data suggest that while resisting with a gun might reduce the chance of being injured, it increases the likelihood of being killed (Zimring and Zuehl 1986).

The most careful study of the relationship between victim resistance and injury and death in robberies finds that the existing data do not sufficiently take into account the differences in circumstances or type of robberies and thus do not support any conclusions about the victim's safest course of action when confronted by a robber. Author P. J. Cook concludes,

> I am convinced that victims should comply with an armed robber's demands in most cases and that it is a particularly dangerous and fool-

> hardy act to forcefully resist a robber with a gun. This judgment is based on what I like to think of as common sense. The data indicate that most victims act as if they agree with this judgment. I further believe that there are exceptions to the "no forceful resistance" rule, cases in which the robber intends to inflict serious injury on the victim. The upshot is that some victims save their lives by resisting and some lose their lives by resisting. Currently available data are not helpful in suggesting how to increase the former or to reduce the latter. (Cook 1986, 416)

Results from the NCVS and the Harvard Injury Control Research Center surveys indicate that self-defense with weapons other than guns is far more common than self-defense gun use. Indeed, in the Harvard surveys, there were more incidents of successful self-defense with a baseball bat than with a firearm. A principal conclusion from these surveys is that individuals without guns are not necessarily unarmed (Hemenway and Azrael 1997; Azrael and Hemenway 2000; Hemenway, Miller, and Azrael 2000). Self-defense is not solely or even primarily for those with guns readily at their disposal.

SUMMARY

Self-defense gun use is a somewhat nebulous concept. Criminals, for example, often claim that they carry guns for protection and use them during crimes in self-defense because they felt threatened by the victim. Most of the

TABLE 4.1. Victims Physically Injured After Self-Defense, 1992–98 (in percentages)

Selected Types of Victim Action	Robbery	Assault	Burglary
Threaten or Attack with Gun	8	4	2
Threaten with Other Weapon	0	3	0
Run/Drive Away/Tried to	5	5	29
Call Police, Guard	3	5	3
All Incidents with Self-Defense	7	8	4

Source: Data from National Crime Victimization Surveys, 1992–98; Kleck and Kates 2001 (289).

self-defense gun uses reported on private surveys appear to be both illegal and against the public's health and welfare. Of course, there are undoubtedly many instances of successful and socially beneficial self-defense gun uses. Each month, the *American Rifleman*, the magazine of the National Rifle Association, features about a dozen accounts of armed citizens defending themselves based on newspaper clippings submitted by NRA members. Yet even these stories may not always be what they purport to be (Magnuson 1989).

Surprisingly, although protection and self-defense are the main justifications for a heavily armed citizenry, there is little evidence of any net public health benefit from guns. No credible evidence exists for a general deterrent effect of firearms. Gun use in self-defense is rare, and it appears that using a gun in self-defense is no more likely to reduce the chance of being injured during a crime than various other forms of protective action. No evidence seems to exist that gun use in self-defense reduces the risk of death; case-control studies of firearms in the home fail to find any lifesaving benefit, even when exclusively considering cases involving forced entry (Kellermann et al. 1993).

Whatever one thinks about the benefits of self-defense gun use, reasonable gun policies—such as requiring manufacturers to meet minimum safety standards or requiring background checks on sales at gun shows—would have little effect on the ability of responsible adults in the United States to defend themselves with guns.

Exhibit 6

Web Site Index and Navigation Center

Tactical Briefs (Volume 2, Number 4)
April 1999

Wound Ballistics Review, the Journal of the International Wound Ballistics Association

The IWBA has just distributed its latest issue of *Wound Ballistics Review.* For those of you who are interested in learning more about centerfire rifle bullet wounding and incapacitation mechanisms, this is the issue to get. In the Questions and Comments section (Incapacitation Time), Dr. Fackler provides very detailed answers to specific questions about this subject. Ever wonder why many people who are shot in the upper torso with a centerfire rifle bullet collapse instantly when blood loss is insufficient to produce incapacitation in such a short amount of time? Or, why do some heart shot deer drop in their tracks? Fackler explains the mechanisms involved.

Also, the IWBA is presently preparing its own web site. We should have more information to share with you about this development soon.

The following table lists the articles published in this edition:

***Wound Ballistics Review* Volume 4 Number 1, 1999**
Editorial Dr. Martin Fackler About This Issue Feedback The .224 Boz Web Page
Questions and Comments Incapacitation Time Shock Wave Kevlar Cap Shots to the Pelvic Area Perspectives on the .223 Remington The .358 Winchester as a Police Rifle Gun Retention, M1 Carbine vs. .223

Understanding the Law Enforcement Issues in Suicide by Cop
Shirley MacPherson, Ph.D.

12 Gauge 00 Buckshot Ammunition Test
George Bredsten, Lead Instructor, Firearms Division;
Steve Bryant, Inspector, U.S. Marshals Service;
Dan Fair, Lead Inspector, U.S. Marshals Service;
Eddie Brundage, Armorer, Firearms Division;
Billie Savell, Armorer, Firearms Division; all at Federal Law Enforcement Training Center, Glynco, Georgia

Wound Profile of the Briese Controlled Disintegrator Ammunition in Caliber .308 Winchester
Kramer D. Powley and Dean B. Dahlstrom, R.C.M. Police Forensic Laboratory, Regina, Saskatchewan, Canada

IWBA Handgun Ammunition Specification Tests -- 9mm in MP5
Duncan MacPherson

The Limitations of Water-Filled Cardboard Cartons in Predicting Bullet Penetration
Gus Cotey Jr.

Comparison of the Terminal Performance of .22 Long Rifle Hollow Point Bullets
V.G. Swistounoff, Institut de Recherche Criminelle de la Gendarmerie Nationale, French Wound Ballistic Society -- France

Rifle Accuracy Facts, Harold R. Vaughn, Precision Shooting, Inc., 222 McKee St., Manchester, CT 06040 (Book Review)
Duncan MacPherson

Click here for information to order this journal

Black Hawk Down: A Story of Modern War

The disastrous battle of Mogadishu, Somalia, involving U.S. troops in October 1993 is now detailed in a new book by investigative reporter Mark Bowden.

Click here to read CNN's book review

Too Good To Be True

We pointed out in IWBA Bulletin No. 1/92, that three academic statisticians had judged, independently, the Marshall/Sanow one-shot stop data to be bogus, i.e., made up to fit a preconceived theory. Since that time, another renown academic, Dr. Carroll Peters, Professor of Engineering at the University of Tennessee calculated the probability that they could be true to be one in ten to the twentieth power (1 in 1,000,000,000,000,000,000,000). Dr. Peters' paper describing his analysis will soon appear in print.[1]

When Marshall's "One-Shot Stop" statistics appeared in *Petersen's Handguns* in November 1988, I noted that his data appeared to be "too good to be true." In response to inquiries, I analyzed these data and concluded that they must have been fabricated. My analysis included:

- Marshall claimed to have obtained his data from eyewitness descriptions and police reports. I have queried many knowledgeable law enforcement investigators: they all agreed that my estimate of 70% accuracy for these sources was extremely generous.

- Marshall purportedly recorded shots that struck the torso. My experience, and that of others, has shown that an expanding .357 Magnum bullet that passes through the lower abdomen, striking only loops of bowel, has a less detrimental effect on the body than a 158 grain .38 Special lead round-nosed bullet that perforates the heart, aorta, or the upper spinal cord. Variation in effect due to differences in what the bullet hits would, in my estimation, limit reproducibility in his study to no greater than 60%.

- Difference in mental focus is known to have a large effect on how people react to being shot. The frightened amateur thief is much more likely to collapse from a random torso hit than is the well trained and dedicated terrorist. The variation in human response to identical wounds would, in my estimation, limit reproducibility to no greater than 70%.

The overall accuracy in any data collection is determined by multiplying all individual accuracy percentages produced by each factor that limits statistical certainty. Thus 70% of 60% yields 42% and this multiplied by 70% yields the final accuracy factor of 29% (or 71 percent uncertainty). This means that, given the methods Marshall claims to have used, only 29% of his incidents could be expected to yield consistent results (i.e., more disruptive bullets showing greater effects than less disruptive bullets).

Below I have duplicated data from two tables in Marshall's 1988 article. He reported the "one-shot stop" percentages for the .38 Special in two lists: one in which a weapon with a 2-inch barrel was used and another where a 4-inch barrel was used. The extreme regularity of these results: the 12

identical loads arranging themselves in exactly the same order (of descending effectiveness) in the group of shooting incidents in which a 2-inch barrel was used as in those incidents in which a 4-inch barrel was used; and the percentage of "one-shot stops" being always 3, 4 or 5 percentage points higher when the 4-inch barrel was used, could only occur in a study in which a certainty of 99 to 100% could be expected. This excludes any study involving human reactions.

"ONE-SHOT STOP" PERCENTAGES FOR THE .38 SPECIAL						
.38 Special Loads, 2-inch barrel			.38 Special Loads, 4-inch barrel			Increase
Winchester	158 grain LHP	61%	Winchester	158 grain LHP	65%	+4
Federal	158 grain LHP	61%	Federal	158 grain LHP	64%	+3
Remington	158 grain LHP	61%	Remington	158 grain LHP	64%	+3
Federal	125 grain JHP	60%	Federal	125 grain JHP	63%	+3
Remington	125 grain JHP	58%	Remington	125 grain JHP	61%	+3
CCI	125 grain JHP	57%	CCI	125 grain JHP	60%	+3
Winchester	125 grain JHP	56%	Winchester	125 grain JHP	60%	+4
Federal	125 grain JSP	55%	Federal	125 grain JSP	58%	+3
Federal	158 grain SWC	50%	Federal	158 grain SWC	55%	+5
Federal	158 grain RNL	50%	Federal	158 grain RNL	55%	+5
Remington	95 grain JHP	50%	Remington	95 grain JHP	55%	+5
Winchester	110 grain JHP	50%	Winchester	110 grain JHP	55%	+5

The total numbers of shooting incidents reported ranged from 16 to 112, averaging 48.6, for each load.

Note: My analysis is of Marshall's 1988 paper. Dr. Peters analyzed data that appeared in the book Handgun Stopping Power, by Marshall and Sanow (published in 1992). In the book the statistics were purportedly based on considerably more shooting incidents than reported in the 1988 paper. However, the same order of the .38 Special bullets that was reported in the paper was repeated in the book (the same 12 loads in the same order from each barrel length).

Conclusion

The extreme regularity of response to being shot reported by Marshall is, in my opinion, impossible, due to the well-known inherent variations and inconsistencies in human reactions. The constant mistake made by those who fabricate data is that they make it "too good to be true."

This article was originally published as: "Exploding the Mythology of Stopping Power: Ballistic Myths of the 90's, Too Good To Be True (2 pages), Strasbourg Tests -- Another Gunwriter/Bullet Salesman Fraud? (3 pages)" by Dr. Martin Fackler, M.D., F.A.C.S. Handout for Firearms Instructor Update Course #2015-A, Washington State Criminal Justice Training Commission, October 29, 1993, Kent, Washington.

Reprinted with permission from Dr. Fackler.

End Notes:

1. According to Fackler, Dr. Peters was too busy to finish his article and it was never published.

*****

Commentary

Fackler's article above explains why the professional wound ballistics community isn't interested in performing a study of "street shootings" in a manner similar to Marshall. The concept and methods are so flawed that such a study is meaningless in context.

(Marshall claims a study of approximately 200 law enforcement shootings, conducted by Richard Fairburn, that was published in the March/April 1993 issue of *The Police Marksman*, supports his "findings." Marshall's claim is eloquently discredited by Fackler, in a six page review of Marshall's book *Street Stoppers*.)

The professional wound ballistics community does, in fact, investigate actual shootings. But these studies do not attempt to quantify the wound effectiveness of any particular bullet, because "effectiveness" is a consequence of the bullet's wound track through the body. Shot placement is a critical aspect in producing an effective wound, and this factor is entirely independent of, and is more important than, any attribute that can be ascribed to bullet performance, except penetration. To reliably be "effective" a bullet must pass through vital cardiovascular organs or damage the central nervous system. The key words are *reliable effectiveness*.

Instead, the research examines the physiological mechanisms that produced, or failed to produce, incapacitation based upon damage to anatomical structures. Terminal performance observed in actual shootings is compared with terminal performance observed in standard ordnance gelatin, to answer the questions: Did the bullet(s) perform as expected? If not, what factors inhibited expected performance?

The professional wound ballistics community, comprised of well-qualified law enforcement personnel, emergency room physicians, medical researchers, trauma surgeons, weapon/ammunition designers, forensic pathologists, neurologists, criminologists and other interested persons, has been engaged in this kind of "street shooting" research for years. These

knowledgeable researchers realize that no honest study done with Marshall's purported methods could possibly produce results that are anywhere near as regular as those he reports.

Wishful Thinking?

"In mid-September 1987, the FBI called together a panel of doctors and professors and one cop to discuss wound ballistics. This was in response to the April 1986 shootout in Miami. The bureau felt that the Miami gunfight would have turned out differently if the bullets that the agents fired had produced deeper penetration.

"The 9mm 115-grain Silvertip fired by agent Jerry Dove penetrated the right bicep of Michael Platt, entered his chest, collapsed his right lung and came to rest in the lung tissue. Some have speculated that if the bullet had deeper penetration, it would have taken out his heart and the gunfight would have been over. That sort of wishful thinking is not supported by medical facts nor has it been the experience of other street cops." -- ***Ed Sanow***

"The 9mm Subsonic, Fight Stopper or Failure." Handguns 6(1), p.26, October 1992.

Book Review:

***The Best Defense: True Stories of Intended Victims Who Defended Themselves with a Firearm*. Robert A. Waters, Cumberland House, Nashville, Tennessee, 1998 (212 pages) $11.96/Amazon.com**

The Best Defense documents the stories of twenty incidents of deadly criminal violence in which the intended victims resisted the assaults with a firearm and survived. These stories cover a wide spectrum of situations involving armed private citizens who were victims of random street violence, home invasion, a serial rapist, a cold-blooded killing spree, armed robbery of business establishments, a serial murderer, armed robbery while camping in a National Forest, a stalker, a gun battle with car thieves while coming to the aid of a fallen law enforcement officer, and many other criminal violence situations.

Waters, whose writing style captivates his readers' attention, is a superb storyteller. His ability to articulate the feelings of the victims, to describe the crime scenes in such vivid detail, and to expertly narrate the violent events as they unfold makes you feel as though you're an eyewitness to each incident.

These stories reveal the many different scenarios and circumstances in which common, everyday citizens are preyed upon by vicious criminal

predators. One benefit of reading this book is that it will expose you to many different violent crime situations, which can help you to better prepare to defend yourself and your loved ones against wrongful and life threatening criminal attack.

To give you a flavor of what to expect, we've reprinted the book's Preface:

> On December 8, 1994, 74-year-old Lillie Mae Ponder returned home from church to find that her house had been burglarized. She lived near the crime-ridden Ivey Lane housing project in Orlando, Florida, and kept a .38 Special for protection. Just hours later, while she and her husband, Paul, were asleep, the burglar returned. When the Ponders awoke and confronted the intruder, he sprayed them with Mace. Nearly blinded, Lillie Mae reached into a drawer and pulled out her gun. She fired, hitting him in the cheek and killing him instantly.
>
> She later said she was afraid for the life of her husband, who was confined to a wheelchair.
>
> Police called it a "lucky shot." They also called it a classic case of self-defense.
>
> *****
>
> Perry and Debra Jones were sleeping in their Waller, Texas, home on the night of December 11, 1995, when a burglar broke their bedroom window.
>
> Wearing black clothes, a camouflage mask, and surgical gloves, he climbed into the Joneses' bedroom. Perry Jones awoke and shouted for the man to leave. When he refused, Jones picked up a shotgun that lay beside his bed and fired, fatally wounding the intruder.
>
> Because self-defense using firearms is usually a local event, it is one of the least known issues in America today. No single story is enough to make national news. When examined collectively, however, these accounts show that a significant number of Americans are choosing to fight back when attacked. On January 31, 1996, after grocer Sam Turrisi killed an armed robber in his store, the *Orlando Sentinel* reported that the robber was "the ninth gunman in eighteen months to die at the hands of an intended victim" in Orange County, Florida.
>
> There are conflicting estimates of the number of individuals who successfully use guns to defend themselves and others. Neither police departments nor the federal government keep such statistics. Gary Kleck, a criminologist at Florida State

University, has done extensive research into all forms of gun violence. In his widely acclaimed 1991 book, *Point Blank: Guns and Violence in America*, Kleck estimates that there are between 400,000 and 500,000 uses of firearms each year for defensive purposes. In recent years, his research has indicated that there may be up to 2.5 million instances of self-defense with firearms annually.

The vast majority of these confrontations do not end in violence -- usually a potential victim merely shows a gun and an aggressor retreats, as happened in the case of Denver's notorious "Ski Mask Rapist."

Since the summer of 1985, this unknown rapist had been terrorizing the city. His method of operation was to stalk single women, determine the nights they would be home alone, and break into their homes after they had gone to bed. He always wore a ski mask and gloves, and cut their outside telephone lines. Once the attacker had isolated his victim, he would brutally rape her, often for hours. The police were stumped as to his identity.

On January 4, 1986, all had gone according to plan for the rapist. He stood over the bed of his intended victim, erotic fantasies playing in his mind. Rape quickly became an afterthought, however, when the victim suddenly sat up and pointed a pistol between his eyes. The intruder dove through the kitchen window. Investigating officers found that, as in the other cases, the telephone lines had been cut. It took two years, but a task force finally captured Frank Vargas. During that time, the Ski Mask Rapist had violated twenty women. He had been thwarted once, by an armed woman.

*****

My purpose for writing this book is not to enter the gun control debate, but to recount dramatic true stories of split life-or-death decisions made by innocent victims defending themselves, their families, their employees, or strangers.

While scanning local newspapers, which is where such stories are often reported, I came across thousands of such cases.

From the February 11, 1995, *Atlanta Constitution:* A shooting was videotaped by a store camera at the Lakewood Grocery Store in Atlanta. The store owner, a Korean immigrant, was stocking shelves when a man entered, apparently scoping the place. The owner's wife was behind the counter. The man left, but returned a few minutes later with an accomplice. They pulled

out pistols and attempted to rob the clerk, whereupon the grocer pulled his own gun, fired, and killed one of the robbers. At the time the newspaper reported the story, the police were still searching for the second robber.

From the February 7, 1995, *Orlando Sentinel:* Around midnight, two men broke into the apartment of Raymond Scott. Scott, asleep in his bedroom, was awakened by strange noises coming from the living room. He cracked the door and saw a masked intruder tying up his two adult children with black electrical tape. Scott burst into the living room, firing his 9mm handgun. A second intruder began shooting at him. After a wild gunfight, both attackers ran from the apartment, and Scott called police. Home invasion is a current fad among central Florida criminals, but it didn't pay for the two who broke into Scott's apartment. Stephen LeRoy Jones was arrested while being treated for gunshot wounds at the Orlando Regional Medical Center. His partner, Shonrell J. Harper, wasn't so lucky. At 7:30 the following morning, he was found dead under a stairway in Scott's apartment complex. A ski mask and a roll of electrical tape were found with his body.

From the December 12, 1995, *Mountain Press,* Prather, California: A woman ran into a local church for protection from an attacker. The pastor hid her in a back room, then came out and tried to reason with the assailant. The man didn't want to listen, however, and opened fire. Shot in the hand, the pastor ran to his office and slammed the door shut. The gunman broke through the door, at which time the pastor shot him between the eyes, killing him instantly.

From the June 10, 1995, *Gastonia Observer,* Gastonia, North Carolina: A young woman walked alone outside a mall, trailed by a trio of men with violent pasts. One had served hard time on three occasions. When the men continued to threaten the woman, a bystander, Christopher Gore, intervened. The three-time loser, who had consumed vast quantities of beer that day, pulled a gun and began shooting at Gore. The samaritan pulled his own 9mm handgun and returned fire, killing the felon.

As stated previously, in most instances of self-defense, the attacker is not killed, but merely captured or run off. In October 1995, a Griswold, Connecticut, woman telephoned her brother to tell him that someone was trying to break into her house. Her brother called police and raced to the scene. By the time he got there, the woman was holding the suspect, a teenage burglar, with a .22 rifle. Police quickly arrived and captured three accomplices nearby.

It is a general misconception that the police exist to protect the public. This is true only in the most generic sense -- i.e., once a criminal act is committed, and a suspect caught and convicted, theoretically he is locked up so that he cannot prey on other people. The problem is that someone has to be a victim before the criminal can be taken out of society. And many offenders commit dozens of violent acts before they are caught. This doesn't even take into account the fact that the criminal justice system continually releases the most violent offenders.

Since police are unable to protect citizens from violent attacks, many individuals feel that it is their own responsibility to protect themselves and their families.

All states have laws governing and restricting the right of self-defense. Florida law states, "The use of force is justifiable when a person is resisting any attempt to murder such person or to commit a felony upon him or in any dwelling house in which person shall be." Such wording is open to interpretation.

After two incidents in which homeowners shot intruders, one central Florida sheriff interpreted the law this way: "In your home, you have a right to protect every square inch of it.... When criminals break into a home, they better be prepared to pay the ultimate price."

Other Florida law enforcement officials have attempted to be more restrictive, but public pressure has usually prevailed, and home owners and business owners who have shot intruders have almost always been found to have been legally justified.

For example, on November 14, 1992, Manny Roman, a Cuban refugee who owned Aries Auto Repair in Miami, was spending the night at his shop. He was armed because the place had been plagued with break-ins. At about 1:30 A.M., he heard a window break. Moments later he heard someone rummaging about in his office. Roman grabbed his Beretta 9mm semiautomatic. As he explained, "When I opened the door, we were face to face. I was afraid. I just kept shooting and I went back and closed the door of the office and dialed 911." Police found Stanley Dixon, a crack addict, with eleven bullet holes in his body. A hammer was grasped in his hand.

Police initially stated that Roman would not be arrested. Eight months later, the state charged him with murder. Kathleen Fernandez Rundle, the County State Attorney, claimed that Roman was "lying in wait" for the next person to break into his shop. For that reason, she stated, he had "entrapped" Dixon. Roman replied that the reason he was in his shop late at night

was because he had worked until late in the evening and was too exhausted to drive to his home across town.

Rundle also said that reloading his weapon after the shooting showed premeditation. The business owner advised her that he'd reloaded when he heard other noises outside.

The community was outraged at the state attorney's decision to charge Roman. Under intense public pressure, Rundle approached Roman on two occasions, asking him to accept plea bargains with no jail time. He refused. He later said, "I knew I had done the right thing in protecting my life."

On November 3, 1995, the Dade County State Attorney's Office reluctantly dropped all charges after a sixteen-member grand jury refused to indict Roman. After the finding, Rundle said, "I have concluded that it is extremely unlikely that a Dade County jury would convict him."

Most states recognize that if a citizen's life, or that of another, is in danger from criminal attack, a citizen has the right to take every measure available to save his or her own life or the life of another.

The "home protection" law in Tennessee, for instance, has changed little since it was written at the time of Cherokee Indian attacks on settlers in the early 1800s. It consists of two subjective tests: "apprehension," or a sense of impending danger; and "external manifestations": Was the intruder armed? Was he under the influence of mind-altering substances? Did he have a prior record?

New York's self-defense law is one of the most restrictive in the nation, as exemplified by the following incident. In February 1996, Timothy Pastuck saw his neighbor being brutally attacked with a baseball bat. Pastuck grabbed his unlicensed .22 rifle and shouted for the attacker to stop. When he refused, Pastuck shot him three times, wounding the assailant and driving him off.

The police called Pastuck a hero but arrested him anyway. He was charged with attempted murder, assault with a deadly weapon, and unlawful possession of a weapon. He spent a full day in jail, trying to bail himself out as the public railed against a policy that would not allow a citizen to protect another person in danger of being murdered.

Pastuck was forced to appear in court, where the district attorney, under intense public pressure, finally dropped all

charges. Pastuck said, "You try to do the right thing, and the next thing you know you're in the system." Then, obviously confused, he stated, "I don't know what they want; people, citizens to react, don't react."

The stories in this book portray citizens who did react. Citizens such as Travis Dean Neel. Just outside Houston, Texas, city limits, on January 21, 1994, Neel watched as Harris County Deputy Frank Flores stopped a stolen Jeep Cherokee. The three occupants of the Jeep were members of an organized car-theft ring. As Flores walked toward the Jeep, one of the thieves hid in the back seat and ambushed the deputy.

Flores was shot four times and collapsed on the street. Neel witnessed the shooting and went to the defense of the deputy. He carried two 9mm semiautomatics in his truck. Opening fire, he prevented the suspects from continuing to shoot Deputy Flores. Neel shot up one clip and then another. He stated in later testimony before a congressional subcommittee hearing on crime that his greatest fear was that an innocent bystander would get hurt, or that he would be killed by the thieves, and people would think he was one of them.

When their automobile became boxed in, the car thieves attempted to car-jack another vehicle. But Neel drove them away with rapid fire. The suspects finally fled on foot and were captured a few hours later. The fallen deputy recuperated, and Neel was proclaimed by the Harris County Deputy Sheriffs Union to be "Citizen of the Year, 1994."

While writing this book, I have spoken with law enforcement officials, as well as many intended victims of crime who used weapons to protect themselves and others. In addition, I have read trial transcripts, police reports, newspaper accounts, and hundreds of related documents. I have read thousands of pages of research concerning gun violence.

I have tried to be a accurate as possible in reporting the incidents described. All stories are documented and can be obtained through public record.

In the final section of most chapters, I have given the would-be victim a forum, quoting directly from interview sessions. Many speak with great poignancy about the life-threatening experiences they endured. Others state their views on related issues, such as gun control, crime, and police protection.

The stories that follow belong to the victims. It is my hope that sharing them will shed light on a little known subject.

Waters is a talented and gifted writer. His book, *The Best Defense*, reads remarkably like gunwriter Massad Ayoob's *American Handgunner* column, "Ayoob Files," and makes for excellent reading by anyone who's interested in the use of firearms for self-defense against criminal attack.

The Best Defense has been so well received that Waters is presently researching and writing a sequel.

Delivering you informative multimedia essays about the "battlefield problem-solving" tactical aspects of armed self-defense.

Web Site Index and Navigation Center

Exhibit 7

Gary Kleck

POINT BLANK

Guns and Violence in America

ALDINE TRANSACTION
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Anything Short of Total Success is Utter Failure

Opponents of gun laws, like opponents of any law, like to point to the failures of the laws—how many crimes are committed even in places with strict gun laws, how many criminals have guns despite the laws, and so on. This argument, however, is a non sequitur; it does not follow that gun laws are ineffective. All laws are violated and thus less than completely effective, and most important criminal laws are violated frequently, as a glance at criminal statistics indicates. Even some laws widely supported by the population have been violated by a majority of the population, as self-report surveys of the population have long shown (e.g., Wallerstein and Wyle 1947). Yet no one concludes that the thousands of homicides committed each year mean that laws prohibiting murder are ineffective and should be repealed. It is unreasonable to oppose a law merely because some people will violate it.

A more sensible standard to apply is to ask whether the benefits of the law exceed its costs, i.e., whether the world will, on balance, be a better place after the law is in effect. It is impossible to directly count the number of successes, i.e., the number of crimes deterred or otherwise prevented by the existence of laws prohibiting the acts, since one can never count the number of events that do not occur. And no matter how many failures there are, it is always possible that there are still more successes. The only way one can assess the relative balance of successes and failures is to compare jurisdictions having a law with those lacking the law, or to compare jurisdictions before and after they adopt a law, to see if there is, on balance, less crime with the law than without it. Just counting failures settles nothing.

Criminals Will Ignore the Law

A corollary to the previous fallacy is the assertion that many criminals will ignore gun laws and get guns anyway. This is indisputably true, but not especially decisive regarding the desirability of gun control, since it does not address the number of successes of gun control. There is no clearly established minimum level of compliance that must be achieved before a law is to be judged a success. And if there were such a standard, it certainly could not reasonably be 100%, and would not necessarily be even 50% or any other similarly high level. It is even conceivable that if just 1 or 2% of potentially violent persons could be denied a gun, the resulting benefits might exceed the costs of whatever measure produced this modest level of compliance.

As it happens, there appears to be some compliance with gun laws

even among the "hard-core" felons incarcerated in the nation's prisons. A survey of over 1800 felons in 11 state prisons found that 25% of felon gun owners reported having registered a firearm and 15% reported having applied for a permit to purchase or carry a gun, percentages that would have been higher had felons in states without such legal requirements been excluded from the computations (Wright and Rossi 1986, p. 84). Although the self-reported compliance levels were low, as one would expect in a sample of felons, they were also not zero. Among potentially violent persons not in prison, who are probably less persistently and seriously involved in law-breaking, compliance levels would presumably be even higher.

One Thing Leads to Another

Gun control supporters often wonder how the National Rifle Association (NRA) and other gun owner organizations can possibly oppose some of the more modest and apparently inoffensive regulations. Opponents reply that today's controls, no matter how limited and sensible, will just make it that much easier to take the next, more drastic step tomorrow, and then the next step, and the next, until finally total prohibition of private possession of firearms is achieved. They argue that gun control is a "slippery slope" on which it is hard to stop halfway, and that many proponents do not want to stop with just the more limited restrictions.

This fear is not completely unreasonable, as bills calling for a national ban on private possession of handguns have been introduced in Congress (Alviani and Drake 1975, pp. 55, 57) and much of the general public does favor prohibitions. In national opinion polls, about 40% of Americans say they support bans on the private possession of handguns, and one in six even support a ban on possession of *any* guns. Since about 75% of all Americans favor registering gun purchases and about 70% favor requiring police permits to buy a gun (Chapter 9), this means that *most* supporters of these moderate controls also favor a total ban on private handgun possession. If this is so among ordinary nonactivist supporters of gun control, it almost certainly is true of activists and leaders of gun control advocacy groups.

There have always been enough prominent prohibitionists willing to air their views in a highly visible way to lend credence to fears about a movement toward total prohibition. For example, criminologist Marvin Wolfgang, in a letter to the editor of *Time* magazine, advocated a total national ban on possession of all firearms (July 5, 1968, p. 6), a sentiment echoed by noted sociologist Morris Janowitz (*Time*, 6-21-68).

cators are necessarily "noisy," reflecting both gun availability and inclinations of violent people to choose guns for their aggressive or suicidal purposes. Although the two measures often show similar trends, they also moved in opposite directions during 1945–1951, 1976–1983, and, to a lesser degree, 1958–1963. If the gun share of homicides were used as an indicator of long-term trends in a general gun ownership, it would indicate that gun ownership had declined since the 1920s. In 1920–1926, 71% of U.S. homicides were committed with guns (Brearley 1932, p. 68). Since at that time six states in the South and West, where a high share of homicides were committed with guns, were not yet a part of the national vital statistics system, the figure almost certainly would have been higher had those states been included. By 1989, the national figure was down to 62% (U.S. FBI 1990).

Table 2.3 provides estimates of the size of the U.S. gun stock, based on national surveys that asked Rs how many guns they owned. They all support the view that there was a huge number of guns in private hands. All but one of the estimates, however, are substantially lower than production-based estimates for the same years (Table 2.1). Flaws in these estimates and reasons for the discrepancy are discussed in Appendix 2.

Table 2.4 displays information on the combinations and numbers of guns owned by gun-owning households and individuals. Part A shows that most households with guns have long guns (85%), and that most (56%) own *only* longguns, whereas only one-seventh of owning households have only handguns. However, it will be this handgun-only type of household that will be of special interest later because it may be the type most likely to have guns for crime-related reasons (Bordua et al. 1979). Conversely, two-thirds of households with handguns also have long guns. This fact is significant because it suggests that when handguns are used in crimes or for defense (at least when in the home), the use was often the result of a choice between different types of guns, rather than the fact that only handguns were available. This would support the view that there is something about handguns that gun users regard as especially suitable for defensive and criminal purposes. An even more important implication is that if handguns were restricted, most current handgun owners would not even have to acquire new guns in order to have substitute firearms to use. The implications of this substitution possibility will be discussed in detail in Chapter 3.

Part B of Table 2.4 attempts to provide more realistic estimates of the number of guns owned per owner than were reported in Table 2.3. It has been assumed that the true fraction of households and individuals own-

ing guns is 10% higher than survey figures indicate, to adjust for the underreporting previously discussed (see Appendix 2 for a justification). These survey figures were combined with the production cumulation figures in Table 2.1 to roughly estimate the numbers of guns owned per owner. Based on this procedure, among households owning guns, an average of over four guns are owned, considerably higher than most survey data suggest. The distribution, however, is undoubtedly skewed to the right, with a few households owning very large numbers of guns, and most households owning a few, based on the Table 2.3 survey results. Among households with a handgun, the average number of handguns owned is about 2.8. Among individuals age 18 or over who own guns, the average number owned is about 3.4, and among individuals with handguns, the average is about 2.0. Both these data and survey data support the conclusion that although gun ownership is widespread in the United States, a large share of the guns may also be in relatively few hands (see also Cook 1983, pp. 78–9).

Regardless of the major source on which one relies, it is clear that the number of guns currently in private hands in the United States is very large, whether the number is 100 or 200 million. One straightforward policy implication is that policies that seek to reduce gun violence by reducing the overall supply of guns, as distinct from reducing the number possessed by high-risk subsets of the population, face an enormous obstacle in this huge existing stock. Even if further additions to the stock could somehow be totally and immediately stopped, the size of the stock and durability of guns imply that, in the absence of mass confiscations or unlikely voluntary surrenders of guns, it might be decades before any perceptible impact became apparent.

Who Owns Guns?

In a nation where at least half of the households have a gun, it would be difficult to regard gun ownership as an unusual or deviant status. Nevertheless, gun owners do differ from nonowners in some respects, as the figures in Table 2.5 demonstrate. These figures were computed from the combined 1980, 1982, and 1984 General Social Surveys conducted by the National Opinion Research Center (for details of the surveys, see Davis 1984). These surveys were superior to previous national surveys in that they asked whether each *respondent* (R) owned a gun, rather than asking only whether someone in the household did. This made it possible to relate attributes of the R to whether the R owned

of "ARs," it is unlikely that criminals would adopt them. But even if at least some types of criminals did seek out rifles as an alternative to handguns, they would have an ample supply of more lethal substitute rifles available to them even in the absence of "ARs."

While "ARs" are not unusually lethal relative to other rifles, they do have other technical attributes potentially relevant to criminal violence: (1) they are capable of firing single shots as fast as the shooter can pull the trigger, and (2) they can accept magazines that hold a large number of cartridges. It is unclear whether either of these attributes is of substantial criminological significance. "ARs" are capable of firing at a rate somewhat faster than other gun types, but it is unknown how often violent incidents occur in which this higher rate of fire would have any impact on the outcome of the incident. For example, even in a rare mass shooting such as the 1989 Stockton schoolyard killing of five children, the killer fired 110 rounds in 3 to 4 (or more) minutes, or about 28–37 rounds per minute (*Los Angeles Times* 1-18-89, p. 3; 1-19-89, p. 9). The same rate of fire can be achieved with an ordinary double-action revolver using speed-loaders to reload. Further, there was nothing to stop Purdy from continuing his attack for another 3 or 4 minutes. The higher rate of fire was unnecessary for Purdy to carry out his murderous intentions—he did all the shooting he wanted to do in 4 minutes and then killed himself.

The effective rate of fire of any gun is limited by its recoil. When a shot is fired, the force of the bullet leaving the barrel causes the gun to move back toward the shooter and off of its original aiming alignment. It cannot be fired at the same target again until the shooter puts it back in line with the target. Thus the somewhat higher rate of fire of semiautomatic weapons cannot be fully exploited, reducing the effective difference between these weapons and revolvers.

Ordinary revolvers can easily fire six rounds in 3 seconds without any special skill on the part of the shooter or modification to the weapon. Even assuming a semiautomatic gun could fire at twice this rate, it would only mean that a shooter could fire six rounds in 1.5 instead of 3 seconds. The issue comes down to this: How many violent incidents occur each year in which a shooter has 1.5 seconds to shoot the victim(s), but not 3 seconds? Such incidents are probably fairly rare, although there are no hard data on the matter.

Critics of "ARs" have also pointed to the high total *volume* of fire of which the weapons are capable, due to their large magazines. It should be noted that magazines for these weapons are almost always detachable, and the weapons are usually capable of accepting many different

common magazine sizes, whether one containing only 3 rounds, or one containing 30 or more (Warner 1989). Thus, the high volume of rounds is not, strictly speaking, an attribute of the gun itself, but rather of the magazine. Likewise, most of the millions of ordinary semiautomatic pistols sold in the United States for decades are also capable of accepting box-type magazines that can have very large capacities. Consequently, one legal difficulty in distinguishing "ARs" from other semiautomatic rifles, or AWs from other semiautomatic handguns, is that most varieties of all of these weapon categories accept box-type magazines. Since such magazines can be either big or small, it means that the unrestricted civilian-style guns are just as capable of using a large-capacity magazine as are the restricted modern military-style AWs. Consequently, rational controls based on concern over large ammunition capacity would have to either ban large magazines or ban all guns capable of receiving types of magazines that sometimes have large capacities. The former alternative would be very difficult to enforce, whereas the latter alternative would mean banning large numbers of hunting rifles and most semiautomatic pistols, and thus would negate the chief political benefit of restricting only rare weapons.

It is doubtful whether a high volume magazine is currently relevant to the outcome of a large number of violent incidents. The rare mass killing notwithstanding, gun assaults usually involve only a few shots being fired. Even in a sample of gun attacks on armed police officers, where the incidents are more likely to be mutual combat gunfights with many shots fired, the suspects fired an average of only 2.55 times (New York City Police Department 1989, p. 6). On the other hand, if high-volume guns did become popular among criminals in the future, this could change for the worse. Further, although "ARs" are not unique in any one of their attributes, they are unusual, although not unique, in combining the lethality of rifles, a potentially large ammunition capacity, *and* a high rate of fire. It is possible that the combination of all three attributes could have a crime-enhancing effect greater than that generated by any one of the attributes.

Whereas semiautomatic firearms offer a rate of fire only somewhat higher than other common gun types, fully automatic weapons have much higher rates of fire. "ARs" sold on the civilian market are not capable of fully automatic fire, but it has been argued that this distinction is a minor one because "ARs" are so easily converted to fully automatic fire (*Newsweek* 10-14-85, pp. 48–9). The *New York Times*, in an editorial, even told its readers that "many semiautomatics can be made fully automatic with a screwdriver, even a paperclip" (8-2-88). Eight

share of defensive uses attributable to these sorts of users is relevant to assessing NCS information used later to evaluate the effectiveness of defensive gun uses, since that information is derived from questions that did not exclude any uses by persons with these violence-related occupations. Although the gun use surveys did not obtain sufficiently detailed occupational detail to assess this, the NCS did. In the 1979–1985 sample, members of these occupations accounted for 15.4% of self-protection gun uses. They do therefore account for a disproportionate share of the NCS-counted gun uses, but still a relatively small fraction. And again it should be stressed that on-duty uses by such persons were explicitly excluded from the surveys used to estimate the number of defensive gun uses.

Shooting in Self-Defense

Most uses of guns for either criminal or defensive purposes are probably much less dramatic or consequential than one might think. Only a tiny fraction of criminal gun assaults involves anyone actually being wounded, even nonfatally, and one would expect the same to be true of defensive gun uses. More commonly, guns are merely pointed at another person, or perhaps only referred to ("I've got a gun") or displayed, and this is sufficient to accomplish the ends of the user, whether criminal or noncriminal. Nevertheless, most gun owners questioned in surveys assert that they would be willing to shoot criminals under the right circumstances. The 1989 Time/CNN survey found that 80% of gun owners thought they would get their guns if they thought someone was breaking into their home, and 78% said they would shoot a burglar if they felt threatened by that person (Quinley 1990, p. 9).

Despite this stated willingness of gun owners to shoot under certain circumstances, most defensive uses of guns do not in fact involve shooting anyone. Although the surveys listed in Table 4.1 did not delve into much detail about the circumstances in which guns were used defensively, or the manner in which they were used, most did ask whether the gun was fired. Results generally indicate the gun was fired in less than half of the defensive uses; the rest of the times the gun was merely displayed or referred to, in order to threaten or frighten away a criminal.

Self-Defense Killings

The rarest, but most serious form of self-defense with a gun is a defensive killing. Although shootings of criminals represent a small frac-

Exhibit 8

Stories of Self Defense

Analysis of Five Years of Armed Encounters (With Data Tables)

March 12 2012

by GSL Staff

Incident at a Glance

Gun(s) Used:	Unknown	Location:	Unknown
# of Suspects:	Unknown	Shots Fired:	Unknown
Suspect Killed:	Unknown	State:	
Source:		Archive:	None

Foreword by GunsSaveLives.net

This article was originally written several years ago by Claude Werner. It is republished here, in its entirety (including data tables) with permission.

While the source material is somewhat dated there is still a lot of information we can learn from this. One thing to also note is that the stories used for this study were all situations in which a citizen *successfully* defended themselves. This means that the study focuses on and shows what works, not what doesn't work.

Author
Claude Werner
Firearms Safety Training LLC

The Armed Citizen – A Five Year Analysis

Overview

For the period 1997 – 2001, reports from "The Armed Citizen" column of the NRA Journals were collected. There were 482 incidents available for inclusion in the analysis. All involved the use of firearms by private citizens in self defense or defense of others. No law enforcement related incidents were included. The database is self-selecting in that no non-positive outcomes were reported in the column.

Analysis

As might be expected, the majority of incidents (52%) took place in the home. Next most common locale (32%) was in a business. Incidents took place in public places in 9% of reports and 7% occurred in or around vehicles.

The most common initial crimes were armed robbery (32%), home invasion (30%), and burglary (18%).

Overall, shots were fired by the defender in 72% of incidents. The average and median number of shots fired was 2. When more than 2 shots were fired, it generally appeared that the defender's initial response was to fire until empty. It appears that revolver shooters are more likely to empty their guns than autoloader shooters. At least one assailant was killed in 34% of all incidents. At least one assailant was wounded in an additional 29% of all incidents. Of the incidents where shots are fired by a defender, at least one assailant is killed in 53% of those incidents.

Handguns were used in 78% of incidents while long guns were used in 13%; in the balance the type of firearm was not reported. The most common size of handgun was the .35 caliber family (.38, .357, 9mm) at 61%, with most .38s apparently being of the 5 shot variety. Mouseguns (.380s and below) were at 23%, and .40 caliber and up at 15%.

The range of most incidents appears to be short but in excess of touching distance. It appears that most defenders will make the shoot decision shortly before the criminal comes within arm's length. Defenders frequently communicate with their attackers before shooting.

The firearm was carried on the body of the defender in only 20% of incidents. In 80% of cases, the firearm was obtained from a place of storage, frequently in another room.

Reloading was required in only 3 incidents. One of those involved killing an escaped lion with a .32 caliber revolver, which was eventually successful after 13 shots.

Multiple conspirators were involved in 36% of the incidents. However, there were no apparent cases of getaway drivers or lookouts acting as reinforcements for the criminal actor(s) once shooting starts. At the sound of gunfire, immediate flight was the most common response for drivers and lookouts.

When multiple conspirators were involved, the first tier was a two man action team. If another member was available, he was usually the driver of the getaway car and remained in the car. If a fourth conspirator was involved, he was stationed immediately outside the target location as a lookout for the police or other possible intervening parties. The outside conspirators do not generally appear to be armed. It does appear that the trend over the period has increased from one weapon in the action team to two weapons.

The largest group of violent criminal actors was 7, a group that committed serial home invasions in Rochester NY. An alert and prepared homeowner, who saw them invade an adjacent home, accessed his shotgun, and dispatched them (2 killed and 1 seriously wounded) when they broke in his door.

Incidents rarely occurred in reaction time (i.e., ¼ second increments). Most commonly, criminals acted in a shark-like fashion, slowly circling and alerting their intended victims. The defender(s) then had time to access even weapons that were stored in other rooms and bring them to bear.

The most common responses of criminals upon being shot were to flee immediately or expire. With few exceptions, criminals ceased their advances immediately upon being shot. Even small caliber handguns displayed a significant degree of instant lethality (30 per cent immediate one shot kills) when employed at close range. Many criminal actors vocally expressed their fear of being shot when the defender displayed a weapon. Upon the criminals' flight, the "victims" frequently chased and captured or shot the criminals and held them for the authorities.

Conclusions

1) Even small caliber weapons are adequate to solve the vast majority of incidents requiring armed self-defense.
2) Mindset of the potential victim was far more important than the type of weapon used. All the victims were willing to fight their opponents in order to survive. Although not common, in some cases bridge weapons, such as pens, were used to gain time to access the firearm.
3) Frequently, the defenders were aware that something was amiss before the action started and then placed themselves in position to access their weapons. Awareness of the surroundings appears to be a key element of successful defense.
4) The defenders had some measure of familiarity with their firearms. Although perhaps not trained in the formal sense, they appear to be able to access a firearm and immediately put it into action. At least one defender learned from a previous experience and made the firearm more accessible for subsequent use.

5) Training or practice with a firearm should include a substantial amount of accessing the firearm from off body locations, such as drawers, underneath counters, etc.
6) This analysis does not present a view of the totality of armed self-defense in that non-positive outcomes were not available for inclusion in the database. The analysis may, however, be useful in helping to describe a methodology for successful armed self-defense. This methodology might be described as:
1. be aware,
2. be willing to fight,
3. have a weapon accessible,
4. be familiar enough with the weapon to employ it without fumbling,
5. when ready, communicate, both verbally and non-verbally, to the attacker that resistance will be given, and
6. if the attacker does not withdraw, counterattack without hesitation.

Location of Incident

Location	%
Home	52%
Business	32%
Public	9%
In/around Vehicle	7%

Shots Fired

Type of Location	No	Yes
Business	33%	72%
Home	25%	75%
Public	29%	71%
In/around Vehicle	35%	65%
Total	28%	72%

Number of Shots Fired

Average	2.2
Median	2
Mode	1
Max	20

Gun Type

Handgun 78%
Long Gun 13%
Unknown 8%

Body Carry

Type of Location	No	Yes
Business	69%	31%
Home	94%	6%
Public	49%	51%
In/around Vehicle	65%	35%
Total	80%	20%

Multiple Assailants

Type of Location	No	Yes
Business	76%	24%
Home	72%	28%
Public	62%	38%
Retail Business	52%	48%
In/around Vehicle	49%	51%
Total	80%	20%

Disqus Comments

- Armed Individual at Colorado School May Have Prevented Mass Shooting
- 23 Pro Gun Celebrities – Yes, They Do Exist! **UPDATED July 2014**

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Exhibit 9

GUN DIGEST® BOOK OF CONCEALED CARRY

2nd Edition

MASSAD AYOOB

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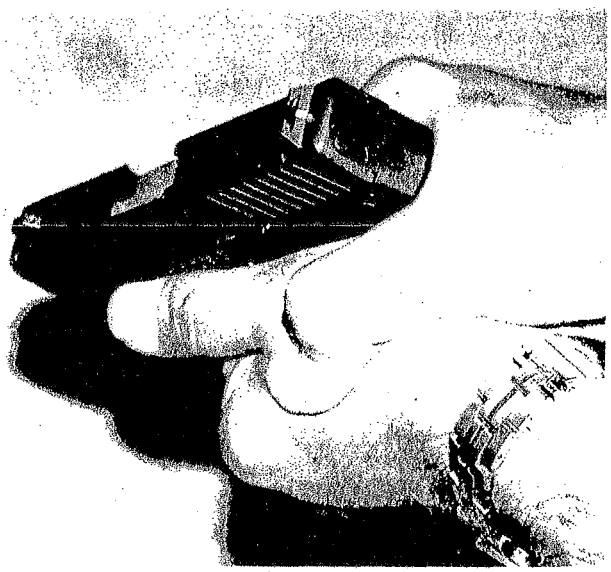
G32 .357 SIG, G30 .45 ACP, and G38 .45 GAP) are all good choices. So are the many other compact (i.e., medium size) modern autos you'll find in the *Gun Digest*, where there's more space to pore over the various models and size/weight specifications than here. In the 1911, Commander and Officers size work well. For many, something more *sub*-compact fits the body better. These would include the "baby Glocks" in the same calibers, the Micro-series Kahrs, and the smallest of the 1911s by their many makers.

Finally, a full-size gun makes particular sense under cold-weather wardrobes, which can amply conceal them. In cold weather, with gloved or cold-numbed hands, a pistol with a longer grip-frame may be easier to handle. I like something with a large trigger guard, and whose trigger won't rebound so far forward that it can snag on or be blocked by thick glove material, which could make it fail to re-set. A TDA auto pistol will generally fill that bill, as will the Glock or XD. I get leery of single-action pistols when cold or gloves have further reduced a vasoconstricted hand's ability to feel the trigger, and the glove-blocking factor leaves most revolvers out entirely.

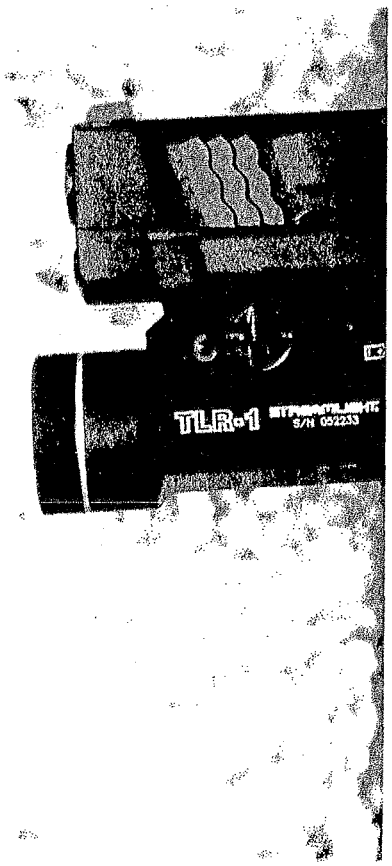
Subcompact carry guns can be "too small for your hand," necessitating technique changes. Trigger reach is so short on this Kahr that author's trigger finger is blocked by thumb in traditional grasp; thumb will need to come up. Little finger is tucked under short butt since there's no room for it on the frame...



...author's two-hand grasp on the Kahr puts firing thumb on support hand out of the way of trigger finger, and support hand thumb well forward to avoid the sharp edge on the Kahr's slide release lever.

The bottom line of "concealed handgun wardrobe selection" is this: the gun's size and shape must fit hand, body, and clothing selection alike. You probably don't dress the same every day. When you "dress to kill" (forgive me, I couldn't resist) you also need to vary that particular "wardrobe" to better suit your daily needs.

Final advice: In the immortal words of author and big game hunter Robert Ruark, "Use Enough Gun." Small-caliber weapons simply don't have the "oomph" to stop a violent human being. I coined the phrase "Friends don't let friends carry mouse-guns," and I'll stick by that. The cessation of homicidal human threat is the *raison d'etre* of CCW. If the Weapon you're Carrying Concealed isn't powerful enough to do that job, you've undercut the whole purpose of the mission. I personally draw the line above the marginal 380 ACP and consider the minimums to be 38 Special +P in a revolver and 9mm Luger in a semiautomatic pistol. On the top end, only master shooters can handle the violent recoil of 41 and 44 Magnums. For most people, the best bet is in a caliber range that encompasses 38 Special, 357 Magnum, 9mm Luger, 40 Smith & Wesson, 10mm Auto, 45 ACP, and 45 GAP. There are other rarely-carried rounds within that range, but any of those - with proper high-tech hollow-point defensive ammunition - can be reasonably counted on to get you through the night.



For more on gun and ammo selection, I'd refer you to my *Gun Digest Book of Combat Handgunnery, Sixth Edition,* available from Krause. The bottom line is, it's not about "what gun did you have" so much as it's about "did you have a gun?" Modern ultra-compact, ultra-light 38 Special and 9mm Luger handguns give you adequate power in extremely small and light packages. You just don't have to settle for anything less, when innocent lives - including your life and the lives of those you most love - will likely be at stake if and when the shooting starts.

Exhibit 10

Selected docket entries for case 10−7036

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Filed	Document Description	Page	Docket Text
09/20/2010	Amicus for Appellee/Respondent FINAL Brief Filed	2	AMICUS FOR APPELLEE FINAL BRIEF [1266982] filed by Professional Historians and Law Professors [Service Date: 09/20/2010] Length of Brief: 6269 words. [10−7036] (Shors, Matthew)

[ORAL ARGUMENT NOT YET SCHEDULED]

CASE NO. 10-7036

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

DICK ANTHONY HELLER, ABSALOM JORDAN,
WILLIAM CARTER, AND MARK SNYDER

APPELLANTS,

V.

THE DISTRICT OF COLUMBIA AND
ADRIAN M. FENTY, MAYOR, DISTRICT OF COLUMBIA,

APPELLEES.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

BRIEF FOR PROFESSIONAL HISTORIANS AND LAW PROFESSORS SAUL CORNELL, PAUL FINKELMAN, STANLEY N. KATZ, AND DAVID T. KONIG AS *AMICI CURIAE* IN SUPPORT OF APPELLEES

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Dated: September 20, 2010 *Attorney for Amici Curiae*

CERTIFICATE AS TO PARTIES, RULINGS AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1)(A), the undersigned counsel of record certifies as follows:

(A) **Parties and *Amici*.** To *amici*'s knowledge, all parties, intervenors, and *amici* appearing in this court are listed in the Brief for Appellees, other than the professional historians and law professors filing this brief as *amici curiae* in support of Appellees.

(B) **Ruling Under Review.** References to the ruling at issue appear in the Brief for Appellants.

(C) **Related Cases.** References to related cases appear in the Brief for Appellants.

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*Authorities upon which we chiefly rely are marked with asterisks.

INTERESTS OF *AMICI CURIAE* AND SUMMARY OF ARGUMENT

Amici are Saul Cornell, Professor of History at Fordham University; Paul Finkelman, Professor of Law and Public Policy at Albany Law School; Stanley N. Katz, Lecturer with Rank of Professor in Public and International Affairs at Princeton University; and David T. Konig, Professor of History and Professor of Law at Washington University. *Amici* have taught courses and published scholarship on the Second Amendment and legal and constitutional history, and file this brief in support of appellees. As set forth below, there is ample historical precedent for the type of reasonable gun regulations enacted by the District of Columbia at issue in this case.

INTRODUCTION AND SUMMARY OF ARGUMENT

In *District of Columbia v. Heller*, the Court observed that "the right secured by the Second Amendment is not unlimited," and that "nothing in our opinion should be taken to cast doubt on" the validity of various historical regulations of gun use. 128 S. Ct. 2783, 2816-17 (2008). It identified some of these historical regulations, such as laws prohibiting "the possession of firearms" by certain types of persons, laws "imposing conditions and qualifications" on gun sales, and noted "the historical tradition of prohibiting the carrying of 'dangerous and unusual weapons.'" *Id.*

The regulations at issue here fall within the tradition of historical gun use regulations identified in *Heller*. The use of registration requirements to regulate firearms has been a consistent and common historical practice in the United States. For example, early laws regulating the militias, which at the time comprised "the body of all citizens capable of military service," required regular weapons inspections and registration with the States. Early registration laws often extended even more broadly, as several states conditioned the ownership of firearms on the swearing of an oath of loyalty and also required the recordation of related information. And states and cities continued to use registration requirements into the twentieth century by enacting laws designed to control the new dangers arising from the use of handguns in densely populated urban centers.

State and local governments have also exercised their police powers throughout our nation's history to limit and ban the use of particularly dangerous weapons and ammunition. At or near the time of the founding, governments regulated the storage of gunpowder in order to protect against fires and accidental shootings. By the early nineteenth century, governments placed many limitations on the use and carrying of certain classes of concealable weapons, which were perceived to pose unique dangers to the citizenry. And state legislatures continued to enact broad restrictions on the possession of dangerous weapons in the years

following adoption of the Fourteenth Amendment. All of these restrictions (if challenged at all) have by and large been upheld by the courts.

ARGUMENT

I. STATES AND MUNICIPALITIES HAVE LONG IMPOSED REQUIREMENTS AKIN TO THE DISTRICT'S REGISTRATION REGULATIONS, AND THESE REQUIREMENTS HAVE BEEN UNDERSTOOD TO BE CONSISTENT WITH THE RIGHT TO BEAR ARMS.

From the nation's founding until today, states have used registration requirements to regulate the possession of firearms. During the founding period, these state and local laws included registration and training requirements, as well as requirements that persons eligible for militia service subject their personal firearms to regular inspection. Several states even conditioned the exercise of gun rights on individual registration with local governments and the swearing of an oath of loyalty to the State. Governments also continued to use registration schemes throughout the nineteenth and twentieth centuries to protect the public safety, most recently as a tool to control new dangers arising from the use of handguns in densely populated urban centers.

A. States in the Early Republic Regularly Conditioned the Right to Bear Arms on Registration, Training, and Reporting with the Authorities.

1. Registration requirements and similar laws date back to the militia-related origins of the Second Amendment. In the early Republic, militias were crucial to the nation's defense, and were responsible for "repelling invasions and

suppressing insurrections." *District of Columbia v. Heller*, 128 S. Ct. 2783, 2800 (2008). Thus, the Second Amendment states that a "well regulated Militia" is "*necessary to the security of a free State*." U.S. Const. amend. II (emphasis added). As with the individual right to bear arms, the State militias were "assumed by Article I [and the Bill of Rights] already to be *in existence*" at the time of ratification. *See Heller*, 128 S. Ct. at 2800. Early militias did not consist merely of persons with specialized training or weaponry. Rather, "the conception of the militia at the time of the Second Amendment's ratification was the body of all citizens capable of military service, who would bring the sorts of lawful weapons that they possessed at home to militia duty." *Id.* at 2817.[1] Accordingly, during the founding era, most States enacted militia laws regulating large portions of the population deemed eligible for service. *See, e.g.*, 1776 Mass. Acts at 15-22; 1778 N.Y. Laws at 62-71; Act of Mar. 20, 1780, ch. CLXVII, 1780 Pa. Laws 347; Act of Feb. 5, 1782, 1782 Del. Laws 3; Act of Mar. 26, 1784, 1784 S.C. Acts 68; Act of May 8, 1792, 1792 Conn. Pub. Acts 440.

State militia laws generally required that all persons eligible for service sumbit to training and registration with appropriate authorities, and also required

[1] In New York, for example, the militia consisted of "every able bodied male person Indians and slaves excepted residing within [the] State from sixteen years of age to fifty." Act of Apr. 3, 1778, ch. 33, 1778 N.Y. Laws 62, 62. In Massachusetts, the militia was divided into different groups, but generally included any "able-bodied Male Persons . . . from sixteen Years old to fifty." Act of July 19, 1776, ch. I, § 1, 1776 Mass. Acts 15, 15.

those same individuals to submit their arms for inspection. *See* Saul Cornell & Nathan DeNino, *A Well Regulated Right: The Early American Origins of Gun Control*, 73 Fordham L. Rev. 497, 508-10 (2004). For example, in South Carolina the Governor could order regimental musters at least once a year, and individual companies could be mustered every two months. *See* 1784 S.C. Acts at 68. In New York, members were required to attend a regimental parade in April and November of every year. *See* 1778 N.Y. Laws at 65. During these parades, the "the arms, ammunition and accoutrements of each man [were] examined, and the defaulters . . . noted." *Id.* Also noted were the names of those who failed to attend altogether. Individuals who either failed to attend, or whose arms failed inspection, were fined, and the names of those absent were sent to the governor or brigadier general for appropriate disciplinary action. *Id.* Similarly, in Massachusetts, the clerk of each company was required biannually to make "an exact List of [each man in the] Company, and of each Man's Equipments." 1776 Mass. Acts at 18. These lists were sent on to the company's and the regiment's commanding officers. *Id.* In addition, those who neglected their duties, either by failing to muster or by neglecting their firearms, faced steep fines. *Id.* at 19.

George Washington similarly expressed his understanding that the nation's security demanded that its citizens submit to regular inspection of their firearms. Thus, Washington stated that the federal militia ought to be "regularly Mustered

and trained, and to have their Arms and Accoutrements inspected at certain appointed times, not less than once or twice in the course of every [year]." George Washington, Sentiments on a Peace Establishment (May 2, 1783), *in* 3 The Founders' Constitution 129 (Philip B. Kurland & Ralph Lerner eds., 1987).

The Supreme Court explained in *Heller* that the Framers codified the right to bear arms in the Second Amendment with the aim of protecting and preserving militias as they existed at the time of the founding—including the laws and regulations described above, which were necessary to the militias' continued existence. *See* 128 S. Ct. at 2801. Accordingly, these laws and regulations, which included requirements that gun-owners regularly assemble for weapons training, submit their firearms for inspection, and identify themselves to the state, would have been understood to be consistent with (and indeed supportive of) the right to bear arms in the early Republic.

2. States in the early Republic also enacted loyalty statutes requiring all males over a certain age to identify themselves and swear allegiance to state and local authorities, or else to be disarmed. These loyalty statutes effectively conditioned the very possession of firearms in the general population on registration and other requirements more burdensome than those at issue in this case.

Virginia, for instance, enacted a law requiring citizens to take a recorded loyalty oath or face disarmament. The law stated that "allegiance and protection are reciprocal, and those who will not bear the former are not entitled to the benefits of the latter," and accordingly conditioned the possession of arms by "all free born male inhabitants . . . above the age of sixteen years" on the taking of an "oath or affirmation before some one of the justices of the peace of the county, city, or borough, where they shall respectively inhabit." Act of May 5, 1777, ch. III, 1777 Va. Acts 8. Additionally, the justices of the peace were directed to "make a tour of the county, and tender the oath . . . to every free born male person above the age of sixteen," to *record* the name and information of oath-takers, and to "cause . . . recusants to be disarmed." *Id.*

Similar requirements were enforced in states that, as the Supreme Court concluded, had adopted provisions "analog[ous] to the Federal Second Amendment" in their constitutions prior to the ratification of the Bill of Rights. *Heller*, 128 S.Ct. at 2802-03. Pennsylvania's 1776 Constitution, for example, guaranteed "[t]hat the people have a right to bear arms for the defence of themselves and the state." Pa. Decl. of Rights § XIII (1776), *in* 5 *The Federal and State Constitutions, Colonial Charters, and Other Organic Laws* 3081, 3083 (Francis N. Thorpe ed., 1909); *Heller*, 128 S. Ct. at 2802. One year after the ratification of its Constitution, the Pennsylvania government passed the Test Acts,

which required each male white inhabitant above the age of eighteen years to *register* his name with the local justice of the peace and take a loyalty oath before the State or else "be disarmed by the lieutenant or sublieutenants of the City or County [where he inhabits]." *See* Act of June 13, 1777, ch. 21, 1777 Pa. Laws 61, 62-63.

Similarly, Massachusetts required that "every Male Person above sixteen Years of Age . . . who shall neglect or refuse to subscribe a printed or written [loyalty oath] . . . shall be disarmed, and have taken from him . . . all such Arms, Ammunition and Warlike Implements, as by the strictest Search can be found in his Possession or belonging to him." Act of Mar. 14, 1776, ch. VII, 1776 Mass. Acts 31, 32; *c.f. Heller*, 128 S. Ct. at 2803. A related provision authorized state officials to search a non-compliant person's home for any weapons, and to seize those weapons upon evidence that he violated the registration and oath requirements. 1776 Mass. Acts at 32-33.

B. States Have Continued to Use Registration for the Sale, Transfer, or Possession of Firearms to Protect the Public Safety

State and local governments continued to use registration to protect the public safety into the twentieth century, primarily as a tool to address new dangers arising from firearms becoming cheaper, deadlier, and more readily available in more densely populated urban centers.

The expanding economy in the nineteenth century increased the availability of pistols and other weapons used for personal self-defense. *See* Saul Cornell, *A Well-Regulated Militia: The Founding Fathers and the Origins of Gun Control in America* 137 (2006). Major cities, including Boston, Philadelphia, New Orleans, and New York began to issue revolvers to their police forces for the first time. *See, e.g.,* Roger Lane, *Policing the City: Boston, 1822-1885* (1967); Dennis Rousey, *Policing the Southern City: New Orleans, 1805-1889* (1996). The growth of urban centers was also bringing more people of more varied backgrounds closer together than ever before. This combination of urbanization and the increased availability of firearms brought new dangers, and gun-related homicide rates steadily increased. *See Revolver Killings Fast Increasing; Legislative Measure to be Urged for Curbing the Sale of Firearms*, New York Times, Jan. 30, 1911.

States and localities once again turned to registration and licensing requirements to address these public safety concerns. An assassination attempt on New York's Mayor William J. Gaynor in 1910, for example, led the state to consider its first major gun reform, which included significant licensing and registration requirements. *See* Cornell, *A Well Regulated Militia*, *supra*, at 197. The legislation, which was signed into law on May 29, 1911, required the issuance of a license by the local government for the possession of a pistol, revolver, or other concealable firearm. *See* Act of May 25, 1911, ch. 195, § 1, 1911 N.Y. Laws

442, 443. It also directed sellers to record the "date of sale, name, age, occupation and residence of every purchaser of such a pistol, revolver or other firearm, together with the calib[er], make, model, manufacturer's number or other mark of identification on such pistol, revolver or other firearm." *Id.* § 2, 1911 N.Y. Laws at 444.

Many other states enacted similar licensing and registration requirements during this period. Although the details of these varied, as a general matter they required individuals to provide detailed information to, and obtain permission from, a government official in order to bear arms. In addition, some states required inspection of weapons and obtaining particular licenses. For example:

- In California, any person selling, leasing, or transferring a firearm of the type which could be concealed was required to "keep a register" containing information about the sale and the purchaser, and the seller and the purchaser were directed to sign a form with the information and submit it to government officials. Act of May 4, 1917, ch.145, § 7, 1917 Cal. Laws 221, 222-23.

- Connecticut made it a crime for any person to "carry . . . any pistol [or] revolver . . . unless such person shall have been granted a written permit issued and signed by the mayor or chief of police of a city, warden of a borough, or the first selectman of a town, authorizing such person to carry such weapon or instrument within such city, borough or town." Act of Apr. 10, 1917, ch. 129, 1917 Conn. Laws 98, 98.

- Georgia made it "unlawful for any person to have or carry about his person, in any county in the State of Georgia, any pistol or revolver without first taking out a license from the Ordinary of the respective counties in which the party resides." Act of Aug. 12, 1910, No. 432, § 1, 1910 Ga. Laws 134, 134. A public official was directed to "keep a record of the name of the person taking out such license, the name of the maker of the fire-arm to be

carried, and the caliber and number of the same." *Id.* § 2, 1910 Ga. Laws at 135.

- A Nevada law made it "unlawful for any person . . . to wear, carry or have concealed upon his person, in any town any . . . pistol . . . or other dangerous weapon, without first obtaining permission from the Board of County Commissioners." Act of Mar. 17, 1903, ch. CXIV, § 1, 1903 Nev. Laws 208, 208-09.

- A New Hampshire law provided that "[t]he selectmen of towns or the mayor or the chief of police of cities may, upon the application of any person issue a license to such person to carry a loaded pistol or revolver in this State, if it appears that the applicant is a suitable person to be so licensed." Act of Apr. 6, 1909, ch. 114, § 3, 1909 N.H. Laws 451, 451-52.

- Oregon law stated that "[n]o person shall carry in any city, town or municipal corporation of this State any pistol, revolver or other firearm . . . of a size which may be concealed upon his or her person, without a license or permit therefor, issued to him or her [by the local government] . . . " Act of Feb. 21, 1917, ch. 377, § 1, 1917 Or. Laws 804.

- In West Virginia, it was a misdemeanor to "carry about [one's] person any revolver or other pistol," but a license could be obtained by publishing in a newspaper notice of intent to acquire a license, and making a showing to a circuit court judge that the applicant was of good moral character and had cause for carrying a weapon. Act of Apr. 23, 1925, ch. 95, 1925 W.V. Laws 389, 389-90.

- Hawaii also generally prohibited carrying a pistol or revolver outside the home without a license. Small Arms Act, Act 206, 1927 Haw. Laws 209. Licenses were issued by "[t]he judge of a court of record or the sheriff of a county, or city and county . . . if it appears that the applicant has good reason to fear an injury to his person or property, or has any other proper reason for carrying a pistol or revolver, and that he is a suitable person to be so licensed." *Id.* § 7, 1927 Haw. Laws at 210.

- Michigan enacted a law that required "any person within this State who owns weapons or has in his possession a pistol" to "present such weapon for safety inspection to the commissioner or chief of police . . . . A certificate of inspection shall thereupon be issued . . . [and] mailed to the commissioner of public safety and filed and indexed by him and kept as a permanent official

record for a period of six years." Act of June 2, 1927, No. 372, § 9, 1927 Mich. Laws 887, 891.

For these reasons, it has been common practice for jurisdictions across the United States to condition the right to bear arms on an individual's willingness to provide information to government officials and register his or her firearms.

II. STATES AND MUNICIPALITIES HAVE LONG BANNED DANGEROUS WEAPONS, AND COURTS HAVE UPHELD THESE REGULATIONS AS CONSISTENT WITH THE RIGHT TO BEAR ARMS.

Since the Founding, states and municipalities have possessed broad "police power" to enact safety regulations protecting the public. *See* William J. Novak, *The People's Welfare: Law and Regulation in Nineteenth-Century America* 53-54 (1996). Jurisdictions have exercised their police powers to regulate arms in many ways, including, as explained above, with laws akin to the registration requirements challenged here. But one constant has been that governments have repeatedly banned weapons that the community views to be particularly dangerous in that jurisdiction. That was the case with gunpowder in cities in the eighteenth century, with certain types of knives and handguns in nineteenth-century states and towns, and with certain types of semi-automatic weapons and ammunition in more recent years. And courts have repeatedly upheld these types of bans of dangerous weapons against constitutional challenges.

A. States and Cities Have Historically Outlawed Dangerous Weapons.

1. In one early form of regulation, several states regulated the storage of gunpowder in order to protect against the accidental discharge of a weapon during a fire, in some instances effectively banning the possession of loaded weapons in the home.[2] As Chief Justice Marshall observed, "[t]he power to direct the removal of gunpowder is a branch of the police power, which unquestionably remains, and ought to remain, with the States." *Brown v. Maryland*, 25 U.S. (12 Wheat.) 419, 443 (1827). He explained that "[t]he removal or destruction of infectious or unsound articles is, undoubtedly, an exercise of that power." *Id.* at 444.

Shortly thereafter, other states, including Ohio, Tennessee, and Virginia, enacted laws regulating the discharge of guns, particularly in potentially crowded public places like the town square.[3] Since the Founding, then, states and local

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[2] *See, e.g.*, Act of June 26, 1792, ch. 10, 1792 Mass. Acts 208; Act of Apr. 13, 1784, ch. 28, 1784 N.Y. Laws 627; Act of Dec. 6, 1783, ch. 1059, 11 Pa. Stat. 209; *see also Heller*, 128 S. Ct. at 2819 (stating that the Massachusetts law would have been construed to permit self-defense and, "[i]n any case, we would not stake our interpretation of the Second Amendment upon a single law, in effect in a single city"); *id.* at 2849 (Breyer, J., dissenting) (describing various laws regulating gunpowder). Antebellum courts repeatedly upheld such regulations. *See, e.g.*, *Foote v. Fire Dep't of New York*, 5 Hill 99, 101 (N.Y. Sup. Ct. 1843) ("The statute is a mere police regulation—an act to prevent a nuisance to the city . . . ."); *Williams v. City Council*, 4 Ga. 509, 512 (1848).

[3] *See, e.g.*, Act of Feb. 17, 1831, ch. 834, § 6, *in* 3 *The Statutes of Ohio and of the Northwestern Territory* 1740 (Salmon P. Chase ed., 1835); Act of Dec. 3, 1825, ch. 292, § 3, 1825 Tenn. Priv. Acts 306; Act of Jan. 30, 1847, ch. 79, 1846-1847 Va. Acts 67; Act of Feb. 4, 1806, ch. 94, 1805-1806 Va. Acts 51.

governments have regulated arms when necessary to protect citizens from such threats to public safety as fires and accidental shootings.

2. In the early part of the nineteenth century, the states were confronted with an additional problem concerning firearms. In the years since the colonial era, weapons had grown smaller and cheaper, and the practice of traveling with concealed weapons, such as handguns and knives, had become both common and dangerous. *See* Cornell, *A Well-Regulated Militia*, *supra*, at 137-40. Perceiving a threat to their citizens' safety, many state legislatures responded to this new danger by enacting laws prohibiting the carrying of concealed weapons. *See id.* at 140. Kentucky passed the first of these in 1813, prohibiting the wearing of a "pocket pistol, dirk, large knife, or sword in a cane, concealed as a weapon," with a narrow exception for "when traveling on a journey." Act of Feb. 13, 1813, ch. 89, 1813 Ky. Acts 100, *in* Cramer, *supra*, at 143-44. Louisiana passed a similar ban the same year. Other states soon followed suit.[4]

Several states went further in response to this new threat, deciding not only to outlaw the carrying of concealed weapons, but to proscribe entire classes of concealable weapons, which by their nature posed threats to public safety. In 1837, for example, Alabama imposed a tax on the sale or giving of Bowie Knives

[4] See statutes from Alabama, Virginia, Arkansas, and Indiana, *in* Clayton E. Cramer, *Concealed Weapon Laws of the Early Republic: Dueling, Southern Violence, and Moral Reform* 145-46, 150-52 (1999), and from Ohio, Act of Mar. 18, 1859, 1859 Ohio Laws 56.

or Arkansas Tooth-picks. *See* Act of June 30, 1837, 1837 Ala. Acts 11, *in* Cramer, *supra*, at 146. The following year, Tennessee altogether banned the wearing, sale, or giving of the same weapons. *See* Act of Jan. 27, 1838, ch. CXXXVII, 1837-1838 Tenn. Pub. Acts 200, *in* Cramer, *supra*, at 148-49; *see also* Cornell, *A Well-Regulated Militia*, *supra*, at 142 (describing the Alabama and Tennessee statutes as "more robust" than earlier statutes by "effectively moving from regulation to prohibition of certain classes of weapons"). The Founders understood the protections of the Second Amendment to apply to these edged weapons, as they were typically associated with the militia. *See* Saul Cornell, *The Original Meaning of Original Understanding: A Neo-Blackstonian Critique*, 67 Md. L. Rev. 150, 157 n.42 (2007). It was therefore generally recognized in the period before the Civil War that American governments could react to threats to the public safety through reasonable regulation of the right to bear arms, including outlawing certain classes of particularly dangerous weapons.

3. States continued to enact broad restrictions on the possession of weapons in the years following the Civil War. These regulations were more pervasive than those enacted during the antebellum period. Even when new state constitutions contained a right to bear arms not expressly subject to legislative regulation,[5]

[5] *See* Ala. Const. of 1868, art. I, § 28; Ark. Const. of 1868, art. I, § 5; Del. Const. of 1897, art. I, § 20; Or. Const. of 1857, art. I, § 27; Pa. Const. of 1874, art. I, § 21;

legislatures still regulated firearms.[6] Several even imposed outright bans on handguns.

The most common regulations of the period were concealed-weapons laws. At least fifteen states prohibited the carrying of concealed pistols and deadly weapons, some explicitly covering all firearms or all weapons.[7] Although three of these statutes created exceptions for travelers, persons on their own premises, or those with a legitimate fear of attack,[8] the majority contained no such exceptions.

But concealed-weapons laws were not the only legislative prerogative exercised at the time. At least four states banned the possession of all non-military handguns. Tennessee criminalized carrying, "publicly or privately, any . . . belt or pocket pistol, revolver, or any kind of pistol, except the army or navy pistol, usually used in warfare, which shall be carried openly in the hand." 1879 Tenn.

S.C. Const. of 1868, art. I § 28; S.D. Const. of 1889, art. VI, § 24; Wash. Const. of 1889, art. I, § 24; Wyo. Const. of 1889, art. I, § 24.

[6] *See* Act of Apr. 1, 1881, 1881 Ark. Acts 191; Act of Feb. 18, 1885, ch. 8, § 1–4, 1885 Or. Laws 33; 1880 S.C. Acts 448, § 1; S.D. Terr. Pen. Code § 455 (1877); Wash. Code § 929 (1881); 1876 Wyo. Laws ch. 52, § 1.

[7] *See* Act of Apr. 1, 1881, 1881 Ark. Acts 191; Colo. Rev. Stat. § 149, at 229 (1881); Fla. Act of Feb. 12, 1885, ch. 3620, § 1; Ill. Act of Apr. 16, 1881; Ky. Gen. Stat., ch. 29, § 1 (1880); Neb. Cons. Stat. § 5604 (1893); 1879 N.C. Sess. Laws, ch. 127; N.D. Pen. Code § 457 (1895); Act of Feb. 18, 1885, ch. 8, §§ 1-4, 1885 Or. Laws 33; 1880 S.C. Acts 448, § 1; S.D. Terr. Pen. Code § 457 (1877); Tex. Act of Apr. 12, 1871; 1869–1870 Va. Acts 510; Wash. Code § 929 (1881); W. Va. Code ch. 148, § 7 (1870).

[8] *See* Neb. Cons. Stat. § 5604 (1893); 1879 N.C. Sess. Laws, ch. 127; 1880 S.C. Acts 448, § 1.

Pub. Acts, ch. 186. The only persons exempted from the statute were military personnel and those performing specified law enforcement functions. *Id.* Perhaps most pertinent here, the Tennessee Supreme Court construed the act to apply even "upon one's own farm or premises, or in fact in *any place*." *Dycus v. State*, 74 Tenn. 584, 585 (1880) (emphasis added); *see also Barton v. State*, 66 Tenn. 105, 105-06 (1874).

Tennessee was not alone in such regulation. Wyoming likewise forbade anyone from "bear[ing] upon his person, concealed or openly, any fire-arm or other deadly weapon, within the limits of any city, town or village." 1876 Wyo. Laws ch. 52, § 1. Arkansas and Texas enacted similar bans. *See* Act of Apr. 1, 1881, No. 96, 1881 Ark. Acts 191; Tex. Act of Apr. 12, 1871. States also outlawed the sale of non-military pistols,[9] or prohibited specific weapons elected officials determined were public dangers.[10]

Municipalities likewise enacted their own regulations. Dodge City, Kansas, for example, banned the carrying of pistols and other dangerous weapons in response to violence accompanying western cattle drives. *See* Dodge City, Kan., Ordinance No. 16, § XI (Sept. 22, 1876); Robert R. Dykstra, *The Cattle Towns* 121-22 (1968).

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[9] *See* Ark. Act of Apr. 1, 1881; 1879 Tenn. Pub. Acts, ch. 96.

[10] *See* Fla. Act of Aug. 8, 1868; Ill. Act of Apr. 16, 1881; 1850 Mass. Laws, ch. 194, § 2; N.D. Pen. Code § 457 (1895); S.D. Terr. Pen. Code § 455 (1877).

B. Courts Have Historically Upheld Restrictions On Dangerous Weapons

1. In the early Republic, state courts repeatedly upheld arms-regulating statutes against constitutional attack, even when the pertinent state constitution explicitly protected the right to bear arms. *See, e.g.*, *Day v. State*, 37 Tenn. 496, 499 (1857); *Aymette v. State*, 21 Tenn. 154, 159-61 (1840) (right to keep weapons is unqualified, but right to bear arms for purposes other than the common defense can be regulated); *State v. Buzzard*, 4 Ark. 18, 21 (1842); *State v. Chandler*, 5 La. Ann. 489, 489-90 (1850) (upholding a ban on concealed weapons that was "absolutely necessary to counteract a vicious state of society, growing out of the habit of carrying concealed weapons"); *State v. Jumel*, 13 La. Ann. 399, 400 (1858) (upholding a concealed-weapons law because it only banned a "*particular mode* of bearing arms which is found dangerous to the peace of society"); *State v. Reid*, 1 Ala. 612, 616-17 (1840) (holding that it was permissible for the state to regulate weapons "merely to promote personal security" by prohibiting the wearing of weapons "in such a manner as is calculated to exert an unhappy influence upon the moral feelings of the wearer, by making him less regardful of the personal security of others"). Courts thus recognized that states and localities had authority to exercise their police powers to regulate weapons deemed particularly dangerous.

Against this backdrop, there are two major outliers. The first is *Bliss v. Commonwealth*, 12 Ky. 90, 91, 93 (1822), in which the Kentucky Supreme Court declared Kentucky's concealed-weapons ban in conflict with its Constitution. As commentators in the era of the Fourteenth Amendment recognized, *Bliss* is properly understood as the exception, not the rule, in judicial decisions involving challenges to gun-safety regulations. *See* 2 Joel Prentiss Bishop, *Commentaries on the Criminal Law* § 125, at 75-76 (4th ed. 1868). And, indeed, it was so anomalous that the legislature responded by amending the state constitution to allow a concealed-weapons ban. *See* Ky. Const. of 1850, art. XIII, § 25.

The second outlier is *Nunn v. State*, in which the Georgia Supreme Court used broad language in upholding a constitutional challenge against part of a Georgia law banning the open carry of a horseman's pistol. *Nunn v. State*, 1 Ga. 243, 251 (1846). The same court, however, upheld the portion of the law which prohibited the carry of "certain weapons secretly." And the Georgia Supreme Court has since taken a narrow reading of *Nunn*, stating on two separate occasions that "evidently [*Nunn*] was never intended to hold that men, women, and children had some inherent right to keep and carry arms or weapons of every description, which could not be infringed by the legislature, unless as a result of the constitutional provision under consideration." *Strickland v. State*, 137 Ga. 1, 8 (1911); *Carson v. State*, 241 Ga. 622, 627-28 (1978). Indeed, the Georgia

Supreme Court later cited *Nunn* in *upholding* a 1910 law that prohibited any person from carrying a revolver without a license. *Strickland*, 137 Ga. at 8.

Similarly, the vast majority of state and local laws regulating or outlawing dangerous arms were upheld as paradigmatic examples of the exercise of police power. "The acknowledged police power of a State extends often to the destruction of property. A nuisance may be abated. Every thing prejudicial to the health or morals of a city may be removed." *Thurlow v. Massachusetts (The License Cases)*, 46 U.S. (5 How.) 504, 589-91 (1847) (McLean, J., dissenting). This power, Justice McLean explained, is "essential to self-preservation, and exists, necessarily, in every organized community. It is, indeed, the law of nature, and is possessed by man in his individual capacity. He may resist that which does him harm, whether he be assailed by an assassin, or approached by poison." *Id.* at 589. Thus, for example, in light of the "explosive nature of gunpowder, a city may exclude it" as an "act[] of self-preservation." *Id.* For "[i]ndividuals in the enjoyment of their own rights must be careful not to injure the rights of others." *Id.*

2. In the wake of the Civil War and adoption of the Fourteenth Amendment, courts continued to recognize state legislative authority to regulate dangerous weapons, including handguns. The Tennessee Supreme Court's *Andrews v. State* decision is illustrative. 50 Tenn. 165, 171 (1871). The plaintiffs there challenged

a statute forbidding any person to "publicly or privately carry any . . . pocket pistol . . . or revolver," Tenn. Act of June 11, 1870, asserting "that it is in violation of, and repugnant to" the Second Amendment of the U.S. Constitution and Tennessee's constitution. 50 Tenn. at 171. The court interpreted the statute to "amount[] to a prohibition to keep and use such weapon for *any and all purposes*." *Id.* at 187 (emphasis added). Although the court held that the federal Constitution did not limit the state legislature, *id.* at 175, it interpreted the state right-to-bear-arms provision *in pari materia* with the Second Amendment, *id.* at 177. Nevertheless, this right did not extend to "every thing that may be useful for offense or defense." *Id.* at 179. Weapons such as the pocket pistol and revolver could be prohibited *altogether*. *Id.* Even the use of weapons such as "the rifle . . . , the shot gun, the musket, and repeater," could "be subordinated to such regulations and limitations as are or may be authorized by the law of the land, passed to subserve the general good." *Id.* at 179-80; *see also State v. Wilburn*, 66 Tenn. 57, 59-60 (1872).

Similarly, the Arkansas Supreme Court upheld that state's prohibition on carrying pistols. *See Fife v. State*, 31 Ark. 455 (1876). Tracking the reasoning of *Andrews*, the Arkansas Supreme Court upheld that State's prohibition as a lawful "exercise of the police power of the State without any infringement of the constitutional right" to bear arms. *Id.* at 461. So, too, the Texas Supreme Court

upheld a conviction for carrying an unloaded pistol for the purpose of getting it repaired, and concluded that such carrying is not "in any way protected either under the State or Federal Constitution." *English v. State*, 35 Tex. 473, 473, 478 (1871).

Courts in Georgia, West Virginia, and Oklahoma followed suit. *See Hill v. State*, 53 Ga. 472, 474 (1874); *State v. Workman*, 35 W. Va. 367, 373 (1891); *Ex parte Thomas*, 97 P. 260, 262 (Okla. 1908). In the Georgia case, the author of the Court's opinion noted that he was "at a loss to follow the line of thought that extends the guarantee"—in the state Constitution of the "right of the people to keep and bear arms"—"to the right to carry pistols, dirks, Bowie-knives, and those other weapons of like character, which, as all admit, are the greatest nuisances of our day." *Hill*, 53 Ga. at 474.

C. Leading Treatises Recognized States' and Cities' Authority to Regulate Arms to Protect the Public Safety.

Major legal treatises, including those from the earliest periods of American history cement the conclusion that governments were widely understood to have broad authority to regulate and ban dangerous weapons. In *Heller*, the Supreme Court cited John Norton Pomeroy's treatise as representative of "post-Civil War 19th-century sources" commenting on the right to bear arms. 128 S. Ct. at 2812. As the Court noted, Pomeroy observed that while "[t]he object of" the Second Amendment "is to secure a well-armed militia," "a militia would be useless unless

the citizens were enabled to exercise themselves in the use of warlike weapons," and so the government "is forbidden by any law or proceeding to invade or destroy the right to keep and bear arms." John Norton Pomeroy, *An Introduction to the Constitutional Law of the United States* 152 (1868). The very next sentence in Pomeroy's treatise is: "But all such provisions, all such guarantees, must be construed with reference to their intent and design. This constitutional inhibition is certainly not violated by laws forbidding persons to carry dangerous or concealed weapons, or laws forbidding the accumulation of quantities of arms with the design to use them in a riotous or seditious manner." *Id.* at 152-53.

One early commentator on the right to bear arms similarly observed that the "right in the people to keep and bear arms, although secured by . . . the constitution, is held in subjection to the public safety and welfare." Joel Tiffany, *A Treatise on Government, and Constitutional Law* 394 (1867). Even where there is a right to bear arms, "the peace of society and the safety of peaceable citizens plead loudly for protection against the evils which result from permitting other citizens to go armed with dangerous weapons." *The Right to Keep and Bear Arms for Public and Private Defence,* 1 Cent. L.J. 259, 287 (Hon. John F. Dillon & Seymour D. Thompson, eds., 1874). And so the law must "strike some sort of balance between these apparently conflicting rights." *Id.*

In his authoritative survey of police power, published in 1904, Ernst Freund reviewed nineteenth-century weapons regulations to conclude that the constitutional guarantees of the Second Amendment and similar state constitutional provisions had "not prevented the very general enactment of statutes forbidding the carrying of concealed weapons, and the *possession or use of certain deadly weapons*." Ernst Freund, *The Police Power: Public Policy and Constitutional Rights* 90-91 (1904) (emphasis added). He deemed this a classic illustration of the more general principle whereby "constitutional rights must if possible be so interpreted as not to conflict with the requirements of peace, order and security." *Id.* at 91.

CONCLUSION

For the foregoing reasons this Court should affirm the decision below.

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Dated: September 20, 2010 *Attorney for Amici Curiae*

CERTIFICATE OF COMPLIANCE WITH RULE 29(d)

In accordance with D.C. Circuit Rule 29(d), the undersigned certifies that the accompanying brief is necessary. *Amici* are Professional Historians and Law Professors who have taught courses and published scholarship on the Second Amendment and legal and constitutional history. The Supreme Court in *Heller v. District of Columbia*, 128 S. Ct. 2783 (2008), looked to historical gun regulations in determining the Second Amendment's application to current gun laws. *Amici* are not aware of any other brief in this case that describes in detail the history of registration requirements and regulations of dangerous weapons dating back to the early Republic.

Dated: September 20, 2010

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CERTIFICATE OF SERVICE

I hereby certify that on September 20, 2010, I caused a true and accurate copy of the Brief for Professional Historians and Law Professors Saul Cornell, Paul Finkelman, Stanley N. Katz, and David T. Konig as *Amici Curiae* in Support of Appellees to be served upon the following counsel for the parties via the Court's ECF system:

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Exhibit 11

APPENDIX C

CV 93-0063723	:	SUPERIOR COURT
DeFOREST H. BENJAMIN, JR., ET AL.	:	JUDICIAL DISTRICT OF LITCHFIELD
V.	:	AT LITCHFIELD
JOHN M. BAILEY, ET AL.	:	JUNE 30, 1994

MEMORANDUM OF DECISION

The issue before the court is the constitutionality of 1993 Connecticut Public Act No. 93-306, Connecticut's "Assault Weapon Law." On June 8, 1993, after lengthy debate, the Connecticut legislature enacted P.A. 93-306 ("the Act").[1] The Act became effective on October 1, 1993 and prohibits the sale, transfer, and possession of certain firearms and firearms parts collectively described as "assault weapons."

Any person who lawfully possesses an "assault weapon" prior to October 1, 1993 can keep the weapon by obtaining a certificate of possession from the department of public safety. P.A. 93-306, §4(a). A person who violates the possession element of the Act, except for a first time offender who presents proof that he lawfully possessed the weapon before October 31, 1993, is guilty

[1] Lieutenant Governor Eunice S. Groark provided the tiebreaking vote after an 18-18 vote in the Senate.

of a Class D felony and shall be sentenced to a term of imprisonment of which one year may not be suspended or reduced. P.A. 93-306, §3(a). A person who violates the sale or transfer element of the Act is guilty of a class C felony and shall be sentenced to a term of imprisonment of which two years may not be suspended or reduced. P.A. 93-306 §2(a)(1). The Act further provides that a person who commits any class A, B, or C felony while armed with or threatening the use of an "assault weapon", shall be imprisoned for a term of eight years, which shall not be suspended or reduced. P.A. 93-306, §8. The Act specifies limited exceptions for certain individuals, such as police officers and members of the armed forces. P.A. 93-306, §3(b).

Sec. 1(a)(1) of the Act defines an "assault weapon." It states:

> As used in this act, "assault weapon" means: (1) Any selective-fire firearm capable of fully automatic, semiautomatic or burst fire at the option of the user or any of the following specified semiautomatic firearms: Algimec Agmi; Armalite AR-180; Australian Automatic Arms SAP Pistol; Auto-Ordnance Thompson type; Avtomat Kalashnikov AK-47 type; Barrett Light Fifty model 82A1; Beretta AR-70; Bushmaster Auto Rifle and Auto Pistol; Calico models M-900, M-950 and 100-P; Chartered Industries of Singapore SR-88; Colt AR-15 and Sporter; Daewoo K-1, K-2, Max-1 and Max-2; Encom MK-IV, MP-9 and MP-45; Fabrique Nationale FN/FAL, FN/LAR, or FN/FNC; FAMAS MAS 223; Feather

> AT-9 and Mini-AT; Federal XC-900 and XC-450; Franchi SPAS-12 and LAW-12; Galil AR and ARM; Goncz High-Tech Carbine and High-Tech Long Pistol; Heckler & Koch HK-91, HK-93, HK-94 and SP-89; Holmes MP-83; MAC-10, MAC-11 and MAC-11 Carbine type; Intratec TEC-9 and Scorpion; Iver Johnson Enforcer model 3000; Ruger Mini-14/5F folding stock model only; Scarab Skorpion; SIG 57 AMT and 500 series; Spectre Auto Carbine and Auto Pistol; Springfield Armory BM59, SAR-48 and G-3; Sterling MK-6 and MK-7; Steyr AUG; Street Sweeper and Striker 12 revolving cylinder shotguns; USAS-12; UZI Carbine, Mini-Carbine and Pistol; Weaver Arms Nighthawk; Wilkinson "Linda" Pistol.

P.A 93-306 §1(a)(1).

The plaintiffs in the present action are Deforest Benjamin, a gun dealer and gunsmith in the town of Cornwall; Robert Suprenant, a citizen of Colebrook who wishes to purchase a Colt Sporter; Bertcelis Morales, a resident of Bridgeport and an owner of an Intratec TEC DC-9; Michelle and Bradford Palmer, residents of Manchester who allege that Michelle is the owner of a single Colt Sporter and pursuant to the Act, she can not shoot with her father; Bruce Kaufman, a resident of Windsor and the owner of a Colt AR-15; Frank D'Andrea, a firearms dealer in Stratford; and Navegar Inc., d/b/a Intratec, a Florida corporation which manufacturers the Intratec TEC-9 and Scorpion.

The defendants are John M. Bailey, the Chief State's Attorney of Connecticut; Frank Maco, the State's Attorney

for the Judicial District of Litchfield; and Nicholas Cioffi, the Commissioner of Public Safety for the State of Connecticut.

On October 12, 1993, the plaintiffs filed their initial complaint. Thereafter, the plaintiffs filed an amended complaint, and, eventually filed an amendment to their amended complaint. In their amended complaint, which contains five counts, the plaintiffs seek a declaratory judgment that the Act is void under the Connecticut Constitution. The plaintiffs also seek to enjoin the enforcement of the Act pending the resolution of the case.

The plaintiffs allege in counts one and two that the Act violates their constitutional rights to equal protection and due process under the Connecticut Constitution. Count three states that the Act is void for vagueness. In count four, the plaintiffs allege that the Act is unconstitutional because it attaints specific manufacturers who make particular weapons while not similarly affecting other manufacturers who make "similar, identical, or functionally identical" weapons. Count five states that the Act infringes on the plaintiffs' right to bear arms under Article First, §15

of the Connecticut Constitution.

I.

FACTS

The court conducted an evidentiary hearing on divers days between January 20, 1994 and February 1, 1994. Thereafter, post-trial briefs were filed, and both counsel have made subsequent submissions with respect to recently decided case law, affecting the issues presented herein. Final argument was heard on March 2, 1994.

The following plaintiffs testified. Michelle Palmer, a petite woman, who explained that she preferred to shoot competitively with her father using the Colt Sporter, made no claim in her testimony that she used the firearm in self-defense. Her claimed injury was that she was prevented by this statute from using her firearm of choice, one which was comfortable for a person of her body size, and one with which she could enter specific competitions. The impact of the legislation did not extinguish her right to bear arms, but compromised it to the extent that she claimed injury.

Robert Suprenant testified that he desired to purchase a Colt Sporter. On cross-examination, he was asked if that was the only gun he wanted to buy.

Bruce Kaufman used his Colt AR-15 to scare away an intruder in September of 1982. The intruder was never apprehended. Mr. Kaufman testified that he collected military style weapons, and had a collection valued at over One Hundred Thousand ($100,000.00) Dollars, which he and his father used in a gun dealing business. Mr. Kaufman's interest in the litigation was clearly as a dealer, and his claim that the AR-15 was necessary for the defense of his mother, his home, and himself, was incidental to his other real pursuit.

DeForest Benjamin makes his living as a gunsmith and dealer. He testified that the Act had adversely affected his business, although there was absolutely no proof of that absent his statement. He testified further that he often reconstructed firearms, and that he was unclear from the statutes, as to which alterations he would now be allowed to make. He testified that he was confused about his ability to use a folding stock on some of the weapons. For a gunsmith, he appeared to be confused over very simple gun parts. His confusion was not credible to the court.

Frank D'Andrea is a gun dealer, and has been so employed for over twenty years. He expressed confusion

over whether he was permitted under the statute to sell certain firearms. He understood that he could not sell the listed firearms, but others were so similar that he felt he might offend the statute if he did engage in a practice of selling those firearms. He indicated that thirty (30%) percent of his stock was in assault weapons. He testified that he did not recall an individual named Rubin Calazzo entering his store and buying several firearms, for cash, for an individual named Danny Melendez, who was later convicted in the Federal District Court for illegal sale of firearms. He testified that he sold ammunition at a discount if purchased in large quantities. He further testified that large capacity magazines were a very saleable commodity for gun dealers. Mr. D'Andrea's interest in this litigation clearly stemmed from his economic interest. The subject firearms, he conceded, could be sold outside the State of Connecticut.

Ms. Morales acquired an Intratec DC-9 from her husband just prior to the passage of the statute under review. She claimed that she possessed the firearm to protect herself, her family, and her home. She claimed that she heard an intruder at her front door in December,

and that she had the gun. She also testified that she did not confront the intruder, or call out that she had a firearm. She testified that she turned on the porch light, and the intruder fled. She testified further that she had only tried shooting the banned weapon twice, at close range, and more importantly, that she had never possessed or fired any other weapon before. The court finds her claim of a possessory interest in this banned weapon unworthy of belief.

Carl Miguel Garcia, president of Navegar, Inc., the manufacturer of the Intratec-9 and DC-9, and Scorpion, testified that to his knowledge, both New Jersey and California had passed laws banning the sale or transfer of his listed weapons. Mr. Garcia complained that the statute had had a serious economic impact on his business, and that he and his company had received much negative press concerning the listed firearms. He indicated that they functioned in many ways like unlisted pistols and revolvers, and in fact used a generic magazine, similar to those used in Glocks, the firearm of choice of many police departments around the country.

On cross-examination, Mr. Garcia admitted that his revenues had steadily increased over the past three

years, despite the bans in some states. He agreed that the promotional literature contained slogans such as "easily concealed" and "tough as your toughest customer." No police departments utilize these products because they do not contain safeties. He agreed that the listed firearms were designed for maximum firepower, were inexpensive, and capable of rapid fire. Mr. Garcia claimed that the weapon could not be concealed, but upon cross-examination, the Attorney General demonstrated that, with a large magazine, the weapon, could in fact be concealed. Mr. Garcia denied that his listed firearms were the "gun of choice of drug dealers."

Mr. Robert Reese, president of Springfield Armory, Inc., testified that he founded his company after the government arsenal at Springfield, Illinois was shut down in 1969. Mr. Reese acquired much of the machinery from the arsenal. He adopted that name, and testified that he spent five (5) years acquiring the right to use the name for his company. His story of developing his company, and the historical perspective of the World War II Garand was of interest to the court. After World War II, the NATO forces contracted with the Italian company, Baretta, to overhaul the Garand, and it became known as the

Baretta Modification, 1959, or BM-59. In 1979, Mr. Reese negotiated with Baretta to acquire forty tons of surplus parts from which the private Springfield Armory built its BM-59. Mr. Reese and his company developed military weapons for civilian use and collection, and identified Plaintiffs' exhibits 45-58 as by-products of the United States M-1 Garand from the government Springfield Armory. He pointed to the similarities in the Baretta Garand M-1, the BM-59 Italia, to the banned Sringfield Armory BM-59.

On cross-examination, he testified that the BM-59 was a readily identifiable firearm, and that it was capable of firing .30 calibre "powerful" cartridges which could pierce five to six walls in a house. The firearm with that calibre cartridge could hit and kill a person distant from the shooter. The firearm was capable of firing four hundred (400) rounds of ammunition per minute, and a "good" shooter, could reload a magazine in ten (10) seconds.

Charles Fagg was qualified as an expert witness for the plaintiffs. In addition to identifying the banned firearms, he led the plaintiffs through a description of similar, and yet not banned firearms, that were distinguishable by brand name and slight design

differences. There seemed to be little controversy in this litigation that there are copies of the banned firearms, either by companies in foreign countries, or in this country, and that the industry markets firearms by changing numerical designation, name, and accessories. Mr. Reese testified that the industry had little control over the changes in designation of firearms, and that those changes appeared for each new marketing cycle. It appears that specific designation even within the industry may be an unattainable goal.

Mr. Fagg testified that flash suppressors had a legitimate civilian, and non-criminal purpose. Hunting at dawn or dusk made that a desired option for many hunters. He agreed that a flash suppressor also had the ability to mask the position of the shooter, and control recoil to a certain extent upon rapid fire at a target. He conceded that the civilian use of those options was limited, but that those options might well be more important to criminal use. On cross-examination, he was able to testify as to the maximum magazine that the listed firearms could hold, at least in most instances. In testimony that was a bit too coy, he testified that he did not know what an Algimec Agmi, the first on the list

of banned weapons, was. It was clear later that this was an Algimec AGM-1, so the statute contained a mere typographical error.[2] The little "mystery" that surrounded that particular firearm, which no witness has ever seen, was somewhat unnecessary for a court trial.

Mr. Fagg's testimony was technical and unemotional. He described certain features of firearms for the record. He compared the banned weapons with others not mentioned in the statute, and responded to questions on cross-examination in an equally professional manner. As earlier noted, there seemed to be little contest with respect to his description of the firearms brought into the court room, photographs of which remain as exhibits for review. It is clear that there are many firearms which fit the general designation of "assault weapons", and which are virtually identical to the banned weapons, but which do not appear on the list.

Professor Kleck was called as an expert witness by the plaintiffs. His testimony centered on the self-defense capabilities of semi-automatic weapons. His testimony was biased and did not help the inquiry of the

[2] The court finds that the legislature should correct this typographical error.

court with respect to the legal claims. His testimony focused on the public debate, which will continue on the airwaves, the town greens, and in the legislatures. This court is not permitted to substitute the judgment of the legislature, only to assess the claims of the parties. The decision of this court, and the decision on the appeal, will only be another step in the public dialogue concerning this issue. The statistics proposed were countered by the defendants, and the court was not swayed by either.

The defendants offered a videotape of various firearms being fired at the State Police range. Automatic fire, selective fire, semiautomatic fire, and bolt action fire were described. (Defendants' Ex. 14) During the testimony of Chief Thomas Sweeney of the Bridgeport Police Department, a video was offered (Defendants' Ex. 3) of street life in Bridgeport on November 27, 1993, at Hallock and Shelton Streets from 11:25 p.m. - 12:13 a.m. on November 28. The Green Top Posse had been raided and within a short time, was rearmed with assault-type weapons. The raid had secured two loaded AK-47s and a Colt Sporter with a flash suppressor, among other firearms. The Chief testified

that "straw purchasers" would acquire the guns legally and then transfer them illegally. The Chief testified further concerning gang hits near a school, on the first day of school, when a new middle school was being opened, when children going to school had to walk past a crime scene. At that crime scene, seventy-six (76) bullet casings were found near the body of Alexander Aponte, a suspected gang member.

Chief Sweeney pointed to the increase in seizure of assault weapons. In 1991, twenty-eight of the weapons seized as a result of police activity were assault weapons, and in 1992, that number increased to 49. While the evidence is clear that assault weapons do not make up the majority of weapon seizures, their numbers are increasing at a steady rate. He also described assaults on police officers, which included the use of an Intratec 22, one an M-11 type, and a crime scene which included Seven Hundred Sixty-two (762) spent rounds of 9 mm ammunition. That police officer was struck with a 9 mm round. Annette Richardson was killed, and it appeared from the investigation that she was not an intended victim. The Chief cited further examples of over penetration in dense population areas, which create a

grave risk to the citizenry. He claimed further that the possession of guns in the home for self-protection gave the homeowner a false sense of security and posed a risk to members of the household.

Col. Leonard Supenski is the Chief of the Technical Bureau of the Baltimore County Police Department. He is a gun owner and has competed with firearms as sport. He conducts training courses for police and citizens interested in self defense. He testified that he is familiar with the term "assault weapon" and opined that these lightweight military-style weapons were changed so that armies could move more effectively. He stated that the Kalishnikov, AK-47, originally made in the U.S.S.R. in 1947 by Kalishnikov, was the precursor of all of the military- style weapons on the list. His opinion was that there was not legitimate civilian use for these weapons, and that in a compressed urbanized society, they constituted a hazard to bystanders.

Col. Supenski testified about the report and recommendations of the Bureau of Alcohol, Tobacco, and Firearms ("BATF") (Defendants' Ex. 12) and provided the information contrary to Professor Kleck's testimony. He felt that the ordinarily intelligent citizen could access

documents necessary to sufficiently warn that citizen of which weapons were banned. He mentioned Shooting Digest and Gun World. The plaintiffs later offered into evidence, the manual published by the State of California to assist citizens in recognizing their banned firearms. (Plaintiffs' Ex. 67).

He testified concerning the BATF's tracing of firearms seized by law enforcement, and indicated that the Intratec Tec 9 was the leading gun seized, and the combination of the Tec 9, the Cobra MAC-11, the AK-47, and the Colt AR-15 comprised thirty-seven (37%) percent of all assault weapons seized. Among characterizations of individuals from whom such weapons were seized were drug dealers, disturbed individuals, street gangs, and hate groups. He reiterated Chief Sweeney that most of these weapons are purchased legally and then come onto a secondary market of unregulated sales by straw purchasers selling to criminals. He insisted that these weapons were a serious risk to police officers and to the public safety.

On cross examination, he conceded that a semi-automatic rifle or handgun could be used defensively. He added that the use would require considerable training.

He conceded some discrepancies from his deposition testimony.

Major John Bardelli of the Connecticut State Police testified concerning the investigation of the murder of Trooper Russell Bagshaw by a burglar using the Wilkinson "Linda", a firearm on the list. He testified that the public safety is affected adversely by the named weapons, in that they pose a danger to police officers. He testified that urban undercover officers are encountering these weapons more and more. The Colt AR-15 is issued to the Connecticut State Police SWAT team, but is not standard issue. There is required special equipment and training for that team.

II.

DECLARATORY JUDGMENT

"The purpose of a declaratory judgment action... is to 'secure an adjudication of rights where there is a substantial question in dispute or a substantial uncertainty of legal relations between the parties.'" (Citation omitted.) **Wilson v. Kelley**, 224 Conn. 110, 115, 617 A.2d 433 (1992). The declaratory judgment procedure is peculiarly well adapted to the judicial determination

of controversies concerning constitutional rights and, as in this case, the constitutionality of state legislative action. **Horton v. Meskill**, 172 Conn. 615, 626, 376 A.2d 359 (1977). "The statute authorizing the Superior Court to render declaratory judgments is as broad as it well could be made." **Sigal v. Wise**, 114 Conn. 297, 301, 158 A. 891 (1932).

> The declaratory judgment procedure may be employed in a justiciable controversy where the interests are adverse, where there is an actual bona fide and substantial question or issue in dispute or substantial uncertainty of legal relations which requires settlement, and where all persons having an interest in the subject matter of the complaint are parties to the action or have reasonable notice thereof.

Practice Book §390.

The jurisdiction of the trial court over declaratory judgment actions depends upon compliance with the notice requirement of Practice Book §390. **Serrani v. Board of Ethics**, 225 Conn. 305, 308, 622 A.2d 1009 (1993). Failure to comply with the notice requirement of Practice Book §390 deprives the trial court of subject matter jurisdiction to render a declaratory judgment. See, e.g. **Connecticut Ins. Guaranty Assn. v. Raymark Corporation**, 215 Conn. 224, 229, 575 A.2d 693 (1990). Accordingly, the court finds that the plaintiffs have complied with the

procedural requirements of a declaratory judgment action. All persons having an interest in the subject matter of this action are now parties to the action or have reasonable notice thereof.

III.

STANDARD OF REVIEW

"Ordinarily, a trial court's analysis of a constitutional attack on an otherwise validly enacted statute begins with certain underlying principles of statutory construction." **State v. Leary**, 41 Conn. Sup. 525, 526-27, 590 A.2d 494 (1991, Mottolese, J.) One of the most fundamental of these is "that a strong presumption of constitutionality attaches to acts of a legislature." (Citations omitted.) **Peck v. Jacquemin**, 196 Conn. 53, 64, 491 A.2d 1043 (1985). To overcome this presumption, the party attacking a validly enacted statute bears the heavy burden of proving its unconstitutionality beyond a reasonable doubt and the court will indulge in every presumption in favor of the statute's constitutionality. **State v. Breton**, 212 Conn. 258, 269, 652 A.2d 1060 (1989). "In choosing between two constructions of a statute, one valid and one

constitutionally precarious, we will search for an effective and constitutional construction that reasonably accords with the legislature's underlying intent..." (Citations omitted.) Id.

IV.

EQUAL PROTECTION AND THE RIGHT TO BEAR ARMS (COUNTS 1, 2 & 5)

The plaintiffs rely solely on state constitutional grounds to invalidate the Act. The court is not bound by federal precedents in interpreting our own state constitutional provisions. State v. Geisler, 222 Conn. 672, 684, 610 A.2d 1225 (1992). "It is well established that federal constitutional... law establishes a minimum national standard for the exercise of individual rights and does not inhibit state governments from affording higher levels of protection for such rights..." (Internal quotation marks and citations omitted.) State v. Miller, 227 Conn. 363, 377-87, 630 A.2d 1315 (1993). "[F]ederal decisional law is not a lid on the protections guaranteed under our state constitution." Doe v. Maher, 40 Conn. Sup. 394, 419, 515 A.2d 134 (1986). Nevertheless, in the interpretation of our state constitution, the court is

not precluded from consulting the case law under the federal constitution. **Daly v. Delponte**, 225 Conn. 499, 512-13, 624 A.2d 876 (1993).

Article I, §20 of the Connecticut Constitution is the modern equal protection clause. It provides: "No person shall be denied the equal protection of the law nor be subjected to segregation or discrimination in the exercise or enjoyment of his or her civil or political rights because of religion, race, color, ancestry, national origin, sex or physical or mental disability." Conn. Const. Art. I, §20.

The equal protection clause provides for varying levels of judicial review to determine whether a state statute passes constitutional muster. **Daly v. DelPonte**, supra, 513. Our Supreme Court has held, in accordance with the federal framework of analysis that state action concerning social and economic regulation will survive an equal protection challenge if it satisfies a rational basis test. **Id.** citing **Laden v. Warden**, 169 Conn. 540, 542-43, 363 A.2d 1063 (1975). If, however, state action invidiously discriminates against a suspect class or affects a fundamental right, the action passes constitutional muster under the state constitution only

if it survives strict scrutiny. See Id., 542.

The plaintiffs allege in count one of their complaint that the Act must be declared unconstitutional because it lacks a rational basis. In count two, the plaintiffs allege that the Act should be "strictly scrutinized." The plaintiffs do not claim that the Act should be subject to a strict scrutiny test because it discriminates against a suspect class. Rather, the plaintiffs allege that the right to bear arms is a fundamental right and therefore legislation which affects that right should be subject to strict scrutiny.

A. The Reasonableness Test

The Connecticut Constitution, Article first, §15 states: "[e]very citizen has a right to bear arms in defense of himself and the state." Conn. Const. Art. I, §15. All constitutional rights, however, are not absolute. For example, Conn. Const. Art. I, §3 guarantees the free exercise and enjoyment of religion. However, it is well recognized that this right is not absolute, religious conduct remains subject to regulation for the protection of society. **Cantwell v. State of Connecticut**, 310 U.S. 296, 303-04, 60 S.Ct. 900, 84 L.Ed 1213 (1940).

Further, the protection of speech found in the First Amendment and Conn. Const. Art. I §4, while fundamental, is not absolute. The First Amendment does not protect one who yells "fire" in a crowded theater, nor does it protect one who speaks "fighting words." **Chaplinsky v. New Hampshire**, 315 U.S. 568, 572, 62 S.Ct. 766, 86 L.Ed.2d 1031 (1942).

Another example can be found in Conn. Const. Art. I, § 8 which guarantees, in pertinent part, that in all criminal prosecutions, the accused shall have the right to be heard "... by himself and by counsel..." However, once a defendant is supplied with counsel, the core right is exhausted, and additional protections claimed under the Sixth Amendment can be severely circumscribed. **Wheat v. United States**, 486 U.S. 153, 159, 108 S.Ct. 1692, 100 L.Ed.2d 140 (1988). As a result, a defendant does not have a constitutional right to counsel of choice where other societal interests are compromised. **Id.**; **United States v. Vasquez**, 966 F.2d 254, 261 (7th Cir. 1992); **Johnson v. Warden**, 218 Conn. 778, 790-91, 591 A.2d 399 (1991).

On each occasion that the Connecticut courts have addressed the meaning of the "right to bear arms"

provision, they have indicated that the right is not absolute, but is a limited right, subject to the reasonable exercise of the state's police power. State v. Bailey, 209 Conn. 322, 346, 551 A.2d 1206 (1988); State v. Banta, 15 Conn. App. 161, 184, 544 A.2d 1226 (1988); Rabbitt v. Leonard, 36 Conn. Sup. 108, 116, 413 A.2d 489 (1979); Johnsey v. Board of Firearms Permit Exam, Superior Court, J.D. of New Haven, Docket # 299478 (1991, Schaller, J.) (It was not unreasonable for the Board of Firearm Permit Examiners to conclude that the appellant was an unsuitable person to be granted a pistol permit.).

In Bailey, the court held, inter alia, that the requirement that a person obtain a permit to carry a pistol places a reasonable restriction on a citizen's right to bear arms. The court, in pertinent part, stated, "It is beyond serious dispute that the legislature has the authority to place reasonable restrictions on a citizen's right to bear arms." State v. Bailey, supra, 346.

In Banta, the court denied the defendant's claim that a statute which prohibits a felon from possessing a firearm was unconstitutional under the state constitution. The court stated:

> ....our limited review of the record in this case convinces us that the defendant's claims are not truly of constitutional dimension. He claims that the state constitutional provision regarding the right to bear arms; Conn. Const., art. I, 15; confers on him an individual constitutional right to possess a pistol. Even if we assume without deciding that there is such an individual constitutional right, similar constitutional provisions in other states have been repeatedly interpreted to be subject to reasonable limitation....The defendant has not established that this prohibition applicable to convicted felons is unreasonable.

(Citations omitted.) **State v. Banta**, supra, 184.

In Rabbit, the plaintiff complained of the revocation of his pistol permit without prior notice and an opportunity to be heard. The court, Saden, J., stated that a Connecticut citizen has a fundamental right to bear arms in self defense. **Rabbit v. Leonard,** supra, 112. Nevertheless, the court applied a standard of reasonableness in finding that the state had the right to revoke the plaintiff's pistol permit. **Id.**, 116.

Other jurisdictions with similar constitutional provisions guaranteeing the right to bear arms have consistently held that the right to bear arms is not an unlimited right and is subject to reasonable

regulation.[3] See, e.g. People v. Brown, 253 Mich. 537, 235 N.W. 245, 246 (1931); Carfield v. State, 649 P.2d 865, 871-72 (Wyo. 1982); People v. Blue, 190 Colo. 95, 102-03, 544 P.2d 385 (1975); Robertson, et al. v. City of Denver, et al., ____Colo.____(May 2, 1994); State v. Cartwright, 246 Or. 120, 134-36, 418 P.2d 822 (1966); State v. Smith, 132 N.H. 756, 571 A.2d 279, 281 (1990); State v. Kessler, 289 Or. 359, 614 P.2d 94, 99 (1980).

In the recently decided Robertson case, supra, the majority refused to categorize the Colorado right to bear arms as fundamental, but remained silent on that issue. They applied the reasonableness standard to the constitutional test of the Denver ordinance banning assault weapons. They cited the body of law that exists in Colorado where courts have applied the reasonableness standard to any statute which invoked the police power as a restriction on the right to bear arms, without a determination as to the nature of that right. **Robertson v. City of Denver,** supra, 13-14. They point out that Connecticut is one of two jurisdictions to refer to the right as fundamental, citing Rabbitt, supra. **Id.,** 12.

[3] These states have right to bear arms provisions which focus on a citizens right to bear arms for self defense and defense of the state.

That decision of our court was handed down in 1979, and consistently since that time, the Connecticut Supreme Court has applied the reasonableness standard to any legislation that has regulated the right to bear arms.

For all of the foregoing reasons, the court finds that Conn. Const. Art. I §15 explicitly grants citizens of Connecticut a right to bear arms. However, it does not grant an unlimited right to possess assault weapons. Therefore, the proper constitutional test is whether the Act is a reasonable exercise of the state's police power.

Police power generally means the power to govern and belongs to every sovereignty. **Snyder v. Newtown**, 147 Conn. 374, 389, 161 A.2d 770 (1960). "It is a universally accepted rule of constitutional law that the legislative department in the use of its police power is the judge, within reasonable limits, of what the public welfare requires." (Citations omitted.) **Cutlip v. Connecticut Motor Vehicles Commissioner**, 168 Conn. 94, 100, 357 A.2d 918 (1975).

> The court's function in examining the constitutional aspect of police legislation is to decide whether the purpose of the legislation is a legitimate one and whether the particular enactment is designed to accomplish that purpose in a fair and reasonable way. If an enactment meets this test, it satisfies the constitutional

> requirement of due process and equal protection of the laws.... Courts cannot question the wisdom of police legislation and must accord to the legislature a liberal discretion, especially in matters involving potentialities generally recognized as dangerous.

Pierce v. Albanese, 144 Conn. 241, 249, 149 A.2d 606 (1957).

All of the facts that have been received on this record were contained in the public debate in the legislature concerning the appropriateness, as a political matter, of regulating firearms in any way. The legislature focused on the perceived public need to control the use of large capacity, rapid fire automatic, selective fire, and some semiautomatic firearms. The evidence indicates an escalation in that use, and while not the predominant number of firearms seized, the banned weapons have appeared more frequently as a risk factor to police officers on the street, and to innocent victims in densely-populated areas.

The court finds that Public Act 93-306 is a reasonable exercise of the State's police power. The court finds further that the legislature designed the Act to accomplish that purpose in a fair and reasonable manner. Accordingly, it satisfies the constitutional requirement of due process and equal protection.

V.

VOID FOR VAGUENESS (COUNT 3)

In count three of their amended complaint, the plaintiffs assert that the Act is unconstitutionally vague in violation of Article I, §8 and §10 of the Connecticut Constitution. Specifically, the plaintiffs attack Section 1(a)(1) of the Act which defines an "assault weapon".

The void for vagueness doctrine, which is derived from the constitutional guarantee of due process, embodies two central precepts: the right to fair warning of the effect of a governing statute or regulation and the guarantee against standardless law enforcement. **State v. Schriver**, 207 Conn. 456, 460, 542 A.2d 686 (1988); **Smith v. Goguen**, 415 U.S. 566, 572-73, 94 S.Ct. 1242, 39 L.Ed. 2d 605 (1974); **State Management Assn. of Connecticut Inc. v. O'Neill**, 204 Conn. 746, 757, 529 A.2d 1276 (1987).

As a matter of the due process of law required by our federal and state constitutions, "a penal statute must be sufficiently definite to enable a person to know what conduct he must avoid." (Citations omitted.) **State v. Proto**, 203 Conn. 682, 696, 526 A.2d 1297 (1987).

Legislatures must set reasonably clear guidelines for law enforcement officials and triers of fact in order to prevent "arbitrary and discriminatory enforcement." **Smith v. Goguen**, supra, 572-73. A statute must afford a person of ordinary intelligence a reasonable opportunity to know what is permitted or prohibited. **McKinney v. Coventry**, 176 Conn. 613, 618, 410 A.2d 453 (1979). A statute which forbids the doing of an act in terms so vague that men of common intelligence must guess at its meaning and differ as to its application, violates the first essential of due process of law. **State v. Cavallo**, 200 Conn. 664, 667,, 513 A.2d 646 (1986).

It is not necessary, however, that a statute list the precise conduct prohibited or required. **State v. Eason**, 192 Conn. 37, 47, 470 A.2d 688 (1984). It is recognized that the law may be general in nature; the constitution requires no more than "a reasonableness of certainty." **State v. White**, 204 Conn. 410, 415, 528 A.2d 811 (1987). "The test is whether the language conveys sufficiently definite warning as to the proscribed conduct when measured by common understanding and practice." (Citation omitted.) Id., 415-16. "A statute is not void for vagueness unless it clearly and

unequivocally is unconstitutional, making every presumption in favor of its validity." (Citation omitted.) State Management Assn. of Connecticut, Inc. v. O'Neill, supra, 758.

Where a penal statute implicates rights protected by the First Amendment, the statute's constitutionality is tested for vagueness on its face. State v. Pickering, 180 Conn. 54, 58 n.3, 428 A.2d 322 (1980). However, in non-First Amendment contexts, "the constitutionality of a statutory provision being attacked as void for vagueness is determined by the statute's applicability to the particular facts at issue." Id., 57. This case does not involve the alleged infringement of First Amendment freedoms, therefore, the plaintiffs' vagueness challenge must be examined in the light of the facts of this case. Hence, the court is not free to speculate as to whether under hypothetical circumstances, the Act may be vague. Springfield Armory, Inc. v. City of Columbus, 805 F. Supp. 489, 497 (S.D. Ohio 1992).

The plaintiffs contend that the Act is unconstitutionally vague because it fails to define "assault weapon" in terms of any understandable categories except for the selective guns which are

listed. The plaintiffs allege further that the Act neglects to define "type" and "series," words which the Act uses to define assault weapons.

The definition of "assault weapons" in the statute is clear. This court does not find credible, any claim that a person purchasing a firearm would be unaware of its firing capabilities. This court finds that a person of ordinary intelligence is capable of understanding whether his or her firearm is a fully automatic, selective-fire, burst fire, or semi-automatic firearm. The definition of "assault weapon" is not vague.

The plaintiffs cite **State v. Defrancesco**, 34 Conn. App. 741, __ A.2d __ (1994), in support of their claim that the words "series" and "type" are not terms of art in the firearms industry, or at law, sufficient to allow the public to understand the prohibition in the statute.

Colt, in its promotional catalogue (Plaintiffs' Ex. 2) refers to certain combinations of firearms as a "group". Springfield Armory refers to "series" or "models" for groupings of similar firearms (Plaintiffs' Ex. 3), while Eagle Arms prints an entire catalogue for the EA-15 series.

This marketing literature is found to be readily

available to the general public, to those of ordinary intelligence, who would likely review catalogues prior to making a purchase. Clearly, gun dealers who have such literature and knowledge of the industry, know when a firearm is derived from another, with certain alterations that do not change the essential form of the firearm. Therefore, the court finds that the use of the word "series" in the statute is not vague.

The term "type" appears in none of the marketing or promotional literature that has been made an exhibit for the record. Furthermore, the definition does not appear in Black's Law Dictionary, but only in Webster's. It is not a word that lends itself to statutory construction, absent a review of the legislative history. When the court is unable to find the legislative intent from the language of the statute, the court must look to the legislative history for guidance. see **State v. Defrancesco**, supra, 750.

The legislative history discloses that the word "type" was used in conjunction with the AK-47 to include all copies of that firearm. **Senate Proceedings**, PP. 2988 (May 27, 1993, Jepson, S.). However, the legislative history is silent with respect to the use of the word

"type" as it pertains to the Auto Ordnance Thompson type. Despite the legislative history which addresses the use of the word "type" in conjunction with the AK-47, the court finds that the use of the word "type" in this statute is vague. That finding, however, is not dispositive of the constitutionality of the entire statute.

> Whenever a portion of a statute appears to be void for vagueness on its face, thereby threatening to produce a chilling effect on the remainder of the statute which might otherwise be valid, Connecticut courts, like the federal courts, have, whenever possible, applied a 'judicial gloss' to the statute to save it from infection and inevitable invalidation.

State v. Leary, 41 Conn. Sup. 525, 526-27, 590 A.2d 494 (1991, Mottolese, J.).

The court must now determine if the statute can be read consistently with its intent, if the vague word is deleted. The invalidity of one provision of the act does not necessarily result in the entire act being invalid. **Kellems v. Brown**, 163 Conn. 478, 495-96, 313 A.2d 53 (1972); citing **State v. Wheeler**, 25 Conn. 290, 299 (1856). The test is whether they are so mutually connected and dependent as to indicate a legislative intent that they should stand or fall together. **Kellems v. Brown**, supra, citing **Branch v. Lewerenz**, 75 Conn. 319,

324, 52 A. 658 (1902). In this case, the court finds no such dependence, and no mutual connection with respect to the list of firearms, and with respect to the AK-47. However, the use of the word "type" following Auto Ordnance Thompson is connected, and that designation is subject to being void for vagueness. Auto Ordnance Corporation makes a variety of pistols and long guns which are not further described in the statute. (Plaintiffs' Ex. 1). Deleting the word "type" from the description does not cure the problem with vagueness for this listing. If the legislature sees fit, it has the option to revise the statute to deal with which of the Auto Ordnance firearms they feel are subject to the statute. At this time, the court has no ability or authority to substitute its judgment. The excision of the word "type" where noted will not defeat the statute, nor prevent its reasonable use as dictated by the legislature. By narrowing the construction of the statute, by deleting the vague term "type" and "Auto Ordnance Thompson type", therein, the statute passes constitutional muster.

VI.

BILL OF ATTAINDER (COUNT 4)

Article First, §13 of the Connecticut Constitution states: "No person shall be attainted of treason or felony by the legislature." Art. I §10 of the United States Constitution provides in pertinent part that "[n]o state shall... pass any Bill of Attainder." These Bill of Attainder provisions prohibit the state or federal legislatures from assuming judicial functions and conducting trials. **United States v. Brown**, 381 U.S. 437, 462, 85 S.Ct. 1707, 14 L.Ed.2d 484 (1965). The key features of a bill of attainder are that the challenged law "legislatively determines guilt and inflicts punishment upon an identifiable individual without provision of the protections of a judicial trial." **Nixon v. Administrator of General Services.**, 433 U.S. 425, 468, 97 S.Ct. 2777, 2803, 53 L.Ed. 2d 867 (1977); see also **State v. Washburn**, 34 Conn. App. 557, 563, __ A.2d __ (1994).

A plaintiff challenging a legislative act on the ground that it is an unconstitutional bill of attainder must prove three elements: nonjudicial infliction of punishment; specificity as to the identity of individuals

affected; and lack of a judicial trial. **Springfield Armory, Inc. v. City of Columbus**, supra, 493; See 16A Am. Jur.2d Constitutional Law § 655 (1979). These elements must be established by the "clearest proof." (Citations omitted.) **Id.**

The plaintiffs allege that the manufacturers of guns named in the Act have been singled out for adverse treatment and legislatively condemned because of a relationship with an undesirable name. As a result, the plaintiffs claim that any manufacturer who makes and any citizen who owns or possesses a named gun have been attainted.

Specificity alone does not establish that the law is an unconstitutional bill of attainder. **Nixon v. Administrator of General Services**, supra, 470-72. The court in Nixon concluded that "the Act's specificity, the fact that it refers to [President Nixon] by name, does not automatically offend the Bill of Attainder Clause. **Id., 471-72.** Similarly, the present Act's specificity in naming weapons made by Colt, Springfield Armory, Heckler and Koch, Intratech, and other gun manufacturers does not render the Act a bill of attainder. **Fresno Rifle and Pistol Club Inc. v. Van De Kamp**, 965 F.2d 723, 727-28

9th Circuit 1992.)

Furthermore, "[s]imply because a law places burdens on citizens does not make those burdens punishment." (Citation omitted.) **State v. Washburn**, supra, 563. Three tests have been identified as applicable to the determination whether the burden imposed by the legislature is punishment for bill of attainder purposes: the historical test; the functional test; and the motivational test. **Nixon v. Administrator of General Services**, supra, 473-84.

A. The Historical Test

The historical test requires the court to examine whether the burden imposed by the legislature falls within the category of punishments traditionally judged to be prohibited by the Bill of Attainder Clause. **Id.**, 473-74. These are: the death sentence; imprisonment; banishment; confiscation of property; and barring individuals or groups from participating in specified employments or vocations. Id.

Plaintiffs' witnesses Benjamin, D'Andrea, and Carlos Garcia, the President of Intratech, offered testimony that their businesses have suffered as a result of

passage of the Act. The plaintiffs, however, have not proven that the Act bars them from participating in their specified employments or livelihood. The Act does not prevent plaintiff Intratech from manufacturing or selling firearms in general. Nor does it prevent Intratech from manufacturing the banned "assault weapons" and selling them in places other than Connecticut. Moreover, the Act does not prohibit plaintiffs D'Andrea or Benjamin from selling or working on firearms and parts in the State of Connecticut other than those affected by the Act. For the foregoing reasons, the historical test for punishment has not been satisfied. See **Springfield Armory, Inc. v. City of Columbus**, supra, 494.

B. The Functional Test

The functional test requires the court to analyze whether the challenged law, viewed in terms of the type and severity of burdens imposed, can be said to further nonpunitive purposes. **Nixon v. Administrator of General Services**, supra, 475-76. Where legitimate legislative purposes do not appear, it is reasonable to conclude that punishment was the purpose of the legislation. Id., 476. The plaintiff bears the burden of proving "that the

legislature's action constituted punishment and not merely the legitimate regulation of conduct." Id., n. 40.

The defendants assert that the Act was passed in light of legislative recognition that "assault weapons" are being used in street crime across Connecticut and that the proliferation of these guns is an intolerable threat to public safety. Defendants also argue that the Act will prevent tragedies such as the 1991 killing of State Police Trooper Russell Bagshaw.

The court finds that the Act was designed to serve a nonpunitive purpose, namely the protection of the citizens of Connecticut from the perceived danger posed by certain firearms. As stated previously, this is a reasonable exercise of the state's police power. Furthermore, in relation to the potential harm sought to be averted by the Act, the severity of the burden on the plaintiffs is slight. The functional test for punishment has not been satisfied. See **Springfield Armory, Inc. v. City of Columbus**, supra, 495.

C. The Motivational Test

The motivational test requires the court to determine whether the legislative history of the Act

evinces an intent to punish. **Nixon v. Administrator of General Services**, supra, 478. In determining intent the court should also consider whether less burdensome alternatives were available. **Id.**, 482.

The plaintiffs have not offered, nor has the court found, any evidence of a legislative intent to punish the plaintiffs. To the contrary, the motivation of the legislature is clearly focused on public safety. see **State v. Washburn**, supra, 564. The plaintiffs have failed to establish punishment under the motivational test.

The plaintiffs have failed to prove that the burden imposed by the Act fits within any of the categories of punishment prohibited by the federal or state bill of attainder clause. The Act is not an unconstitutional bill of attainder.

VI.

CONCLUSION

The plaintiffs' action for a declaratory judgment that the Act is void under the Connecticut Constitution, is denied. The court finds all issues in favor of the defendants subject to the narrowing construction of the statute contained herein.

The application for a temporary injunction is denied.

DRANGINIS, J.

Exhibit 12

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

SHAWN J. TARDY, ET AL.	:	
	:	
v.	:	CIVIL NO. CCB-13-2841
	:	
MARTIN J. O'MALLEY, ET AL.	:	

...o0o...

ORDER

For the reasons stated on the record in open court, it is hereby **ORDERED** that:

the plaintiffs' Motion for Temporary Restraining Order is **Denied**.

October 1, 2013
Date

/s/
Catherine C. Blake
United States District Judge

Exhibit 13

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF MARYLAND

SHAWN J. TARDY, et al.

PLAINTIFFS

VS. CIVIL NO. CCB-13-2841

MARTIN J. O'MALLEY, in his official capacity as Governor of the State of Maryland, et al.

DEFENDANTS

- - - - - - - - - - - - - - -

JANE DOE, et al.

PLAINTIFFS

VS. CIVIL NO. CCB-13-2861

MARTIN J. O'MALLEY, in his official capacity as Governor of the State of Maryland, et al.

DEFENDANTS

Baltimore, Maryland

October 1, 2013

The above-entitled case came on for a Temporary Restraining Order proceedings before the Honorable Catherine C. Blake, United States District Judge

Gail A. Simpkins, RPR
Official Court Reporter

of the effective date of only the prohibited paragraphs of Section 5-117.1(b) and (c), and allow the State to go ahead and process applications.

Thank you, Your Honor.

THE COURT: Thank you very much.

All right. Thank you all for your arguments. I'm going to take about a ten-minute recess, and I'll come back and give you a ruling.

(A recess was taken.)

THE COURT: Let me start by thanking counsel for their thorough arguments and briefing on short notice. I am here to consider the request for a temporary restraining order first in the Tardy v. O'Malley case and then in the Doe case.

Starting, of course, with the standards for a temporary restraining order, which will be the same in both cases, it is clear under current law, and I think this at least is not debated, that the plaintiffs have the burden of making a clear showing on all four factors in regard to a TRO or, for that matter, a preliminary injunction:

First, that they are likely to succeed on the merits; second, that they are likely to suffer irreparable harm; third, that a balance of hardships tips in the plaintiffs' favor; and fourth, that the

injunction is in the public interest, paying particular regard for the public consequences.

A couple of cases to cite for that are a 2013 Fourth Circuit case, Pashby versus Delia, 709 F.3d 307, and, of course, The Real Truth about Obama, 575 F.3d 343, simply for the standard.

It is also worth noting that in terms of the TRO request, this is extraordinary relief. You need to demonstrate a true emergency, and I will point out again that it seems to me the plaintiffs have known for months that this law would take effect October 1st, but the challenge was not filed until last Friday.

What the law does, and I am speaking now of the law at issue in Tardy, the challenge in Tardy, generally speaking, and I am not going to be precise about every statutory provision, but generally on and after October 1st, this law prohibits the sale and possession and receipt of assault weapons. These are defined as certain semiautomatic pistols, which are not the subject of the challenge. There are also certain semiautomatic rifles and shotguns that are defined as assault weapons and are affected by this new law.

The new law also generally prohibits sale and

receipt of detachable magazines with the capacity of over ten rounds of ammunition.

The law imposes criminal penalties for violation, but it permits individuals to retain, without penalty, all such long guns that were lawfully acquired, or where the purchase has been applied for prior to October 1st. Again, the assault pistol issue is not challenged.

So turning to the likelihood of success on the Second Amendment challenge, let me review some of the relevant case law. Of course, Heller, a Supreme Court case, established that the core element of the Second Amendment is an individual's right to use weapons in the defense of their home. Those weapons are those commonly possessed by law-abiding responsible citizens for that purpose, and the Court noted that handguns are far and away the preferred self-defense weapon for persons in their homes.

Heller, of course, involved a total ban on handguns.

This challenged law, the aspect of the law that is challenged, does not prohibit an entire class of weapons. It is a subclass of long guns only, classified as assault rifles.

The Second Amendment, as the Supreme Court

explained, does not protect dangerous and unusual weapons, which the Court in that Heller opinion at least mentioned included short barreled shotguns.

Heller was followed by the McDonald case, which described Heller as holding that the Second Amendment protects the right to possess a handgun in the home for the purpose of self-defense, and, of course, held the Second Amendment applicable to the states under the due process clause of the Fourteenth Amendment. So that's in part why we are here.

Counsel have referred to, and I agree it is a very significant Fourth Circuit opinion, U.S. versus Chester, 628 F.3d 673, from the Fourth Circuit, in 2010. The Fourth Circuit adopted, as a number of other circuits have done, a two-part test, which is first whether the challenged law imposes a burden on conduct that falls within the scope of the Second Amendment's guarantee.

If it does not, and the example they gave was carrying a sawed-off shotgun, then the law is valid. At least it is not subject to a Second Amendment challenge.

If it does burden conduct within the scope of the Second Amendment, then the Court needs to determine, and then apply, the appropriate level of

means-end scrutiny.

In Chester, which, as you all know, criminalized possession of a firearm after a misdemeanor conviction for a crime of domestic violence, the Fourth Circuit chose intermediate scrutiny. The Court explained that the level of scrutiny to be applied depends on both the nature of the conduct that is being regulated and the degree to which the challenged law burdens those rights.

Under intermediate scrutiny, of course, the government has to demonstrate a reasonable fit between the challenged law and a substantial government objective.

In that case, the Fourth Circuit remanded to permit the government to offer evidence to establish that relationship.

I would note that in that case, one of the judges on the panel, Judge Davis, concurred, but added that he thought strict scrutiny would be unwarranted in a Second Amendment case.

Since then there have been other challenges to these criminal statutes. In Section 922(g) convictions, challenges have been denied by the Fourth Circuit under intermediate scrutiny. An example of that is United States versus Mahin, at 668 F.3d 119.

Now another case that counsel appropriately referred to, and I may or may not also pronounce it correctly, is United States versus Masciandaro, at 638 F.3d 458, which applied intermediate scrutiny to uphold a conviction for carrying a loaded firearm in a car, in violation of National Park regulations. The Court did assume, but not decide in that case, that strict scrutiny would apply to any law that burdened the fundamental core right of self-defense in the home by law-abiding citizens.

Similarly, we have Woollard versus Gallagher -- I believe that's the most recent one here from the Fourth Circuit -- 712 F.3d 865, where the Fourth Circuit again upheld under intermediate scrutiny the requirement that a person show good and substantial reason to wear and carry a handgun outside the home, again assuming, without deciding, that strict scrutiny would apply if the requirement were applied to carrying handguns inside the home. Again, a broader and different class of weapons was involved.

So it seems to me the question here first, on likelihood of success, when I at some point get to an actual decision on the merits, is whether the Second Amendment applies to these assault weapons at all or whether these are unusual and dangerous, like the

sawed-off shotgun; assuming, and again, a number of courts have just gone on to that second prong and assumed that some Second Amendment protection applies, what's the level of scrutiny?

I think an extremely persuasive opinion in this regard is Heller versus D.C., the D.C. Circuit case, at 670 F.3d 1244. Again, simply at this point for purposes of the temporary emergency relief and the factors that I need to look at, likelihood of success, I am likely to agree with the D.C. Circuit -- assuming that the Second Amendment applies at all, intermediate scrutiny is the correct standard; though, I am not making that determination at this point.

I note that despite some of the language about strict scrutiny in the Fourth Circuit cases, if you go back to the Chester case, the Fourth Circuit tells you that you also have to look at the degree to which the conduct burdens a core right, and this law is a prohibition only of a limited number of long guns that we are talking about. It does not affect law-abiding, responsible citizens' right to possess handguns in the home for self-defense, and the Supreme Court has told us that's the weapon of choice for self-defense. It does not impinge on law-abiding, responsible citizens' right to possess most long guns in the home for

self-defense as well.

Of course, those citizens can still have magazines that fire up to ten rounds without reloading.

The Heller case, assessing a very similar law, did note that assault rifles were in common use, and in this case plaintiffs have presented some evidence about the sale and common purchase of these kind of rifles; but the D.C. Circuit noted that they were not necessarily in common use for self-defense.

Plaintiffs' counsel tells me that they will be able to provide that evidence. There is certainly no evidence of that yet, that it is necessary or common for assault rifles and high capacity magazines to be used for self-defense in the home.

The D.C. Circuit decided that even if the Second Amendment were implicated, this ban on assault rifles and high capacity magazines was not a substantial burden on a core Second Amendment right, and that the government had showed a reasonable fit between this prohibition and the substantial governmental interest of protecting law enforcement officers and controlling crimes, especially those involving mass tragedies, mass wounding and murder, and there were a number of studies that were cited for that proposition in the

D.C. case.

So I do not find at this point that the plaintiffs have made a clear showing of a likelihood of success on the merits, as would be required to grant the extraordinary relief they seek, nor have they made a clear showing of the likelihood of irreparable harm.

First of all, I do believe that the delay in bringing this suit undercuts their argument of irreparable harm. This could have been brought months ago and was not.

Second of all, the individuals, and particularly the individual plaintiffs here, still have the assault weapons and high capacity magazines that were acquired legally before October 1st and have those available for self-defense.

There is a very limited amount of potentially economic harm that has been proffered on behalf of the dealers. Again, we are talking about not a necessarily lengthy period of time, so I don't think that's an irreparable harm that has been shown by the plaintiffs.

So turning for the moment to the public interest, I believe there is a strong public interest in upholding a duly enacted law that is directed at

the protection of public safety, including lessening the risk of mass tragedies, like Newtown, and others in the news, and lessening the risk of harm to law enforcement officers.

In some of the information and evidence provided by the State, which they have said they may wish to supplement, there is even reference to the fact that a necessity to pause to reload has enabled citizens in some instances to intervene and disarm people who are involved in these horrific crimes.

In any event, I do not find that the balance of harm, therefore, tips in favor of the plaintiffs, quite the contrary.

I don't find the plaintiffs' need to be able to fire more bullets, again, in the absence of some kind of evidence that this is necessary for self-defense, the need to fire more bullets in defense of the home, which appears to be based on the lack of accuracy that they propose the citizens would have in firing these weapons, I can't see that as tipping the balance in favor of the plaintiffs, or arguing against the strong public interest here.

The equal protection argument, to the extent that it is here to be made, I think the State has clearly shown a rational basis for distinction between

retired law enforcement officers and other citizens. Just to mention the training that they receive would be one element of that distinction.

And it is not a general right, as I understand it, for retired law enforcement officers to purchase any assault weapon they might want to in the future. It has to be connected to their retirement.

In terms of the vagueness challenge and likelihood of success, it appears that the law on copies has been the same since 1996, and it has not been shown that it has been difficult for the plaintiffs in this case, particularly dealers, and those experienced in firearms, to understand those definitions. The copycats are fairly clearly defined under the law, I believe, in terms of the features that are required.

Again, just in terms of likelihood of success, I am not making a final ruling, and I will certainly look at the Sixth Circuit case that the plaintiffs have mentioned, as well as any other information they might want to present about these definitions; but I do not, on the current record, believe that the plaintiffs have met the requirements for a temporary restraining order, for the reasons that I have just stated.

In terms of a preliminary injunction hearing, I think the most sensible thing for me to do is to ask counsel to confer and contact chambers, and we will set up a conference call to discuss a reasonable schedule for a preliminary injunction and what evidence either side might want to present, and again, the question of whether it should be purely a preliminary injunction hearing or a hearing on the merits. We can talk about that more with a conference call and consider further all the issues that both sides have raised today.

I will enter a separate very brief order -- this is obviously my oral opinion -- denying the temporary restraining order in the Tardy case.

Regarding the Doe case, I will also find that the plaintiffs have failed to meet the requirements for a temporary restraining order. This seems to me at this stage particularly speculative. The plaintiffs have not shown any irreparable harm.

There's a handgun qualification licensing system that is not challenged. It begins today. There is no showing yet of any unreasonable delay.

There is an administrative delay in place now for processing the applications. That is not the issue. That's not part of the new law. Of course,

that is caused by the extreme increase in applications for guns of various kinds that has occurred between the enactment of this law and the effective date here in October.

But as far as the handgun qualification licensing requirement, on the record in front of me, it is up and running today. Whether, or what degree of delay there will be, at this point is speculative.

With no challenge to the underlying constitutionality of the handgun qualification licensing requirements, and there being no right to immediate possession of even handguns, and no harm that I can see shown from the Maryland State Police saying that they may choose not to enforce some provisions in this law, I certainly can't see that there is a sufficient showing of likelihood of imminent harm, or a likelihood of success on the merits that would outweigh the public interest in permitting, again, a duly enacted law that is aimed at protecting public safety and keeping guns out of the hands of criminals from proceeding in effect as it is today.

So I will do a separate short order denying that and again can discuss with counsel in a separate conference call what schedule may be necessary for

further proceedings on that issue.

Anything I have not addressed, anything else anybody needs to say? I understand you disagree, but anything you feel I have not addressed or would like me to clarify?

MR. SWEENEY: Nothing further, Your Honor. Thank you.

MS. WOODWARD: Thank you, Your Honor.

MR. FADER: Nothing further, Your Honor.

THE COURT: All right. Thank you all.

(The proceedings concluded.)

Exhibit 14

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

LEONARD FYOCK, SCOTT HOCHSTETLER, WILLIAM DOUGLAS, DAVID PEARSON, BRAD SEIFERS, and ROD SWANSON,

Plaintiffs,

v.

THE CITY OF SUNNYVALE, THE MAYOR OF SUNNYVALE, ANTHONY SPITALERI in his official capacity, THE CHIEF OF THE SUNNYVALE DEPARTMENT OF PUBLIC SAFETY, FRANK GRGURINA, in his official capacity, and DOES 1-10

Defendants.

Case No. 13-cv-05807 RMW

DECLARATION OF CHRISTOPHER S. KOPER IN SUPPORT OF SUNNYVALE'S OPPOSITION TO PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

Date: February 21, 2014
Time: 9:00 a.m.
Location: San Jose Courthouse
Courtroom 6 – 4th Floor
280 South 1st Street
San Jose, CA 95113

I, Christopher S. Koper, declare as follows:

1. I am an Associate Professor for the Department of Criminology, Law and Society at George Mason University, in Fairfax, Virginia and a senior fellow at George Mason's Center

for Evidence-Based Crime Policy. My credentials, experience, and background are stated in my curriculum vitae, a true and correct copy of which is attached as Exhibit A.

2. In 1997, my colleague Jeffrey Roth and I conducted a study on the impact of Title XI, Subtitle A of the Violent Crime Control and Law Enforcement Act of 1994 (hereinafter the "federal assault weapons ban" or the "federal ban"), for the United States Department of Justice and the United States Congress.[1] I updated the original 1997 study in 2004[2] and briefly revisited the issue again by re-examining my 2004 report in 2013.[3] To my knowledge, these are the only published academic studies to have examined the efficacy of the federal ban on assault weapons and ammunition feeding devices holding more than ten rounds of ammunition (hereinafter referred to as "large-capacity magazines" or "LCMs").[4] My 1997 study was based on limited data, especially with regard to the criminal use of large-capacity magazines. As a result, my conclusions on the impact of the federal ban are most accurately and completely set forth in my 2004 and 2013 reports.

3. This declaration will summarize some of the key findings of those studies regarding the federal ban and its impact on crime prevention and public safety, and, based upon my findings, provide some opinions on the potential impact and efficacy of prohibitions and

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[1] Jeffrey A. Roth & Christopher S. Koper, *Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994: Final Report* (1997), attached hereto as Exhibit B (hereinafter, "*Impact Evaluation*").

[2] Christopher S. Koper, *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence*, 1994-2003 (2004), attached hereto as Exhibit C (hereinafter, "*Updated Assessment of the Federal Assault Weapons Ban*").

[3] Christopher S. Koper, *America's Experience with the Federal Assault Weapons Ban, 1994-2004: Key Findings and Implications*, ch. 12, pp. 157-171 in Reducing Gun Violence in America: Informing Policy with Evidence (Daniel S. Webster & Jon S. Vernick eds. 2013), attached hereto as Exhibit D (hereinafter "*America's Experience with the Federal Assault Weapons Ban*").

[4] As discussed below, there have been some additional studies as to the impact and efficacy of the federal assault weapons ban conducted by non-academic institutions. In 2011, for example, the Washington Post published the results of its own investigation into the federal ban's impact on the criminal use of LCMs in Virginia. *See infra* ¶ 50. I am also aware of gun tracing analyses conducted by ATF (2003 Congressional Q&A memo provided to the author) and the Brady Center to Prevent Gun Violence (2004), both of which are consistent with the findings of my studies regarding the decline in assault weapons as a percentage of crime gun traces between the pre-ban and post-ban periods. *See infra* note 20.

restrictions on large-capacity magazines, like those contained in Sunnyvale's recently enacted Sunnyvale Municipal Code, § 9.44.050, which was part of Measure C approved by some 67% of Sunnyvale voters on November 5, 2013.

4. As discussed below, it is my considered opinion that Sunnyvale's LCM ban has the potential to prevent and limit shootings, particularly those involving high numbers of shots and victims—and thus are likely to advance Sunnyvale's interests in protecting its populace from the dangers of such shootings.

I. CRIMINAL USES AND DANGERS OF LARGE-CAPACITY MAGAZINES

5. Large-capacity magazines allow semiautomatic weapons to fire more than 10 rounds without the need for a shooter to reload the weapon.[5] Large-capacity magazines come in a variety of sizes, including but not limited to 17-round magazines, 25- or 30-round magazines, and drums with the capacity to accept up to 100 rounds.

6. The ability to accept a detachable magazine, including a large-capacity magazine, is a common feature of guns typically defined as assault weapons.[6] In addition, LCMs are frequently used with guns that fall outside of the definition of assault weapon.

7. One of the core rationales for legislative attempts to ban, or otherwise limit, the availability of LCMs is that they are particularly dangerous because they facilitate the rapid firing of high numbers of rounds. This increased firing capacity thereby potentially increases injuries and deaths from gun violence. *See* Updated Assessment of the Federal Assault Weapons Ban, p. 97 (noting that "studies ... suggest that attacks with semiautomatics—including [assault weapons] and other semiautomatics with LCMs—result in more shots fired, persons wounded, and wounds

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[5] A semiautomatic weapon is a gun that fires one bullet for each pull of the trigger and, after each round of ammunition is fired, automatically loads the next round and cocks itself for the next shot, thereby permitting a faster rate of fire relative to non-automatic firearms. Semiautomatics are not to be confused with fully automatic weapons (*i.e.*, machine guns), which fire continuously so long as the trigger is depressed. Fully automatic weapons have been illegal to own in the United States without a federal permit since 1934. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 4 n.1 .

[6] Although the precise definition used by various federal, state, and local statutes has varied, the term "assault weapons" generally includes semiautomatic pistols, rifles, and shotguns with military features conducive to military and potential criminal applications but unnecessary in shooting sports or for self-defense.

per victim than do other gun attacks").

8. As such, semiautomatics equipped with LCMs have frequently been employed in highly publicized mass shootings, and are disproportionately used in the murders of law enforcement officers, crimes for which weapons with greater firepower would seem particularly useful. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 14-19, 87.

9. During the 1980s and early 1990s, semiautomatic firearms equipped with LCMs were involved in a number of highly publicized mass murder incidents that first raised public concerns and fears about the accessibility of high powered, military-style weaponry and other guns capable of discharging high numbers of rounds in a short period of time. For example:

- On July 18, 1984, James Huberty killed 21 persons and wounded 19 others in a San Ysidro, California McDonald's restaurant, using an Uzi carbine, a shotgun, and another semiautomatic handgun, and equipped with a 25-round LCM;
- On January 17, 1989, Patrick Purdy used a civilian version of the AK-47 military rifle and a 75-round LCM to open fire in a Stockton, California schoolyard, killing five children and wounding 29 other persons;
- On September 14, 1989, Joseph Wesbecker, armed with an AK-47 rifle, two MAC-11 handguns, a number of other firearms, and multiple 30-round magazines, killed seven and wounded 15 people at his former workplace in Louisville, Kentucky;
- On October 16, 1991, George Hennard, armed with two semiautomatic handguns with LCMs (and reportedly a supply of extra LCMs), killed 22 people and wounded another 23 in Killeen, Texas;
- On July 1, 1993, Gian Luigi Ferri, armed with two Intratec TEC-DC9 assault pistols and 40 to 50 round magazines killed nine and wounded six at the law offices of Pettit & Martin in San Francisco, California; and
- On December 7, 1993, Colin Ferguson, armed with a handgun and multiple LCMs, opened fire on commuters on a Long Island Rail Road train, killing 6 and wounding 19.

See Updated Assessment of the Federal Assault Weapons Ban, p. 14.[7]

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[7] Additional details regarding these incidents were obtained from: Violence Policy Center, *Mass Shootings in the United States Involving High-Capacity Ammunition Magazines*, available at http://www.vpc.org/fact_sht/VPCshootinglist.pdf (hereinafter, "Violence Policy Center Report"); Mark Follman, Gavin Aronsen & Deanna Pan, US Mass Shootings, 1982-2012: Data from Mother Jones' Investigation (updated Feb. 27, 2013), available at http://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-full-data (hereinafter, "Follman, Aronsen & Pan 2013"); and Mark Follman, Gavin Aronsen & Jaeah Lee,

10. More recently, in the years since the expiration of the federal ban in 2004, there have been another well-publicized series of mass shooting incidents involving previously banned assault weapons and/or LCMs. Since 2007, for example, there have been at least fifteen incidents in which offenders using assault-type weapons or other semiautomatics with LCMs have wounded and/or killed eight or more people.[8] Some of the more notorious of these incidents include:

- Blacksburg, Virginia, April 16, 2007: Student Seung-Hui Cho killed 33 (including himself) and wounded 17 on the campus of Virginia Tech, armed with a handgun and multiple LCMs;
- Tucson, Arizona, January 8, 2011: Jared Loughner, armed with a handgun and multiple LCMs, killed 6 and wounded 13, including Congresswoman Gabrielle Giffords;
- Aurora, Colorado, July 20, 2012: James Holmes killed 12 and wounded 58 in a movie theater, armed with a Smith & Wesson M&P1 5 assault rifle, 100-round LCMs, and other firearms; and
- Newtown, Connecticut, December 14, 2012: Adam Lanza killed 26 (twenty of whom were young children) and wounded two at Sandy Hook Elementary School, armed with a Bushmaster AR-15-style assault rifle, two handguns, and multiple LCMs.

See America's Experience with the Federal Assault Weapons Ban, pp. 157-58.[9]

11. There is evidence to suggest that the particularly large ammunition capacities of assault weapons, along with their military-style features, are more attractive to criminals than lawful users. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 17-18.

12. The available evidence also suggests that large-capacity magazines, along with assault weapons, pose particular dangers by their large and disproportionate involvement in two aspects of crime and violence: mass shootings and murders of police. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 14- 19, 87.

More Than Half of Mass Shooters Used Assault Weapons and High-Capacity Magazines (Feb. 27, 2013), available at http://www.motherjones.com/politics/2013/02/assault-weapons-high-capacity-magazines-mass-shootings-feinstein (hereinafter, "Pollman, Aronsen & Lee 2013").

[8] See Violence Policy Center Report; Follman, Aronsen & Pan 2013; Follman, Aronsen & Lee 2013.

[9] Additional details regarding these incidents were obtained from: Violence Policy Center Report; Follman, Aronsen & Pan 2013; and Follman, Aronsen & Lee 2013.

13. With respect to mass shootings, the available evidence before the federal assault weapons ban was enacted in 1994 and after its expiration in 2004 both support this conclusion. Prior to the federal ban, assault weapons or other semiautomatics with LCMs were involved in 6, or 40%, of 15 mass shooting incidents occurring between 1984 and 1993 in which six or more persons were killed or a total of 12 or more were wounded. See Updated Assessment of the Federal Assault Weapons Ban, p. 14.[10]

14. More recently, a media investigation and compilation of 62 public mass shooting incidents that involved the death of four or more people, over the period 1982-2012, showed that, of the cases where magazine capacity could be determined, 31 of 36 cases, or 86%, involved a large-capacity magazine. Including all cases, including those where magazine capacity could not be determined, exactly half of the cases (31 of 62) are known to have involved an LCM.[11]

15. LCMs, because they can be and are used both with assault weapons and guns that fall outside the definition of an assault weapon, appear to present even greater dangers to crime and violence than assault weapons alone.

16. Prior to the federal assault weapons ban, for example, guns with LCMs were used in roughly 13-26% of most gun crimes (as opposed to somewhere between about 1% and 8% for assault weapons alone). *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 15, 18-19; *America's Experience with the Federal Assault Weapons Ban*, pp. 161-62.

17. And, in New York City, the New York State Division of Criminal Justice Services reported that, in 1993, at least 16%, and as many as 25%, of guns recovered in murder investigations were equipped with LCMs. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 18.[12]

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[10] These figures are based on tabulations that I and my research team did using data reported in Gary Kleck, *Targeting Guns: Firearms and Their Control* (1997), pp. 124-26.

[11] This investigation and compilation of data on mass shootings was done by reporters at *Mother Jones* magazine. See Follman, Aronsen & Pan 2013; Follman Aronsen & Lee 2013; Mark Follman, Gavin Aronsen & Deanna Pan, *A Guide to Mass Shootings in America* (updated Feb. 27, 2013), available at http://www.motherjones.com/politics/2012/07/mass-shootings-map.

[12] The minimum estimate is based on cases in which discharged firearms were recovered, while the maximum estimate is based on cases in which recovered firearms were positively linked to the case with ballistic evidence. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 18

18. It also appears that guns with LCMs have been used disproportionately in murders of police. Specifically, the available data, from prior to the federal ban, indicates that LCMs are used in somewhere between 31% to 41% of gun murders of police. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 18; *America's Experience with the Federal Assault Weapons Ban*, p. 162.

19. Working under my direction, a graduate student at George Mason University recently analyzed the *Mother Jones* data for his Master's thesis, and compared the number of deaths and fatalities of the 62 mass shootings identified therein to determine how the presence of assault weapons and LCMs impacted the outcome.[13] With respect to LCMs, he compared cases where an LCM was known to have been used (or at least possessed by the shooter) against cases where either an LCM was not used or not known to have been used. He found that the LCM cases (which included assault weapons) had significantly higher numbers of fatalities and casualties: an average of 10.19 fatalities in LCM cases compared to 6.35 fatalities in non-LCM/unknown cases. He found an average of 12.39 people were shot but not killed in public mass shootings involving LCMs, compared to just 3.55 people shot in the non-LCM/unknown LCM shootings. These findings reflect a total victim differential of 22.58 killed or wounded in the LCM cases compared to 9.9 in the non-LCM/unknown LCM cases.[14] All of these differences were statistically significant and not a result of mere chance.

20. In addition, the available evidence suggests that gun attacks with semiautomatics—including both assault weapons and guns equipped with LCMs—tend to result in more shots fired, more persons wounded, and more wounds inflicted per victim than do attacks with other firearms. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 97; *America's Experience with the Federal Assault Weapons Ban*, pp. 166-67.

21. For example, in mass shooting incidents that resulted in at least 6 deaths or at least

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n.15.

[13] *See* Luke Dillon, *Mass Shootings in the United States: An Exploratory Study of the Trends from 1982 to 2012*. 2013. Master's thesis. Fairfax, VA: Department of Criminology, Law and Society, George Mason University.

[14] The patterns were also very similar when comparing the LCM cases against just those cases in which it was clear that an LCM was not used (though this was a very small number).

12 total gunshot victims from 1984 through 1993, offenders who clearly possessed assault weapons or other semiautomatics with LCMs wounded or killed an average of 29 victims in comparison to an average of 13 victims wounded or killed by other offenders. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 85-86; *America's Experience with the Federal Assault Weapons Ban*, p. 167.

22. Similarly, a study of handguns attacks in Jersey City, New Jersey during the 1990s found that the average number of victims wounded in gunfire incidents involving semiautomatic pistols was 15% higher than in those involving revolvers. The study further found that attackers using semiautomatics to fire more than ten shots were responsible for nearly 5% of all gunshot victims and that 100% of these incidents involved injury to at least one victim. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 84-86, 90-91; *America's Experience with the Federal Assault Weapons Ban*, p. 167.

23. Similar evidence comes from Milwaukee, Wisconsin. Between 1992 and 1995, gun homicide victims in Milwaukee who were killed by guns with LCMs had 55% more gunshot wounds than those victims killed by non-LCM firearms. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 86.

24. And, in an analysis I conducted of guns recovered by police in Baltimore, I also found LCMs to be associated with gun crimes that resulted in more lethal and injurious outcomes. For instance, I found, among other things, that guns used in shootings that resulted in gunshot victimizations were 17% to 26% more likely to have LCMs than guns used in gunfire cases with no wounded victims, and guns linked to murders were 8% to 17% more likely to have LCMs than guns linked to non-fatal gunshot victimizations. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 87.

25. In short, while tentative, the available evidence suggests more often than not that attacks with semiautomatics, particularly those equipped with LCMs, result in more shots fired, leading both to more injuries and injuries of greater severity. Such attacks also appear to result in more wounds per victim. This is significant because gunshot victims who are shot more than once are more than 60% more likely to die than victims who receive only one gunshot wound.

See Updated Assessment of the Federal Assault Weapons Ban, p. 87 (citing studies showing 63% increase and 61% increases, respectively, in fatality rates among gunshot victims suffering more than one wound).

26. In addition, diminishing the number of victims of shootings by even a small percentage can result in significant cost savings because of the significant social costs of shootings, as discussed *supra* in ¶¶ 52-53.

II. EFFECTS OF THE 1994 FEDERAL ASSAULT WEAPONS BAN

A. Provisions of the Federal Assault Weapons Ban

27. Enacted on September 13, 1994—in the wake of many of the mass shootings described above—the federal assault weapons ban imposed prohibitions and restrictions on the manufacture, transfer, and possession of both certain semiautomatic firearms designated as assault weapons and certain LCMs. Pub. L. No. 103-322, tit. XI, subtit. A, 108 Stat. 1796, 1996-2010 (1994).

28. The federal assault weapons ban was to expire after ten years, unless renewed by Congress. *Id.* § 110105(2). It was not renewed, and thus, by its own terms, the federal ban expired on September 13, 2004.[15]

1. Banned Assault Weapons and Features

29. As noted, the federal assault weapons ban imposed a ten-year ban on the manufacture, transfer, or possession of what the statute defined as "semiautomatic assault weapons." The federal ban was not a prohibition on all semiautomatic firearms; rather, it was directed against those semiautomatics having features that are useful in military and criminal applications but that are unnecessary in shooting sports or for self-defense.

30. Banned firearms were identified under the federal law in two ways: (i) by specific make and model; and (ii) by enumerating certain military-style features and generally prohibiting those semiautomatic firearms having two or more of those features.

[15] I understand that California prohibited assault weapons in 1989, before the federal ban, but grandfathered most existing assault weapons; and that California prohibited large-capacity magazines in 2000 but grandfathered existing LCMs. For further information, *see infra* ¶ 54. I am not aware of any studies of the effects of these California laws.

31. First, the federal ban specifically prohibited 18 models and variations of semiautomatic guns by name (*e.g.*, the Intratec TEC-9 pistol and the Colt AR-15 rifle), as well as revolving cylinder shotguns. This list also included a number of foreign rifles that the federal government had banned from importation into the country beginning in 1989 (*e.g.*, the Avtomat Kalashnikov models). And, indeed, several of the guns banned by name were civilian copies of military weapons and accepted ammunition magazines made for those military weapons. (A list of the weapons banned by name in the 1994 law is set forth in Table 2-1 of the *Updated Assessment of the Federal Assault Weapons Ban*, p. 5.)

32. Second, the federal assault weapons ban contained a "features test" provision that generally prohibited other semiautomatic guns having two or more military-style features. Examples of such features include pistol grips on rifles, flash suppressors, folding rifle stocks, threaded barrels for attaching silencers, and the ability to accept detachable magazines. (This "features test" of the federal ban is described more fully in Table 2-2 of the *Updated Assessment of the Federal Assault Weapons Ban*, p. 6, and in Table 12-1 of *America's Experience with the Federal Assault Weapons Ban*, p. 160.)

2. Banned Large-Capacity Magazines

33. The federal ban also prohibited most ammunition feeding devices holding more than ten rounds of ammunition (which I have referred to herein as "large-capacity magazines" or "LCMs").

34. The federal ban on LCMs extended to LCMs or similar devices that had the capacity to accept more than ten rounds of ammunition, or that could be "readily restored or converted or to accept" more than ten rounds of ammunition.[16]

3. Exemptions and Limitations to the Federal Ban

35. The 1994 federal assault weapons ban contained several important exemptions that limited its potential impact, especially in the short-term. *See Updated Assessment of the Federal*

[16] Technically, the ban prohibited any magazine, belt, drum, feed strip, or similar device that had the capacity to accept more than 10 rounds of ammunition, or which could be readily converted or restored to accept more than 10 rounds of ammunition. The ban exempted attached tubular devices capable of operating only with 22 caliber rimfire (*i.e.*, low velocity) ammunition.

Assault Weapons Ban, pp. 10-11.

36. First, assault weapons and LCMs manufactured before the effective date of the ban were "grandfathered" in and thus legal to own and transfer. Estimates suggest that there may have been upward of 1.5 million assault weapons and 25-50 million LCMs thus exempted from the federal ban. Moreover, an additional 4.8 million pre-ban LCMs were imported into the country from 1994 through 2000 under the grandfathering exemption. Importers were also authorized to import another 42 million pre-ban LCMs, which may have arrived after 2000. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 10; *America's Experience with the Federal Assault Weapons Ban*, pp. 160-61.

37. Furthermore, although the 1994 law banned "copies or duplicates" of the named firearms banned by make and model, federal authorities emphasized exact copies in enforcing this provision. Similarly, the federal ban did not apply to a semiautomatic weapon possessing only one military-style feature listed in the ban's features test provision.[17] Thus, many civilian rifles patterned after military weapons were legal under the ban with only slight modifications. See Updated Assessment of the Federal Assault Weapons Ban, pp. 10-11.[18]

B. Impact of the Federal Assault Weapons Ban

38. This section of my declaration discusses the empirical evidence of the impact of the federal assault weapons ban. I understand that the Plaintiffs in this litigation contend that Sunnyvale's prohibition on the possession of LCMs will not have an effect on crime or gunshot victimization because criminal users of firearms will not comply with Sunnyvale's ban. In my

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[17] It should be noted, however, that any firearms imported into the country must still meet the "sporting purposes test" established under the federal Gun Control Act of 1968. In 1989, ATF determined that foreign semiautomatic rifles having any one of a number of named military features (including those listed in the features test of the 1994 federal assault weapons ban) fail the sporting purposes test and cannot be imported into the country. In 1998, the ability to accept an LCM made for a military rifle was added to the list of disqualifying features. Consequently, it was possible for foreign rifles to pass the features test of the federal assault weapons ban but not meet the sporting purposes test for imports. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 10 n.7.

[18] Examples of some of these modified, legal versions of banned guns that manufacturers produced in an effort to evade the ban are listed in Table 2-1 of the *Updated Assessment of the Federal Assault Weapons Ban*, p. 5.

opinion, that contention misunderstands the effect of possession bans. The issue is not only whether criminals will be unwilling to comply with such laws, though this could be an important consideration if the penalties for possession or use are particularly severe. The issue is also how possession bans affect the availability of weapons for offenders. Examining the effects of the federal ban on LCMs could cast some light on how a local prohibition on possession of LCMs may diminish their availability for offenders. It is difficult, however, to assess trends in LCM use because of limited information. *See infra* ¶¶ 47 *et seq.* For that reason, this section discusses both the impacts of the federal ban both on LCM use, for which information is limited, and on ownership and use of assault weapons, for which there is more information.

1. Assault Weapons

39. Prior to the federal ban, the best estimates are that there were approximately 1.5 million privately owned assault weapons in the United States (less than 1% of the total civilian gun stock). *See America's Experience with the Federal Assault Weapons Ban*, pp. 160-61; *Updated Assessment of the Federal Assault Weapons Ban*, p. 10.

40. Although there was a surge in production of assault weapon-type firearms as Congress debated the ban in 1994, the federal ban's restriction of new assault weapon supply helped drive up the prices for many assault weapons (notably assault pistols) and appeared to make them less accessible and affordable to criminal users. *See America's Experience with the Federal Assault Weapons Ban*, pp. 162-63; *Updated Assessment of the Federal Assault Weapons Ban*, pp. 25-38.

41. Analyses that my research team and I conducted of several national and local databases on guns recovered by law enforcement indicated that crimes with assault weapons declined after the federal assault weapons ban was enacted in 1994.

42. In particular, across six major cities (Baltimore, Miami, Milwaukee, Boston, St. Louis, and Anchorage), the share of gun crimes involving assault weapons declined by 17% to 72%, based on data covering all or portions of the 1995-2003 post-ban period. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 2, 46-60; *America's Experience with the Federal Assault Weapons Ban*, p. 163.

43. This analysis of local data is consistent with patterns found in the national data on guns recovered by law enforcement agencies around the country and reported to the federal Bureau of Alcohol, Tobacco, Firearms and Explosives ("ATF") for investigative gun tracing.[19] Specifically, although the interpretation is complicated by changes in tracing practices that occurred during this time, the national gun tracing data suggests that use of assault weapons in crime declined with the onset of the 1994 federal assault weapons ban, as the percentage of gun traces for assault weapons fell 70% between 1992-93 and 2001-02 (from 5.4% to 1.6%). And, notably, this downward trend did not begin until 1994, the year the federal ban was enacted. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 2, 39-46, 51-52; *America's Experience with the Federal Assault Weapons Ban*, p. 163.[20]

44. In short, the analysis that my research team and I conducted indicates that the criminal use of assault weapons declined after the federal assault weapons ban was enacted in 1994, independently of trends in gun crime. *See Updated Assessment of the Federal Assault Weapons Ban*, pp. 51-52; *America's Experience with the Federal Assault Weapons Ban*, p. 163.

45. This decline in crimes with assault weapons was due primarily to a reduction in the use of assault pistols. Assessment of trends in the use of assault rifles was complicated by the rarity of crimes with such rifles and by the substitution in some cases of post-ban rifles that were very similar to the banned models. In general, however, the decline in assault weapon use was only partially offset by substitution of post-ban assault weapon-type models. Even counting the post-ban models as assault weapons, the share of crime guns that were assault weapons fell 24% to 60% across most of the local jurisdictions studied. Patterns in the local data sources also suggested that crimes with assault weapons were becoming increasingly rare as the years passed.

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[19] A gun trace is an investigation that typically tracks a gun from its manufacture to its first point of sale by a licensed dealer. It is undertaken by the ATF, upon request by a law enforcement agency. The trace is generally initiated when the requesting law enforcement agency provides ATF with a trace request including identifying information about the firearm, such as make, model and serial number. For the full discussion of the use of ATF gun tracing data, see section 6.2 of *Updated Assessment of the Federal Assault Weapons Ban*, pp. 40-46.

[20] These findings are consistent with other tracing analyses conducted by ATF and the Brady Center to Prevent Gun Violence. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 44 n.43.

See Updated Assessment of the Federal Assault Weapons Ban, pp. 46-52; *America's Experience with the Federal Assault Weapons Ban*, pp. 163-64.

46. Thus, while developing a national estimate of the number of assault weapons crimes prevented by the federal ban is complicated by the range of estimates of assault weapon use and changes therein derived from different data sources, tentatively, it appears that the federal ban prevented a few thousand crimes with assault weapons annually. For example, using 2% as the best estimate of the share of gun crimes involving assault weapons prior to the ban, and 40% as a reasonable estimate of the post- ban drop in this figure, implies that almost 2,900 murders, robberies, and assaults with assault weapons were prevented in 2002. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 52 n.61.[21] If this tentative conclusion is correct, then contrary to Plaintiffs' contention, prohibitions like the federal ban do have an impact on criminal users of guns.

2. Large-Capacity Magazines

47. Assessing trends in LCM use is much more difficult because there was, and is, no national data source on crimes with LCMs, and few local jurisdictions maintain this sort of information.

48. It was possible, nonetheless, to examine trends in the use of guns with LCMs in four jurisdictions: Baltimore, Milwaukee, Anchorage, and Louisville. In all four jurisdictions, the overall share of crime guns equipped with LCMs rose or remained steady through at least the late 1990s. This failure to reduce overall LCM use for at least several years after the federal ban was likely due to the immense stock of exempted pre-ban magazines, which, as noted, was enhanced by post-ban imports. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 68-79; *America's Experience with the Federal Assault Weapons Ban*, p. 164.

49. My studies did show that crimes with LCMs may have been decreasing by the early 2000s, but the available data in the four cities I investigated were too limited and

[21] While it seems likely that some or all of these crimes happened regardless, as perpetrators merely substituted some other gun for the assault weapon, it also seems likely that the number of victims per shooting incident, and the number of wounds inflicted per victim, was diminished in some of those instances.

inconsistent to draw any clear overall conclusions in this regard. *See America's Experience with the Federal Assault Weapons Ban*, p. 164; *Updated Assessment of the Federal Assault Weapons Ban*, pp. 68-79.

50. However, a later investigation by the Washington Post of LCM use in Virginia, analyzing data maintained by the Virginia State Police as to guns recovered in crimes by local law enforcement officers across the state, suggests that the ban may have had a more substantial impact on the supply of LCMs to criminal users by the time it expired in 2004. In Virginia, the share of recovered guns with LCMs generally varied between 13% and 16% from 1994 through 2000 but fell to 9% by 2004. Following expiration of the federal ban in 2004, the share of Virginia crime guns with an LCM rose to 20% by 2010. *See America's Experience with the Federal Assault Weapons Ban*, p. 165.[22] These data suggest that the federal ban may have been reducing the use of LCMs in gun crime by the time it expired in 2004, and that it could have had a stronger impact had it remained in effect.

3. Summary of Results of the Federal Assault Weapons Ban

51. The federal ban's exemption of millions of pre-ban assault weapons and LCMs meant that the effects of the law would occur only gradually—and that those effects were still unfolding when the ban expired in 2004. Nevertheless, while the ban did not appear to have a measurable effect on overall gun crime during the limited time it was in effect, as just discussed, my studies and others do appear to show a significant impact on the number of gun crimes

[22] The results of the *Washington Post's* original investigation (which are what are conveyed in *America's Experience with the Federal Assault Weapons Ban*, p. 165) are reported in David S. Fallis & James V. Grimaldi, *Va. Data Show Drop in Criminal Firepower During Assault Gun Ban*, Wash. Post, Jan. 23, 2011, available at http://www.washingtonpost.com/wp-dyn/content/article/2011/01/22/AR2011012203452.html, and attached as Exhibit E to this declaration. In early 2013, the Post updated this analysis, and slightly revised the figures it reported by identifying and excluding from its counts more than 1,000 .22-caliber rifles with large-capacity tubular magazines, which were not subject to the federal ban (and which are similarly not subject to New York's ban on large-capacity magazines). *See* David S. Fallis, *Data Indicate Drop in High-Capacity Magazines During Federal Gun Ban*, Wash. Post, Jan. 10, 2013, available at http://failover.washingtonpost.com/investigations/data-point-to-drop-in-high-capacity-magazines-during-federal-gun-ban/2013/01/10/d56d3bb6-4b91-11e2-a6a6-aabac85e8036_story.html, and attached as Exhibit F to this declaration. This updated data is reported above.

involving assault weapons and a possibly significant impact (based on the *Washington Post's* analysis of Virginia data) on those crimes involving LCMs.[23]

52. Moreover, as set forth in my 2013 book chapter, there is evidence that, had the federal ban remained in effect longer (or were it renewed), it could conceivably have yielded significant additional societal benefits as well, potentially preventing hundreds of gunshot victimizations annually and producing millions of dollars of cost savings per year in medical care alone. Indeed, reducing shootings by even a very small margin could produce substantial long-term savings for society, especially as the shootings prevented accrue over many years. *See America's Experience with the Federal Assault Weapons Ban*, pp. 166-67; *see also Updated Assessment of the Federal Assault Weapons Ban*, p. 100 n.118. Some studies have shown that the lifetime medical costs for gunshot injuries are about $28,894 (adjusted for inflation). Thus, even a 1% reduction in gunshot victimizations at the national level would result in roughly $18,781,100 in lifetime medical costs savings from the shootings prevented each year. (*See America's Experience with the Federal Assault Weapons Ban*, pp. 166-67; *see also Updated Assessment of the Federal Assault Weapons Ban*, p. 100 n.18).

53. The cost savings potentially could be substantially higher if one looks beyond just medical costs. For example, some estimates suggest that the full societal costs of gun violence -- including medical, criminal justice, and other government and private costs (both tangible and intangible) -- could be as high as $1 million per shooting. Based on those estimates, even a 1% decrease in shootings nationally could result in roughly $650 million in cost savings to society from shootings prevented each year. (*See America's Experience with the Federal Assault Weapons Ban*, pp. 166-67).

[23] In our initial 1997 study on the impact of the federal assault weapons ban, Jeffrey Roth and I also estimated that gun murders were about 7% lower than expected in 1995 (the first year after the ban), adjusting for pre-existing trends. *See Impact Evaluation*, pp. 6, 79-85. However, the very limited post-ban data available for that study precluded a definitive judgment as to whether this drop was statistically meaningful. Our later findings on LCM use made it difficult to credit the ban with this effect, however, and we did not update it for our 2004 report. *See Updated Assessment of the Federal Assault Weapons Ban*, p. 92 n.109.

III. SUNNYVALE'S LARGE-CAPACITY MAGAZINE PROHIBITION

54. On November 5, 2013, the citizens of the City of Sunnyvale voted to approve Measure C by some 67% of the vote. Measure C contained provisions requiring reporting of lost or stolen firearms, safe storage of firearms, logging of ammunition sales, and a prohibition on possession of LCMs. The LCM possession ban was codified in Sunnyvale Municipal Code § 9.44.050, which prohibits the possession of LCMs within Sunnyvale's borders subject to enumerates exceptions, principally for law enforcement. California law already prohibits the manufacture, import, sale, or transfer of large-capacity magazines but does not directly regulate the possession of magazines. *See* California Penal Code § 32310. The practical effect of California's law is to permit people who lawfully owned large-capacity magazines prior to January 1, 2000, the effective date of California's ban, to retain these grandfathered magazines. Sunnyvale tightens existing restrictions on LCMs by prohibiting the possession of LCMs grandfathered under California law. I examine Sunnyvale's prohibition on large-capacity magazines, and opine as to its potential impact and likely efficacy in this section of my declaration.

55. Sunnyvale's ordinance was recently enacted and I have not undertaken any study or analysis of its effects. But any law or regulation prohibiting the possession of large-capacity magazines, with no exception for grandfathered LCMs, addresses some weaknesses that were present in the federal ban.

56. While the LCM ban was arguably the most important feature of the 1994 federal ban (given that LCMs are the key feature contributing to an assault weapon's firepower, and that the reach of the LCM was much greater than the assault weapons ban as many semiautomatic guns that were not banned could still accept LCMs), my studies as to the effects of the federal ban indicated that the LCM ban was likely not as efficacious in reducing the use of these magazines in crime as it otherwise might have been because of the large number of pre-ban LCMs which were exempted from the ban. The Washington Post's investigation of recovered guns with LCMs in Virginia, which showed an increasing decline in the number of recovered guns with LCMs the longer the ban was in effect, similarly suggests that the grandfathering of pre-ban LCMs delayed

the full impact of the federal ban. In my opinion, eliminating the grandfathering of pre-ban LCMs would have improved the efficacy of the federal ban.

57. In my opinion, based on the data and information contained in this declaration and the sources referred to herein, a complete ban on the possession of LCMs has the potential to (1) reduce the number of crimes committed with LCMs; (2) reduce the number of shots fired in gun crimes; (3) reduce the number of gunshot victims in such crimes; (4) reduce the number of wounds per gunshot victim; (5) reduce the lethality of gunshot injuries when they do occur; and (6) reduce the substantial societal costs that flow from shootings.

58. Through Sunnyvale Municipal Code, § 9.44.050, Sunnyvale has enacted a ban on the possession of LCMs. I believe this measure has the potential to help prevent the use and spread of particularly dangerous magazines, and is a reasonable and well-constructed measure that is likely to advance Sunnyvale's interest in protecting its citizens and its police force. I believe that the effects of such a measure will be amplified if similar measures are adopted in other jurisdictions as well.

59. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed this 28th day of January, 2014, in Ashburn, Virginia.

Christopher S. Koper

Christopher S. Koper

EXHIBIT A

To

Declaration of Christopher S. Koper in Support of Sunnyvale's Opposition to Plaintiffs' Motion for Preliminary Injunction

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Education

1995	Ph.D., Criminology and Criminal Justice, University of Maryland
1992	M.A., Criminology and Criminal Justice, University of Maryland
1988	B.A. (Summa cum Laude), Criminal Justice, University of Maryland

Career Brief

Dr. Christopher S. Koper is an Associate Professor in the Department of Criminology, Law and Society at George Mason University and a senior fellow in George Mason's Center for Evidence-Based Crime Policy. Dr. Koper holds a Ph.D. in criminology and criminal justice from the University of Maryland and has over 20 years of experiencing conducting criminological research at George Mason, the Police Executive Research Forum, the University of Pennsylvania, the Urban Institute, the RAND Corporation, the Police Foundation, and other organizations. He has written and published extensively on issues related to firearms, policing, federal crime prevention efforts, research methods, and other topics. Dr. Koper has served as a lead or senior-level investigator for numerous projects funded by the U.S. Department of Justice, including Congressionally-mandated assessments of the 1994 federal assault weapons ban and the federal Community Oriented Policing Services (COPS) program. He is the co-creator of the Evidence-Based Policing Matrix, a tool used by local and national organizations including the federal Bureau of Justice Assistance and the National Policing Improvement Agency of the United Kingdom to visualize research results on police effectiveness and translate those results for practitioners and policymakers. Dr. Koper's work on the methods of patrolling crime hot spots (often referred to as the "Koper curve" principal) is also used by numerous police agencies in the United States and abroad.

Professional Background

Associate Professor:	Department of Criminology, Law and Society, George Mason University (Aug. 2011-present)
Director of Research:	Police Executive Research Forum (May 2010-Aug. 2011)
Deputy Director of Research:	Police Executive Research Forum (Dec. 2007 – May 2010)
Behavioral / Social Scientist:	RAND Corporation (2007)

Senior Research Associate:	Jerry Lee Center of Criminology, University of Pennsylvania (2001 – 2006)
Research Associate:	The Urban Institute (1997 – 2001)
Faculty Research Scientist:	Department of Criminology and Criminal Justice, University of Maryland (1997)
Research Scientist:	Crime Control Institute (1994-1997)
Graduate Assistant:	Department of Criminology and Criminal Justice, University of Maryland: (1989-1994)
Social Science Program Specialist (Graduate Intern):	National Institute of Justice, U.S. Department of Justice (1990)
Consultant:	Police Foundation (1988-1989)

Peer-Reviewed Publications

Koper, Christopher S. 2013 (In press). "Assessing the Practice of Hot Spots Policing: Survey Results from a National Convenience Sample of Local Police Agencies." Accepted for publication in the *Journal of Contemporary Criminal Justice*.

Koper, Christopher S. 2013. "Crime Gun Risk Factors: Buyer, Seller, Firearm, and Transaction Characteristics Associated with Gun Trafficking and Criminal Gun Use." *Journal of Quantitative Criminology*. Published online July 31, DOI 10.1007/s10940-013-9204-3.

Koper, Christopher S., Thomas M. Guterbock, Daniel J. Woods, Bruce G. Taylor, and Timothy J. Carter. 2013. "The Effects of Local Immigration Enforcement on Crime and Disorder: A Case Study of Prince William County, Virginia." *Criminology and Public Policy* 12(2): 237-276.

Koper, Christopher S., Daniel J. Woods, and Bruce E. Kubu. 2013. "Gun Violence Prevention Practices among Local Police in the United States." *Policing: An International Journal of Police Strategies and Management* 36(3): 577-603.

Koper, Christopher S., Bruce G. Taylor, and Daniel J. Woods. 2013. "A Randomized Test of Initial and Residual Deterrence from Directed Patrol and Use of License Plate Readers at Crime Hot Spots." *Journal of Experimental Criminology* 9(2): 213-244.

Koper, Christopher S. and Evan Mayo-Wilson. 2012. "Police Strategies to Reduce Illegal Possession and Carrying of Firearms: Effects on Gun Crime." *Campbell Systematic Reviews* 2012:11, DOI: 10.4073/csr.2012.11. http://www.campbellcollaboration.org/reviews_crime_justice/index.php

Lum, Cynthia, Cody W. Telep, Christopher S. Koper, and Julie Grieco. 2012. "Receptivity to Research in Policing." *Justice Research and Policy* 14(1): 61-95.

Taylor, Bruce, Christopher S. Koper, and Daniel Woods. 2012. "Combating Auto Theft in Arizona: A Randomized Experiment with License Plate Recognition Technology." *Criminal Justice Review* 37(1): 24-50.

Lum, Cynthia, Julie Hibdon, Breanne Cave, Christopher S. Koper, and Linda Merola. 2011. "License Plate Reader (LPR) Police Patrols in Crime Hot Spots: An Experimental Evaluation in Two Adjacent Jurisdictions. *Journal of Experimental Criminology* 7:321-345.

Taylor, Bruce, Christopher S. Koper, and Daniel J. Woods. 2011. "A Randomized Control Trial of Different Policing Strategies at Hot Spots of Violent Crime." *Journal of Experimental Criminology* 7:149-181.

Lum, Cynthia, Christopher S. Koper, and Cody W. Telep. 2011. "The Evidence-Based Policing Matrix." *Journal of Experimental Criminology* 7(1): 3-26.

Wiebe, Douglas J., Robert T. Krafty, Christopher S. Koper, Michael L. Nance, Michael R. Elliott, and Charles C. Branas. 2009. "Homicide and Geographic Access to Gun Dealers in the United States." *BMC Public Health* 9: 199-208.

Weiner, Janet, Douglas J. Wiebe, Therese S. Richmond, Kristen Beam, Alan L. Berman, Charles C. Branas, Rose A. Cheney, Tamera Coyne-Beasley, John Firman, Martin Fishbein, Stephen Hargarten, David Hemenway, Robert Jeffcoat, David Kennedy, Christopher S. Koper, and other members of the National Research Collaborative on Firearm Violence. 2007. "Reducing Firearm Violence: A Research Agenda." *Injury Prevention 13:80-84.*

Koper, Christopher S. and Evan Mayo-Wilson. 2006. "Police Crackdowns on Illegal Gun Carrying: A Systematic Review of Their Impacts on Gun Crime." *Journal of Experimental Criminology* 2(2): 227-261.

Koper, Christopher S. 2005. "Purchase of Multiple Firearms as a Risk Factor for Criminal Gun Use: Implications for Gun Policy and Enforcement." *Criminology and Public Policy* 4:749-778.

Pierce, Glenn L., Anthony A. Braga, Raymond R. Hyatt, Jr., and Christopher S. Koper. 2004. "Characteristics and Dynamics of Illegal Firearms Markets: Implications for a Supply-Side Enforcement Strategy." *Justice Quarterly* 21:391-422.

Reedy, Darin R. and Christopher S. Koper. 2003. "The Impact of Handgun Types on Gun Assault Outcomes: A Comparison of Attacks Involving Semiautomatic Pistols and Revolvers." *Injury Prevention* 9:151-155.

Koper, Christopher S. 2002. "Federal Legislation and Gun Markets: How Much Have Recent Reforms of the Federal Firearms Licensing System Reduced Criminal Gun Suppliers?" *Criminology and Public Policy 1:151-178.*

Koper, Christopher S. and Jeffrey A. Roth. 2002. "The Impact of the 1994 Federal Assault Weapons Ban on Gun Markets: An Assessment of Short-Term Primary and Secondary Market Effects." *Journal of Quantitative Criminology 18:239-266.*

Koper, Christopher S. and Jeffrey A. Roth. 2001. "The Impact of the 1994 Federal Assault Weapons Ban on Gun Violence Outcomes: An Assessment of Multiple Outcome Measures and Some Lessons for Policy Evaluation." *Journal of Quantitative Criminology 17:33-74.*

Koper, Christopher S. and Jeffrey A. Roth. 2001. "A Priori Assertions Versus Empirical Inquiry: A Reply to Kleck." *Journal of Quantitative Criminology 17:81-88.*

Simpson, Sally S. and Christopher S. Koper. 1997. "The Changing of the Guard: Top Management Team Characteristics, Organizational Strain, and Antitrust Offending." *Journal of Quantitative Criminology* 13:373-404.

Reprinted in *Corporate Crime* (2007), edited by Sally Simpson and Carole Gibbs. United Kingdom: Ashgate Publishing Limited.

Gottfredson, Denise G. and Christopher S. Koper. 1997. "Race and Sex Differences in the Measurement of Risk for Delinquency and Drug Use." *Journal of Quantitative Criminology* 13:325-347.

Koper, Christopher S. and Peter Reuter. 1996. "Suppressing Illegal Gun Markets: Lessons from Drug Enforcement." *Law and Contemporary Problems* 59:119-146.

Reprinted in *The Economics of Corruption and Illegal Markets* (1999), edited by Gianluca Fiorentini and Stefano Zamagni. United Kingdom: Edward Elgar Publishing Ltd.

Gottfredson, Denise G. and Christopher S. Koper. 1996. "Race and Sex Differences in the Prediction of Drug Use." *Journal of Consulting and Clinical Psychology* 64:305-313.

Koper, Christopher S. 1995. "Just Enough Police Presence: Reducing Crime and Disorderly Behavior by Optimizing Patrol Time in Crime Hot Spots." *Justice Quarterly* 12:649-672.

Simpson, Sally S. and Christopher S. Koper. 1992. "Deterring Corporate Crime." *Criminology* 30:347-375.

Uchida, Craig D., Laure W. Brooks, and Christopher S. Koper. 1990. "Danger to Police in Domestic Encounters: Assaults on Baltimore County Police, 1984-1986." *Criminal Justice Policy Review* 2:357-371.

Book Chapters

Koper, Christopher S. 2013. "America's Experience with the Federal Assault Weapons Ban, 1994-2004: Key Findings and Implications." Pp. 157-171 in *Reducing Gun Violence in America: Informing Policy with Evidence and Analysis*, edited by Daniel W. Webster and Jon S. Vernick. Baltimore, MD: Johns Hopkins University Press.

Lum, Cynthia and Christopher S. Koper. 2013. "Evidence-Based Policing." Pp. 154-158 in the *Encyclopedia of Community Policing and Problem Solving*, edited by Ken Peak. Thousand Oaks, CA: Sage.

Lum, Cynthia and Christopher S. Koper. 2013. "Evidence-Based Policing." Pp. 1,426-1,437 (Vol. 3) in the *Encyclopedia of Criminology and Criminal Justice,* editors-in-chief Gerben Bruinsma and David Weisburd. New York: Springer-Verlag.

Lum, Cynthia and Christopher S. Koper. 2011. "Is Crime Prevention Relevant to Counter-Terrorism?" Pp. 129-150 in *Criminologists on Terrorism and Homeland Security*, edited by Brian Forst, Jack R. Greene, and James P. Lynch. Cambridge, United Kingdom: Cambridge University Press.

Gottfredson, Denise G., Miriam D. Bernstein, and Christopher S. Koper. 1996. "Delinquency." Pp. 259-288 in *Handbook of Adolescent Health Risk Behavior*, edited by Ralph DiClemente, William Hansen, and Lynn Ponton. New York: Plenum Publishing.

Publications and Reports for Government Agencies

Taylor, Bruce, Christopher S. Koper, and Daniel Woods. 2011. *Combating Auto Theft in Arizona: A Randomized Experiment with License Plate Recognition Technology.* Final report to the National Institute of Justice, U.S. Department of Justice. Washington, D.C.: Police Executive Research Forum. http://www.policeforum.org/library/technology/FinalreportPERFLPRstudy12-7-11submittedtoNIJ.PDF.

Koper, Christopher S., Reagan M. Daly, and Jeffrey A. Roth. 2011. *The Impact of Policing and Other Criminal and Juvenile Justice Trends on Juvenile Violence in Large Cities, 1994-2000.* Report to the Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice. Philadelphia: University of Pennsylvania.

Koper, Christopher S., Reagan M. Daly, and Jeffrey A. Roth. 2011. *Changes in Community Characteristics and Juvenile Violence during the 1990s: An Examination of Large Counties.* Report to the Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice. Philadelphia: University of Pennsylvania.

Roth, Jeffrey A., Christopher S. Koper, and Reagan M. Daly. 2011. *Explaining the "Whys" Behind Juvenile Crime Trends: A Review of Research on Community Characteristics, Developmental and Cultural Factors, and Public Policies and Programs*. Report to the Office of Juvenile Justice and Delinquency Prevention, U.S. Department of Justice. Philadelphia: University of Pennsylvania.

Police Executive Research Forum. 2011. *Review of Use of Force in the Albuquerque Police Department*. Washington, DC. (Contributor).

Guterbock, Thomas M., Christopher S. Koper, Milton Vickerman, Bruce Taylor, Karen E. Walker, and Timothy Carter. 2010. *Evaluation Study of Prince William County's Illegal Immigration Enforcement Policy: Final Report 2010*. Report to the Prince William County

(Virginia) Police Department. Charlottesville, VA: Center for Survey Research (University of Virginia) and Police Executive Research Forum. http://www.pwcgov.org/government/bocs/Documents/13188.pdf

Koper, Christopher S. and Evan Mayo-Wilson. 2010. *Police Strategies to Reduce Illegal Possession and Carrying of Firearms: Effects on Gun Crime.* Report to the Campbell Collaboration Crime and Justice Group and the National Policing Improvement Agency of the United Kingdom. Washington, D.C.: Police Executive Research Forum and Department of Social Policy and Social Work, Oxford University.

Taylor, Bruce, Christopher S. Koper, and Daniel Woods. 2010. *A Randomized Control Trial of Different Policing Strategies at Hot Spots of Violent Crime.* Report to the Jacksonville, FL Sheriff's Office. (Funded by the Bureau of Justice Assistance, U.S. Department of Justice). Washington, D.C.: Police Executive Research Forum.

Koper, Christopher, Debra Hoffmaster, Andrea Luna, Shannon McFadden, and Daniel Woods. 2010. *Developing a St. Louis Model for Reducing Gun Violence: A Report from the Police Executive Research Forum to the St. Louis Metropolitan Police Department*. (Funded by the Bureau of Justice Assistance, U.S. Department of Justice.) Washington, D.C.: Police Executive Research Forum.

Taylor, Bruce, Daniel Woods, Bruce Kubu, Christopher Koper, Bill Tegeler, Jason Cheney, Mary Martinez, James Cronin, and Kristin Kappelman. 2009. *Comparing Safety Outcomes in Police Use-of-Force Cases for Law Enforcement Agencies that Have Deployed Conducted Energy Devices and a Matched Comparison Group that Have Not: A Quasi-Experimental Evaluation*. Report to the National Institute of Justice, U.S. Department of Justice. Washington, D.C.: Police Executive Research Forum. https://www.ncjrs.gov/pdffiles1/nij/grants/237965.pdf.

Guterbock, Thomas M., Bruce Taylor, Karen Walker, Christopher S., Koper, Milton Vickerman, Timothy Carter, and Abdoulaye Diop. 2009. *Evaluation Study of Prince William County Police Immigration Enforcement Policy: Interim Report 2009*. Report to the Prince William County (Virginia) Police Department. Charlottesville, Virginia: Center for Survey Research (University of Virginia) in collaboration with the Police Executive Research Forum and James Madison University.

Ridgeway, Greg, Nelson Lim, Brian Gifford, Christopher Koper, Carl Matthies, Sara Hajiamiri, and Alexis Huynh. 2008. *Strategies for Improving Officer Recruitment for the San Diego Police Department.* Research report. Santa Monica: RAND Corporation. http://www.rand.org/pubs/monographs/2008/RAND_MG724.pdf

Koper, Christopher S. 2007. *Crime Gun Risk Factors: Buyer, Seller, Firearm, and Transaction Characteristics Associated with Criminal Gun Use and Trafficking*. Report to the National Institute of Justice. Philadelphia: Jerry Lee Center of Criminology, University of Pennsylvania. www.ncjrs.gov/pdffiles1/nij/grants/221074.pdf

Sullivan, Thomas, Michael Scheiern, and Christopher Koper. 2007. *Detainee Threat Assessment.* Briefing document prepared for Task Force 134, Multi-National Force—Iraq. Santa Monica: RAND Corporation.

Koper, Christopher S. 2004. *Hiring and Keeping Police Officers.* Research-for-Practice Brief. Washington, D.C.: U.S. Department of Justice. www.ncjrs.gov/pdffiles1/nij/202289.pdf

Koper, Christopher S. 2004. *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence, 1994-2003.* Report to the National Institute of Justice. Philadelphia: Jerry Lee Center of Criminology, University of Pennsylvania. www.ncjrs.gov/pdffiles1/nij/grants/204431.pdf

Koper, Christopher S., Ed Poole, and Lawrence W. Sherman. 2004. *A Randomized Experiment to Reduce Sales Tax Delinquency Among Pennsylvania Businesses: Are Threats Best?* Presentation slides and analysis prepared for the Fair Share Project of the Fels Institute of Government and the Pennsylvania Department of Revenue. Philadelphia: Fels Institute of Government and Jerry Lee Center of Criminology, University of Pennsylvania.

Pierce, Glenn L., Anthony A. Braga, Christopher Koper, Jack McDevitt, David Carlson, Jeffrey Roth, Alan Saiz, Raymond Hyatt. 2003. *The Characteristics and Dynamics of Crime Gun Markets: Implications for Supply-Side Focused Enforcement Strategies.* Report to the National Institute of Justice. Boston: College of Criminal Justice, Northeastern University. www.ncjrs.gov/pdffiles1/nij/grants/208079.pdf

Koper, Christopher S., Gretchen E. Moore, and Jeffrey A. Roth. 2002. *Putting 100,000 Officers on the Street: A Survey-Based Assessment of the Federal COPS Program*. Report to the National Institute of Justice. Washington, D.C.: The Urban Institute. www.ncjrs.gov/pdffiles1/nij/grants/200521.pdf

Koper, Christopher S. and Jeffrey A. Roth. 2002. *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets, 1994-2000*. Interim report to the National Institute of Justice. Washington, D.C.: The Urban Institute.

Koper, Christopher S., Edward R. Maguire, and Gretchen E. Moore. 2001. *Hiring and Retention Issues in Police Agencies: Readings on the Determinants of Police Strength, Hiring and Retention of Officers, and the Federal COPS Program.* Report to the National Institute of Justice. Washington, D.C.: The Urban Institute. www.urban.org/Uploadedpdf/410380_Hiring-and-Retention.pdf

Koper, Christopher S. and Jeffrey A. Roth. 2000. "Putting 100,000 Officers on the Street: Progress as of 1998 and Preliminary Projections Through 2003." Pp. 149-178 in Roth, Jeffrey A., Joseph F. Ryan, and others. *National Evaluation of the COPS Program -- Title I of the 1994 Crime Act.* Research Report. Washington, D.C.: U.S. Department of Justice. www.ncjrs.gov/pdffiles1/nij/183643.pdf

Roth, Jeffrey A., Christopher S. Koper, Ruth White, and Elizabeth A. Langston. 2000. "Using COPS Resources," Pp. 101-148 in Roth, Jeffrey A., Joseph F. Ryan, and others. *National Evaluation of the COPS Program -- Title I of the 1994 Crime Act.* Research Report. Washington, D.C.: U.S. Department of Justice. www.ncjrs.gov/pdffiles1/nij/183643.pdf

Roth, Jeffrey A. and Christopher S. Koper. 1999. *Impacts of the 1994 Assault Weapons Ban: 1994-1996.* Research-in-Brief. Washington, D.C.: U.S. Department of Justice. www.ncjrs.gov/pdffiles1/173405.pdf

Koper, Christopher S., Jeffrey A. Roth, and Edward Maguire. 1998. "New Officers in Communities: From Expenditure to Deployment." Pp. 5-2 to 5-24 in Roth, Jeffrey A., Joseph F. Ryan and others. *National Evaluation of Title I of the 1994 Crime Act (COPS).* Interim report to the National Institute of Justice. Washington, D.C.: The Urban Institute.

Langston, Elizabeth A., Christopher S. Koper, and Jeffrey A. Roth. 1998. "Using COPS Resources." Pp. 4-1 to 4-46 in Roth, Jeffrey A., Joseph F. Ryan, and others. *National Evaluation of Title I of the 1994 Crime Act (COPS).* Interim report to the National Institute of Justice. Washington, D.C.: The Urban Institute.

Koper, Christopher S. 1997. *Gun Density Versus Gun Type: Did the Availability of More, or More Lethal, Guns Drive Up the Dallas Homicide Rate, 1980-1992?* Report to the National Institute of Justice. Washington, D.C.: Crime Control Institute. www.ncjrs.gov/pdffiles1/nij/grants/187106.pdf

Roth, Jeffrey A. and Christopher S. Koper. 1997. *Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994*. Report to the National Institute of Justice. Washington, D.C.: The Urban Institute. http://www.urban.org/UploadedPDF/aw_final.pdf

Harrell, Adele V., Shannon E. Cavanagh, Michele A. Harmon, Christopher S. Koper, and Sanjeev Sridharan. 1997. *Impact of the Children at Risk Program* (Volumes 1 and 2). Report to the National Institute of Justice. Washington, D.C.: The Urban Institute.

Koper, Christopher S. 1995. "Reducing Gun Violence: A Research Program in Progress." Presentation summarized in *What To Do About Crime: The Annual Conference on Criminal Justice Research and Evaluation – Conference Proceedings*, pp. 58-60. Washington, D.C.: U.S. Department of Justice.

Koper, Christopher S. 1993. *The Maryland Project: Community-Oriented Policing and Drug Prevention in Edgewood, Maryland.* Report to the Maryland Governor's Drug and Alcohol Abuse Commission. Special Topics on Substance Abuse, Report 93-3. College Park, MD: Center for Substance Abuse Research.

Translational Publications and Tools

(Additional publications and works for practitioner, policymaker, and general audiences)

Lum, Cynthia, Christopher S. Koper, and Cody W. Telep. T*he Evidence-Based Policing Matrix.* Online interactive tool available at: http://cebcp.org/evidence-based-policing/the-matrix/. Fairfax, VA: Center for Evidence-Based Crime Policy, George Mason University. Updated annually.

Koper, Christopher S., Bruce Taylor, and Jamie Roush. 2013. "What Works Best at Violent Crime Hot Spots? A Test of Directed Patrol and Problem-Solving Approaches in Jacksonville, Florida."

Police Chief 80 (Oct.): 12-13. http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display&article_id=3138&issue_id=102013

Tate, Renee, Thomas Neale, Cynthia Lum, and Christopher Koper. 2013. "Case of Places." *Translational Criminology: The Magazine of the Center for Evidence-Based Crime Policy (George Mason University)* Fall 2013: 18-21. http://cebcp.org/wp-content/TCmagazine/TC5-Fall2013

Lum, Cynthia and Christopher S. Koper. 2013. "Evidence-based policing in smaller agencies: Challenges, prospects, and opportunities." *The Police Chief* 80 (April):42-47. http://www.policechiefmagazine.org/magazine/index.cfm?fuseaction=display&article_id=2907&issue_id=42013

Lum, Cynthia and Christopher S. Koper. 2012. "Incorporating Research into Daily Police Practice: The Matrix Demonstration Project." *Translational Criminology: The Magazine of the Center for Evidence-Based Crime Policy (George Mason University)*. Fall 2012:16-17. http://cebcp.org/wp-content/TCmagazine/TC3-Fall2012.

Roush, Jamie and Christopher Koper. 2012. "From Research to Practice: How the Jacksonville, Florida Sheriff's Office Institutionalized Results from a Problem-Oriented, Hot Spots Experiment." *Translational Criminology: The Magazine of the Center for Evidence-Based Crime Policy (George Mason University)*. Winter 2012: 10-11. http://cebcp.org/wp-content/TCmagazine/TC2-Winter2012.

Koper, Christopher S. 2012. "A Study Conducted by PERF and Mesa Police Shows that LPRs Result in More Arrests." Presentation summarized in *How Are Innovations in Technology Transforming Policing?* Pp. 28-31. Washington, DC: Police Executive Research Forum. http://policeforum.org/library/critical-issues-in-policing-series/Technology_web2.pdf.

Aden, Hassan with Christopher Koper. 2011. "The Challenges of Hot Spots Policing." *Translational Criminology: The Magazine of the Center for Evidence-Based Crime Policy (George Mason University)*. Summer 2011: 6-7. http://cebcp.org/wp-content/TCmagazine/TC1-Summer2011.

Police Executive Research Forum. 2010. *Guns and Crime: Breaking New Ground by Focusing on the Local Impact*. Washington, DC. (Contributor). http://policeforum.org/library/critical-issues-in-policing-series/GunsandCrime.pdf.

Koper, Christopher S., Bruce G. Taylor, and Bruce E. Kubu. 2009. *Law Enforcement Technology Needs Assessment: Future Technologies to Address the Operational Needs of Law Enforcement*. Washington, D.C.: Police Executive Research Forum in partnership with the Lockheed Martin Corporation. http://www.policeforum.org/upload/Lockheed%20Martin%20Report%20Final%203-16-2009_483310947_612009144154.pdf.

Portions also appear as Koper, Christopher S. 2008. *Technology and Law Enforcement: An Overview of Applications, Impacts, and Needs*. Discussion paper prepared for the Law Enforcement Future Technologies Workshop (sponsored by the Police Executive Research

Forum and the Lockheed Martin Corporation), Suffolk (Virginia), November.

Police Executive Research Forum. 2008. *Violent Crime in America: What We Know About Hot Spots Enforcement*. Washington, DC. (Contributor). http://policeforum.org/library/critical-issues-in-policing-series/HotSpots_v4.pdf.

Also includes Koper, Christopher S. 2008. "PERF's Homicide Gunshot Survey." Presentation summarized in *Violent Crime in America: What We Know About Hot Spots Enforcement,* pp. 25-27. Washington, DC: Police Executive Research Forum. http://policeforum.org/library/critical-issues-in-policing-series/HotSpots_v4.pdf.

Koper, Christopher S. 2004. "Disassembling the Assault-Gun Ban." Editorial. *The Baltimore Sun*: September 13.

Other Publications, Reports, and Working Papers

Koper, Christopher S., Daniel J. Woods, and Bruce E. Kubu. 2012. *Gun Enforcement and Gun Violence Prevention Practices among Local Law Enforcement Agencies: A Research and Policy Brief*. Washington, DC: Police Executive Research Forum.

Koper, Christopher S. 2008. *Policing Gun Violence: A Brief Overview*. Discussion paper prepared for the Police Executive Research Forum and the St. Louis Metropolitan Police Department.

Appears in Koper, Christopher, et al. 2010. *Developing a St. Louis Model for Reducing Gun Violence: A Report from the Police Executive Research Forum to the St. Louis Metropolitan Police Department*. Washington, D.C.: Police Executive Research Forum.

Koper, Christopher S. 2007. *Assessments of Corporate Culture and Prosecutorial Decisions by U.S. Attorneys: A Draft Research Proposal*. Concept paper prepared for the LRN-RAND Corporation Center for Corporate Ethics, Law, and Governance.

Koper, Christopher S. 2003. *Police Strategies for Reducing Illegal Possession and Carrying of Firearms: A Systematic Review Protocol Prepared for the Campbell Collaboration*. Published by the Campbell Collaboration Crime and Justice Group. http://campbellcollaboration.org/lib.

Koper, Christopher S. 2002. *Testing the Generalizability of the Concealed Carry Hypothesis: Did Liberalized Gun Carrying Laws Reduce Urban Violence, 1986-1998?* Working Paper. Philadelphia: Jerry Lee Center of Criminology, University of Pennsylvania.

Koper, Christopher S. 2002. *Gun Types Used in Crime and Trends in the Lethality of Gun Violence: Evidence from Two Cities*. Working Paper. Philadelphia: Jerry Lee Center of Criminology, University of Pennsylvania.

Koper, Christopher S. 1995. *Gun Lethality and Homicide: Gun Types Used By Criminals and the Lethality of Gun Violence in Kansas City, Missouri, 1985-1993*. Ph.D. Dissertation. College Park, MD: Department of Criminal Justice and Criminology, University of Maryland. (Published by University Microfilms, Inc.: Ann Arbor, Michigan.)

Koper, Christopher S. 1995. Review essay on *The Politics of Gun Control* by Robert J. Spitzer. *The Criminologist* 20:32-33.

Koper, Christopher S. 1992. *The Deterrent Effects of Police Patrol Presence Upon Criminal and Disorderly Behavior at Hot Spots of Crime*. M.A. Thesis. College Park, MD: Department of Criminology and Criminal Justice, University of Maryland.

Koper, Christopher S. 1989. *Quality Leadership and Community-Oriented Policing in Madison: A Progress Report on the EPD (Experimental Police District)*. Report prepared for the Police Foundation (Washington, D.C.).

Portions reprinted in *Community Policing in Madison: Quality from the Inside Out* (1993). Report to the National Institute of Justice, U.S. Department of Justice by Mary Ann Wycoff and Wesley G. Skogan. Washington, D.C.: Police Foundation.

Koper, Christopher S. 1989. *The Creation of Neighborhood-Oriented Policing in Houston: A Progress Report.* Report prepared for the Police Foundation (Washington, D.C.).

Koper, Christopher S. 1989. *External Resources for Police*. Report prepared for the Police Foundation (Washington, D.C.).

Funded Research

Selected projects as a principal or senior-level investigator

Principal investigator (with Cynthia Lum, PI): "Evaluating the Crime Control and Cost-Benefit Effectiveness of License Plate Recognition (LPR) Technology in Patrol and Investigations." $553,713 grant from the National Institute of Justice (U.S. Department of Justice) to George Mason University. Awarded 2013.

Principal investigator (with Cynthia Lum, PI). "Violent Gun and Gang Crime Reduction Program (Project Safe Neighborhoods), Fiscal Year 2013." $29,997 research partner subcontract from the U.S. Attorney's Office (District of Columbia) funded through the Bureau of Justice Assistance (U.S. Department of Justice). Awarded 2013.

Co-Principal Investigator: "The Evidence-Based Policing Matrix Demonstration Project." $749,237 grant from the Bureau of Justice Assistance (U.S. Department of Justice) to George Mason University. Awarded 2011.

Principal Investigator: "Realizing the Potential of Technology for Policing: A Multi-Site Study of the Social, Organizational, and Behavioral Aspects of Implementing Policing Technologies." $592,151 grant from the National Institute of Justice (U.S. Department of Justice) to the Police Executive Research Forum and George Mason University (subcontractor). Awarded 2010.

Principal Investigator (Jan. 2011-Aug. 2011): "Community Policing Self-Assessment Tool Short Form, COPS Hiring Recovery Program Administration." $85,444 subcontract from ICF International and the Office of Community Oriented Policing Services (U.S. Department of Justice) to the Police Executive Research Forum. Awarded 2011.

Principal Investigator: "National Study of Gun Enforcement and Gun Violence Prevention Practices Among Local Law Enforcement Agencies." $70,400 grant from the Joyce Foundation to the Police Executive Research Forum. Awarded 2010.

Principal Investigator: "Development of the Community Policing Self-Assessment Tool Short Form." $53,907 subcontract from ICF International and the Office of Community Oriented Policing Services (U.S. Department of Justice) to the Police Executive Research Forum. Awarded 2010.

Principal Investigator: "A Systematic Review of Research on Police Strategies to Reduce Illegal Gun Carrying." $15,600 subcontract from George Mason University and the National Policing Improvement Agency of the United Kingdom to the Police Executive Research Forum. Awarded 2010.

Principal Investigator (2009-Aug. 2011) and consultant (Aug. 2011-present): "Hiring of Civilian Staff in Policing: An Assessment of the 2009 Byrne Program." $549,878 grant from the National Institute of Justice (U.S. Department of Justice) to the Police Executive Research Forum. Awarded 2009.

Co-Principal Investigator (2005-2010): "Understanding and Monitoring the 'Whys' Behind Juvenile Crime Trends." $2,249,290 grant from the Office of Juvenile Justice and Delinquency Prevention (U.S. Department of Justice) to the University of Pennsylvania (with subcontracts to the Police Executive Research Forum, 2009-2010). Initial and continuation awards, 2001-2005.

Principal Investigator: "Police Interventions to Reduce Gun Violence: A National Examination." Supported through $200,000 in funding from the Motorola Foundation to the Police Executive Research Forum. Awarded 2009.

Principal Investigator: "The Varieties and Effectiveness of Hot Spots Policing: Results from a National Survey of Police Agencies and a Re-Assessment of Prior Research." Supported through $80,000 in funding from the Motorola Foundation to the Police Executive Research Forum. Awarded 2008.

Co-Principal Investigator: "Assessment of Technology Needs in Law Enforcement." $185,866 contract from the Lockheed Martin Corporation to the Police Executive Research Forum. Awarded 2008.

Co-Principal Investigator (for research partner subcontract): "An Evaluation of the Jacksonville Data Driven Reduction of Street Violence Project." $650,008 grant from the Bureau of Justice Assistance (U.S. Department of Justice) to the Jacksonville, FL Sheriff's Office and the Police Executive Research Forum (subcontractor). Awarded 2007.

Co-Principal Investigator: "A Randomized Experiment Assessing License Plate Recognition Technology in Mesa, Arizona." $474,765 grant from the National Institute of Justice (U.S. Department of Justice) to the Police Executive Research Forum. Awarded 2007.

Evaluation Director (for research partner subcontract): "Developing a St. Louis Model for Reducing Gun Violence." $500,000 grant from the Bureau of Justice Assistance (U.S. Department of Justice) to the St.

Louis Metropolitan Police Department and the Police Executive Research Forum (subcontractor). Awarded 2007.

Co-Principal Investigator: "Evaluation Study of the Prince William County Police Immigration Enforcement Policy." $282,129 contract from the Prince William County Police Department to the University of Virginia and the Police Executive Research Forum (subcontractor). Awarded 2008.

Principal Investigator: "Crime Gun Risk Factors: The Impact of Dealer, Firearm, Transaction, and Buyer Characteristics on the Likelihood of Gun Use in Crime." $103,514 grant from the U.S. Department of Justice to the University of Pennsylvania. Awarded 2004.

Principal Investigator: "A Reassessment of the Federal Assault Weapons Ban." $38,915 grant from the U.S. Department of Justice to the University of Pennsylvania. Awarded 2003.

Co-Principal Investigator: "Pennsylvania Fair Share Tax Project." $100,000 grant from the Jerry Lee Foundation to the University of Pennsylvania. Awarded 2003.

Principal Investigator: "The Impact of Dealer and Firearm Characteristics on the Likelihood of Gun Use in Crime." $60,000 grant from the Smith Richardson Foundation to the University of Pennsylvania. Awarded 2001.

Principal Investigator: "Police Hiring and Retention Study." $250,000 grant from the U.S. Department of Justice to the Urban Institute. Awarded 1999.

Co-Principal Investigator: "Analysis of Title XI Effects." $301,826 grant from the U.S. Department of Justice to the Urban Institute. Awarded 1998.

Co-Principal Investigator: "Illegal Firearms Markets." $499,990 grant from the U.S. Department of Justice to Northeastern University and the Urban Institute (subcontractor). Awarded 1997.

Co-Principal Investigator (director of national survey and evaluation task leader), 1997-2001: "Evaluation of Title I of the 1994 Crime Act." $3,356,156 grant from the U.S. Department of Justice to the Urban Institute.

Co-Principal Investigator: "Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994." $150,000 grant from the U.S. Department of Justice to the Urban Institute (subcontract later awarded to the Crime Control Institute). Awarded 1995.

Principal Investigator: "Gun Density versus Gun Type: Did More, or More Lethal, Guns Drive Up the Dallas Homicide Rate, 1978-1992?" $49,714 grant from the U.S. Department of Justice to the Crime Control Institute. Awarded 1994.

<u>Other successful proposals written or co-authored</u>

Co-author and proposed research director: "Research and Policy Initiatives to Help Police Leaders Speak Out on Gun Violence in America." $375,000 grant from the Joyce Foundation to the Police Executive Research Forum. Awarded 2011.

Co-author and proposed evaluation director: "Demonstrating Innovation in Policing: Using Evidence-Based Strategies to Build Police Legitimacy and Reduce Violent Crime." $599,896 grant from the Bureau of Justice Assistance to the Police Executive Research Forum. Awarded 2011.

Co-author and proposed co-principal investigator: "Recruitment and Hiring Clearinghouse." $499,763 grant from the Office of Community Oriented Policing Services, U.S. Department of Justice to the RAND Corporation. Awarded 2007.

Selected Presentations

Invited presentations, lectures, and policy briefings

"Evidence Based Policing Strategies." Missouri Attorney General's Urban Crime Summit. University of Missouri, Kansas City, 2013.

"Putting Hot Spots Research into Practice." 6th International Conference on Evidence-Based Policing. Cambridge University, United Kingdom, 2013. Video: http://www.crim.cam.ac.uk/events/conferences/ebp/2013/.

"America's Experience with the Federal Assault Weapons Ban, 1994-2004: Key Findings and Implications." Summit on Reducing Gun Violence in America: Informing Policy with Evidence and Analysis. Johns Hopkins University, January 2013. Video: C-SPAN (http://www.c-spanvideo.org/clip/4304369) and the Johns Hopkins University Bloomberg School of Public Health (http://www.jhsph.edu/events/gun-policy-summit/video-archive).

"Assessing Police Efforts to Reduce Gun Crime: Results from a National Survey."
- Federal Government Accountability Office's Homeland Security and Justice speaker series. Washington, D.C., 2013.
- Firearms Committee of the International Association of Chiefs of Police, 2012

"Police Strategies for Reducing Gun Violence." 2013 Summit to Combat Gun Violence hosted by the City of Minneapolis and the City of Milwaukee. Minneapolis, 2013.

"A Randomized Trial Comparing Directed Patrol and Problem-Solving at Violent Crime Hot Spots"
- 4th International Conference on Evidence-Based Policing. Cambridge University, United Kingdom, 2011
- 12th Annual Jerry Lee Symposium on Criminology and Public Policy. Washington, D.C. (held in the U.S. Senate Russell Office Building), 2011
- Annual Symposium of the Center for Evidence-Based Crime Policy, George Mason University. Fairfax, VA, 2010

"Evaluation Study of Prince William County's Illegal Immigration Enforcement Policy"
- Prince William County, Virginia Board of County Supervisors, November 16, 2010 (co-presented with Thomas Guterbock)
- Briefings for senior staff of the Prince William County Police Department and Prince William County Government, October-November 2010 (co-presented with Thomas Guterbock)

"Police Strategies for Reducing Gun Violence." Congressional briefing on "Evidence-Based Policy: What We Know, What We Need to Know," organized by the Center for Evidence-Based Crime Policy, George Mason University. Washington, D.C. (U.S. Capitol Visitors' Center), 2009. Video: http://cebcp.org/outreach-symposia-and-briefings/evidence-based-crime-policy/

"Hot Spots Policing: A Review of the Evidence." 2nd International Conference on Evidence-Based Policing (sponsored by the National Policing Improvement Agency of the United Kingdom and Cambridge University). Cambridge University, United Kingdom, 2009.

"Assessments of Corporate Culture and Prosecutorial Decisions by U.S. Attorneys." Presentation to the advisory board of the LRN-RAND Center for Corporate Ethics, Law, and Governance. New York, 2007.

"Risk Factors for Crime Involvement of Guns Sold in Maryland." Center for Injury Research and Policy, Johns Hopkins School of Public Health. Baltimore, 2007

"Police Strategies for Reducing Illegal Possession and Carrying of Firearms"

- Annual Jerry Lee Crime Prevention Symposium. Washington, D.C. (U.S. Senate Dirksen Office Building), 2005
- Firearm and Injury Center at Penn (FICAP) Forum Series. University of Pennsylvania, Philadelphia, 2005

"The Impacts of the 1994 Federal Assault Weapons Ban on Gun Markets and Gun Violence"

- Briefings for the Associate Attorney General of the United States and other staff of the U.S. Department of Justice and the U.S. Department of the Treasury. Washington, D.C., 1997
- National Research Council, Committee to Improve Research Information and Data on Firearms. Washington, D.C., 2002
- Firearm and Injury Center at Penn (FICAP) Forum Series. Philadelphia, 2003
- Jerry Lee Center of Criminology (University of Pennsylvania) Colloquium. Philadelphia, 2001

"Federal Legislation and Gun Markets: An Assessment of Recent Initiatives Affecting Licensed Firearms Dealers." Jerry Lee Center of Criminology (University of Pennsylvania) Colloquium. Philadelphia, 2003.

"Juvenile Gun Acquisition." Philadelphia Interdisciplinary Youth Fatality Review Team (A Project of the Philadelphia Departments of Public Health and Human Services). Philadelphia, 2002.

"A National Study of Hiring and Retention Issues in Police Agencies." Briefing for staff of the Office of Community Oriented Policing Services (U.S. Department of Justice) and the National Institute of Justice (U.S Department of Justice). Washington, D.C., 2001.

"COPS and the Level, Style, and Organization of American Policing: Findings of the National Evaluation"

- Press briefing sponsored by the Urban Institute. Washington, D.C., September 2000
- Briefings for staff of the Office of Community Oriented Policing Services (U.S. Department of Justice) and the National Institute of Justice (U.S. Department of Justice). Washington, D.C., 1998 and 1999

Other conference presentations
(Summary list)

- Annual meeting of the American Society of Criminology (1991-2001, 2003-2006, 2008-2013)
- Annual Stockholm Criminology Symposium (2006, 2010)
- Annual meeting of the Police Executive Research Forum (2008-2009)
- 14th World Congress of Criminology (2005)
- Annual meeting of the Academy of Criminal Justice Sciences (1995, 1997, 1999-2001, 2012)
- U.S. Department of Justice Annual Conference on Criminal Justice Research and Evaluation (1995-1997, 1999, 2002)
- U.S. Department of Justice National Conference on Community Policing (1998)
- National Institute of Justice (U.S. Department of Justice) Firearms Cluster Conference (1996)

Workshops and other events

Co-organizer, speaker, and session leader: Center for Evidence-Based Crime Policy's Evidence-Based Policing Workshop. George Mason University, Fairfax, VA, 2012. Presentation materials: http://cebcp.org/cebcp-symposium-2012/. Video: http://www.youtube.com/playlist?list=PL4E509820FD3010E9&feature=plcp

Organizer and speaker: Congressional briefing on "Reducing Gun Violence: Lessons from Research and Practice." Sponsored by the Center for Evidence-Based Crime Policy, George Mason University. Washington, D.C. (Rayburn Building of the U.S. House of Representatives), 2012. Video: http://cebcp.org/outreach-symposia-and-briefings/reducing-gun-violence/

Speaker and session leader: Center for Evidence-Based Crime Policy's Evidence-Based Policing Workshop. George Mason University, Fairfax, VA, 2011. Presentation slides and video: http://cebcp.org/evidence-based-policing/evidence-based-policing-workshop/

Speaker: Police Executive Research Forum symposium, "How are Innovations in Technology Transforming Policing?" (Critical Issues in Policing Series). Washington, D.C., 2011

Co-organizer, speaker, and session leader: Police Executive Research Forum and Lockheed Martin Law Enforcement Future Technologies Workshop. Suffolk, Virginia, 2008.

Speaker: Police Executive Research Forum symposium on "Hot Spots" (2008 Critical Issues in Policing Series). Washington, D.C., 2008.

Speaker and participant: Firearm Injury Center at Penn (FICAP, University of Pennsylvania) Workshop on Existing and Innovative Methods in the Study of Gun Violence. Bryn Mawr, Pennsylvania, 2003

Professional Service

Editorships

- Area editor for police strategies and practices, *Encyclopedia of Criminology and Criminal Justice* (in press for Springer Verlag, Gerben Bruinsma and David Weisburd, editors in chief)
- Co-editor of *Translational Criminology* briefs series (in progress for Springer-Verlag)

Reviews of manuscripts, reports, and proposals

- *Journal of Quantitative Criminology* (2001-2005, 2009, 2011, 2013)
- *Criminology and Public Policy* (2005, 2013)
- *Australian and New Zealand Journal of Criminology* (2013)
- *Policing: A Journal of Policy and Practice (2013)*
- *Policing: An International Journal of Police Strategies and Management* (2013)
- *Police Practice and Research* (2013)
- *Journal of Experimental Criminology* (2004, 2009, 2011, 2012)
- National Institute of Justice (U.S. Department of Justice) (2001, 2013)
- *Justice Research and Policy* (2012)
- *Sociological Quarterly* (2012)
- Oxford University Publishing (2011, 2013)
- *Police Quarterly* (2002-2004, 2011)
- *Criminology* (2006, 2010)
- *Justice Quarterly* (2008)
- *Homicide Studies* (2008)
- *Injury Prevention* (2004-2005)
- Population Reference Bureau (1994)

Other professional affiliations, service, and consulting

- Member, American Society of Criminology (ASC)
- Member and Executive Counselor, ASC Division of Experimental Criminology
- Delphi process participant to develop international reporting guidelines for randomized trials for the CONSORT Statement for Social and Psychological Interventions
- Member of the Research Advisory Board of the Police Foundation
- Consultant to the New York State Office of the Attorney General
- Consultant to the Connecticut Office of the Attorney General
- Consultant to the Office of the City Attorney of the City of San Francisco (California)
- Contributor to the Crime and Justice Group of the Campbell Collaboration
- Former Associate of the Jerry Lee Center of Criminology, University of Pennsylvania
- Former Associate of the Firearm and Injury Center at Penn, University of Pennsylvania Health System
- Participant in the National Research Collaborative on Firearm Violence convened by the Firearm and Injury Center at Penn (2005)
- Participant in National Institute of Justice (U.S. Department of Justice) focus group on identity theft research (2005)
- Participant in annual fellowship fundraiser for the American Society of Criminology (1993-2006, 2012-2013)

- Member of award selection committee for the American Society of Criminology (2002)
- Member of the Advisory Committee for the National Criminal History Improvement Program State Firearms Research Project of the Justice Research and Statistics Association (1996)

Selected Honors and Awards

Fellow of the Academy of Experimental Criminology (2013)

Excellence in Law Enforcement Research Bronze Award from the International Association of Chiefs of Police, 2012 (for co-authorship of *Evaluation Study of Prince William County's Illegal Immigration Enforcement Policy*)

Scholar-in-Residence of the Firearm and Injury Center at Penn (University of Pennsylvania Health System), 2004 – 2006

Smith Richardson Foundation Public Policy Research Fellowship, 2001

Graduate Assistant Award, Department of Criminology and Criminal Justice, University of Maryland, 1989-1994

Honors, Ph.D. Theory Comprehensive Examination, Department of Criminology and Criminal Justice, University of Maryland, 1993

Summa cum Laude, University of Maryland, 1988

Peter P. Lejins Award for Top Graduate in Criminal Justice, Department of Criminology and Criminal Justice, University of Maryland, 1988

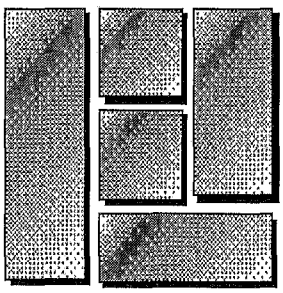
EXHIBIT B

To

Declaration of Christopher S. Koper in Support of Sunnyvale's Opposition to Plaintiffs' Motion for Preliminary Injunction

IMPACT EVALUATION OF THE PUBLIC SAFETY AND RECREATIONAL FIREARMS USE PROTECTION ACT OF 1994

Final Report



THE URBAN INSTITUTE
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March 13, 1997

Jeffrey A. Roth and
Christopher S. Koper

with William Adams, Sonja Johnson, John Marcotte, John McGready, Andrew Scott, Maria Valera, and Douglas Wissoker

Supported under award #95-IJ-CX-0111 from the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. Points of view in this document are those of the author(s) and do not necessarily represent the official position of the U.S. Department of Justice.

Acknowledgments

Researchers traditionally acknowledge assistance from others in completing a study. However, we received far more than traditional amounts of help. A host of people who cared about the questions we were asking generously donated their expertise, data, and time.

Our greatest debts are owed to our advisors, Bill Bridgewater and Judy Bonderman. Bill, as executive director of the National Alliance of Stocking Gun Dealers, and his wife Carole, editor of the *Alliance Voice*, shared with us a vast knowledge of guns and gun markets. As adjunct law professor at Catholic University and an occasional legal advisor to Handgun Control, Inc., Judy taught us much about the relevant laws. Both helped us frame the questions we asked. While Bill and Judy made successful careers as advocates of quite different perspectives on gun policy, they both respected the integrity of our work as disinterested researchers. Sadly, Bill passed away before our work was completed. We hope he would agree that we learned what he tried to teach us.

We also received substantial help from staff at the Bureau of Alcohol, Tobacco and Firearms. Ed Owen continued our education about firearms in the late stages of the project. He, Joe Vince, and Jerry Nunziato provided technical information and critically reviewed an early draft of this report. Willie Brownlee, Gerry Crispino, Jeff Heckel, David Krieghbaum, Tristan Moreland, Valerie Parks, and Lia Vannett all shared data and insights.

We are grateful to the following researchers and organizations who generously shared their data with us: Tom Marvell, of Justec Research; Scott Decker, Richard Rosenthal, and Richard Rabe of Washington University; David Kennedy and Anthony Braga of Harvard University; Glenn Pierce of Northeastern University; Stephen Hargarten, M.D., and Mallory O'Brien of the Medical College of Wisconsin; Weldon Kennedy, Loretta Behm, and Monte McKee of the Federal Bureau of Investigation; Denise Griffin of the National Conference of State Legislatures; Kristen Rand of the Violence Policy Center; Donald T. Reay, M.D., Chief Medical Examiner, King County, Washington; Michael Buerger of the Jersey City Police Department; Beth Hume and Maxine Shuster of the Massachusetts Department of Public Health; Yvonne Williams, Office of the Medical Examiner, County of San Diego; and Rebecca Knox of Handgun Control, Inc.

We appreciate the fine work of our Urban Institute colleagues who contributed to this report: Bill Adams, John Marcotte, John McGready, Maria Valera, and Doug Wissoker. We also appreciate research assistance by Sonja Johnson, Andrew Scott, Jason Greenberg, Kristen Mantei, Robert Moore, Rick Poulson, Veronica Puryear, and Claudia Vitale. We are grateful for O. Jay Arwood's expert work in producing this complex document. Finally, we appreciate the advice and encouragement of Lois Felson Mock, our National Institute of Justice grant monitor, and the thorough and helpful comments by anonymous reviewers inside and outside NIJ.

Any remaining errors or omissions are the responsibility of the authors. **Opinions expressed herein are those of the authors and not necessarily those of The Urban Institute, its trustees, or its sponsors.**

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1. OVERVIEW

Title XI of the Violent Crime Control and Law Enforcement Act of 1994 (the Crime Control Act) took effect on September 13, 1994. Subtitle A banned the manufacture, transfer, and possession of designated semiautomatic assault weapons. It also banned "large-capacity" magazines, which were defined as ammunition feeding devices designed to hold more than 10 rounds. Finally, it required a study of the effects of these bans, with particular emphasis on violent and drug trafficking crime, to be conducted within 30 months following the effective date of the bans. To satisfy the study requirement, the National Institute of Justice (NIJ) awarded a grant to The Urban Institute for an impact evaluation of Subtitle A. This report contains the study findings.

In defining assault weapons, Subtitle A banned 8 named categories of rifles and handguns. It also banned *exact copies* of the named guns, revolving cylinder shotguns, and guns with detachable magazines that were manufactured with certain features such as flash suppressors and folding rifle stocks. The ban specifically exempted *grandfathered* assault weapons and magazines that had been manufactured before the ban took effect. Implicitly, the ban exempts all other guns; several of these, which we treated as *legal substitutes,* closely resemble the banned guns but are not classified as exact copies.

Among other characteristics, ban proponents cited the capacity of these weapons, most of which had been originally designed for military use, to fire many bullets rapidly. While this capacity had been demonstrated in several highly publicized mass murders in the decade before 1994, ban supporters argued that it was largely irrelevant for hunting, competitive shooting, and self-defense. Therefore, it was argued, the ban could prevent violent crimes with only a small burden on law-abiding gun owners. Some of our own analyses added evidence that assault weapons are disproportionately involved in murders with multiple victims, multiple wounds per victim, and police officers as victims.

To reduce levels of these crimes, the law must increase the scarcity of the banned weapons. Scarcity would be reflected in higher prices not only in the *primary markets* where licensed dealers create records of sales to legally eligible purchasers, but also in *secondary markets* that lack such records. Although most secondary-market transfers are legal, minors, convicted felons, and other ineligible purchasers may purchase guns in them (usually at highly inflated prices) without creating records. In theory, higher prices in secondary markets would discourage criminal use of assault weapons, thereby reducing levels of the violent crimes in which assault weapons are disproportionately used.

For these reasons, our analysis considered potential ban effects on gun markets, on assault weapon use in crime, and on lethal consequences of assault weapon use. However, the statutory schedule for this study constrained our findings to short-run effects, which are not necessarily a reliable guide to long-term effects. The timing also limited the power of our statistical analyses to detect worthwhile ban effects that may have occurred. Most fundamentally, because the banned guns and magazines were never used in more than a fraction of all gun murders, even the maximum theoretically achievable preventive effect of the ban on gun murders is almost certainly too small to detect statistically with only one year of post-ban crime data.

With these cautions in mind, our analysis suggests that the primary-market prices of the banned guns and magazines rose by upwards of 50 percent during 1993 and 1994, while the ban was being debated, as gun distributors, dealers, and collectors speculated that the banned weapons would become expensive collectors' items. However, production of the banned guns also surged, so that more than an extra year's normal supply of assault weapons and legal substitutes was manufactured during 1994. After the ban took effect, primary-market prices of the banned guns and most large-capacity magazines fell to nearly pre-ban levels and remained there at

least through mid-1996, reflecting both the oversupply of grandfathered guns and the variety of legal substitutes that emerged around the time of the ban.

Even though the expected quick profits failed to materialize, we found no strong evidence to date that licensed dealers have increased "off the books" sales of assault weapons in secondary markets and concealed them with false stolen gun reports. Stolen gun reports for assault weapons did increase slightly after the ban took effect, but by less than reported thefts of unbanned large-capacity semiautomatic handguns, which began rising well before the ban.

The lack of an increase in stolen gun reports suggests that so far, the large stock of grandfathered assault weapons has remained largely in dealers' and collectors' inventories instead of leaking into the secondary markets through which criminals tend to obtain guns. In turn, this speculative stockpiling of assault weapons by law-abiding dealers and owners apparently reduced the flow of assault weapons to criminals, at least temporarily. Between 1994 and 1995, the criminal use of assault weapons, as measured by law enforcement agency requests for BATF traces of guns associated with crimes, fell by 20 percent, compared to an 11 percent decrease for all guns. BATF trace requests are an imperfect measure because they reflect only a small percentage of guns used in crime. However, we found similar trends in data on all guns recovered in crime in two cities. We also found similar decreases in trace requests concerning guns associated with violent and drug crimes.

At best, the assault weapons ban can have only a limited effect on total gun murders, because the banned weapons and magazines were never involved in more than a modest fraction of all gun murders. Our best estimate is that the ban contributed to a 6.7 percent decrease in total gun murders between 1994 and 1995, beyond what would have been expected in view of ongoing crime, demographic, and economic trends. However, with only one year of post-ban data, we cannot rule out the possibility that this decrease reflects chance year-to-year variation rather than a true effect of the ban. Nor can we rule out effects of other features of the 1994 Crime Act or a host of state and local initiatives that took place simultaneously. Further, any short-run preventive effect observable at this time may ebb in the near future as the stock of grandfathered assault weapons and legal substitute guns leaks to secondary markets, then increase as the stock of large-capacity magazines gradually dwindles.

We were unable to detect any reduction to date in two types of gun murders that are thought to be closely associated with assault weapons, those with multiple victims in a single incident and those producing multiple bullet wounds per victim. We did find a reduction in killings of police officers since mid-1995. However, the available data are partial and preliminary, and the trends may have been influenced by law enforcement agency policies regarding bullet-proof vests.

The following pages explain these findings in more detail, and recommend future research to update and refine our results at this early post-ban stage.

1.1. Primary-Market Effects

1.1.1. Prices and Production

1.1.1.1. Findings

We found clear peaks in legal-market prices of the banned weapons and magazines around the effective date of the ban, based on display ads in the nationally distributed periodical Shotgun News between 1992 and mid-1996. For example, a price index of banned SWD semiautomatic pistols rose by about 47 percent during the year preceding the ban, then fell by about 20 percent the following year, to a level where it remains. Meanwhile, the

prices of non-banned Davis and Lorcin semiautomatic pistols remained virtually constant over the entire period. Similarly, a price index for banned AR-15 rifles, exact copies, and legal substitutes at least doubled in the year preceding the ban, then fell after the ban nearly to 1992 levels, where they have remained. Prices of unbanned semiautomatic rifles (e.g., the Ruger Mini-14, Maadi, and SKS) behaved similarly to AR-15 prices, presumably due to pre-ban speculation that these guns would be included in the final version of the Crime Act.

Like assault weapon prices, large-capacity magazine prices generally doubled within the year preceding the ban. However, trends diverged after the ban depending on what gun the magazine was made for. For example, magazines for non-banned Glock handguns held their new high levels, while magazines for banned Uzi and unbanned Mini-14 weapons fell substantially from their peaks. AR-15 large-capacity magazine prices also fell to 1993 levels shortly after the ban took effect, but returned to their 1994 peak in mid-1996. We believe that demand for grandfathered Glock and AR-15 magazines was sustained or revived by continuing sales of legal guns that accept them.

Production of the banned assault weapons surged in the months leading up to the ban. Data limitations preclude precise and comprehensive counts. However, we estimate that the annual production of five categories of assault weapons (AR-15s and models by Intratec, SWD, AA Arms, and Calico) and legal substitutes rose by more than 120 percent, from an estimated 1989–93 annual average of 91,000 guns to about 204,000 in 1994 — more than an extra year's supply. In contrast, production of non-banned Lorcin and Davis pistols, which are among the guns most frequently seized by police, fell by about 35 percent, from a 1989–93 annual average of 283,000 to 184,000 in 1994.

Our interpretation of these trends is that the pre-ban price and production increases reflected speculation that grandfathered weapons and magazines in the banned categories would become profitable collectors' items after the ban took effect. Instead, however, assault weapon prices fell sharply within months after the ban took effect, apparently under the combined weight of the extra year's supply of grandfathered guns, along with legal substitute guns that entered the distribution chain around the time of the ban. While large-capacity magazine prices for several banned assault weapons followed similar trends, those for unbanned Glock pistols sustained their peaks, and those for the widely-copied AR-15 rifle rebounded at least temporarily to peak levels in 1996, after an immediate post-ban fall.

1.1.1.2. Recommendations

To establish our findings about legal-market effects more definitively, we have short-term (i.e., 12-month) and long-term research recommendations for consideration by NIJ. In the short term, we recommend entering and analyzing large-capacity magazine price data that we have already coded but not entered, in order to study how the prices and legal status of guns affect the prices of large-capacity magazines as economic complements. We also recommend updating our price and production analyses for both the banned firearms and large-capacity magazines, to learn about retention of the apparent ban effects we identified. For the long term, we recommend that NIJ and BATF cooperate in establishing and maintaining time-series data on prices and production of assault weapons, legal substitutes, other guns commonly used in crime, and the respective large and small capacity magazines; like similar statistical series currently maintained for illegal drugs, we believe such a price and production series would be a valuable instrument for monitoring effects of policy changes and other influences on markets for weapons that are commonly used in violent and drug trafficking crime.

1.2. Secondary-Market Effects

1.2.1. Findings

In addition to the retail markets discussed above, there are secondary gun markets in which gun transfers are made without formal record keeping requirements. Secondary market transfers are by and large legal transactions. However, prohibited gun purchasers such as minors, felons, and fugitives tend to acquire most of their guns through secondary markets and pay premiums of 3 to 5 times the legal-market prices in order to avoid eligibility checks, sales records, and the 5-day waiting period required by the Brady Act. We were unable to observe secondary-market prices and quantities directly. Anecdotally, however, the channels through which guns "leak" from legal to secondary markets include gun thieves, unscrupulous licensed dealers who sell guns on the streets and in gun shows more or less exclusively to prohibited purchasers (who may resell the guns), as well as "storefront" dealers who sell occasionally in secondary markets, reporting the missing inventories to BATF inspectors as "stolen or lost." Since two of these channels may lead to theft reports to the FBI's National Crime Information Center (NCIC), we tested for an increase in reported assault weapon thefts after the ban.

To this point, there has been only a slight increase in assault weapon thefts as a share of all stolen semiautomatic weapons. Thus, there does not appear to have been much leakage of assault weapons from legal to secondary markets.

In order to assess the effects of the large-capacity magazine ban on secondary markets, we examined thefts of Glock and Ruger handgun models that accept these magazines. Thefts of these guns continued to increase after the ban, despite the magazine ban, which presumably made the guns less attractive. Yet we also did not find strong evidence of an increase in thefts of these guns relative to what would have been predicted based on pre-ban trends. This implies that dealers have not been leaking the guns to illegitimate users on a large scale.

1.2.2. Recommendations

To monitor possible future leakage of the large existing stock of assault weapons into secondary markets, we recommend updating our analyses of trends in stolen gun reports. We also recommend that BATF and NCIC encourage reporting agencies to ascertain and record the magazines with which guns were stolen. Also, because stolen gun reports are deleted from NCIC files when the guns are recovered, we recommend that analyses be conducted on periodic downloads of the database in order to analyze time from theft to recovery. For strategic purposes, it would also be useful to compare dealer patterns of assault weapon theft reports with patterns of occurrence in BATF traces of guns recovered in crime.

1.3. Effects on Assault Weapon Use in Crime

1.3.1. Findings

Requests for BATF traces of assault weapons recovered in crime by law enforcement agencies throughout the country declined 20 percent in 1995, the first calendar year after the ban took effect. Some of this decrease may reflect an overall decrease in gun crimes; total trace requests dropped 11 percent in 1995 and gun murders dropped 12 percent. Nevertheless, these trends suggest an 8–9 percent additional decrease due to substitution of other guns for the banned assault weapons in 1995 gun crimes. We were unable to find similar assault pistol reductions in states with pre-existing assault pistol bans. Nationwide decreases related to violent and drug crimes were at least as great as that in total trace requests in percentage terms, although these categories were quite small

in number. The decrease we observed was evidently not a spurious result of a spurt of assault-weapon tracing around the effective date of the ban, because there were fewer assault weapon traces in 1995 than in 1993.

Trace requests for assault weapons rose by 7 percent in the first half of 1996, suggesting that the 1995 effect we observed may be temporary. However, data limitations have prevented us from attributing this rebound to changes in overall crime patterns, leakage of grandfathered assault weapons to secondary markets, changes in trace request practices, or other causes. Data from two cities not subject to a pre-existing state bans suggested that assault weapon use, while rare in those cities both before and after the ban, also tapered off during late 1995 and into 1996.

With our local data sources, we also examined confiscations of selected unbanned handguns capable of accepting large-capacity magazines. Criminal use of these guns relative to other guns remained stable or was higher during the post-ban period, though data from one of these cities were indicative of a recent plateau. However, we were unable to acquire data on the magazines with which these guns were equipped. Further, trends in confiscations of our selected models may not be indicative of trends for other unbanned large-capacity handguns. It is therefore difficult to make any definitive statements about the use of large-capacity magazines in crime since the ban. Nevertheless, the contrasting trends for these guns and assault weapons provide some tentative hints of short-term substitution of non-banned large-capacity semiautomatic handguns for the banned assault weapons.

1.3.2. Recommendations

Although BATF trace request data provide the only national trends related to assault weapon use, our findings based on them are subject to limitations. Law enforcement agencies request traces on only a fraction of confiscated guns that probably does not represent the entire population. Therefore, we recommend further study of available data on all guns recovered in crime in selected cities that either were or were not under state assault weapon bans when the Federal ban took effect. Beyond that, we recommend analyzing BATF trace data already in-house to compare trends for specific banned assault weapon models with trends for non-banned models that are close substitutes. Most strongly, we also recommend updating our trend analysis, to see if the early 1996 rebound in BATF trace requests for assault weapons continued throughout the year and to relate any change to 1996 trends in gun crime and overall trace requests.

From a broader and longer-term perspective, we share others' concerns about the adequacy of BATF trace data, the only available national data, as a basis for assessing the effects of firearms policies and other influences on the use of assault weapons and other guns in violent and drug trafficking crime. Therefore, we commend recent BATF efforts to encourage local law enforcement agencies to request traces on more of the guns they seize from criminals. As a complement, however, we recommend short-term research on departmental policies and officers' decisions that affect the probability that a specific gun recovered in crime will be submitted for tracing.

Unfortunately, we have been unable to this point to assemble much information regarding trends in the criminal use of large-capacity magazines or guns capable of accepting these magazines. This gap is especially salient for the following reasons: the large-capacity magazine is perhaps the most functionally important distinguishing feature of assault weapons; the magazine ban affected more gun models than did the more visible bans on designated assault weapons; and based on 1993 BATF trace requests, non-banned semiautomatic weapons accepting large-capacity magazines were used in more crimes than were the banned assault weapons. For these reasons, we recommend that BATF and state/local law enforcement agencies encourage concerted efforts to record the magazines with which confiscated firearms are equipped — information that frequently goes unrecorded under present practice — and we recommend further research on trends, at both the national and local levels, on the

criminal use of guns equipped with large-capacity magazines. Finally, to support this research and a variety of strategic objectives for reducing the consequences of violent and drug trafficking crime, consideration should be given to studying the costs and benefits of legislative and administrative measures that would encourage recording, tracing, and analyzing magazines recovered in crimes, with or without guns.

1.4. Consequences of Assault Weapon Use

1.4.1. Findings

A central argument for special regulation of assault weapons and large-capacity magazines is that the rapid-fire/multi-shot capabilities they make available to gun offenders increase the expected number of deaths per criminal use, because an intended victim may receive more wounds, and more people can be wounded, in a short period of time. Therefore, we examined trends in three consequences of gun use: gun murders, victims per gun homicide incident, and wounds per gunshot victim.

Our ability to discern ban effects on these consequences is constrained by a number of facts. The potential size of ban effects is limited because the banned weapons and magazines were used in only a minority of gun crimes — based on limited evidence, we estimate that 25% of gun homicides are committed with guns equipped with large-capacity magazines, of which assault weapons are a subset. Further, the power to discern small effects statistically is limited because post-ban data are available for only one full calendar year. Also, a large stock still exists of grandfathered magazines as well as grandfathered and legal-substitute guns with assault weapon characteristics.

Our best estimate of the impact of the ban on state level gun homicide rates is that it caused a reduction of 6.7% in gun murders in 1995 relative to a projection of recent trends. However, the evidence is not strong enough for us to conclude that there was any meaningful effect (i.e., that the effect was different from zero). Note also that a true decrease of 6.7% in the gun murder rate attributable to the ban would imply a reduction of 27% in the use of assault weapons and large-capacity guns and no effective substitution of other guns. While we do not yet have an estimate of large-capacity magazine use in 1995, our nationwide assessment of assault weapon utilization suggested only an 8 to 20 percent drop in assault weapon use in 1995.

Using a variety of national and local data sources, we found no statistical evidence of post-ban decreases in either the number of victims per gun homicide incident, the number of gunshot wounds per victim, or the proportion of gunshot victims with multiple wounds. Nor did we find assault weapons to be overrepresented in a sample of mass murders involving guns (see Appendix A).

The absence of stronger ban effects may be attributable to the relative rarity with which the banned weapons are used in violent crimes. At the same time, our chosen measures reflect only a few of the possible manifestations of the rapid-fire/multi-shot characteristics thought to make assault weapons and large-capacity magazines particularly dangerous. For example, we might have found the use of assault weapons and large-capacity magazines to be more consequential in an analysis of the number of victims receiving any wound (fatal or non-fatal), in broader samples of firearm discharge incidents. Moreover, our comparisons did not control for characteristics of incidents and offenders that may affect the choice of weapon, the consequences of weapon use, or both.

Recommendations: First, we recommend further study of the impact measures examined in this investigation. Relatively little time has passed since the implementation of the ban. This weakens the ability of statistical tests — particularly those in our time-series analyses — to discern meaningful impacts. Moreover, the

ban's effects on the gun market are still unfolding. Hence, the long term consequences of the ban may differ substantially from the short term consequences which have been the subject of this investigation.

Therefore, we recommend updating the state-level analysis of gun murder rates as more data become available. Similarly, investigations of trends in wounds per gunshot victim could be expanded to include longer post ban periods, larger numbers of jurisdictions, and, wherever possible, data on both fatal and non-fatal victims. Examination of numbers of total wounded victims in both fatal and non-fatal gunshot incidents may also be useful. In some jurisdictions, it may also be possible to link trends in the types of guns seized by police to trends in specific weapon-related consequence measures.

Second, we recommend further research on the role of assault weapons and large-capacity magazines in murders of police officers. Our analysis of police murders has shown that the fraction of police murders involving assault weapons is higher than that for civilian murders. This suggests that gun murders of police should be more sensitive to the ban than gun murders in general. Yet, further research, considering such factors as numbers of shots fired, wounds inflicted, and offender characteristics, is necessary for a greater understanding of the role of the banned weaponry in these murders.

Along similar lines, we strongly recommend in-depth, incident-based research on the situational dynamics of both fatal and non-fatal gun assaults to gain greater understanding of the roles of banned and other weapons in intentional deaths and injuries. A goal of this research should be to determine the extent to which assault weapons and guns equipped with large-capacity magazines are used in homicides and assaults and to compare the fatality rates of attacks with these weapons to those with other firearms. A second goal should be to determine the extent to which the properties of the banned weapons influence the outcomes of criminal gun attacks after controlling for important characteristics of the situations and the actors. In other words, how many homicides and non-fatal gunshot wound cases involving assault weapons or large-capacity magazines would not occur if the offenders were forced to substitute other firearms and/or small capacity magazines? In what percentage of gun attacks, for instance, does the ability to fire more than 10 rounds without reloading influence the number of gunshot wound victims or determine the difference between a fatal and non-fatal attack? In this study, we found some weak evidence that victims killed with guns having large-capacity magazines tend to have more bullet wounds than victims killed with other firearms, and that mass murders with assault weapons tend to involve more victims than those with other firearms. However, our results were based on simple comparisons; much more comprehensive research should be pursued in this area.

Future research on the dynamics of criminal shootings, including various measures of the number of shots fired and wounds inflicted, would provide information on possible effects of the assault weapon and magazine ban that we were unable to estimate, as well as useful information on violent gun crime generally. Such research requires linking medical and law enforcement data sets on victim wounds, forensic examinations of recovered firearms and magazines, and police incident reports.

2. BACKGROUND FOR THE IMPACT ASSESSMENT

Title XI of the Violent Crime Control and Law Enforcement Act of 1994 (the Crime Control Act), took effect on its enactment date, September 13, 1994. Subtitle A, which is itself known as the Public Safety and Recreational Firearms Use Protection Act, contains three provisions related to "semiautomatic assault weapons." Section 110102 (the assault weapons ban) made unlawful the manufacture, transfer, or possession of such weapons under 18:922 of the United States Code. Section 110103 (the magazine ban) made unlawful the transfer or possession of "large-capacity ammunition feeding devices": detachable magazines that accept more than 10 rounds[1] and can be attached to semi- or automatic firearms. Section 110104 (the evaluation requirement) required the Attorney General to study the effect of these prohibitions and "in particular...their impact, if any, on violent and drug trafficking crime." The evaluation requirement specified a time period for the study: an 18-month period beginning 12 months after the enactment date of the Act. It also required the Attorney General to report the study results to Congress 30 months after enactment of the Crime Control Act — March 13, 1997. The National Institute of Justice awarded a grant to the Urban Institute to conduct the mandated study, and this report contains the findings.

This chapter first explains the legislation in additional detail, then discusses what is already known about the role of the banned weapons in crime, and finally explains certain relevant features of firearms markets.

2.1. THE LEGISLATION

Effective on its enactment date, September 13, 1994, Section 110102 of Title XI banned the manufacture, transfer, and possession of "semiautomatic assault weapons." It defined the banned items defined in four ways:

1) Named guns: specific rifles and handguns, available from ten importers and manufacturers: Norinco, Mitchell, and Poly Technologies (all models, popularly known as AKs); Israeli Military Industries UZI and Galil models, imported by Action Arms; Beretta Ar 70 (also known as SC-70); Colt AR-15; Fabrique National FN/FAL, FN/LAR, FN/FNC), SWD M-10, M-11, M-11/9, and M-12; Steyr AUG; and INTRATEC TEC-9, TEC-DC9, and TEC-22;

2) Exact copies: "Copies or duplicates of the [named guns] in any caliber";

3) Revolving cylinder shotguns: Large-capacity shotguns, with the Street Sweeper and Striker 12 named as examples; and

4) Features-test guns: semiautomatic weapons capable of accepting detachable magazines and having at least two named features.[2]

Several provisions of the ban require further explanation because they affected our approach to this study. First, the ban exempted several categories of guns: a long list of specific models specified in Appendix A to Sec.

[1] Or "that can be readily restored or converted to accept."

[2] For rifles, the named features were: a folding or telescoping stock; a pistol grip that protrudes below the firing action; a bayonet mount; a flash suppresser or threaded barrel designed to accommodate one; a grenade launcher. For pistols, the features were a magazine outside the pistol grip; a threaded barrel (capable of accepting a barrel extender, flash suppresser, forward handgrip, or silencer); a heat shroud that encircles the barrel; a weight of more than 50 ounces unloaded; and a semiautomatic version of an automatic firearm. For shotguns, named features included the folding or telescoping stock, protruding pistol grip, fixed magazine capacity over 5 rounds, and ability to accept a detachable magazine.

110102; bolt- or pump-action, inoperable, and antique guns; semiautomatic rifles and shotguns that cannot hold more than 5 rounds; and firearms belonging to a unit of government, a nuclear materials security organization, a retired law enforcement officer, or an authorized weapons tester.

Second, the prohibitions exempted weapons and magazines that met the definitional criteria but were legally owned (by manufacturers, distributors, retailers, or consumers) on the effective date of the Act. Such "grandfathered" guns may legally be sold, resold, and transferred indefinitely. Estimates of their numbers are imprecise. However, a 1992 report by the American Medical Association reported an estimate of 1 million semiautomatic assault weapons manufactured for civilian use, plus 1.5 million semiautomatic M-1 rifles sold as military surplus (AMA Council, 1992). To distinguish grandfathered guns from exempt guns that might be stolen or diverted to illegal markets, the ban required the serial numbers of guns in the banned categories to clearly indicate their dates of manufacture.

Third, the ban on exact copies of the named guns did not prohibit the manufacture, sale, or transfer of legal substitutes, most of which first appeared around or after the effective date of the ban. Legal substitutes differ from banned exact copies by lacking certain named features or by incorporating minimal design modifications such as slight reductions of pistol barrel length, thumbholes drilled in a rifle stock, or the like. Manufacturers named some legal substitutes by adding a designation such as "Sporter," "AB," (After Ban), or "PCR" (Politically Correct Rifle) to the name of the corresponding banned weapon.

Section 110103 of Title XI banned large-capacity magazines, i.e., magazines that accept ten or more rounds of ammunition. Its effective date, exemptions, and grandfathering provisions correspond to those governing firearms under Section 110102. This provision exempts attached tubular devices capable of operating only with .22 caliber rimfire ammunition.

Section 110104 required the study that is the subject of this report: a study of the effect of the ban, citing impacts on violent crime and drug trafficking in particular. It also specified the time period of the study: to begin 12 months after enactment, to be conducted over an 18-month period, and to be reported to Congress after 30 months. Finally, Title XI included a "sunset provision" for the ban, repealing it 10 years after its effective date.

Subtitles B and C of Title XI are relevant to this study because they took effect at the same time, and so special efforts are needed to distinguish their effects from those effects of the assault weapon and magazine bans in Subtitle A. With certain exemptions, Subtitle B bans the sale, delivery, or transfer of handguns to juveniles less than 18 years old. This juvenile handgun possession ban applies, of course, to assault pistols and to other semiautomatic handguns that are frequently recovered in crimes. Subtitle C requires applicants for new and renewal Federal Firearms Licenses — the Federal dealers' licenses — to submit a photograph and fingerprints with their applications and to certify that their businesses will comply with all state and local laws pertinent to their business operations. These subtitles gave force of law to practices that BATF had begun early in 1994, to require the fingerprints and photographs, and to cooperate with local law enforcement agencies in investigations of Federal Firearms Licensees' (FFLs) compliance with local sales tax, zoning, and other administrative requirements. These BATF practices are believed to have contributed to an 11 percent reduction in licensees (from 281,447 to 250,833) between January and the effective date of the Crime Act, and a subsequent 50 percent reduction to about 124,286 by December 1996 (U.S. Department of Treasury, 1997). These practices and subtitles were intended to discourage license applications and renewals by the subset of licensees least likely to comply with laws governing sales to felons, juveniles, and other prohibited purchasers.

2.2. Context for the Assault Weapons Ban

At least three considerations appear to have motivated the Subtitle A bans on assault weapons and large-capacity magazines: arguments over particularly dangerous consequences of their use, highly publicized incidents that drew public attention to the widespread availability of military-style weapons, and the disproportionate use of the banned weapons in crime.

The argument over dangerous consequences is that the ban targets a large array of semiautomatic weapons capable of accepting large-capacity magazines (i.e., magazines holding more than 10 rounds). Semiautomatic firearms permit a somewhat more rapid rate of fire than do non-semiautomatics. When combined with large-capacity magazines, semiautomatic firearms enable gun offenders to fire more times and at a faster rate, thereby increasing the probability that offenders hit one or more victims at least once.

There is very little empirical evidence, however, on the direct role of ammunition capacity in determining the outcomes of criminal gun attacks (see Koper 1995). The limited data which do exist suggest that criminal gun attacks involve three or fewer shots on average (Kleck 1991, pp.78-79; McGonigal et al. 1993, p.534). Further, there is no evidence comparing the fatality rate of attacks perpetrated with guns having large-capacity magazines to those involving guns without large-capacity magazines (indeed, there is no evidence comparing the fatality rate of attacks with semiautomatics to those with other firearms). But in the absence of substantial data on the dynamics of criminal shootings (including the number of shots fired and wounds inflicted per incident), it seems plausible that offenders using semiautomatics, especially assault weapons and other guns capable of accepting large-capacity magazines, have the ability to wound more persons, whether they be intended targets or innocent bystanders (see Sherman et al. 1989). This possibility encouraged us to attempt to estimate the effect of the ban on both the number of murder victims per incident and the number of wounds per murder victim.

The potential of assault weapons to kill multiple victims quickly was realized in several dramatic public murder incidents that occurred in the decade preceding the ban and involved assault weapons or other semiautomatic firearms with large-capacity magazines (e.g., see Cox Newspapers 1989; Lenett 1995). In one of the worst mass murders ever committed in the United States, for example, James Huberty killed 21 persons and wounded 19 others in a San Ysidro, California, McDonald's on July 18, 1984, using an Uzi handgun and a shotgun. On September 14, 1989, Joseph T. Wesbecker killed seven persons and wounded thirteen others at his former workplace in Louisville, Kentucky before taking his own life. Wesbecker was armed with an AK-47 rifle, two MAC-11 handguns, and a number of other firearms. One of the most infamous assault weapon cases occurred on January 17, 1989, when Patrick Edward Purdy used an AK-47 to open fire on a schoolyard in Stockton, California, killing 5 children.

There were additional high profile incidents in which offenders using semiautomatic handguns with large-capacity magazines killed large numbers of persons. In October of 1991, a gunman armed with a Glock 17, a Ruger P89 (both the Glock and Ruger models are semiautomatic handguns capable of accepting magazines with more than 10 rounds), and several large-capacity magazines killed 23 people and wounded another 19 in Killeen, Texas. In a December 1993 incident, six people were killed and another 20 were wounded on a Long Island commuter train by a gunman equipped with a semiautomatic pistol and large-capacity magazines.

These events have been cited as jarring the public consciousness, highlighting the public accessibility of weapons generally associated with military use, and demonstrating the apparent danger to public health posed by semiautomatic weapons with large-capacity magazines. These considerations, along with the claim that large-capacity magazines were unnecessary for hunting or sporting purposes, reportedly galvanized public support for the initiative to ban these magazines (Lenett, 1995).

Debate over assault weapons raged for several years prior to the passage of the 1994 Crime Act. Throughout that time, different studies, news reports, policy debates, and legal regulations employed varying definitions of assault weapons. Yet, in general terms, the firearms targeted in these debates and those ultimately prohibited by the federal government's ban consist of various semiautomatic pistols, rifles, and shotguns, most of which accept detachable ammunition magazines and have military-style features. Mechanically, the most important features of these guns are their semiautomatic firing mechanisms and the ability to accept detachable magazines, particularly large-capacity magazines. However, these traits do not distinguish them from many other semiautomatic weapons used for hunting and target shooting. Therefore, some have argued that assault weapons differ only cosmetically from other semiautomatic firearms (Kleck 1991; Cox Newspapers 1989).

Nonetheless, proponents of assault weapons legislation argued that these weapons are too inaccurate to have much hunting or sporting value. Furthermore, they argued that various features of these weapons, such as folding stocks and shrouds surrounding their barrels, have no hunting or sporting value and serve to make these weapons more concealable and practical for criminal use (Cox Newspapers 1989). To the extent that these features facilitated criminal use of long guns or handguns with large-capacity magazines, one could hypothesize that there would be an increase in the deadliness of gun violence. Proponents also claimed that some of these weapons, such as Uzi carbines and pistols, could be converted rather easily to fully automatic firing.[3]

To buttress these arguments, proponents of assault weapons legislation pointed out that assault weapons are used disproportionately in crime. According to estimates generated prior to the federal ban, assault weapons represented less than one percent of the over 200 million privately-owned guns in the United States; yet they were reported to account for 8% of all firearms trace requests submitted to BATF from 1986 to 1993 (Lenett 1995; also see Zawitz 1995). Moreover, these guns were perceived to be especially attractive to offenders involved in drug dealing and organized crime, as evidenced by the relatively high representation of these weapons among BATF gun trace requests for these crimes. To illustrate, a late 1980s study of BATF trace requests reported that nearly 30% of the guns tied to organized crime cases were assault weapons, and 12.4% of gun traces tied to narcotics crimes involved these guns (Cox Newspapers 1989, p.4).

Further, most assault weapons combine semiautomatic firing capability with the ability to accept large-capacity magazines and higher stopping power (i.e., the ability to inflict more serious wounds).[4] Thus, assault weapons would appear to be a particularly lethal group of firearms. However, this is also true of many non-banned semiautomatic firearms. Moreover, there have been no studies comparing the fatality rate of attacks with assault weapons to those committed with other firearms.

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[3] Fully automatic firearms, which shoot continuously as long as the trigger is held down, have been illegal to own in the U.S. without a federal permit since 1934. BATF has the responsibility of determining whether particular firearm models are too easily convertible to fully automatic firing. Earlier versions of the SWD M series assault pistols made by RPB Industries were met with BATF disapproval for this reason during the early 1980s.

[4] Determinants of firearm stopping power include the velocity, size, shape, and jacketing of projectiles fired from a gun. Notwithstanding various complexities, the works of various forensic, medical, and criminological researchers suggest we can roughly categorize different types of guns as inflicting more or less lethal wounds (see review in Koper 1995). At perhaps the most general level, we can classify shotguns, centerfire (high-veolocity) rifles, magnum handguns, and other large caliber handguns (generally, those larger than .32 caliber) as more lethal firearms and small caliber handguns and .22 caliber rimfire (low velocity) rifles as less lethal firearms. Most assault weapons are either high velocity rifles, large caliber handguns, or shotguns.

Nonetheless, the involvement of assault weapons in a number of mass murder incidents such as those discussed above provided an important impetus to the movement to ban assault weapons. Commenting on Patrick Purdy's murder of five children with an AK-47 rifle in Stockton, California in 1989, one observer noted, "The crime was to raise renewed outcries against the availability of exotic military-style weapons in our society. This time police forces joined forces with those who have traditionally opposed the widespread ownership of guns" (Cox Newspapers 1989, p.i). Later that year, California became the first state in the nation to enact an assault weapons ban, and the federal government enacted a ban on the importation of several foreign military-style rifles.

2.3. Assault Weapons and Crime

Table 2-1 describes the named guns banned by Subtitle A in terms of their design, price, pre-ban legal status, and examples of legal substitutes for the banned guns. The table also reports counts of BATF trace requests — law enforcement agency requests for BATF to trace the recorded purchase history of a gun. Trace counts are commonly used to compare the relative frequencies of gun model uses in crime, although they are subject to biases discussed in the next chapter. Together, the named guns and legal substitutes accounted for 3,493 trace requests in 1993, the last full pre-ban year. This represented about 6.3 percent of all 55,089 traces requested that year.

Of the nine types of banned weapons shown in Table 2-1, five are foreign-made: AKs, UZI/ Galil, Beretta Ar-70, FN models, and the Steyr AUG. Together they accounted for only 394 BATF trace requests in 1993, and 281 of those concerned Uzis. There are at least three reasons for these low frequencies. First, imports of all of them had been banned under the 1989 assault weapon importation ban. Second, the Blue Book prices of the UZI, FN models, and Steyr AUG were all high relative to the prices of guns typically used in crime. Third, the FN and Steyr models lack the concealability that is often desired in criminal uses.

Among the four domestically produced banned categories, two handgun types were the most frequently submitted for tracing, with 1,377 requests for TEC models and exact copies, and 878 traces of SWD's M-series. Table 2-1 also reports 581 trace requests for Colt AR-15 rifles, 99 for other manufacturers' exact copies of the AR-15, and a handful of trace requests for Street Sweepers and Berettas.

Table 2-1. Description of firearms banned in Title XI

Name of firearm	*Description*	*1993 Blue Book price*	*Pre-ban Federal legal status*	*1993 trace request count*	*Examples of legal substitutes*
Avtomat Kalashnikov (AK)	Chinese, Russian, other foreign and domestic: .223 or 7.62x39mm cal., semi-auto Kalashnikov rifle, 5, 10*, or 30* shot mag., may be supplied with bayonet.	$550 (plus 10-15% for folding stock models)	Imports banned in 1989	87	Norinco NHM 90/91
UZI, Galil	Israeli: 9mm, .41, or .45 cal. semi-auto carbine, mini-carbine, or pistol. Magazine capacity of 16, 20, or 25, depending on model and type (10 or 20 on pistols).	$550-$1050 (UZI) $875-$1150 (Galil)	Imports banned in 1989	281 UZI 12 Galil	
Beretta Ar-70	Italian: .222 or .223 cal., semi-auto paramilitary design rifle, 5, 8, or 30 shot mag.	$1050	Imports banned in 1989	1	
Colt AR-15	Domestic: .Primarily 223 cal. paramilitary rifle or carbine, 5-shot magazine, often comes with two 5-shot detachable mags. Exact copies by DPMS, Eagle, Olympic, and others.	$825-$1325	Legal (civilian version of military M-16)	581 Colt 99 Other manufacturers	Colt Sporter, Match H-Bar, Target. Olympic PCR Models.
FN/FAL, FN/LAR, FNC	Belgian design: .308 Winchester cal., semi-auto rifle or .223 Remington combat carbine with 30-shot mag. Rifle comes with flash hider, 4-position fire selector on automatic models. Manufacturing discontinued in 1988.	$1100-$2500	Imports banned in 1989	9	L1A1 Sporter (FN, Century)
SWD M-10, M-11, M-11/9, M-12	Domestic: 9mm paramilitary semi-auto pistol, fires from closed bolt, 32-shot mag. Also available in fully automatic variation.	$215	Legal	878	Cobray PM-11, PM12 Kimel AP-9, Mini AP-9
Steyr AUG	Austrian: .223 Remington/5.56mm cal., semi-auto paramilitary design rifle.	$2500	Imports banned in 1989	4	
TEC-9, TEC*DC-9, TEC-22	Domestic: 9mm semi-auto paramilitary design pistol, 10** or 32** shot mag.; .22 LR semi-auto paramilitary design pistol, 30-shot mag.	$145-$295	Legal	1202 Intratec 175 Exact copies	TEC-AB
Revolving Cylinder Shotguns	Domestic: 12 gauge, 12-shot rotary mag., paramilitary configuration, double action.	$525***	Legal	64 SWD Street Sweepers	

* The 30-shot magazine was banned by the 1994 Crime Act, and the 10-shot magazine was introduced as a result.
** The 32-shot magazine was banned by the 1994 Crime Act, and the 10-shot magazine was introduced as a result.
*** Street Sweeper
Source: *Blue Book of Gun Values*, 17th Edition, by S.P. Fjestad, 1996.

Although the banned weapons are more likely than most guns to be used in crime, they are so rare that only 5 models appeared among the BATF National Tracing Center list of the 50 most frequently traced guns in 1993: the SWD M-11/9 (659 trace requests, ranked 8), the TEC-9 (602 requests, ranked 9), the Colt AR-15 (581 requests, ranked 11), the TEC-DC9 (397 requests, ranked 21), and the TEC-22 (203, ranked 48). In addition, the list named eight unbanned guns that accept banned large-capacity magazines: the Glock 17 pistol (509 requests, ranked 13), the Ruger P85 pistol (403 requests, ranked 20), the Ruger P89 pistol (361 requests, ranked 24), the

Glock 19 pistol (339 requests, ranked 28), the Taurus PT92 (282 requests, ranked 31), the Beretta/FI Industries Model 92 pistol (270 requests, ranked 33), the Beretta Model 92 (264 requests, ranked 34), and the Ruger Mini-14 rifle (255 requests, ranked 36).

In contrast, the list of ten most frequently traced guns is dominated by inexpensive small-caliber semiautomatic handguns not subject to the ban. These included the Raven P-25 (1,674 requests, ranked 1), the Davis P380 (1,539 requests, ranked 2), the Lorcin L-380 (1,163 requests, ranked 3), the Jennings J-22 (714 requests, ranked 6), and the Lorcin L-25 (691 requests, ranked 7). Other guns among the 1993 top ten list were: the Norinco SKS, a Chinese-made semi-automatic rifle (786 requests, ranked 4); the Mossberg 500 .12-gauge shotgun (742 requests, ranked 5), and the Smith & Wesson .38 caliber revolver (596 requests, ranked 10). None of these are subject to the assault weapon ban.

The relative infrequency of BATF trace requests for assault weapons is consistent with other findings summarized in Koper (1995). During the two years preceding the 1989 import ban, the percentage of traces involving assault weapons reportedly increased from 5.5 to 10.5 percent for all crimes (Cox Newspapers, n.d., p.4), and was 12.4 percent for drug crimes. Because law enforcement agencies are thought to request BATF traces more frequently in organized crime and drug crime cases, many criminal researchers (including ourselves) believe that raw trace request statistics overstate the criminal use of assault weapons in crime. Based on more representative samples, Kleck (1991) reports that assault weapons comprised 3.6 percent or less of guns confiscated from most of the Florida agencies he surveyed, with only one agency reporting as high as 8 percent. Similarly, Hutson et al. (1994) report that assault weapons were involved in less than one percent of 1991 Los Angeles drive-by shootings with juvenile victims. Based on his reanalysis of 1993 New York City data, Koper (1995) concluded that assault weapons were involved in only 4 percent of the 271 homicides in which discharged guns were recovered and 6.5 percent of the 169 homicides in which ballistics evidence positively linked a recovered gun to the crime.

Koper (1995) also summarizes findings which suggest that criminal self-reporting of assault weapon ownership or use may have become "trendy" in recent years, especially among young offenders. The percentages of offenders who reported ever using weapons in categories that may have included assault weapons was generally around 4 percent in studies conducted during the 1980s, but rose to the 20- to 30-percent range in surveys of youth reported since 1993, when publicity about such weapons was high (see, e.g., Knox et al., 1994; Sheley and Wright, 1993).

2.4. Markets for Assault Weapons and Other Firearms

Predicting effects of the bans on assault weapons and large-capacity magazines requires some basic knowledge of firearms markets. The Federal Bureau of Alcohol, Tobacco and Firearms (BATF) licenses persons to sell or repair firearms, or accept them as a pawnbroker under the Gun Control Act of 1968. Cook et al. (1995, p.73) summarized the relevant characteristics of a Federal firearms licensee (FFL) as follows. Licenses are issued for three years renewable, and they allow Federal Firearm licensees to buy guns mail-order across state lines without a background check or a waiting period. Starting well before the 1994 Crime Act, applicants had to state that they were at least 21 years old and provide a Social Security number, proposed business name and location, and hours of operation. Since the 1968 Omnibus Crime Control and Safe Streets Act, FFL applicants have had to state that they were not felons, fugitives, illegal immigrants, or substance abusers, and that they had never renounced their American citizenship, been committed to a mental institution, or dishonorably discharged from the military.

The Gun Control Act of 1968 made these same categories of persons ineligible to purchase a gun from a licensee and required would-be purchasers to sign statements that they were not ineligible purchasers. The 1968

Act also requires FFLs to retain the records of each sale and a running log of acquisitions and dispositions of all guns that come into their possession. In 1993, the Brady Handgun Violence Prevention Act added several more requirements on handgun sales by FFLs; the focus on handguns reflected their disproportionate involvement in crime. Under the Brady Act, licensed dealers[5] became required to obtain a photo ID from each would-be handgun purchaser, to verify that the ID described the purchaser, to notify the chief law enforcement officer (CLEO) of the purchaser's home of the attempt to purchase, and to wait five business days before completing the sale, allowing the CLEO to verify eligibility and notify the seller if the purchaser is ineligible. The Brady Act also raised the fee for the most common license, Type 1 (retail), from $10.00 per year to $200.00 for the first three years and $90.00 for each three-year renewal.

Subtitle C of Title XI which took effect simultaneously with the 1994 assault weapons ban strengthened the requirements on FFLs and their customers in several ways, including the following. To facilitate fingerprint-based criminal history checks and to deter applicants who feared such checks, Subtitle C required FFL applicants to submit fingerprints and photographs; this ratified BATF practice that had begun in early 1994. To make FFLs more visible to local authorities, Subtitle C required applicants to certify that within 30 days they would comply with applicable local laws and required the Secretary of the Treasury to notify state and local authorities of the names and addresses of all new licensees. To help local law enforcement agencies recover stolen guns and to discourage licensees from retroactively classifying firearms they had sold without following Federally required procedures as "stolen," Subtitle C introduced requirements for FFLs to report the theft or loss of a firearm to BATF and to local authorities within 48 hours.

Assault weapons and other firearms are sold in primary and secondary markets whose structure was described by Cook et al. (1995). Primary markets include transactions by FFLs. At the wholesale level, licensed importers and distributors purchase firearms directly from manufacturers and advertise them through catalogs and display ads in nationally distributed publications such as *Shotgun News*. Under the law, purchasers may include walk-ins who reside in the distributor's state and FFLs from anywhere who can order guns by telephone, fax, or mail. Primary-market retailers include both large discount stores and smaller-volume independent firearms specialists who offer advice, gun service, sometimes shooting ranges, and other professional services of interest to gun enthusiasts. Some 25,000 independent dealers are organized as the National Alliance of Stocking Gun Dealers. At both the wholesale and retail level, primary-market sellers are legally required to verify that the purchaser is eligible under Federal laws, to maintain records of sales for possible future use in BATF traces of guns used in crime, and, since the effective date of the Crime Act, to report thefts of guns to BATF.

Cook et al. (1995, p.68) also designated "secondary markets," in which non-licensed persons sell or give firearms to others. Sellers other than FFLs include collectors or hobbyists who typically resell used guns through classified ads in newspapers or "consumer classified sheets," through newsletters oriented toward gun enthusiasts, or through word of mouth to family and friends. The secondary market also includes gun shows, "street sales", and gifts or sales to family, friends, or acquaintances. Secondary transfers are not subject to the record-keeping requirements placed on FFLs.

Gun prices in the primary markets are widely publicized, and barriers to entry are few, so that the market for legal purchasers is fairly competitive. For new guns, distributors' catalogs and publications such as *Shotgun News* disseminate wholesale prices. Prices of used guns are reported annually in a *Blue Book* catalog (Fjestad, 1996). Based on interviews with gun market experts, Cook et al. (1995, p.71) report that retail prices track

[5] The Brady Act exempted sellers in states that already had similar requirements to verify the eligibility of would-be gun purchasers.

wholesale prices quite closely. They estimate that retail prices to eligible purchasers generally exceed wholesale (or original-purchase) prices by 3–5 percent in the large chain stores, by about 15 percent in independent dealerships, and by about 10 percent at gun shows because overhead costs are lower.

In contrast, purchasers who wish to avoid creating a record of the transaction and ineligible purchasers, including convicted felons who lack convincing false identification and wish to avoid the Brady Act eligibility check or waiting period, must buy assault weapons and other guns in the secondary markets, which are much less perfect. Prices for banned guns with accurate and complete descriptions are rarely advertised, for obvious reasons. Sellers do not supply catalogues and reference books that would help an untrained buyer sort out the bewildering array of model designations, serial numbers, and detachable features that distinguish legal from illegal guns. And competition is limited because sellers who are wary of possible undercover purchases by law enforcement agencies prefer to limit "off-the-books" sales either to persons known or personally referred to them, or to settings such as gun shows and streets away from home, where they themselves can remain anonymous.

In general, ineligible purchasers face premium prices some 3 to 5 times legal retail prices.[6] Moreover, geographic differentials persist that make interstate arbitrage, or trafficking, profitable from "loose regulation" states to "tight regulation" states. Among the banned assault weapons, for example, Cook et al. (1995, p.72, note 56) report TEC-9s with an advertised 1991 price of $200 in the Ohio legal retail market selling for $500 on the streets of Philadelphia. By 1995, they report a legal North Carolina price of $300 compared to a street price of $1,000 in New York City. In 1992 interviews with Roth (1992), local and state police officers reported even higher premiums in secondary submarkets in which ineligible purchasers bartered drugs for guns: prices in terms of the street value of drugs reportedly exceeded street cash prices by a factor of about 5.

The attraction that the higher premiums hold for FFLs as sellers has been noted by both researchers and market participants. Cook et al. (1995, p.72) note that licensed dealers willing to sell to ineligible purchasers or without Federal paperwork offer buyers the combined advantages of the primary and secondary markets: "they have the ability to choose any new gun in the catalog, but without the paperwork, delays, fees, and restrictions on who can buy." Their data raise the possibility that up to 78 percent of FFLs in the Raleigh/Durham/Chapel Hill area of North Carolina may operate primarily or exclusively in secondary markets, since 40 percent had not given BATF a business name on their application, and an additional 38 percent provided "business" numbers that turned out to be home numbers (Cook et al., 1995:75). They note the consistency of their findings with a national estimate by the Violence Policy Center (1992 — More Gun Dealers than Gas Stations) that 80 percent of dealers nationwide do not have storefront retail firearms businesses. Jacobs and Potter (1995, p.106) note that because resource constraints have restricted BATF inspections to storefronts, dealers without storefronts may operate without regard to the Brady Act requirements, or presumably to other requirements as well.

The opportunities for FFLs, whether operating from storefronts or not, to sell firearms in both the primary and secondary markets, were colorfully described in the 1993 statement of the National Alliance of Stocking Gun Dealers (NASGD) to the House and Senate Judiciary Committees regarding Subtitle C. After noting the substantial price premium for selling guns directly felons to and others on the street, the statement continues:

> Should you feel a little queasy about the late night hours and the face-to-face negotiations with the street folk, then you can become a "gun-show cowboy." Simply drive by your friendly "distributor"..., load up 250 handguns, and hit the weekend circuit of gun shows...If you choose

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[6] There are exceptions. Guns fired in crimes may sell at substantial discounts on the street because ballistic "fingerprints" may incriminate the subsequent owner. Drug addicts who find and steal guns during burglaries may sell or trade them for drugs at prices far below market.

> to do the "cash and carry" routine then you will command higher prices than those who insist on selling lawfully with all the attendant ID and paperwork. However, since you will most probably be selling at gun shows in states other than where you are licensed, it is unlawful for you to sell and deliver on the spot, so you will not want to identify yourself either. Attendees (purchasers) at gun shows include the entire spectrum of the criminal element — felons, gangs who don't have their own armorer, underage youth, buyers for underage youth, multistate gun runners and such...Though the gun show cowboy won't achieve quite as high a profit as the street seller, he can sell in very high volume and easily earn the same dollar amount and feel a lot safer. (NASGD, 1993:2-3).

Pierce et al. (1995) made an initial effort to investigate the extent and distribution of FFLs' transactions in secondary submarkets through which firearms flow to criminal uses. Using the automated Firearms Tracing System (FTS) recently developed by BATF's National Tracing Center, they explored several covariates of the distribution of traces in which a given FFL holder is named. They reported the highest mean number of traces for dealers in Maryland, Vermont, and Virginia. Other cross-tabulations indicated that currently active dealers operating at the addresses previously used by out-of-business dealers were more likely than average to be named in traces, which suggests that dealers who are active in secondary markets tend to reapply for licenses under new names. Finally, they reported a very high concentration of dealers in trace requests. While 91.6 percent of the dealers in the FTS database had never been named in a trace, 2,133 dealers, 0.8 percent of the total, had been named in 10 or more traces. Together, they were named in 65.7 percent of all traces conducted. An even smaller handful of 145 dealers' names surfaced in 30,850 traces — 25.5 percent of the entire trace database. These findings indicated that the channels through which guns flow from FFLs to criminal users are more heavily concentrated than previously recognized.

The channels described above through which firearms flow from licensed dealers (FFLs) and eligible purchasers to ineligible purchasers vary in terms of visibility.[7] In primary markets, ineligible purchasers may buy guns from FFLs using fake identification themselves or using "straw purchasers" (eligible buyers acting as agents for ineligible buyers, unbeknownst to the FFL). In Cook and Leitzel's (1996) terminology, these are "formal" transactions that create official records, but the records do not identify the actual consumer.

We use the term "leakage" to designate channels through which guns flow from legal primary and secondary markets to ineligible purchasers. No leakage channel creates valid sales records; however, at least since 1994, all are likely to generate stolen gun reports to BATF. Ineligible purchasers may buy guns informally (i.e., without paperwork) from unethical FFLs at gun shows or through "street" or "back door" sales. To prevent informal sales from creating discrepancies between actual inventories and the acquisition/disposition records, the FFL may report them as stolen. Such transactions are indistinguishable from actual thefts, the other leakage channel.

Guns may also leak from eligible non-FFL gun owners to ineligible owners through direct sales on the street or at gun shows, or through thefts. While non-FFL owners are not required to record sales or transfers of their guns, they may also wish to report a gun that they sell to an ineligible purchaser as stolen if they suspect it may be recovered in a future crime. Therefore, leakage in secondary markets may also be reflected in theft reports.

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[7] While the law presumes ineligible purchasers to be more likely than eligible purchasers to use guns during crimes, eligible purchasers have, in fact, committed viable crimes with large-capacity firearms.

3. ANALYSIS PLAN

Subtitle A of Title XI banned the manufacture, transfer, and possession of assault weapons and large-capacity magazines. We hypothesized that the ban would produce direct effects in the primary markets for these weapons, that related indirect effects in secondary markets would reduce the frequency of their criminal use, and that the decrease in use would reduce such consequences as gun homicides, especially incidents involving multiple victims, multiple wounds, and killings of law enforcement officers. In this chapter, we explain our general strategy testing these hypotheses.

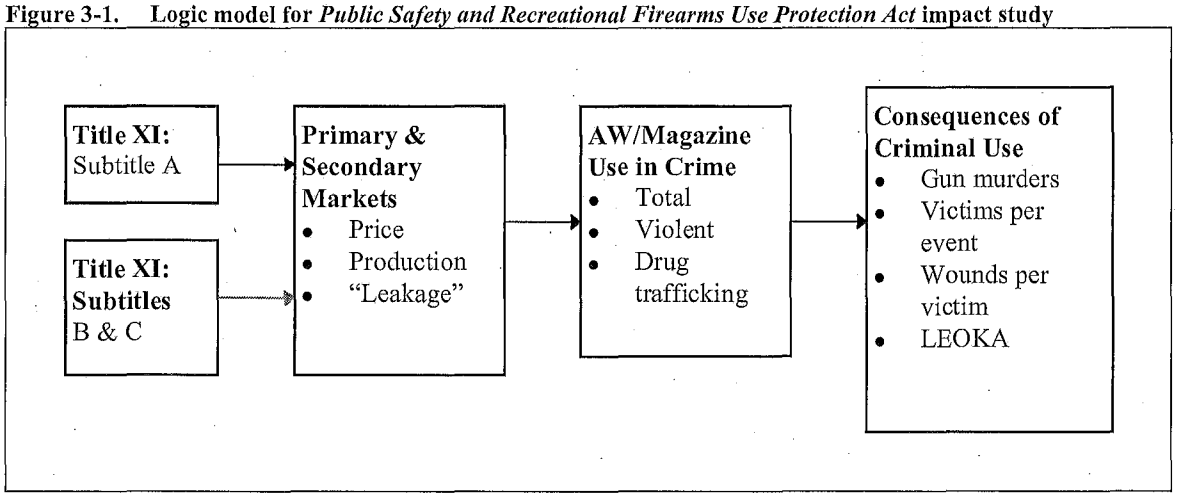
3.1. POTENTIAL BAN EFFECTS

Figure 3-1 displays the ban effects that we hypothesized and the measures that we used to test those effects. As shown there, we anticipated potential effects on primary and secondary markets for the banned guns and magazines, potential reductions in their use in crime, and subsequent reductions in the consequences of criminal use. Although the available measures of any single effect are problematic, the problems differ by measure. Therefore, our approach was to conduct several small studies, each subject to different error sources, and then to integrate the findings of the separate studies.

As shown in Figure 3-1, the **market effects** of interest included indicators of price, production, and "leakage" between primary and secondary markets. If the Subtitle A bans are to be effective in reducing criminal uses of the banned weapons and magazines, they must increase the prices of those items. Our **price** indicators were collected for banned guns, selected legal substitutes, large-capacity magazines, and, as comparison groups, comparable guns that should not have been directly affected by the ban. The data were the nationally advertised prices of distributors who ran display ads in *Shotgun News* continuously from January 1992 through mid-1996. Because these distributors sell guns simultaneously at the wholesale and retail levels, and because primary-market retail margins are small, we believe these prices offer a useful index of primary-market prices. We used hedonic price analysis to study trends. Annual **production** data were obtained from the Violence Policy Research Project, an organization that compiles BATF manufacturing data. We lacked post-ban data because release of the production statistics is delayed two years by law. Also, we had to make certain approximations because production statistics are not reported for specific models. Therefore, findings from our tabular analyses of production are less complete and more tentative than those about price. Finally, as discussed in Section 3.2, we defined **"leakage"** as the transfer of firearms to ineligible purchasers from licensed dealers and eligible purchasers. Because we argued there that leakage is likely to generate theft reports (either because the guns were transferred by theft or because a false theft report was used to conceal a sale to an ineligible purchaser), we measured leakage using counts of stolen gun reports to the FBI's National Crime Information Center (NCIC).

Our primary indicator of assault weapon **use in crime** is the volume of requests for BATF traces of guns recovered in crime. **Trace request** data have the advantage of providing a national picture, and they allow us to focus on two of the Congressional priorities for this study, violent crime and drug trafficking crime. They require special caution in interpretation, however, since trace requests are a small and unrepresentative sample of guns recovered in crime. We believe that our tabular analyses provide a defensible estimate of the short-term effects of Title XI on criminal use of the banned weapons. We attempted to supplement the national analysis with analyses of **local trends in recovered assault weapons** in representative samples of recovered guns from a number of law enforcement agencies, but could obtain the necessary data for only a few cities.

Figure 3-1. Logic model for *Public Safety and Recreational Firearms Use Protection Act* impact study



Finally, as shown in Figure 3-1, we used four indicators of the **consequences** of criminal use of assault weapons and semiautomatic weapons with large-capacity magazines: total gun murders by state, victims per criminal event involving gun murder, entry wounds per gunshot wound victim, and law enforcement officers killed in action. While these indicators all have logical relationships to use of the banned items, all have difficulties. Total gun murders is an insensitive indicator because attacks with assault weapons and other semiautomatics with large-capacity magazines account for only a fraction of all murders. Other consequences such as victims per event and wounds per victim are more specific to the banned weapons and magazines, as supporters argued during the ban debates, and assault weapons are more disproportionately used in killings of law enforcement officers than in other murders. However, available databases for measuring those impacts are difficult to analyze because they contain such small numbers of cases. And, for all the indicators, the existence of only one full post-ban year in available data may make the estimates too imprecise to discern short-run impacts even if they are large enough to be of policy interest. As a result, our findings about ban effects on consequences are especially tentative.

We anticipated that market effects during the short-term period allowed for this study would be heavily influenced by expectations. Enactment of the ban was preceded by extensive publicity and debate, which afforded time for manufacturers, distributors, retailers, and collectors to speculate that the firearms being considered for ban coverage would eventually become expensive collectors' items. Analogous experience from 1989 seemed instructive, because that year saw both a Federal ban on importation of assault rifles and a California ban analogous to Title XI. During the three months leading up to the importation ban, import license requests for assault rifles, which had numbered 40,000 in 1987 and 44,000 in 1988, swelled 10-fold to an annual rate of 456,000 (AMA Council, 1992). It is not clear how rapidly the import surge flowed through the distribution chain from importers to consumers in the primary and secondary markets. Yet six months later, during the period leading up to a California ban and sentence enhancement, several police agencies reported sharp decreases in criminal use of assault rifles. At the time, observers attributed this seeming paradox to advance publicity that may have left the misimpression that the ban took effect when enacted, judicial anticipation of the enhancements in setting bond and imposing sentence, tips to police from law-abiding gun dealers sensitive to the criminal gun use that motivated the ban, and owners' reluctance to risk confiscation for misuse of their assault weapons, which had become more valuable in anticipation of the ban (Mathews, 1989). However, it is equally plausible that the speculative price increases for the banned weapons in formal markets at least temporarily bid assault weapons

away from ineligible purchasers who would more probably have used them in crimes (Cook and Leitzel, 1996).[8] Whether these short-run conditions would hold for the long run would depend on the extent to which grandfathered guns in the banned categories leaked into secondary markets over time through gun shows, "back door" sales, and thefts.

Therefore, our objectives became to estimate ban-related effects on price, supply responses, and leakage from formal to informal markets; to estimate how these market effects influenced criminal assault weapon use; and to estimate trends in the consequences of that use. In accordance with the statutory study requirement, we placed special emphasis on the use of assault weapons in violent crime and drug trafficking crime wherever available data permitted.

3.2. General Design Strategy

Our general design strategies are to test whether the assault weapon and magazine bans interrupted trends over time in the outcome measures listed above. A variety of techniques exist for this general problem. They differ in terms of desirable qualities such as statistical power, robustness against various threats to the validity of findings, and precision; unfortunately, the techniques with more desirable properties are generally more demanding in terms of data requirements. Because of different data constraints, we employed a variety of methods, including various forms of time series and multiple regression analysis (i.e., pooled, cross-sectional time series analysis, hedonic price analysis, and Box-Jenkins interrupted time series models), simple before and after comparisons, and graphical displays. As a result, our conclusions about some measures are stronger than about others.

Because we anticipated these circumstances, our approach to the Congressional mandate was to conduct a number of small-scale analyses of more-or-less readily available data, then to synthesize the results into our best judgment concerning the impacts of Title XI.[9] We carried out three kinds of analyses of market effects:

- Hedonic price analyses of 1992–96 primary-market price trends for banned semiautomatic firearms, comparable unbanned firearms, and large-capacity magazines, using national distributors' prices;
- Tabular analyses of gun production data through 1994, the latest available year;
- Pre-ban/post-ban comparisons and time series analyses of 1992–96 trends in "leakage" to illegal markets, as measured by guns reported stolen to FBI/NCIC.

We carried out two kinds of analyses of assault weapon use:

- Graphical and tabular analyses of 1992–96 trends in requests for BATF traces of assault weapons recovered in crime, in both absolute terms and as a percentage of all requests;

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[8] While unbanned, widely available, inexpensive semiautomatic pistols made by Lorcin, Davis, and other manufacturers are good (and perhaps superior) substitutes for the banned assault weapons in most criminal uses, they are not substitutes for speculative purposes.

[9] During the project, we abandoned early plans for several additional impact studies that we had contemplated. It proved impossible to analyze trends in enforcement of the ban because of the small numbers of matters referred to U.S. Attorneys and cases filed in U.S. District Court. We were forced to abandon plans to measure secondary-market prices of banned weapons from classified advertisements for two reasons: back issues of consumer classifieds proved unavailable, and the ads describe the weapons too imprecisely for consistent classification. Finally, we dropped plans to analyze multi-city assault weapon use data from the gun module of the Drug Use Forecasting (DUF) program for two reasons. Data exist only for the post-ban period, and we had concerns about the validity of respondents' reports of assault weapon ownership and use.

- Pre-ban/post-ban comparisons and time series analyses of 1992–96 trends in counts of guns recovered in crime by selected local law enforcement agencies.

We carried out the following analyses of the consequences of using assault weapons and semiautomatics with large-capacity magazines in crime:

- An analysis of state-level time-series data on gun murders which controls for potential influences of legal, demographic, and criminological importance;
- Pre-ban/post-ban comparisons and time series analyses of 1980–95 trends in victims per gun-homicide incident as measured nationally from Supplementary Homicide Reports;
- Descriptive analysis of the use of assault weapons in mass murders in the U.S. from 1992-present (see Appendix A);
- Graphical analyses and pre-ban/post-ban comparisons of 1992–96 trends in the number of wounds per gunshot victim using medical data from medical examiners and one hospital emergency department in selected cities, following Webster et al. (1992) and McGonigal et al. (1993);
- A tabular analysis of 1992–96 trends in law enforcement officers killed in action (LEOKA) with assault weapons.

3.2.1. Threats to Validity and Use of Comparison Groups

The validity of the techniques we applied depends on comparisons of trends between meaningful treatment and comparison groups, and we used two approaches to defining comparison groups. In general, to estimate ban effects on markets and uses, we compared trends between types of guns and magazines that were differentially affected by the ban. To estimate effects on the consequences of assault weapon use, we used pre-existing state-level bans on assault weapons and juvenile handgun possession to define comparison groups, because we assumed that such laws would attenuate the effects of the Federal ban.[10]

Table 3-1 describes our general classification scheme for types of guns affected by the ban and the corresponding comparison groups.[11] The comparisons are not always precise, and, as later chapters will make clear, they differ from measure to measure depending on the gun descriptors used in available databases.

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[10] Although in theory, comparisons of markets and uses could be made simultaneously by weapon and jurisdiction, the disaggregation often leaves too little data for meaningful analysis.

[11] To be considered a potential comparison gun, we had to have at least anecdotal evidence that it had appeal beyond the community of sportsmen and collectors and/or evidence that it was among the 50 guns most commonly submitted for BATF traces. Without that constraint, it would have been unreasonable to consider it as being functionally similar to any banned gun, and data on prices and uses would have involved numbers too small to analyze. The trade-off is that the comparison guns may well have been subject to indirect substitution effects from the ban.

Table 3-1. Banned weapons and examples of unbanned comparison weapons

Banned weapon	***Examples of Comparison weapon***
Named Domestic Assault Pistols	
-SWD M-10, M-11, M-11/9, M-12, exact copies under other names, legal substitutes -TEC-9, TEC-DC9,TEC-22, exact copies by AA Arms, legal substitutes	-Lorcin, Davis semiautomatic pistols (less expensive) -Glock, Ruger semiautomatic pistols (more expensive)
Named Domestic Assault Rifles	
-Colt AR-15, exact copies and legal substitutes	-Ruger Mini-14 (unbanned domestic) -Maadi (legal import)
Named Foreign Assault Weapons	
-UZI carbines and pistols -AK models	-SKS (recently restricted, widely available import)
"Features Test" Guns	
Calico Light Weapons pistols and rifles Feather rifles	See pistols and rifles above.
Rare Banned Weapons	
Beretta Ar-70, FN models, Steyr AUG, revolving cylinder shotguns	No comparisons defined.

Of the banned weapons named in Table 3-1, the named domestic assault pistols are of greatest interest because they are more widely used in crime than rifles. We used two categories of pistols as comparison groups: the cheap small-caliber pistols by Lorcin and Davis that are among the most widely used guns in crime, and the more expensive Glock and Ruger pistols. The Glock and Ruger models took on additional significance by serving as indicators of non-banned handguns capable of accepting large-capacity magazines. For the AR-15 family of assault rifles, we used the Ruger Mini-14, SKS, and/or Maadi rifles in various comparisons. All are legally and widely available.

We performed relatively few comparative analyses of named foreign assault weapons, the UZI, Galil, and AK weapons, because the 1989 import ban limited their availability during our observation period, and their legal status was unchanged by the Title XI ban. Nevertheless, because these guns remain in criminal use, we performed price analyses for their large-capacity magazines, which are also widely available from foreign military surplus. The SKS semiautomatic rifle, which was imported from China and Russia in fairly large numbers[12] until recently, served as an unbanned comparison weapon for the banned foreign rifles. We carried out no analyses concerning the rarest assault weapons shown in Table 3-1.

Because few available databases relate the consequences of assault weapon use to the make and model of weapon, most of our analyses of consequences are based on treatment and comparison jurisdictions defined in terms of their legal environments. Four states — California, Connecticut, Hawaii, and New Jersey — already

[12] Although a 1994 ban on Chinese imports of many goods including firearms nominally covered SKS rifles, large numbers continued to enter the country under Craig Amendment exemptions for goods already "on the water" at the time of the import ban.

banned assault weapons before the Federal ban was enacted. Although state bans can be circumvented by interstate traffickers, we hypothesized that their existence would reduce the effects of the Federal ban in their respective states.

The following chapters report findings of the analyses described here. Each chapter also explains in detail the tailoring of this general analysis plan to data constraints associated with each comparison.

4. GUN AND MAGAZINE MARKET EFFECTS

The discussion of gun markets in Chapter 2 led us to several hypotheses. First, assuming that the primary and secondary markets were in equilibrium before Congress took up serious discussion of a ban on assault weapons and large-capacity magazines, we hypothesized that the opening of debate would stimulate speculative demand for the banned guns and magazines, leading to price increases in primary markets well in advance of the effective date of the ban. Second, we hypothesized that for the makes and models of assault weapons whose prices increased, quantities produced would also increase before the ban took effect. These "grandfathered guns" were exempted from the ban.

Having been advised by a gun market expert[13] that legal substitutes for many of the banned weapons appeared in primary markets around the effective date of the ban, it seemed doubtful that the speculative pre-ban price increases could hold under the combined weight of stockpiled grandfathered guns and the flows of new legal substitute models. Therefore, our third hypothesis was that the post-ban prices of banned guns and their legal substitutes would return to their pre-debate equilibrium levels.

We presumed that assault weapons and large-capacity magazines are economic complements, so that, like bread and butter, an increase in the supply of either one should decrease its price and increase the price of the other. Therefore, our fourth hypothesis was that, for the oversupplied assault weapons and legal substitutes whose prices fell from their speculative peaks, their magazine prices[14] should rise over time, as the stock of grandfathered magazines dwindled.

Finally, we believed that for banned makes and models whose prices experienced a speculative price bubble around the time of the ban and then returned to pre-ban levels, speculative demand would fall eventually in both primary and secondary markets as expectations receded for a price "rebound" in primary markets. In contrast, demand by ineligible purchasers intending to use the banned weapons in crime should be relatively unaffected. Therefore, at least in the short run, relative prices should rise in secondary markets, where such "crime demand" is concentrated. We could not directly observe secondary-market prices. However, a price rise in secondary relative to primary markets should cause increased "leakage" to secondary markets, reflected in rising theft reports of assault weapons during post-ban periods of low prices in primary markets.

The following sections report the methods we used to test these hypotheses about market effects of the ban, and our findings.

4.1. FINDINGS OF PRICE ANALYSIS

4.1.1. Collection of Price Data

To test our hypotheses about price trends, we sought to approximate the prices at which the banned items could be legally purchased throughout the country. After considering available data sources, we decided that monthly data would be sufficient and that the distributors' prices advertised in national publications would offer a

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[13] William R. Bridgewater, personal communication, September 1995.

[14] Magazines are make and model-specific, so that in general a magazine made for a specific rifle will not fit other rifles. However, a magazine made for a banned assault rifle like the Colt AR-15 will fit an exact copy like the Olympic Arms AR-15 and a legal substitute like the Colt AR-15 Sporter, which has the same receiver.

suitable index. Those prices are available to any FFL, and, as discussed in Chapter 2, primary-market FFLs generally re-sell within 15 percent of the distributors' price.

To collect the necessary data, we developed two forms. The first was designed to collect data on base price and accessorized price on 47 makes and models of guns. These included all guns named in Subtitle A along with selected legal substitutes and functional substitutes (e.g., low-capacity semiautomatic pistols that are commonly used in crimes). The second form recorded make, model, capacity, and price of any advertised large-capacity magazines. Both forms also recorded the distributors' names and, for verification purposes, a citation to the location of the advertisements.

We selected twelve gun and magazine distributors that had display ads on a monthly basis in *Shotgun News* throughout the entire period from April 1992 through June 1996. This period was selected to permit observation of rumored "Clinton election" price effects (i.e., increased speculative demand based on concern over possible new gun controls under a Democratic administration) as well as the entire period of debate over Subtitle XI and as long a post-ban period as possible. Display ad prices were coded on a monthly basis throughout the period except immediately around the ban, from August 1994 to October 1994, when prices were coded on a weekly basis to maximize statistical power during the period when we expected the largest price variances. The Shotgun News issue to be coded for each month was selected randomly, to avoid any biases that might have occurred if a particular part of the month was coded throughout the period. The number of advertised-price observations for any given gun varied from month to month over the period, as distributors chose to feature different makes and models. The number of price observations for a given make and model bears an unknown relationship to the number of transactions occurring at that price. The advertised prices should be considered approximations for at least three reasons. Advertised prices simultaneously represent wholesale prices to retail dealers and retail prices to "convenience dealers" who hold licenses primarily to receive guns for personal use by mail from out-of-state sources. There is anecdotal evidence of discounts from advertised prices for purchases in large quantities or by long-time friends of the distributors. Finally, the ads did not permit us to accurately record such price-relevant features as finish, included gun cases, and included magazines.

4.1.2. Analysis

Price trends for a number of firearms and large-capacity magazines were analyzed using hedonic price analysis (Berndt 1990, pp.102-149; also see Chow 1967). This form of analysis examines changes over time in the price of a product while controlling for changes over time in the characteristics (i.e., quality) of the product. Hedonic analysis employs a model of the form:

$$Y = a + b * X + c_1 * T_1 + \ldots c_n * T_n + e$$

where Y is the logarithmic price of the product, X represents one or more quality characteristics affecting the price of the product, T_1 through T_n are dummy variables for the time periods of interest, a is an intercept term, and e is an error term with standard properties. The coefficients c_1 through c_n provide quality-adjusted estimates of changes over time in the price of the product.

In the analysis that follows, all price data were first divided by quarterly values of the gross domestic product price deflator as provided in *Economic Indicators* (August 1996). This quantity was then logged. In all models, we have omitted the time dummy for the period when the ban went into effect. Thus, the time coefficients are interpreted relative to the prices at the time of ban implementation. Because the outcome variable is logged, the coefficients on the time period indicators can be interpreted as multiplier effects (we illustrate this in more

detail below). Whenever possible, we examined quarterly price trends. In a number of instances, however, sample size considerations required us to use semi-annual or annual periods.

Our quality variables correspond to factors such as manufacturer, model, distributor, and, in some cases, weapon caliber. In addition, some of the models include an indicator variable denoting whether the firearm had special features or enhancements or was a special edition of any sort.[15] We have used these variables as proxy variables for quality characteristics in the absence of more detailed measures of weapon characteristics. Further, we cannot fully account for the meaning of significant distributor effects. Distributor effects may represent unmeasured quality differentials in the merchandise of different distributors, or they may represent other differences in stock volume or selling or service practices between the distributors.[16] Nevertheless, we included distributor because it was often a significant predictor of price. Thus, our models provide price trends after controlling for the mix of products and distributors advertised during each time period. Finally, the models presented below are parsimonious models in which we have retained only those quality indicators which proved meaningful in preliminary analyses.[17]

4.1.2.1. Gun Prices

For the analysis of firearm prices, we chose groups of weapons based on both theoretical importance and data availability (a number of the guns included on our coding form appeared infrequently in the ads examined by project staff). We examined price trends in banned assault pistols and compared them to price trends for unbanned semiautomatic handguns commonly used in crime. In addition, we analyzed the price trend for the banned AR-15 assault rifle and its variations and compared it to trends for a number of similar semiautomatic rifles not subject to the ban.

Our findings for handguns were consistent with our hypotheses. For the banned SWD group of assault pistols, the average advertised price peaked at the time the ban took effect, having risen from 68 percent of the peak a year earlier; within a year, the mean price fell to about 79 percent of peak. In contrast, advertised prices of unbanned Davis and Lorcin semiautomatic pistols commonly used in crime were essentially constant over the entire period.

Rifle price trends were only partially consistent with our hypotheses. For semiautomatic rifles, prices of both the banned AR-15 family of assault rifles and a comparison group of unbanned semiautomatic rifles showed evidence of speculative peaks around the time the ban took effect, followed by a decrease to approximately pre-speculation levels.

We interpret these findings as evidence of substantial speculative pre-ban demand for guns that were expected to be banned as assault weapons, while the underlying primary market for guns more commonly used in crime remained stable. While no plausible definition of assault weapon was ever likely to include the Davis and

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[15] We note, however, that recording special features of the weapons was a secondary priority in the data collection effort; for this reason, and because the ads do not follow a consistent format, this information may not have been recorded as consistently as other data elements.

[16] We have heard speculations but have no evidence that distributors' prices for a given quantity of a specific gun may be inversely related to the rigor of their verification of purchasers' eligibility.

[17] We eliminated control variables that had t values less than one in absolute value. This generally improved the standard errors for the coefficients of interest (i.e., the coefficients for the time period indicators).

Lorcin pistols, Lenett (1995) describes considerable uncertainty during the Crime Act debate over precisely which rifles were to be covered.

Assault pistols: The analysis of assault pistol prices focused on the family of SWD M10/M11/M11-9/M12 weapons.[18] [19] Our coders did not find enough ads for these weapons to conduct a quarterly price trend analysis; therefore, we examined semi-annual prices. Results are shown in Table 4-1. In general, the M10, M11, and M11/9 models were significantly more expensive than the M12 model and the new PM11 and PM12 models. Models with the Cobray trademark name had lower prices, while weapons made in .380 caliber commanded higher prices. Finally, two distributors selling these weapons had significantly lower prices than did the other distributors.

[18] Over the years, this class of weapons has been manufactured under a number of different names (i.e., Military Armaments Corp., RPB Industries, Cobray, SWD, and FMJ).

[19] Initially, we had also wished to analyze the prices of banned Intratec weapons and their copies. However, project staff found few ads for these guns among the chosen distributors, particularly in the years prior to the ban's implementation.

Table 4-1. Regression of SWD handgun prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	16	16.26086	1.01630	13.376	0.0001
Error	132	10.02900	0.07598		
C Total	148	26.28986			

Root MSE	0.27564	R–square	0.6185
Dep Mean	0.87282	Adj R–square	0.5723

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	1.00876	0.073205	13.78	0.0001
T1	1	-0.17097	0.130798	-1.307	0.1935
T2	1	-0.29236	0.109943	-2.659	0.0088
T3	1	-0.26949	0.078477	-3.434	0.0008
T4	1	-0.38309	0.086909	-4.408	0.0001
T5	1	-0.1881	0.12957	-1.452	0.1489
T7	1	-0.04368	0.076185	-0.573	0.5674
T8	1	-0.23376	0.108602	-2.152	0.0332
T9	1	0.108787	0.205848	0.528	0.5981
CAL380	1	0.200609	0.06946	2.888	0.0045
DIST 3	1	-0.26216	0.128954	-2.033	0.0441
DIST 5	1	0.331378	0.224065	1.479	0.1415
DIST 6	1	-0.18987	0.059367	-3.198	0.0017
COBRAY	1	-0.18832	0.053756	-3.503	0.0006
M10	1	0.771313	0.131932	5.846	0.0001
M11	1	0.308675	0.057351	5.382	0.0001
M119	1	0.110174	0.077347	1.424	0.1567

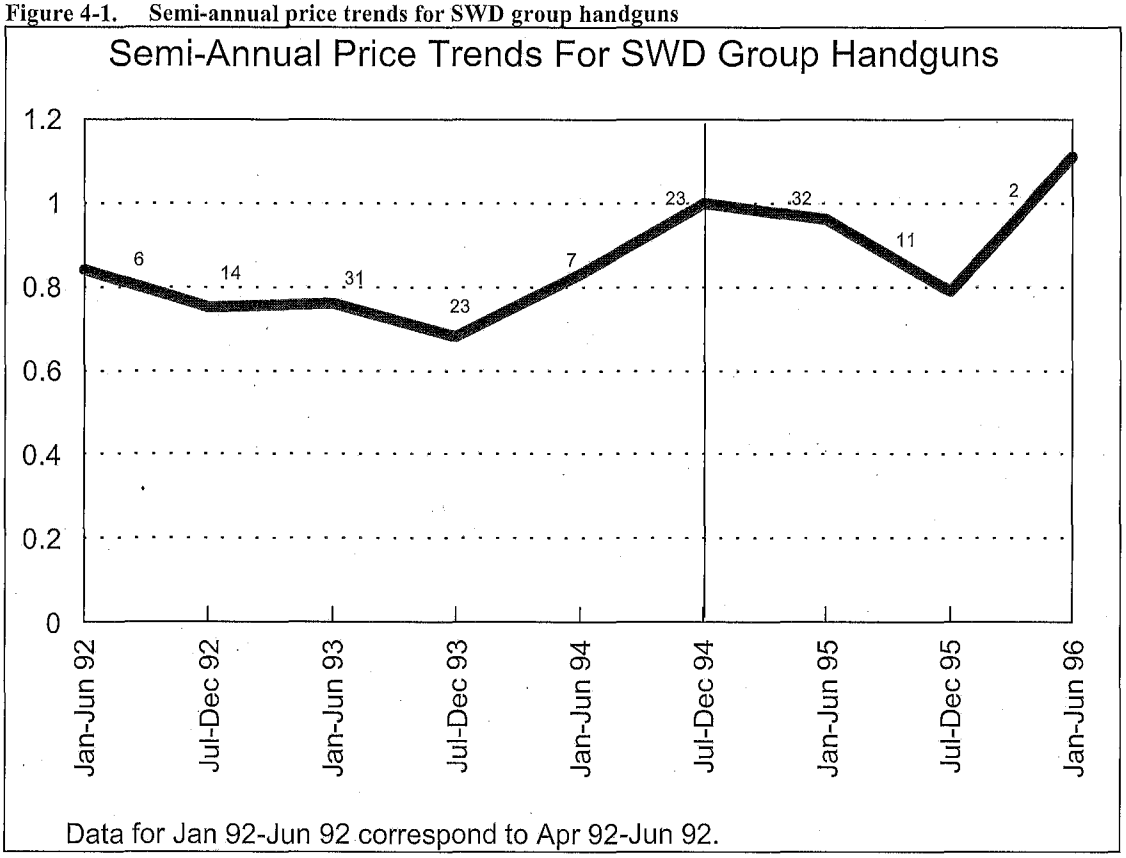
The coefficients for the time indicator variables provide quality-adjusted price trends. The time indicator t6 has been omitted from the equation.[20] This indicator corresponds to the period of July 1994 through December 1994 which encompasses the ban implementation date of September 13, 1994. The coefficients on the time dummy variables are all negative and most are significant, indicating that prices for these weapons were at their highest during the six month period when the ban took effect. To interpret the time variables, we exponentiate the coefficients (i.e., take their antilogs). To illustrate, the coefficient for the first time period (January 1992 through June 1992) is -0.170966.[21] Exponentiating this coefficient yields approximately 0.84, indicating that the average price of these weapons at time 1 (January 1992 through June 1992) was 84 percent of the average price at time 6

[20] In this and all other price analyses, time dummies are defined to omit the time period that includes the effective date of the ban. This restricts the coefficient to 0 and exp(0) = 1. Therefore, the effective date is the reference period for prices in all other periods.

[21] Data collection began with April 1992 issues of Shotgun News. Consequently, the first data point is based on data for April through June of 1992 rather than a full six-month period.

(July 1994 through December 1994). Conversely, the average quality-adjusted price of these firearms was 17 percent less during the January 1992-June 1992 period than during the July 1994-December 1994 period.

Figure 4-1. Semi-annual price trends for SWD group handguns



The time effects are displayed graphically in Figure 4-1 (sample sizes are shown for each time period).[22] During the semi-annual periods prior to the ban's implementation, prices of these weapons ranged from 68 to 83 percent of their price during the period of the ban's implementation. Prices peaked when the ban became effective in the latter part of 1994 and remained high through the first half of 1995. In the second half of 1995, however, the prices dropped off dramatically, falling to levels comparable to the pre-ban period. Prices may have rebounded again during the first half of 1996, but the apparent "rebound" was based on only two advertisements and should be treated very cautiously. If one assumes that wholesale markets were in equilibrium before debates about the ban started, then these data reflect a ban-related, speculative peak of up to 47 percent in price, followed by a decline of about 20 percent. Parenthetically, we note that contrary to some anecdotes, we found no evidence of speculation related to the 1992 election.

Comparison handguns: For comparison, we also examined price trends for a number of unbanned semiautomatic handgun models: the Davis P32 and P380 and the Lorcin L25 and L380. By a number of accounts, these models are among the guns most frequently used in crime (BATF 1995; Kennedy et al. 1996; Wintemute 1994, Chapter 2 supra). Because of small sample size, this model was estimated using semi-annual data spanning from 1992 through 1995. Referring to Table 4-2, two of the handgun models were significantly less expensive than the others, and one distributor offered statistically significant discounts for these guns.

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[22] Sample sizes are defined in terms of number of price observations available during the period. The number of transactions that took place at each recorded price is, of course, unavailable to us.

Table 4-2. Regression of Lorcin and Davis handgun prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	11	3.60246	0.32750	30.678	0.0001
Error	81	0.86469	0.01068		
C Total	92	4.46716			

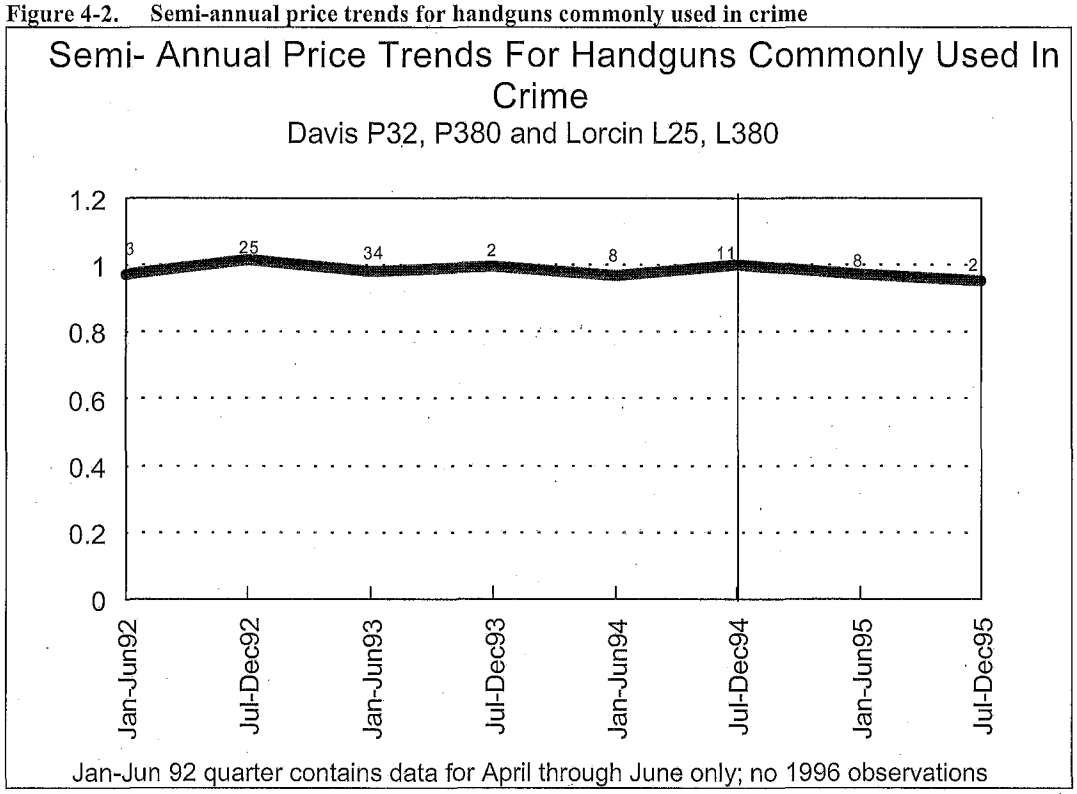
Root MSE	0.10332	R–square	0.8064
Dep Mean	-0.60396	Adj R–square	0.7801
C.V.	-17.10713		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	-0.44243	0.034043	-12.996	0.0001
T1	1	-0.03004	0.069877	-0.43	0.6684
T2	1	0.014817	0.040258	0.368	0.7138
T3	1	-0.0198	0.037239	-0.532	0.5964
T4	1	-0.00259	0.082314	-0.031	0.975
T5	1	-0.03162	0.048582	-0.651	0.517
T7	1	-0.02753	0.048576	-0.567	0.5724
T8	1	-0.05041	0.082314	-0.612	0.542
P32	1	-0.22559	0.033404	-6.753	0.0001
L25	1	-0.55562	0.034119	-16.285	0.0001
DIST 2	1	-0.06434	0.030256	-2.127	0.0365
DIST 6	1	-0.05723	0.042414	-1.349	0.181

The time period coefficients indicate that prices for these weapons were unaffected by the assault weapons ban. Most of the time dummies have negative signs, but their t score values are very small, indicating that prices during these periods did not differ meaningfully from those at the time when the ban was implemented. This is underscored graphically in Figure 4-2.

Figure 4-2. Semi-annual price trends for handguns commonly used in crime



Assault rifles: To investigate the ban's effect on assault rifle prices, we examined quarterly price trends for the Colt AR15 family, which includes the AR15 as well as Colt's Sporter, H-Bar, and Target models.[23] Referring to Table 4-3, the AR15 model was more expensive than other models. Further, guns which had special features/enhancements or a special designation of some sort had somewhat higher prices. Models in 7.62mm caliber were lower in price than other models, though this effect was not quite statistically significant. Finally, one distributor stood out as having lower prices than other distributors.

[23] A number of other manufacturers also made exact copies of the Colt AR15 (e.g., Essential Arms, Olympic Arms, and SGW Enterprises). We included a number of these copies on our price coding form before the ban and legal substitutes thereafter, but we did not find advertisements for these non-Colt versions in *Shotgun News*.

Table 4-3. Regression of Colt AR15 group prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	23	21.67729	0.94249	18.161	0.0001
Error	235	12.19537	0.05190		
C Total	258	33.87266			

Root MSE	0.22781	R–square	0.6400
Dep Mean	2.13335	Adj R–square	0.6047
C.V.	10.67826		

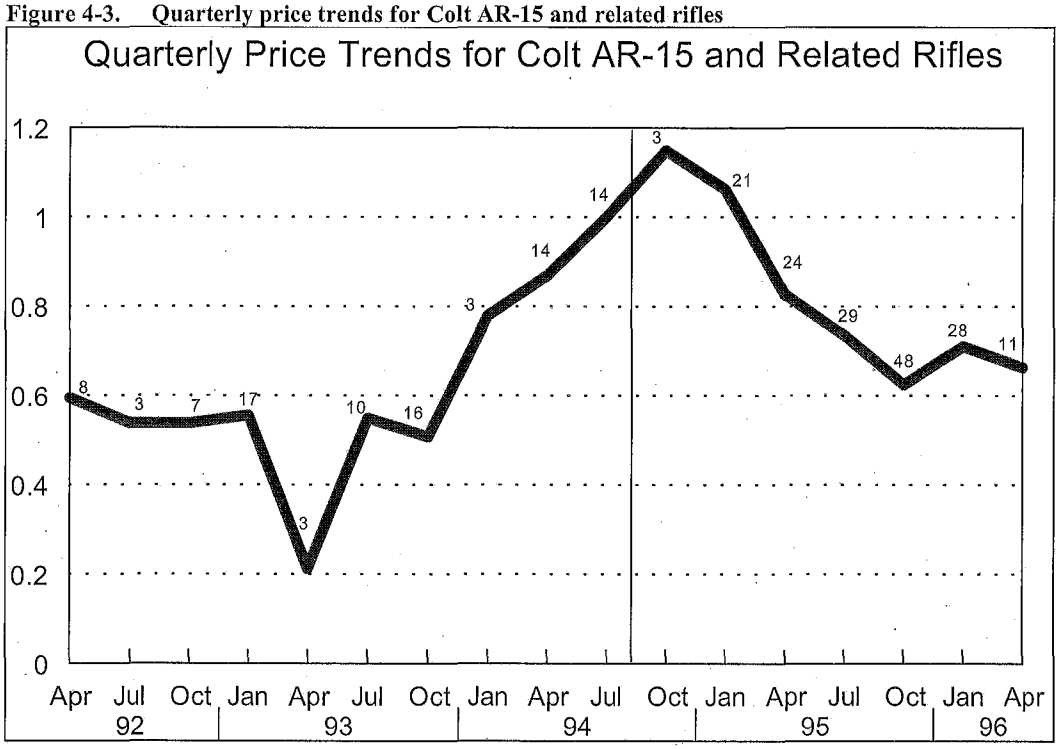
Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	2.714668	0.066599	40.762	0.0001
Q1	1	-0.52079	0.107749	-4.833	0.0001
Q2	1	-0.62023	0.149137	-4.159	0.0001
Q3	1	-0.62368	0.116786	-5.34	0.0001
Q4	1	-0.58506	0.083154	-7.036	0.0001
Q5	1	-1.54569	0.150793	-10.25	0.0001
Q6	1	-0.60339	0.095035	-6.349	0.0001
Q7	1	-0.68488	0.084707	-8.085	0.0001
Q8	1	-0.25158	0.14673	-1.715	0.0877
Q9	1	-0.14066	0.087217	-1.613	0.1081
Q11	1	0.143282	0.148951	0.962	0.3371
Q12	1	0.059189	0.082263	0.72	0.4725
Q13	1	-0.18904	0.07715	-2.45	0.015
Q14	1	-0.3144	0.075984	-4.138	0.0001
Q15	1	-0.46528	0.069595	-6.686	0.0001
Q16	1	-0.33741	0.079461	-4.246	0.0001
Q17	1	-0.40788	0.093078	-4.382	0.0001
DIST 5	1	-0.16586	0.044717	-3.709	0.0003
SPORTERL	1	-0.26691	0.042783	-6.239	0.0001
SPORTERC	1	-0.27709	0.057987	-4.778	0.0001
MATCH H-BAR	1	-0.28594	0.041454	-6.898	0.0001
TARGET	1	-0.30664	0.05565	-5.51	0.0001
FEATURE	1	0.1039	0.040315	2.577	0.0106
CAL762	1	-0.14924	0.092373	-1.616	0.1075

Turning to the quarterly indicator variables, the omitted period is quarter ten (July 1994 through September 1994). Most of the quarterly dummy variables have coefficients which are negative and significant, indicating that prices rose significantly at the time of the ban's implementation. Indeed, prices during the 1992–93 period were 41 to 79 percent lower than those at the time of the ban. The prices then began rising during 1994 and peaked during the quarter after the ban's implementation (however, prices during the latter period were not significantly different from those when the ban went into effect). These data reflect price increase of 69 to 100 percent over typical quarters during the 1992–93 period, and a 376 percent increase over the lowest price quarter during that period.

Quality-adjusted prices began to fall significantly during the second quarter of 1995. During the first two quarters of 1996, prices were 29 to 33 percent less than at the time of the ban.[24] These trends are illustrated in Figure 4-3.[25]

Figure 4-3. Quarterly price trends for Colt AR-15 and related rifles



Other Semiautomatic Rifles: A comparison price series was constructed for a small number of semiautomatic rifles not prohibited by the ban. The rifles selected for this analysis, the Ruger Mini-14 and Maadi rifles are arguably useful substitutes for the banned rifles for many purposes. The Mini-14 is a semiautomatic rifle which is relatively common among guns submitted to ATF for tracing.[26] The Maadi is an Egyptian semiautomatic rifle which is loosely patterned after the AK-47, but it is a legal gun, according to BATF experts.

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[24] Colt has discontinued its AR15 models, but the company has continued to make post-ban, modified versions of other weapons in the AR15 family (e.g., the Sporter). We considered the possibility that the AR15 model would follow a different pre/post ban trend from the other Colt models. Based on the number of available observations, we estimated a yearly model for the AR15. Yearly prices for the AR15 followed the same basic pattern as did the entire AR15 group. Relative to 1994, prices for the AR15 were 57 percent lower in 1993 ($p<.01$), 39 percent lower in 1995 ($p=.02$), and 37 percent lower in 1996 ($p=.06$). In addition, we estimated a model containing dummy variables for the AR15 and the post-ban period and an interaction term between these dummy variables (no other time period dummies were included in the model). The interaction term was very small and insignificant, leading us to include that the price differential between the AR15 model and the other Colt models remained constant throughout the period under study.

[25] Because some quarterly estimates were based on very small numbers of advertisements, the exact values of the quarterly coefficients should be treated cautiously. Nevertheless, a semi-annual model produced the same pattern of results.

[26] Based upon figures provided by ATF, the Mini-14 ranked as the 23rd most common firearm submitted to ATF for tracing in 1992 and the 36th most common firearm submitted in 1993. The Ruger Mini-14 was also featured as a common assault weapon in an early study of assault weapons published by *Cox Newspapers* (1989). However, the Crime Act specifically exempts Mini-14's without folding stocks from assault weapons status.

Further, the Maadi rifle has not been affected by import restrictions as have a number of other potential substitute rifles.

Table 4-4 and Figure 4-4 present trends for prices of these rifles (N=156) measured on a quarterly basis. The Ruger Mini-14 was significantly more expensive than was the Maadi, and a number of distributors had substantially lower or higher prices for these weapons. Guns having some sort of special feature or classification were somewhat less expensive than were other weapons.

Table 4-4. Regression of Ruger Mini-14 and Maadi rifle prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

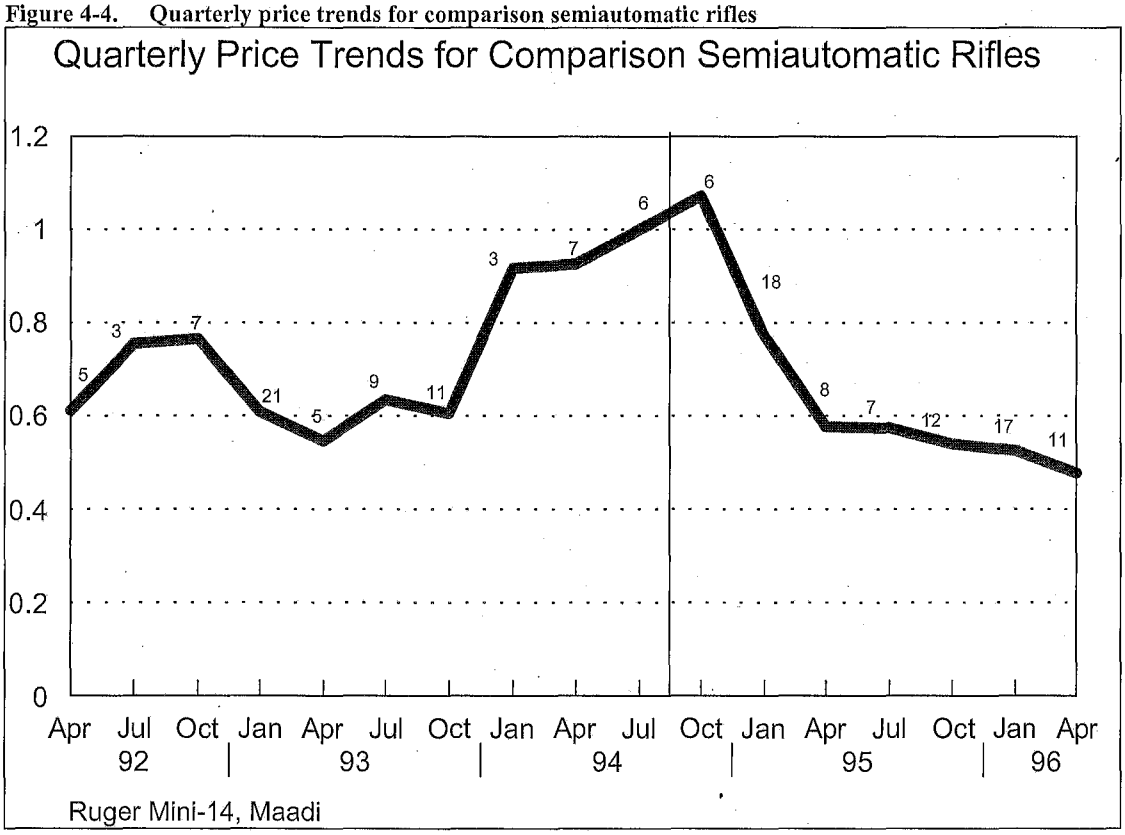
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	23	15.72251	0.68359	12.468	0.0001
Error	132	7.23741	0.05483		
C Total	155	22.95993			

Root MSE	0.23416	R–square	0.6848
Dep Mean	1.11132	Adj R–square	0.6299
C.V.	21.06999		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	1.348039	0.096025	14.038	0.0001
Q1	1	-0.49339	0.150985	-3.268	0.0014
Q2	1	-0.28143	0.170394	-1.652	0.101
Q3	1	-0.26618	0.145198	-1.833	0.069
Q4	1	-0.49586	0.1189	-4.17	0.0001
Q5	1	-0.60429	0.149813	-4.034	0.0001
Q6	1	-0.45337	0.12651	-3.584	0.0005
Q7	1	-0.50108	0.123093	-4.071	0.0001
Q8	1	-0.08801	0.166538	-0.528	0.598
Q9	1	-0.07736	0.131103	-0.59	0.5561
Q11	1	0.06801	0.139693	0.487	0.6272
Q12	1	-0.26056	0.114103	-2.284	0.024
Q13	1	-0.55108	0.128193	-4.299	0.0001
Q14	1	-0.5565	0.137519	-4.047	0.0001
Q15	1	-0.61763	0.120067	-5.144	0.0001
Q16	1	-0.64124	0.119303	-5.375	0.0001
Q17	1	-0.73806	0.123765	-5.963	0.0001
RUGER	1	0.672197	0.055061	12.208	0.0001
DIST 2	1	-0.17779	0.079666	-2.232	0.0273
DIST 3	1	-0.08717	0.054575	-1.597	0.1126
DIST 4	1	-1.66399	0.242712	-6.856	0.0001
DIST 5	1	-0.19243	0.0727	-2.647	0.0091
DIST 7	1	0.235402	0.131826	1.786	0.0764
FEATURES	1	-0.08813	0.047131	-1.87	0.0637

Figure 4-4. Quarterly price trends for comparison semiautomatic rifles



The temporal price trends for these weapons mirror those found for the AR15 family rifles. Relative to the period of the ban's implementation, prices were significantly lower during periods before and after the ban's implementation. During 1992 and 1993, prices ranged from 23 to 45 percent lower than during the reference period. Prices were at their highest during 1994, with the peak occurring during the quarter following the ban's effective date, reflecting an increase of 82 percent from the 1992–93 low point to the immediate post-ban period. However, prices for the first, second, and fourth quarters of 1994 were not discernibly different from those during the third quarter. Prices began to fall significantly in 1995, and by the second quarter of 1996, prices were approximately 52 percent lower than during the quarter when the ban took effect.[27]

Alternative Comparison for Semiautomatic Rifles: As a final test of price trends for potential substitute semiautomatic rifles, we added the SKS rifle to the semiautomatic rifles model. The SKS rifle is imported (there are Russian and Chinese versions) and is occasionally mistaken for an AK-47. The SKS was not covered by either the 1989 import ban or the Crime Act. We initially excluded it as a comparison semiautomatic rifle because importation was nominally restricted in 1994 as part of U.S. trade sanctions directed against China. However, SKS rifles have continued to enter the U.S. under the Craig Amendment exemption for goods already "on the water" when the trade sanctions were imposed. We added it to subsequent analysis because it has been relatively

[27] Because some of the quarterly periods yielded few observations, we also estimated a semi-annual model for these gun prices. The results of this model paralleled those of the quarterly model; prices were at their highest during the latter half of 1994 and were significantly lower throughout 1992, 1993, 1995, and early 1996.

common among gun traces submitted to BATF[28] and because our coders found over 550 ads for SKS rifles, making that gun the most frequently advertised weapon in *Shotgun News* from among those guns chosen for the analysis.

Results from a quarterly price trend model for 698 SKS, Ruger Mini-14, and Maadi AK-type advertisements are presented in Table 4-5 and Figure 4-5. Again, the results indicate that prices were highest during 1994 and peaked during the quarter of the ban's implementation (quarter ten). Prices during the 1992–93 period were generally 32 to 25 percent less than they were during the quarter of the ban's implementation. Following the ban, however, prices fell rather quickly, and by 1996 they were approximately 35 percent less than they had been at the time of the ban.

[28] Figures provided to us by BATF show that the SKS was the 10th most common firearm traced in 1992 and the 4th most common in 1993.

Table 4-5. Regression of Ruger Mini-14, Maadi, and SKS rifle prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

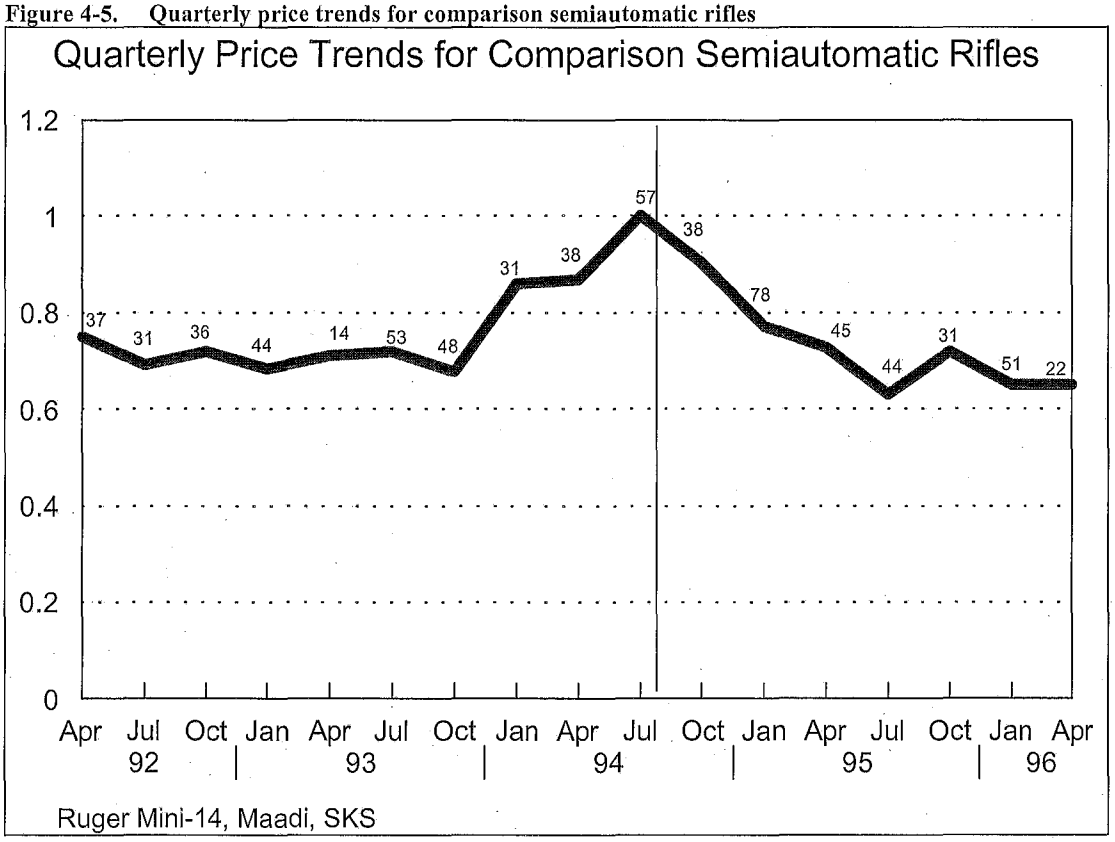
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	19	145.53206	7.65958	105.960	0.0001
Error	678	49.01094	0.07229		
C Total	697	194.54300			

Root MSE	0.26886	R–square	0.7481
Dep Mean	0.32139	Adj R–square	0.7410
C.V.	83.65546		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	0.320571	0.037047	8.653	0.0001
Q1	1	-0.29288	0.056985	-5.14	0.0001
Q2	1	-0.36758	0.060234	-6.103	0.0001
Q3	1	-0.32732	0.057937	-5.65	0.0001
Q4	1	-0.37657	0.056037	-6.72	0.0001
Q5	1	-0.33581	0.08099	-4.146	0.0001
Q6	1	-0.32629	0.051373	-6.351	0.0001
Q7	1	-0.39266	0.052767	-7.441	0.0001
Q8	1	-0.15306	0.060298	-2.538	0.0114
Q9	1	-0.13647	0.056349	-2.422	0.0157
Q11	1	-0.09587	0.056591	-1.694	0.0907
Q12	1	-0.25553	0.047168	-5.417	0.0001
Q13	1	-0.32473	0.053753	-6.041	0.0001
Q14	1	-0.457	0.054492	-8.387	0.0001
Q15	1	-0.32702	0.06053	-5.403	0.0001
Q16	1	-0.43303	0.052708	-8.216	0.0001
Q17	1	-0.42588	0.068581	-6.21	0.0001
MAADI	1	0.855348	0.032324	26.462	0.0001
RUGER	1	1.363013	0.036904	36.934	0.0001
FEATURES	1	0.093431	0.02203	4.241	0.0001

Figure 4-5. Quarterly price trends for comparison semiautomatic rifles



4.1.3. Magazine Prices

Since the Crime Act permanently capped the stock of large-capacity magazines at the number produced before September 13, 1994, our long-run expectations about price trends for the banned magazines depend on whether or not the ban prevented increases in the supply of "compatible" guns that accept the magazine. For compatible guns whose supply continued to increase — such as the unbanned Ruger Mini-14 rifle and Glock pistols and the AR-15 family of rifles, for which legal substitutes emerged — we expect a gradual long-run increase in the price of the large-capacity magazines. Only for compatible guns such as Uzi models, whose supply was capped because legal substitutes did not emerge, do we expect stable or declining long-run magazine prices as the operational stock of banned guns gradually declines.

In the short run, which is all we can observe at this time, we expect at least three confounding factors to divert large-capacity magazine prices from these trends. First, as with the banned guns, speculative demand for the banned magazines may have caused prices to rise and then fall around the time of the ban. Second, because guns and magazines are economic complements, their prices may be likely to move in opposite directions. Third, for banned guns such as the AR-15 and Uzi models, which are mechanically identical to military weapons, there are military surplus supplies that we believe are huge relative to civilian demand. For these reasons, short-run price trends are a poor guide to long-run price trends for large-capacity magazines.

With these reservations in mind, we examined price trends for large-capacity magazines (i.e., magazines holding more than 10 rounds) manufactured for use with banned firearms and compared them to trends for large-capacity magazines made for unbanned semiautomatic weapons. Selection of firearm models was based on both theoretical relevance and available sample sizes. To improve the generalizeability of the results, we attempted to

analyze magazine prices for both handguns and long guns and for both banned and non-banned weapons. The methodology for the magazine price analysis was essentially the same as that used in the firearm price analysis.[29] As in the firearm price analysis, our quality control variables consisted primarily of indicator variables corresponding to manufacturers and distributors. An additional key variable for the magazine analysis was the number of rounds held by the magazine (logged).[30]

Assault weapon handgun magazines–Uzi: Our analysis of large-capacity magazines prices for assault weapons focused upon the 9mm Uzi handgun.[31] Though importation of the Uzi handgun had been discontinued in 1993 (Fjestad 1996, p.1049), our coders found ads for Uzi magazines (N=117) more frequently than for other assault weapon handguns.[32] Even so, the number of observations was as low as 1-2 for some quarterly periods, and we therefore grouped the data into semi-annual time periods. There is no legal substitute for the banned Uzis that accepts the same magazine.

Regression results for Uzi magazine prices are presented in Table 4-6 and price trends are displayed in Figure 4-6. Controlling for the number of rounds held by the magazine, semi-annual prices during the January 1992 through June 1994 period ranged from approximately 52 to 62 percent of their value during the latter half of 1994. Prices peaked in the first half of 1995, rising another 56 percent, to a tripling of their 1992–94 lowest prices. Prices began to fall in the latter half of 1995 and the first half of 1996, but they did not differ significantly from prices during the latter half of 1994.

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[29] Project staff recorded information on all advertisements for magazines holding more than 10 rounds which appeared in the selected issues of *Shotgun News*. However, the volume of collected data required us to pursue a data reduction strategy. Based on informal inspection of the hardcopy data, therefore, we chose a group of magazines which appeared relatively more frequently and which had relevance as a banned weapon or legal substitute.

[30] Other potentially important characteristics are whether the magazine was new or used and the type of metal from which the magazine was made. Ads often did not state whether magazines were new or used, and our research staff did not record this information. Our working assumption is that the magazines were new or in good working condition. If an ad featured the same magazine manufactured with different types of metals, we used the base price magazine. If the coding form indicated that the advertisement featured only magazines made from special materials (e.g., stainless steel), we made note of this characteristic. There were very few such cases, and preliminary analyses using an indicator variable for the presence of a special metal showed the variable to have no impact in any of the models discussed in the main text.

[31] The Uzi was previously manufactured and imported to the U.S. in both carbine and handgun versions, but the carbine versions were banned from importation in 1989.

[32] The relative frequency of Uzi magazine advertisements is probably due to the fact that the Uzi is a military weapon. Firearms experts have informed us that good quality, military surplus magazines are commonly available and are often sold cheaply.

Table 4-6. Regression of Uzi large-capacity magazine prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

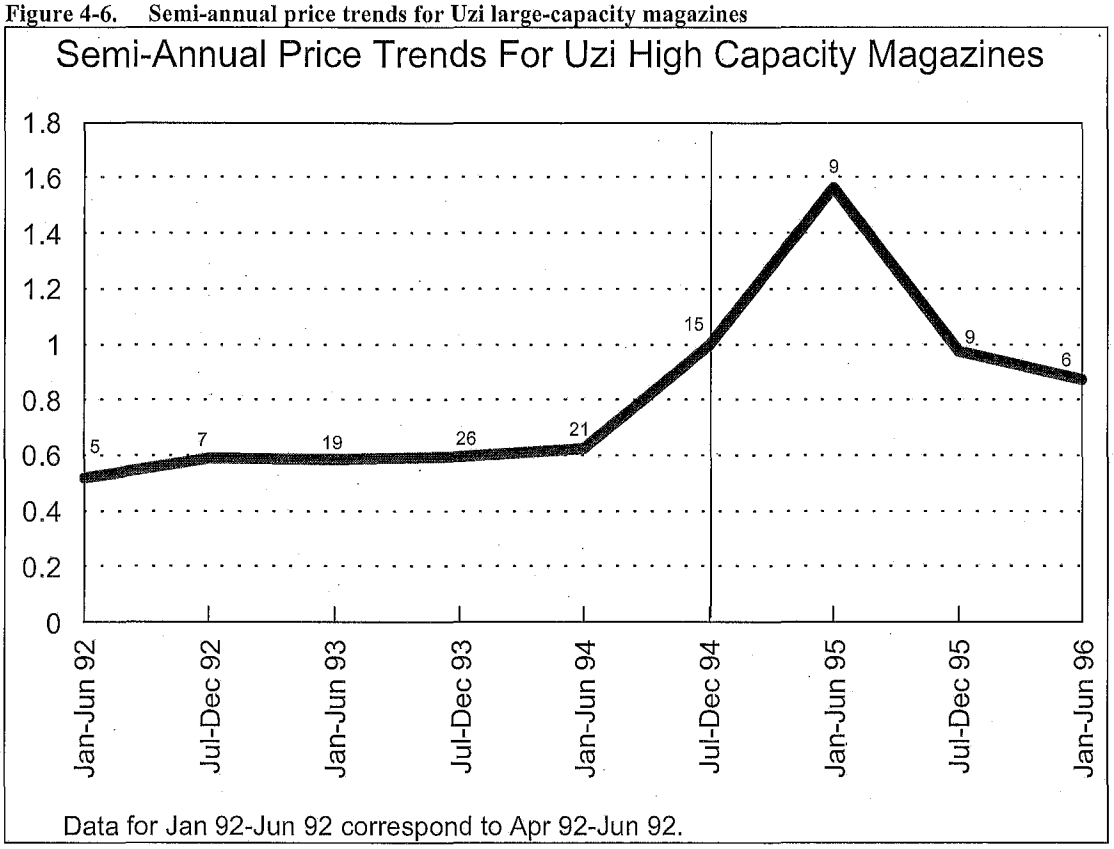
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	9	12.80484	1.42276	9.670	0.0001
Error	107	15.74298	0.14713		
C Total	116	28.54782			

Root MSE	0.38358	R–square	0.4485
Dep Mean	-1.65739	Adj R–square	0.4022
C.V.	-23.14337		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	-3.835055	0.54716949	-7.009	0.0001
ROUNDS	1	0.729783	0.15350538	4.754	0.0001
T1	1	-0.661263	0.19914123	-3.321	0.0012
T2	1	-0.525479	0.17560540	-2.992	0.0034
T3	1	-0.536934	0.13325422	-4.029	0.0001
T4	1	-0.515880	0.12659037	-4.075	0.0001
T5	1	-0.474834	0.12970256	-3.661	0.0004
T7	1	0.447430	0.16646042	2.688	0.0083
T8	1	-0.027967	0.16286070	-0.172	0.8640
T9	1	-0.137577	0.18908164	-0.728	0.4684

Figure 4-6. Semi-annual price trends for Uzi large-capacity magazines



Other Handgun Magazines: To provide price trends for large-capacity magazines manufactured for non-banned handguns, we examined large-capacity magazines for Glock 9mm handguns. Prior to the Crime Act, Glock sold several handgun models with large-capacity magazines. The most common, the Glock 17, was among the ten firearm models submitted most frequently to ATF for tracing in 1994 (BATF 1995a). Guns currently manufactured by Glock are capable of accepting Glock's pre-ban large-capacity magazines, but the supply is limited to magazines made before the ban.

Project staff found 74 advertisements for Glock magazines, but the large majority of these ads were placed after the ban (only nine ads were pre-ban) and there were no ads for 1992. It was therefore necessary to group the advertisements into yearly periods rather than quarterly or semi-annual periods. Regression results and price trends for 1993 through 1996 are shown in Table 4-7 and Figure 4-7 respectively. In general, magazines with greater numbers of rounds were more expensive. In addition, a number of distributors had higher prices for these magazines, and magazines for one particular model were more expensive at a moderate level of statistical significance.[33]

[33] For the model dummy variables, the excluded category included magazines for which no model was indicated.

Table 4-7. Regression of Glock large-capacity handgun magazine prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

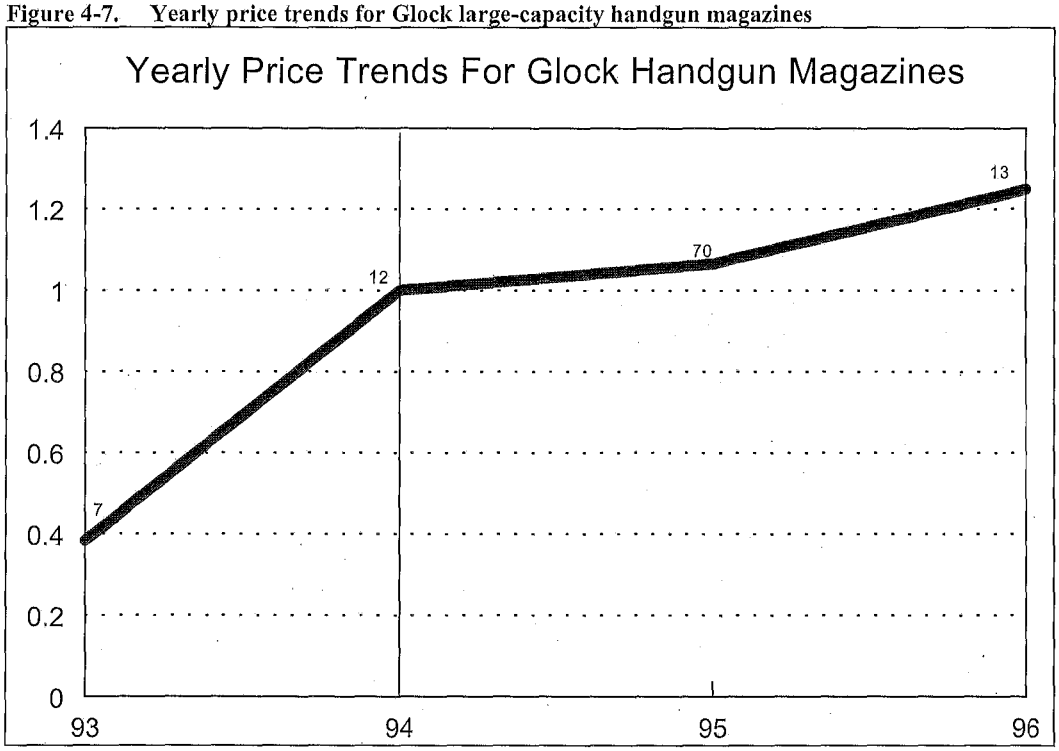
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	10	29.85755	2.98575	28.020	0.0001
Error	91	9.69680	0.10656		
C Total	101	39.55434			

Root MSE	0.32643	R–square	0.7548
Dep Mean	-0.86656	Adj R–square	0.7279
C.V.	-37.66991		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	-3.37422	0.56384	-5.984	0.0001
ROUNDS	1	0.618327	0.197724	3.127	0.0024
Y93	1	-0.95884	0.17246	-5.56	0.0001
Y95	1	0.064606	0.108817	0.594	0.5542
Y96	1	0.2227	0.143595	1.551	0.1244
DIST 10	1	0.529244	0.279526	1.893	0.0615
DIST 12	1	0.601322	0.162505	3.7	0.0004
DIST 3	1	0.37606	0.17071	2.203	0.0301
DIST 5	1	0.980483	0.101626	9.648	0.0001
M17	1	0.198804	0.108878	1.826	0.0711
M19	1	0.169323	0.112614	1.504	0.1362

Figure 4-7. Yearly price trends for Glock large-capacity handgun magazines



Most importantly, prices for large-capacity Glock magazines were 62 percent lower in 1993 than they were in 1994. Prices remained high through 1995, and they increased another 25 percent in 1996 (relative to 1994), though this increase was not statistically significant by conventional standards.

Assault rifle magazines — AR15 Family: Pre-ban large-capacity magazines manufactured by Colt for their AR15's and related rifles can be utilized with the post-ban, modified versions of these rifles. Consequently, we expected that there would be a continuing demand for these magazines.

Project staff recorded 364 ads for large-capacity magazines (.223 caliber) made to fit the AR15 and related rifles. Results from our analysis of quarterly price trends for these magazines are shown in Table 4-8 and Figure 4-8. Magazines having larger ammunition capacities were more expensive as were those magazines for which Colt was listed explicitly as the manufacturer.[34] In addition, prices tended to differ significantly between distributors.

During the quarters of 1992 and 1993, prices were anywhere from 33 to 56 percent lower than during the third quarter of 1994. Prices rose further during the last quarter of 1994 and remained high through the first three quarters of 1995. In the last quarter of 1995 and the first quarter of 1996, prices fell though they remained higher than their pre-ban levels. Prices then rebounded in the second quarter of 1996, reaching a peak value comparable to the last quarter of 1995 (prices were approximately 29 percent higher than during the quarter when the ban took effect). Gun market experts have suggested to us that these short-run fluctuations reflect intermittent availability of military surplus M-16 magazines, which are compatible with the AR-15 family of rifles.

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[34] Though firearms usually require magazines made by the same manufacturer, a number of manufacturers other than Colt make magazines which can fit Colt rifles.

Table 4-8. **Regression of Colt AR15 group large-capacity magazine prices on time indicators, controlling for product characteristics and distributors**

Analysis of Variance

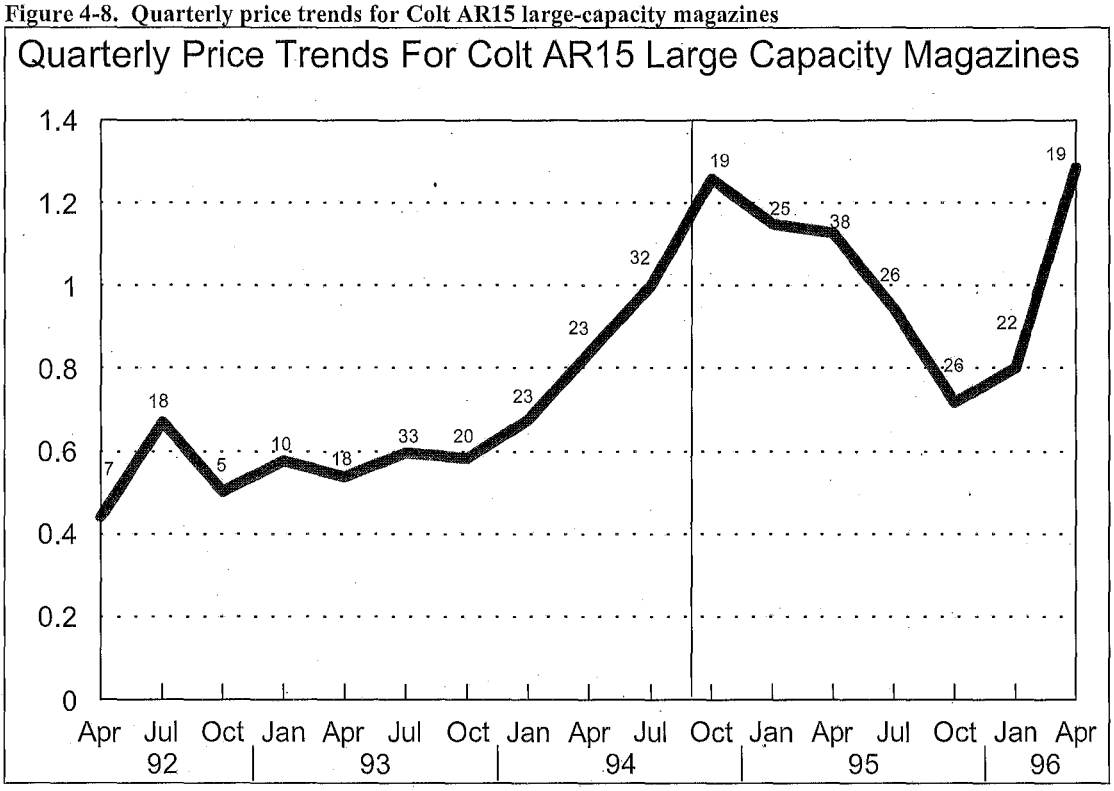
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	26	122.28012	4.70308	33.836	0.0001
Error	337	46.84153	0.13900		
C Total	363	169.12165			

Root MSE	0.37282	R–square	0.7230
Dep Mean	-1.65183	Adj R–square	0.7017
C.V.	-22.57021		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	-5.34744	0.194896	-27.437	0.0001
ROUNDS	1	1.025757	0.046243	22.182	0.0001
CLT	1	0.184123	0.063507	2.899	0.004
DIST 2	1	0.385288	0.283893	1.357	0.1756
DIST 3	1	0.10778	0.078807	1.368	0.1723
DIST 4	1	-0.40188	0.129797	-3.096	0.0021
DIST 5	1	0.134623	0.068759	1.958	0.0511
DIST 7	1	-0.41214	0.13435	-3.068	0.0023
DIST 10	1	0.137861	0.080196	1.719	0.0865
DIST 11	1	-0.36298	0.168942	-2.149	0.0324
DIST 12	1	0.215247	0.085722	2.511	0.0125
Q1	1	-0.82099	0.158248	-5.188	0.0001
Q2	1	-0.39767	0.115668	-3.438	0.0007
Q3	1	-0.68998	0.181038	-3.811	0.0002
Q4	1	-0.55199	0.137727	-4.008	0.0001
Q5	1	-0.61893	0.115858	-5.342	0.0001
Q6	1	-0.52304	0.093025	-5.623	0.0001
Q7	1	-0.54396	0.107619	-5.055	0.0001
Q8	1	-0.38921	0.102709	-3.789	0.0002
Q9	1	-0.17713	0.104247	-1.699	0.0902
Q11	1	0.229259	0.11575	1.981	0.0484
Q12	1	0.13716	0.107928	1.271	0.2047
Q13	1	0.115077	0.099774	1.153	0.2496
Q14	1	-0.05869	0.106556	-0.551	0.5821
Q15	1	-0.32639	0.107409	-3.039	0.0026
Q16	1	-0.21758	0.109759	-1.982	0.0482
Q17	1	0.252132	0.117683	2.142	0.0329

Figure 4-8. Quarterly price trends for Colt AR15 large-capacity magazines



Comparison Semiautomatic Rifle Magazines — Ruger Mini-14: Quarterly price regression results for large-capacity magazines made for the Ruger Mini-14 rifle are shown in Table 4-9. Magazines with the Ruger name and larger magazines were more expensive than other magazines.[35] Further, prices differed significantly among distributors.

[35] A number of manufacturers besides Ruger made large-capacity magazines to fit the Mini-14.

Table 4-9. Regression of Ruger Mini-14 large-capacity magazine prices on time indicators, controlling for product characteristics and distributors

Analysis of Variance

Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	26	64.39474	2.4672	34.029	0.0001
Error	303	22.05342	0.07278		
C Total	329	86.44816			

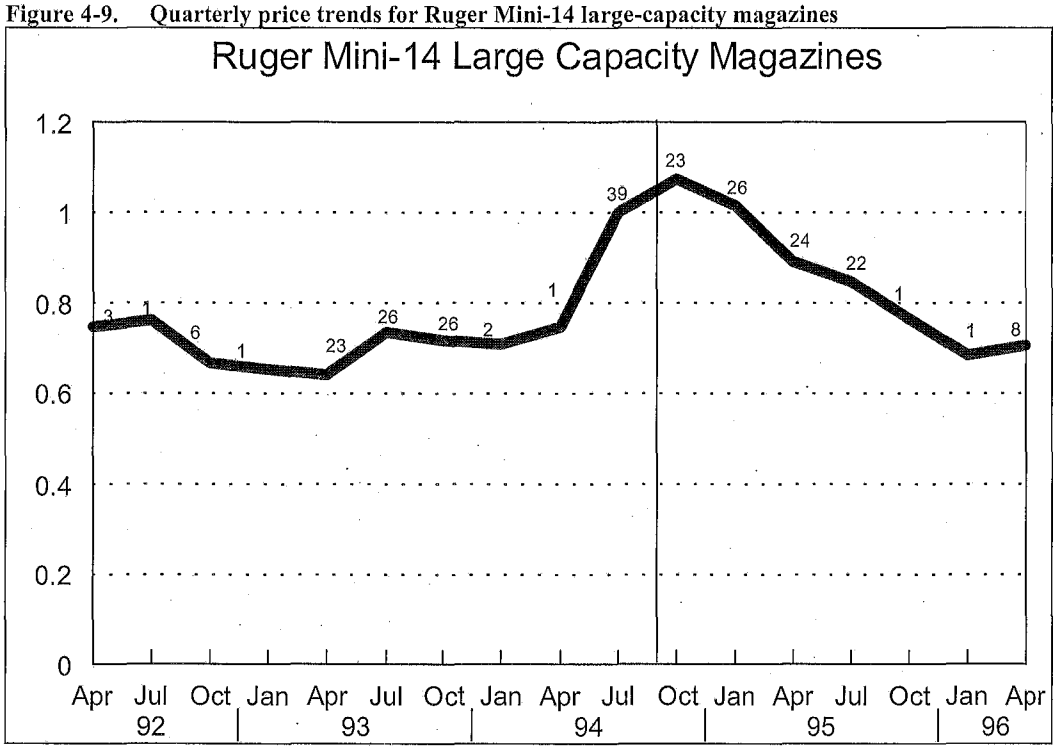
Root MSE	0.26978	R–square	0.7449
Dep Mean	-1.72827	Adj R–square	0.7230
C.V.	-15.61009		

Parameter Estimates

Variable	*DF*	*Parameter estimate*	*Standard error*	*T for H0 parameter = 0*	*Prob>|T|*
INTERCEP	1	-4.41607	0.145547	-30.341	0.0001
ROUNDS	1	0.836435	0.036639	22.829	0.0001
RUG	1	0.264903	0.061061	4.338	0.0001
DIST 2	1	-0.3889	0.17264	-2.253	0.025
DIST 3	1	-0.13012	0.072105	-1.805	0.0721
DIST 4	1	-0.57328	0.126483	-4.532	0.0001
DIST 5	1	-0.40885	0.066235	-6.173	0.0001
DIST 7	1	-0.5319	0.278193	-1.912	0.0568
DIST 10	1	-0.26988	0.074589	-3.618	0.0003
DIST 11	1	-0.1793	0.164002	-1.093	0.2751
DIST 12	1	0.324892	0.094116	3.452	0.0006
Q1	1	-0.29169	0.178205	-1.637	0.1027
Q2	1	-0.27167	0.08733	-3.111	0.002
Q3	1	-0.40486	0.122507	-3.305	0.0011
Q4	1	-0.425	0.082811	-5.132	0.0001
Q5	1	-0.44577	0.073027	-6.104	0.0001
Q6	1	-0.30726	0.070368	-4.366	0.0001
Q7	1	-0.33086	0.069189	-4.782	0.0001
Q8	1	-0.34428	0.074365	-4.63	0.0001
Q9	1	-0.29213	0.078927	-3.701	0.0003
Q11	1	0.071176	0.074263	0.958	0.3386
Q12	1	0.013922	0.07447	0.187	0.8518
Q13	1	-0.11436	0.073432	-1.557	0.1204
Q14	1	-0.1658	0.075341	-2.201	0.0285
Q15	1	-0.26924	0.081055	-3.322	0.001
Q16	1	-0.37783	0.084169	-4.489	0.0001
Q17	1	-0.34628	0.111216	-3.114	0.002

The quarterly indicators in Table 4-9 and the graphic illustration in Figure 4-9 show that quarterly prices prior to the ban were 64 to 76 percent of their level at the time of the ban. By late 1995, prices of these magazines were falling significantly, and by 1996 they had fallen to levels comparable to pre-ban prices.

Figure 4-9. Quarterly price trends for Ruger Mini-14 large-capacity magazines



4.1.4. Summary of Large-Capacity Magazine Price Trends

In summary, short-run price trends for four examples of banned large-capacity magazines appeared to depend on the legal status of the guns they fit, speculative demand for the guns and magazines, and the availability of military surplus magazines. All four magazine prices rose substantially during the period of debate over the ban, reflecting anticipatory demand. However, their price trends diverged substantially after that point. For a banned assault pistol (the 9mm Uzi) for which no legal substitute emerged, the post-ban magazine price fell to a level between its peak and its pre-speculation level and remained there. For a banned rifle (Colt AR-15) for which legal substitutes emerged and the gun price fell sharply after the ban, post-ban magazine prices fluctuated dramatically, apparently because of variations in the availability of military surplus M-16 magazines. For unbanned Glock pistols, whose supply continued to grow, the post-ban magazine price continued to rise throughout the post-ban period, though at a slower rate than during the pre-ban speculation; this is consistent with the expected long-term price trend. Finally, prices for large-capacity Ruger Mini-14 magazines appear to have followed speculative trends similar to those for the rifles themselves.

4.2. PRODUCTION TRENDS

Analyses reported in Section 4.1 found substantial pre-ban price increases for two major categories of assault weapons that were examined: SWD and related handguns (+47 percent), the AR-15 assault rifle family (+69 percent to +100 percent, at minimum). A comparison group of unbanned semiautomatic rifles including the domestically produced Ruger Mini-14 showed a pre-ban price increase of 82 percent. But strikingly, a comparison group of inexpensive Davis and Lorcin semiautomatic handguns showed no discernible price change during the 4-year period that included the effective date of the ban.

In the introduction to this chapter, we hypothesized that weapons whose prices increased during the pre-ban period would also show increases in production. To test that hypothesis, we were able to obtain annual

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production data from the Violence Policy Center for three of the four weapon categories above: the SWD, AR-15, and Davis/Lorcin groups.[36] The data extend through 1994, the year of the ban and the last year for which production data are available.

The production data for these three groups are shown in Figure 4-10, Figure 4-11, and Figure 4-12, and they strongly support the hypothesis that pre-ban price speculation was associated with increases in production. As shown there, the SWD and AR-15 groups show substantial increases in production in 1993 and 1994, the years when prices were increasing in advance of the ban. Production increases of similar magnitude appear for two other categories of banned assault weapons that could not be included in the price analysis: the Intratec/AA Arms group, and Calico and Feather Industries rifles, which are banned by the features test.[37] In contrast, the Davis/Lorcin handgun group showed decreased production relative to both 1993 and their 1989–93 average.

Table 4-10 summarizes production data for five typical groups of banned assault weapons and the Lorcin/Davis comparison group of small-caliber semiautomatic pistols. For each weapon type, the table reports 1994 production, average 1989–93 production, and the ratio of 1994 production to the average over the period. On average, 1994 assault weapon production exceeded the 1989–93 average by a ratio of 2.233 during the nine months before the ban took effect. In contrast, 1994 production for the Lorcin/Davis comparison group was only 65.2 percent of the 1989–93 average.

Table 4-10. Production trends for banned assault weapons and comparison guns

Firearm type	*(1)* *1994 production*	*(2)* *1989–93 average production*	*(3)* *Ratio [(1)/(2)]*	*(4)* *"Excess" production [(1)-(2)]*
AR-15 group	66,042	38,511	1.714	27,531
Intratec 9mm, 22	102,682	33,578	3.058	69,104
SWD family (all) & MAC (all)	14,380	10,508	1.368	3,872
AA Arms	17,280	6,561	2.633	10,719
Calico 9mm, 22	3,194	1,979	1.613	1,215
Lorcin, Davis	184,139	282,603	0.652	
Assault Weapon Total*	203,578	91,137	2.233	112,441

*Assault weapon total excludes Lorcin/Davis group

Table 4-10 also displays "excess" production, the difference between 1994 production and 1989–93 average production. Excess 1994 production for the five assault weapon types shown in the table was approximately 112,000, which were added to the stock of grandfathered assault weapons eligible for resale after the ban took effect.

[36] BATF production data for rifles are not disaggregated by model or caliber. While we could be confident that nearly all Colt's rifles belong to the AR-15 family and could therefore use Colt's rifle production data as an index of AR-15 production, Sturm, Ruger produces too many rifles besides the Mini-14 for us to have a reliable index of Mini-14 production.

[37] It may be of interest that the Intratec, SWD, and Calico/Feather groups, but not the AR-15 group, also had production peaks in 1989, the year of the assault weapon import ban.

Figure 4-10. Annual production data, Colt and Olympic Arms AR-15 type (years with complete data only)

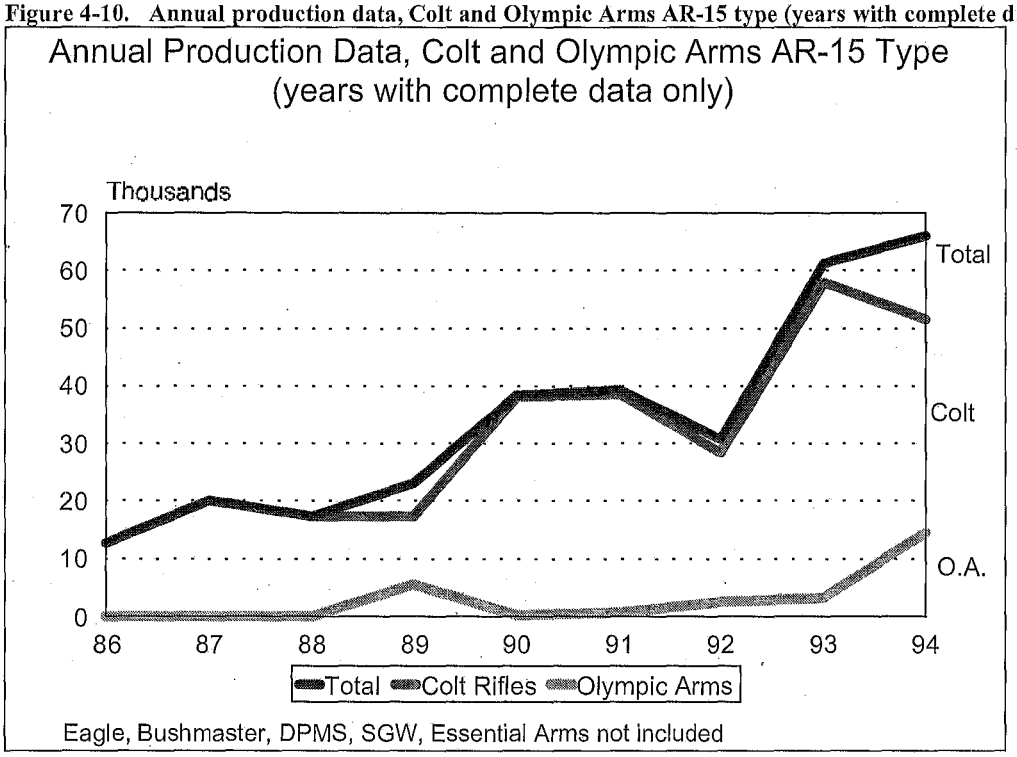


Figure 4-11. Annual production data, SWD group (missing data in some early years)

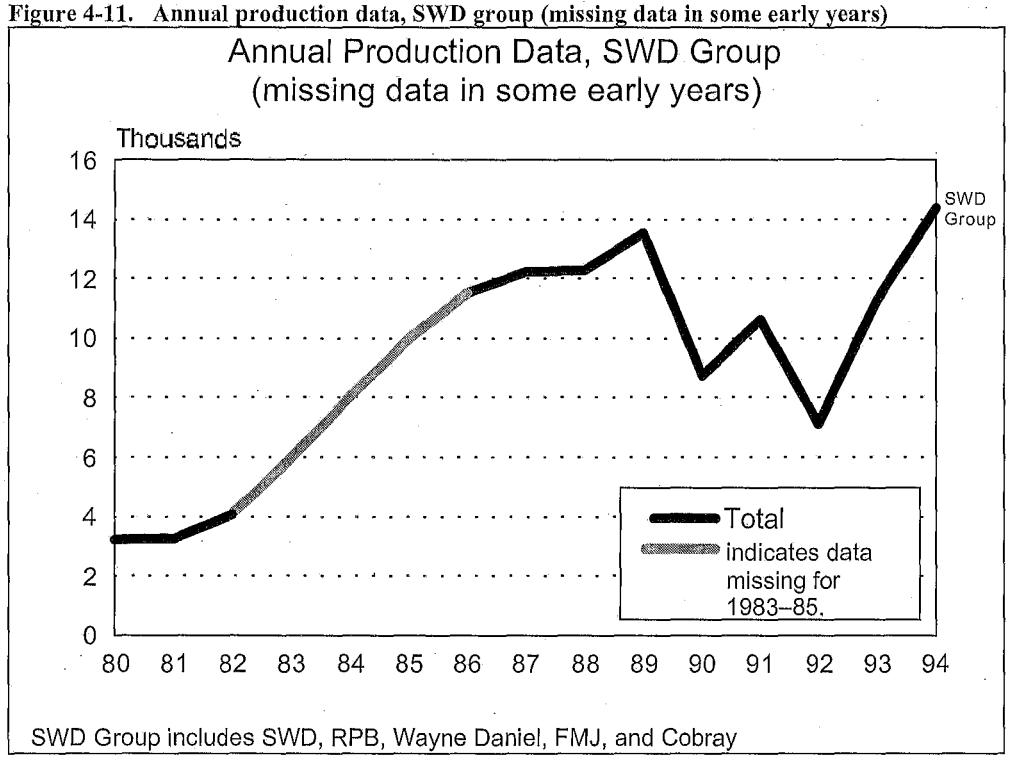
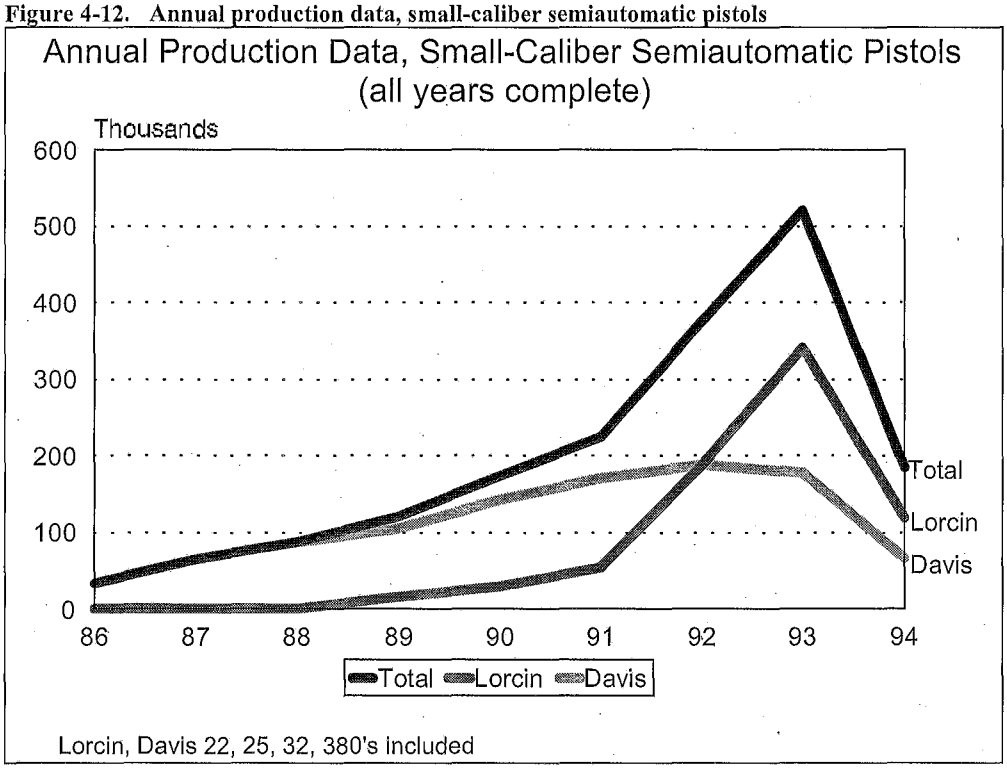


Figure 4-12. Annual production data, small-caliber semiautomatic pistols



4.3. UNINTENDED CONSEQUENCES: GUN THEFTS AND "LEAKAGE"

4.3.1. Introduction

As a final consideration of the ban's impact on gun markets, we investigated trends in stolen firearms. Given the boom in production of the banned weapons prior to the assault weapon ban, there would appear to be a substantial stockpile of banned weapons, some of which may "leak" from gun dealers and carriers into the hands of criminals and other violence-prone individuals after the ban through a combination of recorded transfers, unrecorded transfers, and thefts.

Indeed, we hypothesized that the Crime Act might have the unintended consequence of increasing reported thefts of the banned weapons for two reasons. Short-term price increases in primary markets might temporarily keep assault weapons from entering the sales distribution channels to criminals, who might be tempted to steal them instead. In addition, dealers who had paid high speculative prices for grandfathered assault weapons around the time of the of the ban but then suffered the post-ban price decline prices might be encouraged to sell their to ineligible purchases and then report the weapons as stolen to BATF, who in turn would enter them into the Federal Bureau of Investigation's national database on stolen firearms. Our tests of these hypotheses had to recognize that any observed rise in assault weapon thefts could be due, at least in part, to new theft reporting requirements established for firearm dealers by Subtitle C of Title XI. In the sections below, we describe the tests and findings.

4.3.2. Data and Analysis Strategy

Since 1967, the Federal Bureau of Investigation has stored law enforcement agency reports of stolen and recovered guns in a database maintained by the National Crime Information Center (NCIC). This database contains records on guns which have been reported stolen to participating agencies. It also includes a relatively small number of guns which have been recovered by law enforcement agencies but which have not been reported stolen to the FBI. The latter category of guns accounts for about 6 percent of the guns in the database, and we removed them from our analysis. Weapons which are stolen and later recovered are removed from the database by the NCIC. Thus, the file contains only guns which have been stolen and not recovered. Among other items, the database contains entries for the following: the date the gun was reported stolen ; the weapon type, make, model, caliber, and serial number of the gun; and the agency to which the weapon owner reported the theft.

For our analysis, we utilized data on guns stolen between January 1992 and May 1996. Our analysis of assault weapon thefts focused upon our select group of domestic assault weapons. Unfortunately, weapon model is missing for the majority of the records in the file. Therefore we used the following operational definitions to approximate thefts of assault weapons and other guns:[38]

1) Colt AR15 group: all .223 caliber firearms made by Colt, Eagle, Olympic/SGW, Essential Arms, Bushmaster, and Sendra.

2) Intratec group: all 9mm and .22 caliber semiautomatic weapons made by Intratec and all 9mm semiautomatic handguns made by AA Arms.

3) SWD group: all 9mm, .380, and .45 caliber semiautomatic weapons made by SWD, Ingram, Military Armaments Corp., and RPB Industries.

4) Features test group: all semiautomatic handguns and rifles made by Calico and all 9mm and .22 caliber semiautomatic rifles made by Feather.

5) Non-banned large-capacity handguns: Based on the relative frequency of the Glock 17 and Ruger P89 among guns traced by BATF (see Chapter 2), we used Glock and Ruger 9mm semiautomatic handguns to operationalize this count.

4.3.3. Trends in Stolen Assault Weapons

Statistics in Table 4-11 show that the number of assault weapons reported stolen per month was higher during the post-ban period than during the pre-ban period. These figures combine all of the assault weapons in our select group. As is shown in

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[38] We arrived at these operational definitions by examining the varieties of gun types, makes, models, and calibers contained in the *Blue Book of Gun Values* (Fjestad 1996). The largest approximation error is probably that Group 2 includes the Protect .22, which is not banned and does not accept large-capacity magazines.

Figure 4-13, this post-ban increase continued an upward trend which began before the assault weapon ban. Interpreting the raw numbers of assault weapons thefts is problematic even with time series methods, however, because the Subtitle C theft reporting requirement for FFL's may have caused an artificial increase in reported thefts. The monthly average of total reported gun thefts did increase from approximately 11,602 for the January 1992 through August 1994 period to 12,806 during the September 1994 through May 1996 period, although we did not make systematic attempts to explain the increase.

Table 4-11. Pre-ban (Jan. 1992-Aug. 1994) to post-ban (Sept. 1994-May 1996) changes in counts of stolen assault weapons and unbanned semiautomatic handguns capable of accepting large-capacity magazines

Stolen gun type	***Pre-ban monthly mean***	***Post-ban monthly mean***
Assault weapons	2,334	2,642
Unbanned large-capacity semiautomatic handguns	235	343

Table 4-12. Pre-ban (Jan. 1992-Aug. 1994) to post-ban (Sept. 1994-May 1996) changes in ratios of stolen assault weapons and unbanned semiautomatic handguns capable of accepting large-capacity magazines

		Pre-ban	***Post-ban***	***Change***
Ratio:	Assault weapons ÷ automatic and semiautomatic guns	.449	.463	+3%
Ratio:	Unbanned large-capacity semiautomatic handguns ÷ All semiautomatic handguns	.054	.073	+35%

To control for possible confounding effects of the Subtitle C reporting requirement, we examined assault weapon thefts as a proportion of all reported thefts of semiautomatic and automatic weapons. A post-ban increase in this proportion would suggest a rise in assault weapon thefts which occurred independently of any Subtitle C effect. We used semiautomatic and automatic weapons as our baseline rather than all reported thefts in order to control for changes in the composition of the gun stock; semiautomatic firearms, of which assault weapons are a subset, have grown dramatically since the late 1980s as a share of the firearms market. Relatedly, some law enforcement personnel have suggested to us that gun theft victims are more likely to report thefts of recently purchased firearms because it is easier for victims to assemble information necessary for a theft report (such as serial numbers) when dealing with a newer firearm. Finally, expressing assault weapons as a proportion of semiautomatic/automatic weaponry may correct potential bias stemming from the NCIC's removal of recovered weapons from their data system. Some evidence suggests that semiautomatic handguns tend to move more quickly from retail sale to crime than do other firearms (Kennedy et al. 1996). If this process works the same way for the time from theft to use in crime and recovery by police, then assault weapons and other semiautomatic firearms may tend to drop out of the system at a faster rate than other firearms.

Figures in Table 4-12 reveal that between 1992 and 1996 automatic and semiautomatic assault weapon thefts increased only very slightly (about 3%) as a proportion of thefts of rapid fire weapons. A contingency table chi-square test indicated that this was a statistically significant increase ($p<.01$).[39] However, an interrupted time series analysis of monthly trends (see Figure 4-14) failed to provide any strong evidence that the ban caused a change in the proportion of semiautomatic/automatic firearm thefts involving assault weapons.[40] Either way, the relative Increase in assault weapon thefts appears to have been very modest.

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[39] The proportion of semiautomatic/automatic gun thefts accounted for by assault weapons is strikingly large in light of the generally low prevalence of these guns among confiscated and traced weapons. Due to the manner in which we approximated assault weapon thefts, our figures probably overstate assault weapon thefts to some degree. In addition, BATF agents have suggested to us that assault weapon thefts may be more likely to be reported to NCIC than thefts of other firearms due to owners' insurance claims on assault weapons and owners' concerns about how stolen assault weapons may be used.

Errors in the data submitted by law enforcement agencies may also be relevant. The NCIC uses character and numeric codes to identify manufacturers, weapon types, and calibers. To assess coding error in the data, we ran a number of crude reliability tests with guns made by selected manufacturers. To illustrate, if a particular handgun manufacturer makes only semiautomatic handguns, one can examine all guns made by that company which appear in the database and determine what percentage were coded as weapon types other than semiautomatic handguns. If 5% of the guns produced by this manufacturer have other weapon type codes, then the manufacturer and/or weapon type must be incorrect for that 5% of cases.

We chose guns made by Davis Industries and Intratec for our tests. Davis Industries makes only derringers and semiautomatic pistols (Fjestad 1996, pp.412-413). Davis derringers are made in .22, .25, .32, .38, and 9mm calibers. The company's semiautomatic pistols are produced in calibers .32 and .380. Of the several thousand guns in the data coded as Davis Industries firearms, about 10% were coded as weapon types other than derringers or semiautomatic handguns (most of these were coded as revolvers). Virtually 100% of the Davis Industries derringers had calibers in the proper range, as did 95% of the semiautomatic handguns.

Intratec, a prominent maker of assault weapons, makes derringers in .38 caliber and produces semiautomatic handguns in .22, .25, .380, .40, .45, and 9mm calibers (Fjestad 1996, pp.577-579). Approximately 89% of the several thousand guns coded as Intratecs were coded as semiautomatic handguns or derringers. Nearly 100% of the Intratec semiautomatic handguns had caliber codes in the proper range, while 97% of the derringers had the proper caliber.

In light of the various coding errors which are present in the NCIC data, we constructed our counts of assault weapons and semiautomatic/automatic guns using a broad array of weapon type codes corresponding to various semiautomatic and fully automatic weapon types. The analyses described above seem to indicate that errors in the numerator and denominator of our assault weapon measure are roughly proportional. Finally, our analysis assumes that any biases in the data resulting from the various issues discussed above have remained relatively constant from the pre-ban to post-ban periods.

[40] Due to ambiguity regarding the form of the ban's hypothesized impact on assault weapon thefts, we tested a number of impact models (see McCleary and Hay 1980). The temporary increase in assault weapon prices which occurred around the time of the ban may have raised the incentive for criminals to steal assault weapons, thereby creating an abrupt, temporary impact on thefts of assault weapons. However, an abrupt temporary impact was inconsistent with the data.

The eventual fall in assault weapon prices, on the other hand, could have increased the incentive for dealers to "leak" the guns to illegitimate buyers. The gradual decline of assault weapon prices documented in the price analysis would suggest a gradual, permanent impact on assault weapon thefts. However, an abrupt, permanent impact also seems plausible. Further, abrupt, permanent impact models are less demanding on the data and sometimes provide a better fit and more accurate results even when the true form of the impact is not of this type (see McDowall et al. 1996). In this case, a gradual, permanent impact model yielded insignificant results and provided a worse fit to the data than did an abrupt, permanent impact model.

Assessment of the abrupt, permanent impact model was complicated by the presence of an outlier observation corresponding to March 1993, during which time there was an unusually low proportion of thefts involving assault weapons (see Figure 4-14). We therefore estimated models with and without this observation. In the first model, we retained the outlier observation and logged the data series. This model suggested that the ban produced a moderately significant ($p<.10$) positive impact on the proportion of semiautomatic/automatic gun thefts that involved assault weapons. (After adding the intervention component, this model did not require any autoregressive or moving average parameters for the noise component). When the outlier observation was removed, however, the model failed to yield evidence of an impact from the ban. (The noise

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component for this model included a fourth order autoregressive subset model [see SAS Institute 1993] in which all parameters except the fourth were set to zero).

Figure 4-13. Stolen assault weapons count, January 1992–May 1996

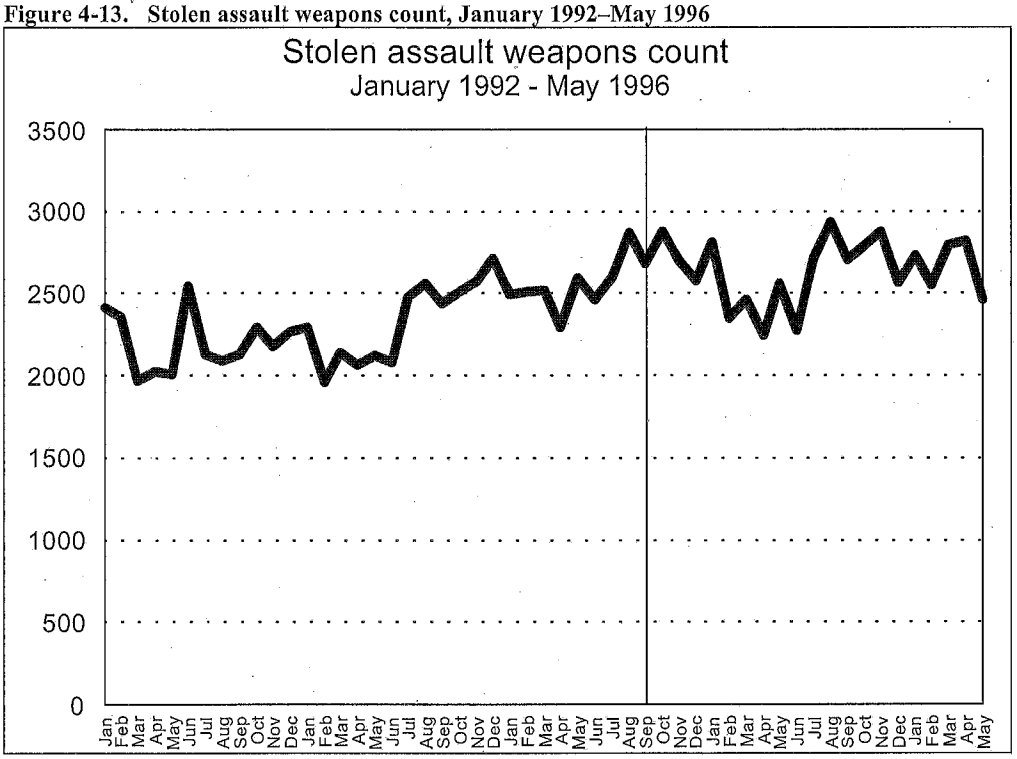
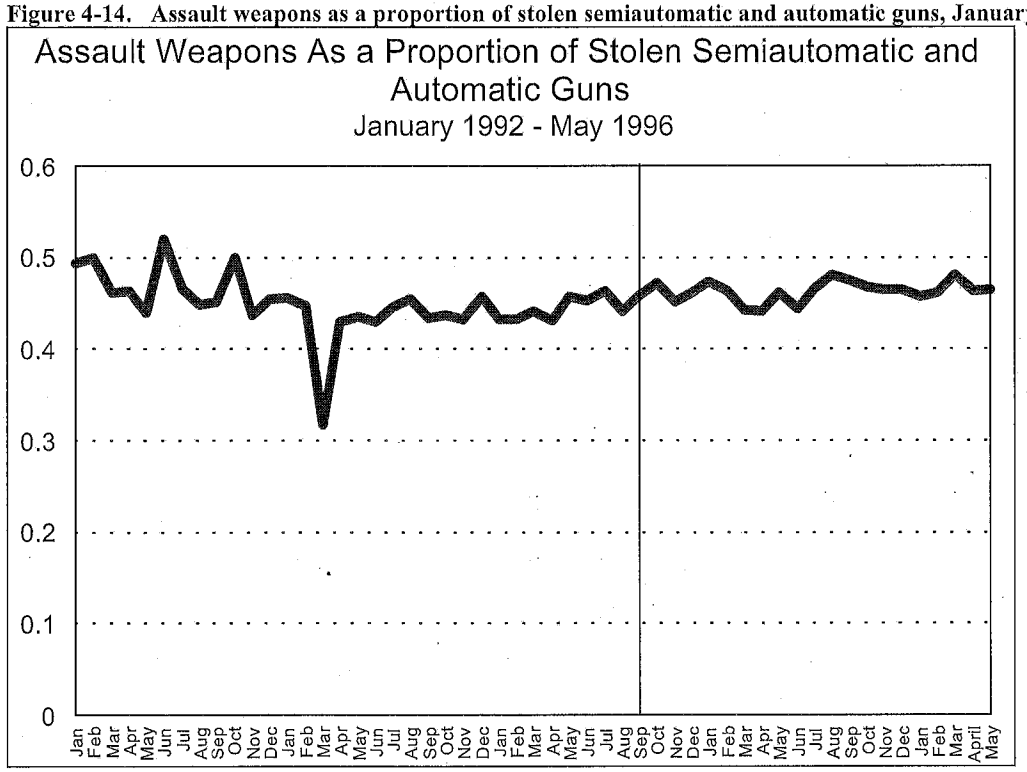


Figure 4-14. Assault weapons as a proportion of stolen semiautomatic and automatic guns, January 1992–June 1996



Additional analyses (not shown) revealed that the assault weapon trends were driven entirely by assault pistols. Thefts of the AR15 group weapons, for example, were rather few in number both before and after the ban, and they decreased both in numbers and as a proportion of stolen weapons during the post-ban months.

4.3.4. Trends in Thefts of Non-Banned Semiautomatic Handguns Capable of Accepting Large-capacity Magazines

In another set of analyses, we investigated whether the ban affected thefts of non-banned semiautomatic handguns capable of handling banned, large-capacity magazines. A number of effects seem plausible. If the magazine ban has been effective in decreasing the availability of large-capacity magazines, one might hypothesize a decrease in offenders' demand for handguns capable of accepting these magazines and a decrease in thefts of these weapons from primary-market dealers and eligible owners. Alternatively, if a similar decrease in the demand for these guns drove down their prices in the primary market, it might increase the incentive for dealers to leak the guns to the illegal market and report the guns as stolen or missing. However, recent years' Blue Book values for Glock pistols suggest that their primary-market prices have been quite stable, when adjusted for inflation. Therefore, if these magazines are still widely available in secondary markets, some offenders might desire to substitute unbanned large-capacity handguns for banned assault weapons. In that case, we might also expect to see a rise in thefts of these guns.

Average monthly thefts of these weapons were higher in the months following the ban (Table 4-11). Moreover, thefts of these guns increased by about a third during the post ban period as a fraction of all semiautomatic handgun thefts (Table 4-12).. However, Figure 4-15 and Figure 4-16 show that thefts of these guns were trending upwards in both numbers and as a proportion of semiautomatic handgun thefts both before and after the ban. A time series analysis did not provide conclusive evidence that handguns accepting large-capacity magazines increased significantly after the ban as a fraction of semiautomatic handgun thefts.[41] (We did not employ contingency table chi-square tests due to the clear upward trend in this variable.) At any rate, the Crime Act does not appear to have decreased criminal demand for these guns, as approximated by theft reports.

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[41] We tested a variety of potential impact forms for this time series, though we considered an abrupt, permanent impact or a gradual, permanent impact to be most plausible in light of the steadily increasing prices for Glock magazines documented in the price analysis. A model with an abrupt, permanent intervention component and a first order autoregressive process for the noise component provided an adequate fit to the data. However, this model yielded an impact estimate virtually identical to the change in the proportion measure shown in Table 4-12 (an increase of approximately one third). In light of the clear pre-ban upward trend in this measure shown in Figure 4-16, we find this effect to be implausible and suspect that the data series is too short to provide a rigorous test of the ban's impact using this methodology.

We ran a crude alternative test in which we regressed the proportion measure on a time trend and a pre-ban/post-ban indicator variable. The time trend variable was significant, while the post ban variable suggested a positive, but statistically insignificant, increase of about 7% in the proportion measure.

Figure 4-15. Stolen unbanned large-capacity semiautomatic handgun counts, January 1992–May 1996

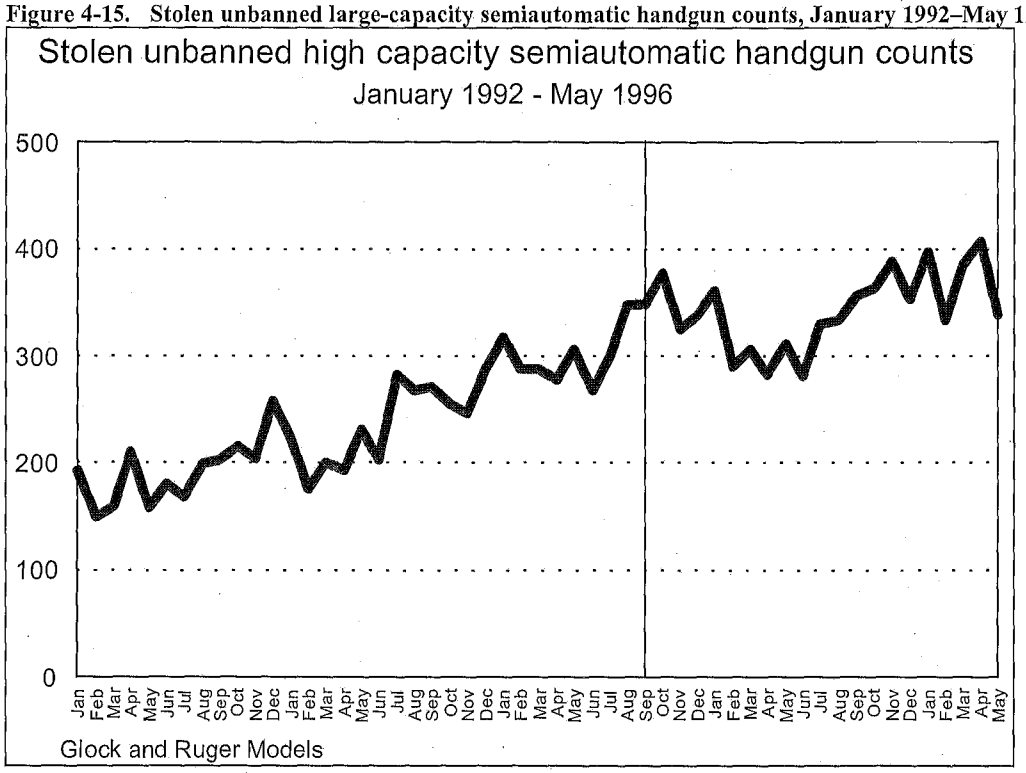
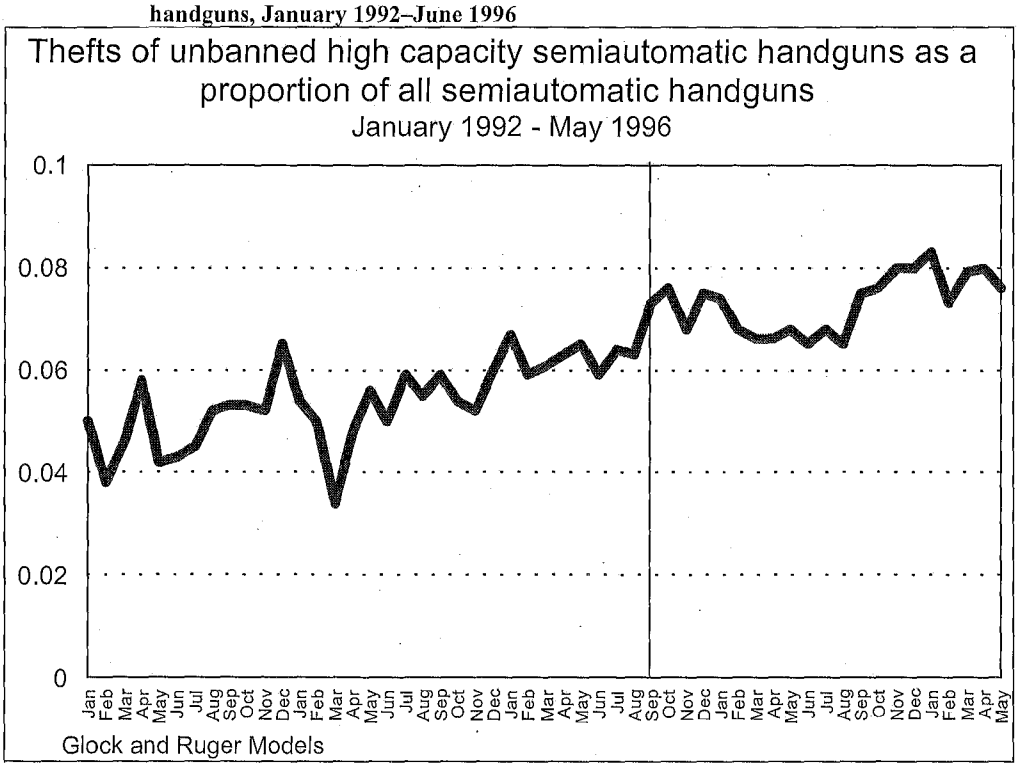


Figure 4-16. Thefts of unbanned large-capacity semiautomatic handguns as a proportion of all semiautomatic handguns, January 1992–June 1996



5. UTILIZATION EFFECTS

5.1. BATF NATIONAL FIREARM TRACE DATA

5.1.1. Introduction: Data and Limitations

To provide national level estimates of the use of assault weapons, we obtained data on firearm trace requests submitted to the U.S. Bureau of Alcohol, Tobacco and Firearms (BATF) by Federal, State, and local law enforcement personnel throughout the nation from January 1993 through May 1996. BATF maintains a firearm tracing center in West Virginia. Upon request, personnel at this center can trace firearms to their last point of recorded sale in a primary market. BATF makes this service available to police departments throughout the country to assist in criminal investigations.

The assault weapon trace file provided by BATF contains the make, model, and caliber of all models subject to the assault weapons ban (the designations are discussed in more detail below). Further, the file includes the month and year when BATF received the request, the state from which the request originated, and type of crime with which the firearm was associated. Our data for total traces consist of aggregate counts of traces broken down by month, year, state, weapon type,[42] and offense.

BATF trace data are the only available national-level sample of guns used in crime. Nevertheless, BATF trace data have significant limitations for research purposes. As Zawitz (1995, p.4) has noted, trace requests represent an unknown fraction of all guns used in crime. In terms of general limitations, BATF cannot trace military surplus weapons, imported guns without the importer name, stolen guns, or guns without a legible serial number (Zawitz 1995, p.4). Tracing guns manufactured before 1968 is also difficult because FFL's were not required to keep records of their transactions prior to that time. BATF does not generally trace guns having a manufacturing date more than six years old (such guns are likely to be many transfers removed from the original retail purchaser), though BATF can and does trace these guns in response to special requests.

Moreover, trace data are based on requests from law enforcement agencies; yet not all guns used in crime are seized by authorities, and agencies, particularly local ones, do not submit all guns they seize for tracing. Consequently, firearms submitted to BATF for tracing may not be a representative sample of firearms used in crime. Previous studies of trace data have suggested that only about 10 percent of gun crimes and 2 percent of violent crimes result in trace requests to BATF (Cox Newspapers 1989, p.3; Kleck 1991, p.75).[43]

The vast majority of weapons submitted to BATF for tracing are associated with weapons offenses, drug offenses, or violent crimes. In 1994, 72% of traces were for weapons offenses, 12% were for drug-related offenses, 12% were for the combined violent crimes of homicide, assault, and robbery, and 2% were for burglary

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[42] The weapon categories consist of revolver, pistol, derringer, rifle, shotgun, combination rifle/shotgun, and a few other miscellaneous categories.

[43] A prior study of BATF trace data by *Cox Newspapers* (1989) suggested that police are more likely to request gun traces for organized crime and drug trafficking. Further, the study indicated that these were the types of crimes with which assault weapons were most likely to be associated. Nearly 30 percent of the gun traces tied to organized crime were for assault weapons as defined by the Cox study (their definition did not match that in the 1994 Crime Act), and 12.4 percent of gun traces for drug crimes involved these guns. In contrast, assault weapons accounted for only 8 percent of gun trace requests for assaults and homicides.

(BATF 1995a, p.43). The high representation of weapons offenses was probably due to the fact that 57% of the trace requests were made by BATF field offices (BATF 1995a, p.45).

Because of the predominance of weapons offenses, BATF trace data might not appear to be a good indicator of guns used in violent and/or drug-related crime. However, the fact that a gun was not seized in association with a specific violent crime does not rule out the possibility that it had been used or would have been used in violent crime. Substantial percentages of adult and juvenile offenders carry firearms on a regular basis for protection and to be prepared for criminal opportunities (Sheley and Wright 1993; Wright and Rossi 1986). In Kansas City, Missouri, for example, about 60% of the guns seized as a result of regular police enforcement activity in high crime beats in 1992 were seized in conjunction with pedestrian checks, car checks, and other traffic violations (Shaw 1994, p.263).[44] Moreover, drug offenders tend to be disproportionately involved in violence and illegal gun traffic (National Institute of Justice 1995; Sheley and Wright 1993). Thus, guns seized in association with weapons offenses and violent offenses — in addition to those seized for drug-related crimes — may serve as a good indicator of guns possessed by drug offenders.

Despite their limitations, guns confiscated by law enforcement agencies are a reasonable index of guns used in violent and drug-related crime, and they are the best available indicator of changes over time in the types of guns used in crime and possessed and/or carried by criminal and otherwise deviant or high risk persons. BATF trace data are the only such national sample.

Yet, another important limitation to national trace data is that the process by which state and local law enforcement agencies decide to submit guns for tracing is largely unknown, and there are undoubtedly important sources of variation between agencies in different states and localities (and perhaps regions). For instance, a state or local agency may be less likely to need the tracing services of BATF if its state or city maintains its own firearms registration system. Knowledge of BATF's tracing capabilities and participation in federal/state/local law enforcement task forces are some additional factors that can affect an agency's tracing practices. Further, these conditions will vary over time; for example, BATF has been actively trying to spread this knowledge and encourage trace requests since 1994. For all of these reasons, BATF trace data should be interpreted cautiously.

Finally, prior studies have suggested that assault weapons are more likely than other guns to be submitted for tracing.[45] However, this generalization may no longer be valid, for, as is discussed below, police appear to be requesting traces for increasing proportions of confiscated firearms.

5.1.2. Trends in Total Trace Requests

Table 5-1 presents yearly changes in trace requests for all firearms for 1993 through early 1996. Total traces grew 57 percent from 1993 to 1994, decreased 11 percent from 1994 to 1995, and then increased 56 percent from 1995 to 1996. In contrast, Table 5-2 indicates that gun crimes declined throughout the 1993–95 period (national gun crime figures are not yet available for 1996). The increase in gun trace requests that occurred in 1994 was not attributable to an increase in gun crime and thus appears to have reflected a change in police trace request behavior and/or BATF initiatives. The large growth in traces in early 1996 also seems to be unrelated to gun crime (national gun crime figures for 1996 are not yet available, but we are not aware of any data suggesting

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[44] This calculation excludes guns seized by special crime hot spots patrols which were proactively targeting guns. Thus, the figure reflects normal police activity.

[45] Prior estimates have indicated that approximately 5 to 11 percent of trace requests are for assault weapons (*Cox Newspapers* 1989; Lenett 1995; Zawitz 1995), though these estimates have not all been based on the 1994 Crime Act definition of assault weapons.

that gun crime has increased over 50 percent since 1995). On the other hand, the decline in trace requests in 1994 mirrored the decline in gun crime, particularly gun homicides (the most accurately measured gun crime category), suggesting that tracing practices were fairly stable from 1994 to 1995.

Table 5-1. Total traces, January 1993–May 1996

Year	*Total*	*Monthly average*	*Percent change from previous year*
1993	55,089	4,591	N/A
1994	86,216	7,185	+ 57
1995	76,924	6,410	- 11
1996 (Jan.-May)	54,254	10,851	+56*

* Change is expressed relative to January through May of 1995.

Table 5-2. National trends in gun crime, 1993–95

Year	*Offense*	*Number*	*Percent change from previous year*
1993	Gun murders	16,136	N/A
1994	Gun murders	15,463	- 4
1995	Gun murders	13,673	- 12
1993	Gun robberies	279,737	N/A
1994	Gun robberies	257,428	- 8
1995	Gun robberies	238,023	- 8
1993	Gun aggrav. assaults	284,910	N/A
1994	Gun aggrav. assaults	268,788	- 6
1995	Gun aggrav. assaults	251,712	- 6

Sources: FBI Uniform Crime Reports, *Crime in the United States* (1996, pp.18, 26-29, 31-32; 1995, pp.18, 26-29, 31; 1994, pp.27-29, 31-32).

As a comparison to national trends, Table 5-3 presents gun confiscation figures for the cities of Boston and St. Louis, two cities for which we have data on all confiscated firearms.[46] The Boston data are consistent with national trends in gun violence in that they show decreases in gun seizures for each year.[47] In St. Louis, gun confiscations increased slightly in 1994, but in 1995, they decreased by an amount comparable to the nationwide

[46] These Boston data were provided to us by the Boston Police Department via researchers at Harvard University. The St. Louis data are from the St. Louis Police Department and were provided by researchers at the University of Missouri, St. Louis.

[47] The sharp decrease in gun confiscations from 1995 to 1996 may be due in part to recent youth gun violence initiatives being undertaken by the Boston Police Department in collaboration with a number of other agencies and researchers from Harvard University (Kennedy et al. 1996; Kennedy 1996).

decreases in gun murders and gun robberies. Of course, trends in Boston and St. Louis may not be indicative of those in the rest of the nation. Nevertheless, the contrast between the Boston and St. Louis figures and the national tracing figures provide further evidence that changes in national gun traces in 1994 and early 1996 were driven largely by police practices and BATF initiatives rather than changes in gun crime.

Table 5-3. Gun confiscations/traces, January 1993–May 1996

Year	*Total*	*Monthly average*	*Percent change from previous year*
Gun confiscations/traces for Boston, MA, January 1993–May 1996			
1993	866	72	N/A
1994	762	64	- 12%
1995	712	59	- 7%
1996 (Jan.-May)	241	48	- 28%*
Gun confiscations in St. Louis, MO, 1993–95			
1993	3,544	295	N/A
1994	3.729	311	5%
1995	3,349	279	-10%

*Change is expressed relative to January-May of 1995.

In sum, the changes in national trace requests which occurred in 1994 and early 1996 appear to have stemmed from BATF initiatives. Although we have little documentation of these changes, our consultations with BATF agents have suggested that the surge in trace requests from 1993 to 1994 was due largely to internal BATF initiatives that now require agents to submit all confiscated firearms for tracing. In addition, BATF has made efforts to encourage more police departments to submit trace requests and to encourage police departments to request traces for greater fractions of their confiscated weapons. One example is BATF's national juvenile firearms tracing initiative launched in late 1993 (BATF 1995b, p.21). Greater cooperation between BATF and local agencies (through, for example, special task forces) has also resulted in more trace requests according to BATF officials, and a few states and localities have recently reached 100 percent tracing. Beginning in the fall of 1995, moreover, agents from the tracing center began visiting BATF's field divisions to inform federal, state, and local law enforcement personnel about the tracing center's services and capabilities, including the implementation of computerized on-line tracing services. This would appear to be a major factor behind the growth in trace requests from 1995 to 1996.

For the 1994–95 period, however, tracing practices seem to have remained steady. The decline in traces in 1995 matched a real decrease in gun crimes. These developments have important ramifications for the analysis of assault weapon traces.[48]

[48] We made limited efforts to further disentangle federal and state/local trends by obtaining annual data on traces from a number of states broken down by requesting agency. We examined trace requests from a number of cities where, according to informal judgments by BATF agents, cooperative efforts between local law enforcement agencies and BATF had resulted in the submission of trace requests for a relatively high percentage of confiscated firearms over an extended period. We anticipated that trace requests from BATF field offices in these locations would show substantial increases from 1993 to

5.1.3. Total Assault Weapon Traces

During the period from January 1993 through May 1996, BATF received 12,701 trace requests for assault weapons. This count covers specific makes and models listed in the 1994 Crime Act, exact copies of those makes and models, and other firearms failing the Crime Act's features test for assault weapons.[49] The requests include all states, Washington, D.C., Puerto Rico, and Guam.[50]

Table 5-4 shows the number, monthly averages, and percentage changes of assault weapon traces for each year. Assault weapon traces increased 9 percent from 1993 to 1994, declined 20 percent from 1994 to 1995, and then increased 7 percent from 1995 to 1996. While one cannot entirely dismiss the possibility that the use of assault weapons rose in 1994 and 1996, it seems likely that these increases were due partially or entirely to the general increase in police trace requests which occurred during those years. Yet assault weapon traces increased by amounts much smaller than did total traces in 1994 and 1996, a finding which supports the conjecture that police have been more consistently diligent over time in requesting traces for confiscated assault weapons.[51]

1994, and that requests from the local law enforcement agencies would rise from 1995 to 1996. However, the figures from these locations did not reveal any clearly interpretable patterns. Any patterns which might have existed may be obscured by the fact that local agencies may submit traces directly to the tracing center or submit them indirectly through local ATF field offices. In 1994, for example, 17% of trace requests were from outside (i.e., non-BATF) agencies directly, while 26% were from outside agencies through BATF offices (BATF 1995, p.45). Our judgment is that analyzing trace requests according to submitting agency will not necessarily illuminate the ambiguities in interpreting trace request trends without extensive research into both the processes by which guns are selected for tracing and submitted by local agencies and BATF field offices and the impact of special BATF/local initiatives on these processes.

[49] The guns designated as "features test" guns consist of makes and models that fail the features test based on manufacturer specifications. The file does not generally include guns which were legal as manufactured but were later modified in ways which made them illegal. (Firearms which are traced by BATF are not actually sent to BATF for inspection). Further, firearms are often manufactured and sold with various options, and the legal/illegal status of some models is contingent upon the particular features with which the gun was manufactured. For example, a Franchi Spas 12 shotgun may or may not be an assault weapon depending upon the size of its ammunition magazine (prior to the ban, the gun was sold with 5 shot and 8 shot tube magazines - see Fjestad [1996, p.471]). Unfortunately, this level of detail is not available in the BATF data. Potential assault weapon models like the Franchi Spas 12 were included in the assault weapon file, but, as is discussed later in the text, we did not utilize them in all analyses.

[50] It should be noted that the firearm make and model designations in BATF trace data are made by the law enforcement officers who submit the requests. Undoubtedly, there exists some level of error in these designations, though we do not have any data with which to estimate the error rate.

[51] The 1996 assault weapon traces include 89 observations identified as "duplicate traces." Although these trace requests can sometimes represent instances in which the same gun was used in multiple crimes, they usually represent instances in which, for various administrative reasons, a particular trace request was entered into the computer system more than once. Unfortunately, it is not possible to identify duplicate trace requests for years prior to 1996. In order to treat data from all years in a consistent manner, we therefore retained all of the 1996 trace requests for the analysis. Consequently, the total and assault weapon trace numbers presented in this report overstate the true numbers of trace requests. Our analysis of the trace data rests on the assumption that the rate of duplicate tracing has remained relatively constant over the 1993–96 period.

Table 5-4. Assault weapons traces, January 1993–May 1996

Year	*Total*	*Monthly average*	*Percent change from previous Year*
1993	3,748	312	N/A
1994	4,077	340	+ 9%
1995	3,268	272	- 20%
1996 (Jan.-May)	1,608	322	+ 7%*

*Change is expressed relative to January through May of 1995.

Traces for assault weapons dropped more markedly from 1994 to 1995 (20 percent) than did overall traces (11 percent). In a t-test of 1994 and 1995 monthly means, the drop in assault weapon traces was statistically significant (p=.01, two-tailed test), while the drop in total traces was not (p=.22, two-tailed test). Moreover, the drop in assault weapon traces was substantially greater than the declines in gun murder (12 percent), gun robbery (8 percent), and gun assault (6 percent) for the same period. This suggests that criminal use of assault weapons decreased from 1994 to 1995, both in absolute terms and relative to crime trends generally. In addition, utilization of assault weapons in crime was less in 1995 than in 1993.

5.1.4. Analysis of Select Assault Weapons

As noted in Chapter 2, many of the foreign makes and models banned by Title XI were banned from importation prior to the passage of that legislation. Thus, any recent decrease in the use of those weapons cannot be attributed unambiguously to the effects of the Crime Act. For this reason, we concentrated our analyses below on a select group of domestic assault weapons whose availability was not affected by legislation or regulations predating the 1994 Crime Act. These guns include the AR15 family (including the various non-Colt copies), the Intratec family (including the AA Arms AP-9), and the SWD handgun family.

In addition, we selected a small number of firearm models which, as manufactured, fail the features test of the assault weapons legislation. These weapons had to meet three selection criteria: 1) the weapon had to be in production at the time of the Crime Act (if the weapon was a foreign weapon, its importation could not have been discontinued prior to the Crime Act);[52] 2) there had to be 30 or more trace requests for assault weapons made by that manufacturer during the period January 1993 through April 1994; and 3) the weapon had to have an unambiguous assault weapon designation as it was manufactured prior to the ban (i.e., its status could not be conditional on optional features).[53] These criteria ensured that we would capture the most prevalent assault weapons that were still being sold in primary markets just prior to the effective date of Title XI. We used January 1993 through April 1994 as the selection period in order to minimize effects on the gun market which may have resulted from the passage of the assault weapons legislation by the U.S. House of Representatives in May of 1994.

[52] Heckler and Koch, for example, manufactured a number of rifle and handgun models which were relatively common among assault weapon traces (i.e., the IIK91, HK93, HK94, and SP89). However, these models were all discontinued between 1991 and 1993 (Fjestad 1996, p.531).

[53] BATF officials assisted us in these designations. The only weapon which passed the first two criteria but not the third was the Franchi Spas 12 shotgun. The assault weapon trace file contained 53 trace requests for this model prior to May 1994.

The features test weapons selected for the analysis were: Calico M950 and M110 model handguns; Calico M100, M900, and M951 model rifles; and Feather AT9 and AT22 model rifles.

This select group of assault weapons accounted for 82 percent of assault weapon traces submitted to BATF during the study period. Yearly trends in trace requests for these weapons (see Table 5-5) were virtually identical to those for all assault weapons. Most importantly, average monthly traces were 20 percent lower in 1995 than in 1994 (p=.01, two-tailed test). Figure 5-1 displays the trend in monthly traces for these firearms.

Figure 5-1. National ATF trace data: Traces for select assault weapons, January 1993–May 1996

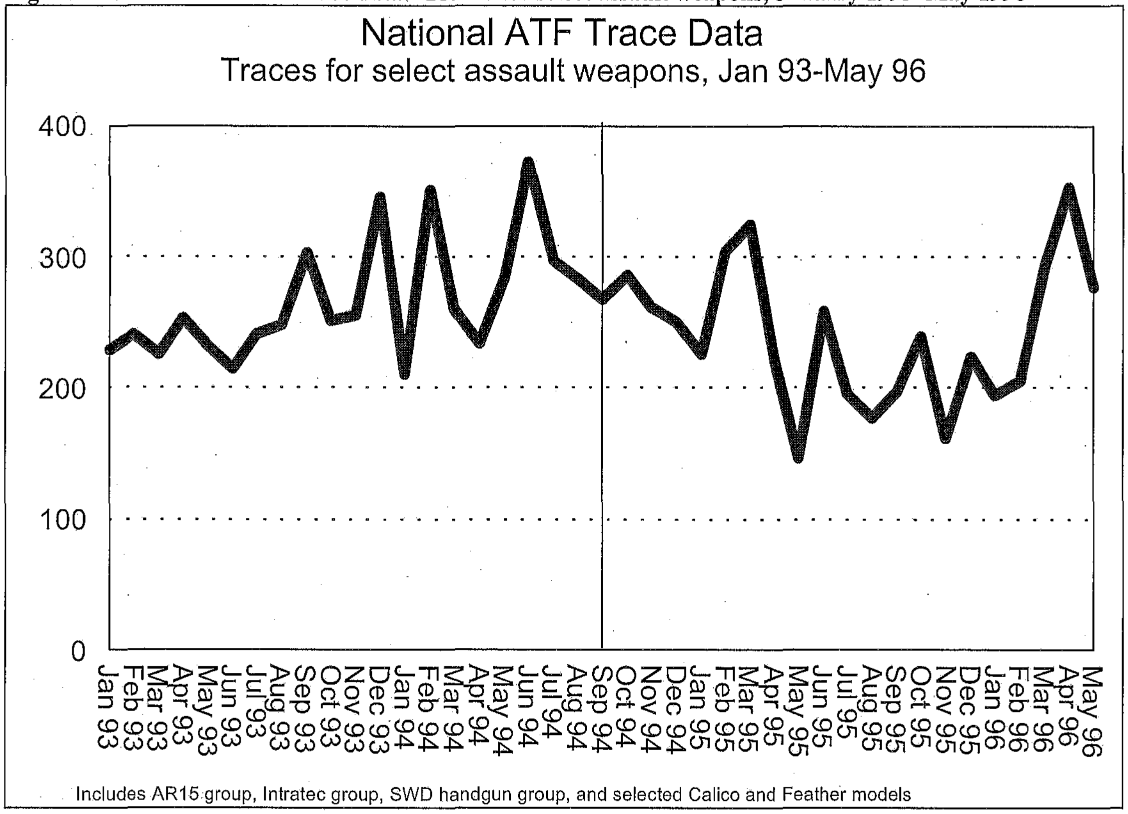


Table 5-5. Traces for select assault weapons,[†] January 1993–May 1996

Year	*Total*	*Monthly average*	*Percent change from previous year*
1993	3,040	253	N/A
1994	3,358	280	+ 10%
1995	2,673	223	- 20%
1996 (Jan.-May)	1,323	265	+ 8%*

*Change is expressed relative to January through May of 1995.

[†]Includes traces for AR15 group, Intratec group, SWD handgun group, and selected Calico and Feather models.

5.1.5. Assault Weapon Traces for Violent Crimes and Drug-Related Crimes

To fulfill Title XI's mandate to assess the effects of the ban on violent and drug-related crime, we also analyzed assault weapon traces associated with violent crimes (murder, assault, and robbery) and drug-related crimes. We used our select group of assault weapons for this analysis. Yearly trends for these traces are presented in Table 5-6. Monthly trends are graphed in Figure 5-2 and Figure 5-3. A striking feature of these numbers is their small magnitude. On average, the monthly number of assault weapon traces associated with violent crimes across the entire nation ranged from approximately 30 in 1995 to 44 in 1996. For drug crimes, the monthly averages ranged from 34 in 1995 to 50 in 1994.

Figure 5-2. National ATF trace data: Traces for select assault weapons (violent crimes)

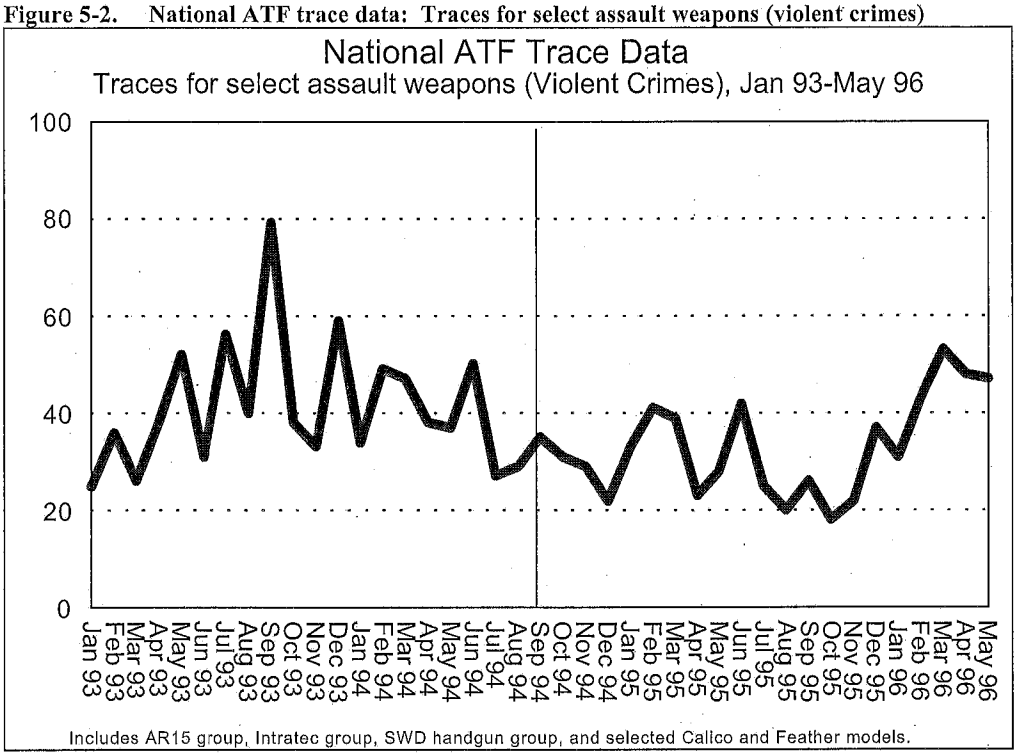


Figure 5-3. National ATF trace data: traces for select assault weapons (drug crimes)

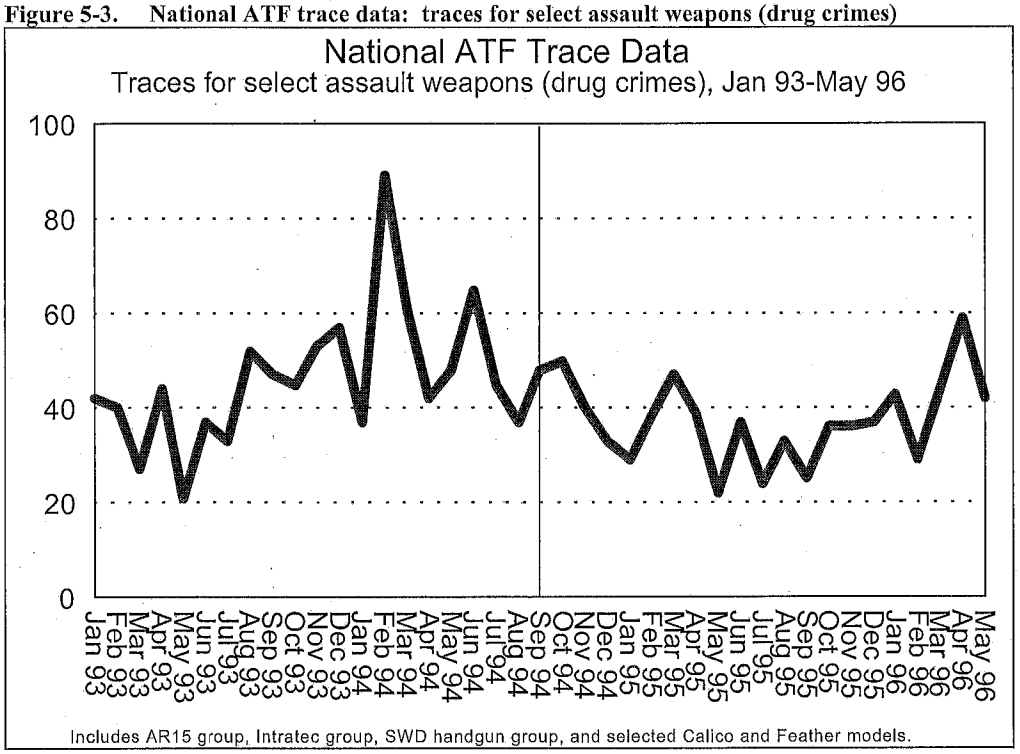


Table 5-6. Traces for select assault weapons,† January 1993–May 1996 (violent and drug-related crimes)

Violent Crimes:

Year	*Total*	*Monthly average*	*Percent change from previous year*
1993	513	43	N/A
1994	428	36	- 17%
1995	354	30	- 17%
1996 (Jan.-May)	222	44	+ 35%*

Drug-Related Crimes:

Year	*Total*	*Monthly average*	*Percent change from previous year*
1993	498	42	N/A
1994	595	50	+ 19%
1995	403	34	- 32%
1996 (Jan.-May)	217	43	+ 24%*

*Change is expressed relative to January through May of 1995.

†Includes AR15 group, Intratec group, SWD handgun group, and selected Calico and Feather models.

Traces for assault weapons associated with violent crimes dropped 17 percent in both 1994 and 1995. Both decreases were greater than the decreases which occurred for violent gun crimes in each of those years. However, assault weapon traces for violent crime rebounded 35 percent in 1996 to a level comparable with that in 1993.

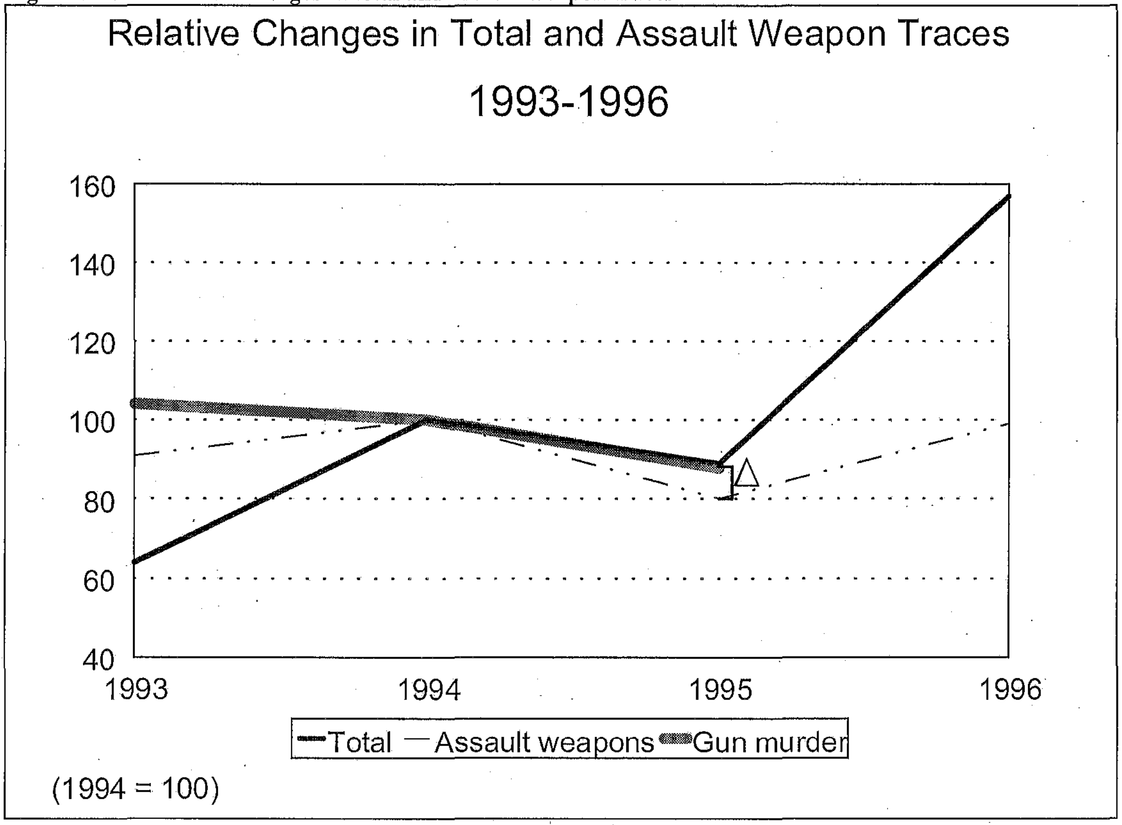
Assault weapon traces for drug crimes followed patterns similar to those for all assault weapons. Assault weapon traces increased 19 percent from 1993 to 1994, decreased 32 percent from 1994 to 1995, and then increased 24 percent from 1995 to 1996. The yearly fluctuations of these traces were greater than those for all assault weapons, but the drug trace numbers may be relatively more unstable due to the small number of weapons under consideration.

5.1.6. Conclusions on National Trends in the Use of Assault Weapons

National-level data suggest that the use of assault weapons, as measured by trace requests to BATF, declined in 1995 in the wake of the Crime Act. The 20 percent decrease in assault weapon trace requests from 1994 to 1995 was greater than occurred overall, and it was greater than the 6 to 12 percent national drop in violent gun crime. This is demonstrated graphically in Figure 5-4. Assault weapon traces for violent crimes and drug-related crimes also decreased in 1995 by amounts comparable to or greater than the overall drop in assault weapon

traces. Further, there were approximately 13 percent fewer assault weapon trace requests in 1995 than during the pre-ban year of 1993.[54]

Figure 5-4. Relative changes in total and assault weapon traces



Another indication that this was an effect from the ban is that assault weapon traces declined less in 1995 in states which had their own bans prior to the Federal legislation. Table 5-7 presents combined yearly traces for our select assault pistol group in the four states with assault weapon bans: California, New Jersey, Connecticut, and Hawaii. In general, assault weapon traces in these states followed the same pattern as did the national figures. The increases in 1994 and 1996 were larger than the national increases which occurred during those years, but the 1995 decrease was smaller than the national assault weapon decrease. Further, the decline in these ban states was consistent in magnitude with the national drop in gun crime.[55]

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[54] The data also do not show any obvious substitution of non-banned long guns for assault weapons. Trace requests for shotguns decreased 10 percent in 1995. Total rifle traces increased 3.5 percent in 1995, but our select group of assault weapon rifles (AR15 group and selected Calico and Feather models) also increased 3 percent. Thus, banned and non-banned rifles did not follow divergent trends. With currently available data, we have not been able to assess whether the assault weapon ban led to displacement to other categories of weapons, such as non-banned semiautomatic handguns capable of carrying pre-ban large-capacity magazines.

[55] We chose to examine only assault weapon pistols because assault rifles are rarely used in crime and Hawaii's assault weapons legislation covers only handguns. Maryland passed an assault pistol ban in 1994, but the legislation was passed only a few months prior to the Federal ban, so we did not include Maryland as a ban state.

All of the assault pistol ban states outlawed one or more of the handguns in our select group of assault pistols. However, the coverage of these state laws varied, and our select assault pistols were not banned in all of these states. We therefore conducted a supplemental analysis focusing on the Intratec TEC-9 series and the M10/M11 series made by SWD and others. As far as we can determine, these guns were covered by all of the state assault pistol bans. Trace requests for TEC-9's,

Table 5-7. Assault pistol traces, ban states (CA, NJ, CT, and HI), January 1993–May 1996

Year	*Total*	*Monthly mean*	*Percent change from previous year*
1993	204	17	N/A
1994	228	19	+12%
1995	210	18	- 8%
1996 (Jan.-May)	106	21	+15%

*Change is expressed relative to January through May of 1995.

Nationally, traces for assault weapons rebounded in 1996 to a level higher than that of 1993 but lower than that of 1994. This could represent leakage into illegal channels from the stockpile of legal, grandfathered assault weapons manufactured prior to the implementation of Title XI. Production of assault weapons increased considerably in 1994, and prices of these weapons fell to pre-ban levels in late 1995 and early 1996 (see Chapter 3). Over the next few years, it is possible that more, rather than fewer, of the grandfathered weapons will make their way into the hands of criminals through secondary markets.

On the other hand, the increase for 1996 may be an artifact of recent BATF initiatives to increase trace requests from local police. The rebound in assault weapon traces might also reflect an as yet undocumented rebound in gun crime in 1996. Unfortunately, we cannot disentangle these possibilities with data available at this time, and it is not yet clear whether the 1995 decrease in our indicator of assault weapon use was temporary or permanent.[56]

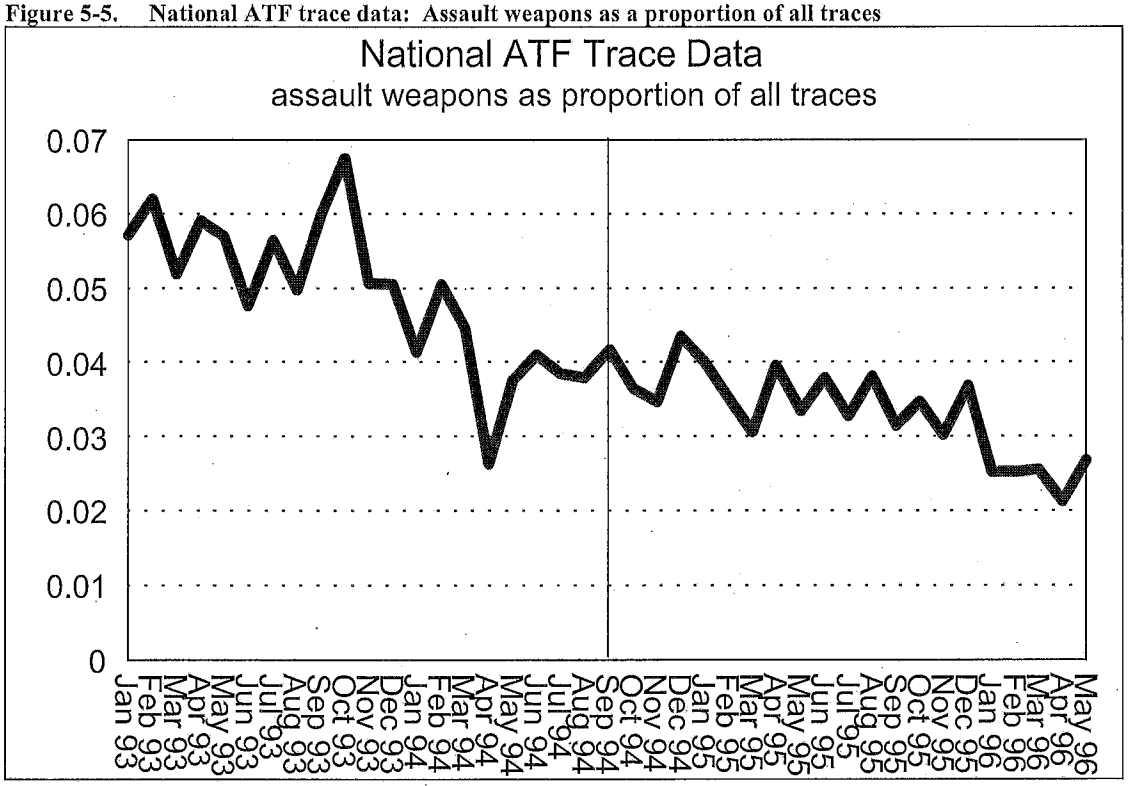
5.1.7. The Prevalence of Assault Weapons Among Crime Guns

As is shown in Figure 5-5, assault weapon traces decreased as a proportion of all traces throughout the entire study period. While Title XI may have contributed to this trend, it is apparent that the trend began before implementation of Title XI, and, to a large degree, must reflect the disproportionate growth in trace requests for non-assault weapons rather than a continual decline in the prevalence of assault weapons.

M10's, and M11's from the ban states rose 1% from 1993 to 1994, decreased 6% from 1994 to 1995, and remained steady from 1995 to early 1996. The 6% drop in 1995 seems to confirm that assault weapon trace requests dropped in the ban states after implementation of the federal law but by smaller percentages than assault weapon trace requests nationwide.

[56] In light of the substantial instrumentation problems with these data and the threat which such problems pose to quasi-experimental time series designs (Campbell and Stanley 1963, pp.40-41), we elected not to pursue more sophisticated methods, such as an interrupted time series analysis, with these data.

Figure 5-5. National ATF trace data: Assault weapons as a proportion of all traces



Despite this problem with interpreting trends in the prevalence of assault weapon traces, the 1996 trace figures arguably provide the best available estimate of the prevalence of assault weapons among crime guns. Firearm tracing should now be more complete and less biased than at any time previously. For January through May of 1996, assault weapons accounted for 3 percent of all trace requests. Our group of select domestic assault weapons represented 2.5 percent of all traces. Traces for the select assault weapon group accounted for 2.6 percent of traces for guns associated with violent crimes and 3.5 percent of traces for guns associated with drug crimes. This is consistent with previous research indicating that assault weapons are more likely to be associated with drug crimes than with violent crime (Cox Newspapers 1989; Kleck 1991). At the same time, these numbers reinforce the conclusion that assault weapons are rare among crime guns.

5.1.8. Crime Types Associated with Assault Weapons

Table 5-8 displays the types of offenses with which assault weapons were associated. For each year, approximately two-thirds of assault weapons were tied to weapons offenses. Drug offenses were the next most common, accounting for 16 to 18 percent of assault weapon traces for each year. Violent offenses ranged from 13 to 17 percent of assault weapon traces. For comparison, the percentage of total traces associated with drug offenses varied between 12 and 13 percent during this period. Violent offenses accounted for 12 to 16 percent of total traces. Hence, assault weapons were more likely to be associated with drug offenses than were other traces.

Table 5-8. Assault weapon trace requests to BATF by crime type

Offense type*	*1993* (N=3,725)	*1994* (N=4,048)	*1995* (N=3,226)	*1996 (Jan–May)* (N=1,500)
Murder/Homicide	.097	.069	.063	.072
Aggravated assaults	.048	.040	.051	.076
Robbery	.027	.018	.020	.022
Drug abuse violations	.167	.182	.161	.174
Weapons; carrying, possessing, etc.	.647	.665	.661	.581
Other offenses	.015	.025	.046	.075

*Offense type could not be determined for 1 percent of assault weapon traces in 1993, 1994, and 1995. Offense type could not be determined for 7 percent of assault weapon traces in 1996.

5.2. Assault Weapon Utilization: Local Police Data Sources

5.2.1. Introduction and Data Collection Effort.

Because of our concerns over the validity of national BATF trace data for measuring the distribution of guns used in crime, we attempted to collect and analyze data from a number of police departments around the country. We sought to acquire data on all firearms confiscated in these jurisdictions, rather than just firearms for which BATF trace requests were made. Analyzing all guns confiscated in a jurisdiction provides a more complete and less biased picture of weapons used in crime than does analysis of guns selected for BATF traces. The disadvantage of using local agency gun seizure data is that trends in any given jurisdiction may not be indicative of those elsewhere in the nation. Of course, local agency data are still subject to general limitations regarding police gun confiscation data which were raised in the last section (i.e., not all guns confiscated by police are used in violent or drug-related crime and not all guns used in crime are seized by police).

Unfortunately, the attempt to collect local gun data fell short of our expectations. Our intention was to collect data from cities in states both with and without their own assault weapon bans. Further, we concentrated our data collection effort on cities in states which had relatively high rates of gun violence. To this end, we contacted several police departments around the country. However, most of the departments that we contacted either did not have their property records computerized or had only computerized their records a few months prior to the implementation of the Crime Act, thus precluding the collection of meaningful pre-ban baseline data.[57]

Ultimately, we obtained data from two cities, St. Louis and Boston, neither of which is subject to a State assault weapon ban. From St. Louis, we acquired a database on all firearms confiscated by police from 1992 through 1995 (N=13,863). Our Boston data consist of monthly counts of various categories of firearms confiscated by Boston police from 1992 through August of 1996 (total confiscations numbered 3,840 for this period). For both locations, we examined trends in confiscations of our select domestic assault weapon group (i.e., the AR15, Intratec, and SWD families and selected Calico and Feather models). In addition, we approximated trends in confiscations of semiautomatic handguns capable of accepting large-capacity magazines by analyzing confiscations of selected Glock and Ruger pistols.

[57] Time, cost, and personnel considerations limited our ability to implement on-site data collection efforts.

The patterns we discovered were relatively consistent in both cities. Assault weapon confiscations were rare both before and after the ban. In both cities, the data were suggestive of a decrease in assault weapon confiscations after the ban. As a fraction of all confiscated guns, assault weapons decreased roughly 25% in these cities. Thus, these data sources provide some confirmation of our inferences regarding assault weapon trends from the national trace data. Further, we were able to examine the crimes with which assault weapons were associated in St. Louis and found that, as in the national data, assault weapons are overrepresented in drug offenses but not in violent offenses. Finally, confiscations of non-banned semiautomatic handguns capable of accepting large-capacity magazines increased or remained stable after the ban as a fraction of all confiscated handguns in both St. Louis and Boston.[58]

5.2.2. Assault Weapons in St. Louis and Boston

St. Louis police confiscated 180 weapons in the select assault weapon group between 1992 and 1995.[59] The vast majority of these weapons were from the Intratec and SWD assault pistol groups. Average monthly confiscations of assault weapons dropped from 4 to 3 after the ban's implementation (see Table 5-9). Total gun seizures also dropped during the post-ban months. In order to control for the general downward trend in gun confiscations, we examined assault weapons as a fraction of all confiscated guns. Prior to the ban, assault weapons accounted for about 1.4% of all guns. After the ban they decreased to 1% of confiscated guns, a relative decrease of approximately 29%. A contingency table chi-square test indicated that this was a statistically meaningful drop (p=.05). In addition, assault weapons represented a lower fraction of all guns confiscated during 1995 (.009) than

Table 5-9. Summary data on guns confiscated in St. Louis, January 1992 – December 1995

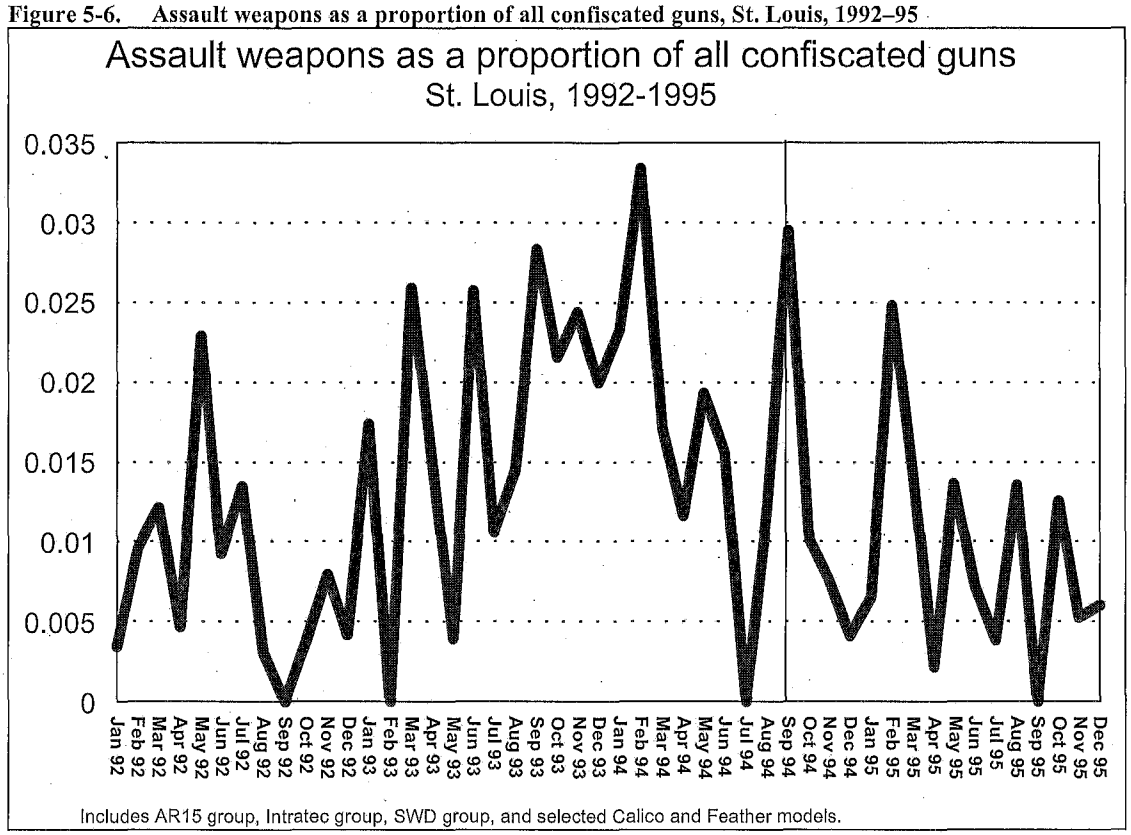
	Pre-ban (Jan. '92–Aug. '94)	*Post-ban (Sept. '94–Dec. '95)*	*Change*
Total guns confiscated			
Total	9,372	4,491	
Monthly mean	293	281	-4%
Assault guns			
Total	134	46	
Monthly mean	4	3	-25%
Proportion of confiscated guns	.014	.010	-29%
Large-capacity handguns (Ruger and Glock)			
Total	118	93	
Monthly mean	4	6	+50%
Proportion of all handguns	.018	.031	+72%

[58] As stated above, analyses of local data sources have the limitation that they are not necessarily indicative of those elsewhere in the nation. We cannot address the various local conditions which may have impacted recent gun trends in the selected cities. However, we should note that youth gun violence initiatives sponsored by the National Institute of Justice have been ongoing in each city during recent years. It is not clear at this time what impact, if any, these initiatives have had upon the gun trends that are the subjects of our investigation.

[59] The St. Louis data contain a few SWD streetsweeper shotguns in addition to SWD assault pistols.

during 1993 (.018), the last full calendar year prior to the passage and implementation of the ban. A monthly trend line for assault weapons as a fraction of all guns is shown in Figure 5-6.[60] [61]

Figure 5-6. Assault weapons as a proportion of all confiscated guns, St. Louis, 1992–95



A similar picture emerged from Boston. From 1992 through August of 1996, Boston police seized only 74 of these weapons. As in St. Louis, the vast majority were Intratec and SWD assault pistols. Table 5-10 shows

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[60] We also estimated interrupted time series models to test the post intervention change in the monthly trend for the assault weapons proportion measure. As in the NCIC analysis reported in Section 4.3 (p.50) we considered various models of impact. An abrupt, temporary impact model might seem appropriate, for example, based on the price trends presented in Section 4.1 (p.24). Both abrupt, permanent and gradual, permanent impacts are also plausible and seem to better match the pattern displayed in the St. Louis data. At any rate, these analyses failed to confirm that there was a significant change in assault weapons as a fraction of all guns. (The best fitting model was an abrupt, permanent impact model with an autoregressive parameter at the third lag).

However, we have emphasized the chi-square proportions test because the monthly series is rather short (N=48) for interrupted time series analysis (McCleary and Hay 1980) and because the monthly trend line provides no strong indication that the post ban drop was due to a preexisting trend.

[61] Average monthly confiscations of long guns (rifles and shotguns) increased somewhat from 88 in the pre-ban months to 92 after the ban. As a proportion of all confiscated guns, long guns rose from .299 before the ban to .326 after the ban. Thus, the decrease in assault weapons may have been offset by an increase in the use of long guns. However, we did not have the opportunity to investigate the circumstances under which long guns were seized. The post-ban increase could have been due, for example, to an increase in the proportion of confiscated guns turned in voluntarily by citizens. In addition, the ramifications of a long gun substitution effect are somewhat unclear. If, for instance, the substituted long guns were .22 caliber, rimfire (i.e., low velocity) rifles (and in addition did not accept large-capacity magazines), then a substitution effect would be less likely to have demonstrably negative consequences. If, on the other hand, offenders substituted shotguns for assault weapons, there could be negative consequences for gun violence mortality.

the respective numbers of total firearms and assault weapons seized before and after the Crime Act. The average number of assault weapons seized per month dropped from approximately 2 before the ban to about 1 after the ban, but total gun seizures were also falling. As a fraction of all guns, assault weapons decreased from .021 before the ban to .016 after the ban, a relative decrease of about 24%. A contingency table chi-square test indicated that this change was not statistically meaningful (p=.38), but the numbers provide some weak indication that assault weapons were dropping at a faster rate than were other guns. Quarterly trends for the proportions variable shown in Figure 5-7 suggest that assault weapons were relatively high as a proportion of confiscated guns during the quarters immediately following the ban, but then dropped off notably starting in the latter part of 1995.[62] [63]

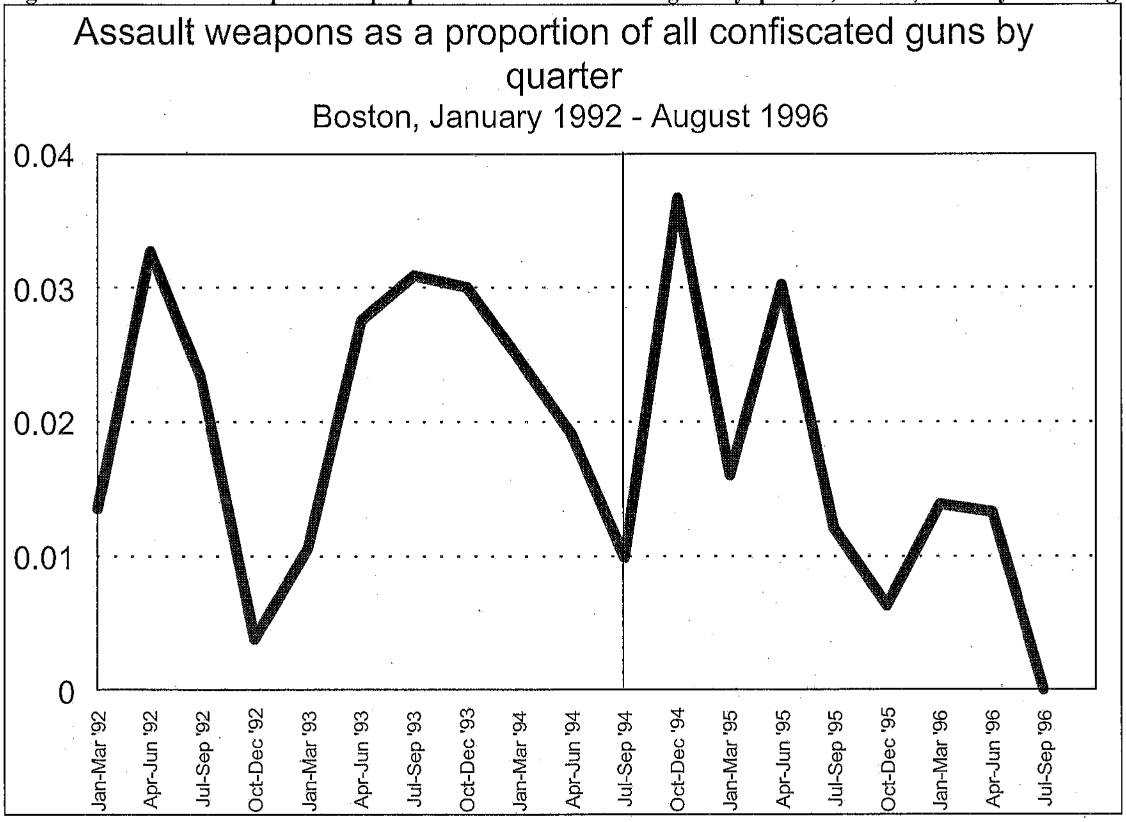
Table 5-10. Summary data on guns confiscated in Boston, January 1992 – August 1996

	Pre-ban Jan. '92–Aug. '94)	*Post-ban (Sept. '94–Aug. '96)*	*Change*
Total guns confiscated			
Total	2,567	1,273	
Monthly mean	80	53	-34%
Assault guns			
Total	53	21	
Monthly mean	2	1	-50%
Proportion of confiscated guns	.021	.016	-24%
Large-capacity handguns (Ruger and Glock)			
Total	28	17	
Monthly mean	1	1	0%
Proportion of all handguns	.015	.016	+7%

[62] We did not estimate time series models with the Boston data due to the rarity with which assault weapons were confiscated during the study period.

[63] In other analyses, we found that long guns decreased as a proportion of gun confiscations throughout the period, suggesting that there was not substitution of long guns for assault weapons in Boston.

Figure 5-7. Assault weapons as a proportion of all confiscated guns by quarter, Boston, January 1992–August 1996



5.2.3. Assault Weapons and Crime

Using the data from St. Louis, we were able to investigate the types of crimes with which assault weapons were associated. Approximately 12% of the assault weapons seized in St. Louis during the study period were associated with the violent crimes of homicide, aggravated assault, and robbery. Overall, about 12% of all confiscated guns were associated with these crimes. Hence, assault weapons do not appear to be used disproportionately in violent crime relative to other guns in these data, a finding consistent with our conclusions about national BATF trace data (see previous section). Overall, assault weapons accounted for about 1% of guns associated with homicides, aggravated assaults, and robberies.

However, 27% of the assault weapons seized in St. Louis were associated with drug offenses. This figure is notably higher than the 17% of all confiscated guns associated with drug charges.[64] This finding is also consistent with our national trace data analysis showing assault weapons to be more heavily represented among drug offenders relative to other firearms. Nevertheless, only 2% of guns associated with drug crimes were assault weapons.

5.2.4. Unbanned Handguns Capable of Accepting Large-capacity Magazines

We could not directly measure criminal use of pre-ban large-capacity magazines. Therefore, in order to approximate pre-ban and post-ban trends, we examined confiscations of a number of Glock and Ruger handgun models which can accept large-capacity magazines. These guns are not banned by the Crime Act, but they can

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[64] Some of the guns associated with drug charges were also tied to weapons charges.

accept banned large-capacity magazines. We selected Glock and Ruger models because they are relatively common in BATF trace data (BATF 1995a, p.35). A caveat to the analysis is that we were not able to obtain data on the magazines recovered with these guns. Consequently, we cannot say whether Glock and Ruger pistols confiscated after the ban were equipped with pre-ban large-capacity magazines. It is also possible that trends corresponding to Glocks and Rugers are not indicative of trends for other unbanned, large-capacity handguns.

As was discussed in Chapter 4 (see the NCIC stolen gun analysis), the hypothesized effects of the ban on this group of weapons is ambiguous. If large-capacity handgun magazines have become less available since the ban as intended (indeed, recall that the magazine price analysis in Chapter 4 indicated that prices of large-capacity magazines for Glock handguns remained at high levels through our last measurement period in the spring of 1996), one might hypothesize that offenders would find large-capacity handguns like Glocks and Rugers to be less desirable, particularly in light of their high prices relative to other handguns. If, on the other hand, large-capacity magazines for these unbanned handguns are still widely available, offenders seeking high-quality rapid-fire capability might substitute them for the banned assault weapons.

With the St. Louis data, we investigated trends in confiscations of all Glock handguns and Ruger P85 and P89 models. Police confiscated 118 of these handguns during the pre-ban months and 93 during the post-ban months (see Table 5-9). The monthly average increased from approximately 4 in the pre-ban months to 6 in the post-ban period. As a fraction of all confiscated handguns, moreover, the Glock and Ruger models rose from .018 before the ban to .031 after the ban, a relative increase of 72%. (These handguns also increased from .037 to .065 — a 76% change — as a fraction of all semiautomatic handguns; thus, the upward trend for these guns was not simply a result of a general increase in the use of semiautomatic handguns). However, Figure 5-8 shows that these handguns were trending upward as a fraction of all handguns well before the ban was implemented. (For this reason, we did not conduct contingency table chi-square tests for the pre-ban and post-ban proportions). Visually, it appears that the ban may have caused this trend to level off. Nevertheless, an interrupted time series analysis failed to provide evidence of a ban effect on the proportion of handguns which were unbanned large-capacity semiautomatics.[65]

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[65] In preliminary analysis, we found that the noise component of this time series was substantially affected by a modest outlier value at the last data point. We were able to estimate a better fitting model with more stable parameters with the outlier removed. After removing this data point (N=47), the final noise component consisted of a moving average parameter at the third lag, autoregressive parameters at lags two and four, and a seasonal autoregressive parameter at the twelfth lag. As in the time series analyses reported elsewhere, we examined a variety of impact models. The most appropriate impact model for the data was an abrupt, permanent impact. The impact parameter was positive (.006) but statistically insignificant (t value=1.13).

Figure 5-8. Unbanned large-capacity handguns as a proportion of all confiscated handguns, St. Louis, 1992–95

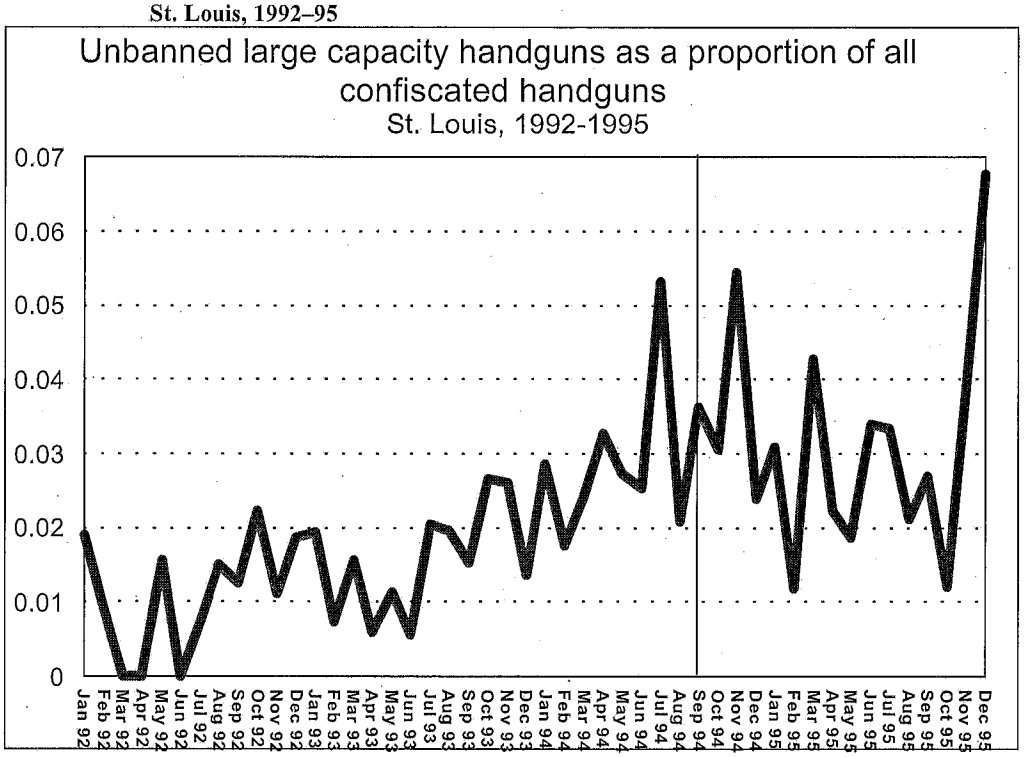
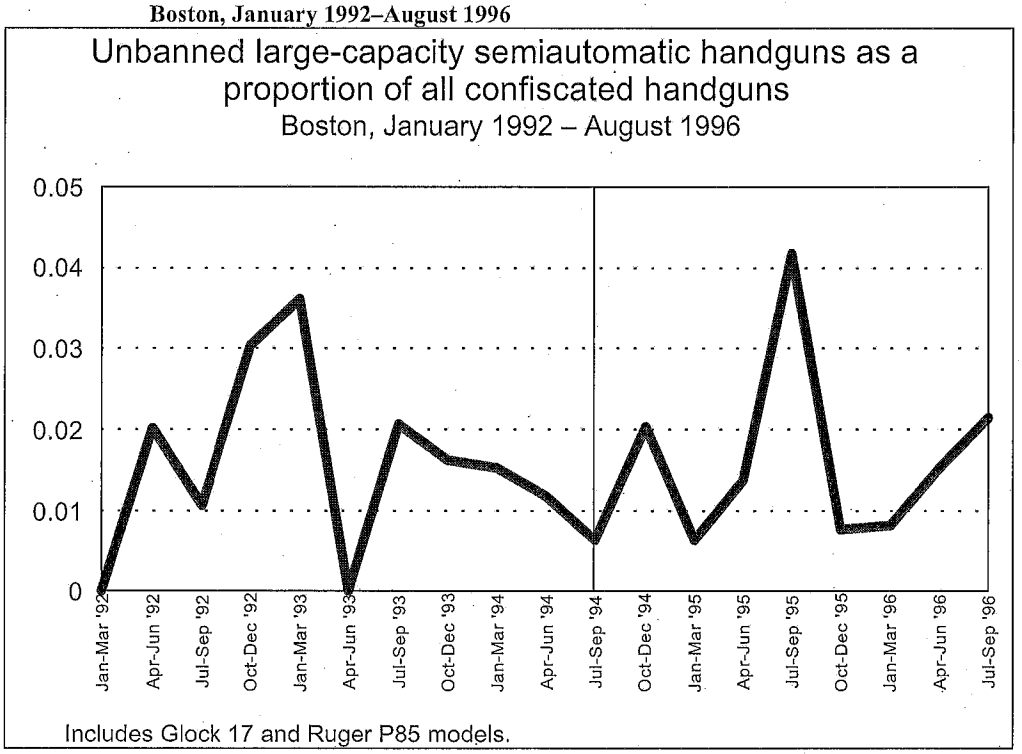


Figure 5-9. Unbanned large-capacity semiautomatic handguns as a proportion of all confiscated handguns, Boston, January 1992–August 1996



The data we acquired from Boston included counts for two specific unbanned, large-capacity handgun models, the Glock 17 and Ruger P85. Police in Boston confiscated 28 of these guns from January 1992 through August of 1994 and 17 from September 1994 through August 1996 (see Table 5-10). As a proportion of all

confiscated handguns, these models increased slightly from .015 before the ban to .016 after the ban. However, a contingency table chi-square test indicated that this difference was not statistically meaningful (p=.83).[66] The quarterly trend for the proportion measure is displayed in Figure 5-8. The pattern does not suggest any meaningful trends over time.[67]

In sum, the data from St. Louis and Boston do not warrant any strong conclusions one way or the other with respect to the use of large-capacity magazines, as crudely approximated by confiscations of a few relatively popular unbanned handgun models which accept such magazines. The ban on large-capacity magazines does not seem to have discouraged the use of these guns. At the same time, the assault weapon ban has not caused a clear substitution of these weapons for the banned large-capacity firearms.

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[66] We did not attempt any time series analyses with these data due to the rarity with which these guns were confiscated in Boston.

[67] A caveat to this analysis is that the Ruger P85 was discontinued in 1992 and replaced with a new version called the P89 (Fjestad 1996, p.996). The P89 was one of the ten most frequently traced guns nationally in 1994 (BATF 1995a, p.35). Unfortunately, we did not acquire data on confiscations of P89's in Boston (the P89 was included in our St. Louis figures). Had we been able to examine P89's in Boston, we may have found a greater increase in the use of unbanned, large-capacity handguns after the ban. Accordingly, the most prudent conclusion from the Boston data may be that there are no signs of a decrease in the use of unbanned, large-capacity handguns.

6. POTENTIAL CONSEQUENCES OF ASSAULT WEAPON USE

The Congressional mandate for this study required us to study how the Subtitle A bans on assault weapons and large-capacity magazines affected two consequences of using those weapons: specifically, violent and drug-related crime. Among violent crimes, we devoted most attention to gun murders, because it is the best measured. However, the total gun murder rate is an insensitive indicator of ban effects, because only a fraction of gun murders involve large-capacity magazines, and only about 25 percent of those murders involve the banned assault weapons. Therefore, we carried out supplementary analyses of certain categories of gun murders that more commonly involve the banned guns and magazines: events that involve multiple gun murder victims, gun murders involving multiple wounds, and killings of law enforcement officers. Unlike the BATF trace data analyzed in Chapter 5, available data sources did not permit us to categorize these events on the basis of relationship to drugs.

6.1. TRENDS IN STATE-LEVEL GUN HOMICIDE RATES

To estimate the impact of the Subtitle A bans on gun homicide rates, we estimated multivariate regression models using data from all states with reasonably consistent Supplementary Homicide Reporting over the sixteen-year period 1980 through 1995. We closely followed the approach used by Marvell and Moody (1995) to analyze the impact of enhanced prison sentences for felony gun use. Marvell and Moody generously provided their database, which we updated to cover the post-ban period.

Any effort to estimate how the ban affected the gun murder rate must confront a fundamental problem, that the maximum achievable preventive effect of the ban is almost certainly too small to detect statistically. Although our statistical model succeeded in explaining 92 percent of the variation in State murder rates over the observation period, a post hoc power analysis revealed that it lacks the statistical power to detect a preventive effect smaller than about 17 percent of all gun murders under conventional standards of statistical reliability.[68] A reduction that large would amount to preventing at least 2.4 murders for every one committed with an assault weapon before the ban, or, alternatively, preventing two-thirds of all gun murders committed with large-capacity magazines — obviously impossible feats given the availability of substitutes for the banned weapons.[69] While there are substantially smaller reductions that would benefit society by more than the cost of the ban, they would be impossible to detect in a statistical sense, at least until the U.S. accumulates more years of post-ban data.

Within this overall constraint, our strategy was to begin with a "first-approximation" estimate of the ban effect on murders, then to produce a series of re-estimates intended to rule out alternative explanations of the estimated effect. Based on these efforts, our best estimate of the short-run effect is that the ban produced a 6.7 percent reduction in gun murders in 1995. However, we caution that for the reasons just explained, we cannot statistically rule out the possibility that no effect occurred. Also, we expect any short-run 1995 preventive effect on gun murders to ebb, then flow, in future years, as the stock of grandfathered assault weapons makes its way to offenders patronizing secondary markets, while the stock of large-capacity magazines dwindles over time.

The following sections first describe our data set, then explain our analyses.

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[68] By conventional standards, we mean statistical power of 0.8 to detect a change, with .05 probability of a Type 1 error.

[69] Moreover, no evidence exists on the lethality effect of limiting magazine capacity.

6.1.1. Data

Data for gun homicides are available for the entire 1980–95 period of the study. We obtained data from "Crime in the United States" Uniform Crime Reports for the years 1994 and 1995, and from Marvell and Moody for the years 1980 through 1993. (Marvell and Moody used "Crime in the United States" Uniform Crime Reports for years 1991 to 1993, and unpublished data from the FBI for the earlier years.)

Since the fraction of homicides for which weapon use was reported by states varied from state to state and even year to year over the period, it was necessary to adjust and filter the data. To address this reporting problem, we adopted Marvell and Moody's (1995) approach to compile what they call a "usable" data series, consisting of observations (each year for each state) for which homicide weapon-use reporting is at least 75 percent complete (See Marvell and Moody, 1995).[70] On this basis we had to eliminate a certain portion of the gun homicide data (see Table 6-2) For each observation that met this requirement, the number of gun homicides was multiplied by a correction factor defined as the ratio of the FBI estimate for the total number of reported homicides in the state to the number of homicides for which the state reported weapon data.

We used Marvell and Moody's rule of retaining states in the analysis only if they had data for seven or more consecutive years[71] and added the additional requirement that states must have had gun homicide data for the post-intervention year, 1995. (This additional requirement caused us to eliminate four states entirely from the analysis: Delaware, Kansas, Nebraska, and New Mexico.) In addition, Marvell and Moody made allowances for otherwise adequate seven-year series that contained a single year of data that did not meet the above requirements. Provided the reporting rate was at least 50 percent and the corrected figure did not "depart greatly"[72] from surrounding years, the state was not dropped from the analysis. (These are: Louisiana 1987, South Carolina 1991, Tennessee 1991, and Wyoming 1982.) A further allowance was, that if the reporting rate was below 50 percent, or if the adjusted number did depart from surrounding years, the percentage of gun homicides was revised as the average of that for the four surrounding years. (These are: Alaska 1984, Arizona 1989, Idaho 1991, Iowa,1987, Kentucky 1983, Maryland 1987, Minnesota 1990, North Dakota 1991, Texas 1982, and Vermont, 1993.) In the end, "usable data" remained for 42 states for the analysis (see Table 6-2).

To allow us to account for intervening influences on gun homicide rates, we gathered data for several time-varying control variables that proved statistically significant in Marvell and Moody's analysis. Two economic variables (state per capita personal income and state employment rate) and two age structure variables were included. State per capita personal income was available from the Bureau of Economic Analysis for all years; we obtained data for 1991–95 directly from the Department of Commerce, while Marvell and Moody provided us the data for earlier years. State employment rates were available from the Bureau of Labor Statistics, Department of Labor for 1994 and 1995 and from the Bureau of Economic Analysis (via Marvell and Moody) for year 1980–93. Data on the age structures of state populations were available from the Bureau of the Census.

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[70] An alternative approach would have been to use mortality data available from the National Center for Health Statistics through 1992, then to append NCR data for the subsequent years. We were concerned about possible artifactual effects of combining medical examiners' and police data into a single time series, but recommend this approach for future replication.

[71] However, we departed from Marvell and Moody by including observations for years that followed a gap in a series of "usable" data and were therefore not part of a seven-year string. The state was treated as a missing observation during the gap.

[72] According to Marvell and Moody, a single year of data does not "depart greatly" from surrounding years if either the percentage of gun murders falls within the percentages for the prior and following years, or if it is within three percentage points of the average of the four closest years.

unadjusted estimates of total resident population of each state as of July 1 of each year. (We obtained these data directly for years 1994–95, while Marvell and Moody generously provided us with the data for earlier years).

6.1.2. Research Design

As a first approximation for estimating effects of the assault weapon ban, we specified Model 1 as loglinear in state gun homicide rate (adjusted as described above) and a series of regressors.[73] The regressors were:

- A third-degree polynomial trend in the logarithm of time;
- A dummy variable for each state;
- State per-capita income and employment rates for each year (logged);
- Proportions of the population aged 15-17 and 18-24 (logged);
- D95, a 1995 dummy variable, which represented ban effects in this first-approximation model; and
- PREBAN, a dummy variable set to represent states with assault weapon bans during their pre-ban years.

We represented time with the polynomial trend instead of a series of year dummies for two reasons. First, by reducing the number of time parameters to estimate from 15 to 3, we improved statistical efficiency. Second, during sensitivity analyses after Model 1 was fit, we discovered that it produced more conservative estimates of ban effects than a model using time dummies (that model implicitly compares 1995 levels to 1994 levels instead of to the projected trend for 1995), because the estimated trend began decreasing at an increasing rate in the most recent years. We included the economic and demographic explanatory variables because Marvell and Moody (1995) had found them to be significant influences on state-level homicide rates using the same data set. PREBAN was included so that for states with their own assault weapon bans, the D95 coefficient would reflect differences between 1995 and only those earlier years in which the state's gun ban was in place.

As shown in Table 6-1, Model 1 estimated a 9.0 percent reduction in gun murder rates in the year following the Crime Act, based on a statistically significant estimated coefficient for the 1995 dummy variable.[74] This estimated coefficient, of course, reflects the combined effect of a package of interventions that occurred nearly simultaneously with the Subtitle A bans on assault weapons and large-capacity magazines. These include: the Subtitle B ban on juvenile handgun possession and the new Subtitle C FFL application and reporting requirements, other Crime Act provisions, the Brady Act, and a variety of State and local initiatives.

We reasoned that if the Model 1 estimate truly reflected assault weapon ban effects, then by disaggregating the states we would find a larger reduction in gun murders in the states without pre-existing assault weapon bans than in the four states with such bans prior to 1994 (California, Connecticut, Hawaii, and New Jersey). To test this hypothesis, we estimated Model 2, in which D95 was replaced by two interaction terms that indicated whether or not a State ban was in place in 1995. As shown in Table 6-1, disaggregating the states using

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[73] We weighted the regression by state population to adjust for heteroskedasticity and to avoid giving undue weight to small states.

[74] In our sensitivity analyses of models in which the polynomial time trend was replaced with year dummies, the corresponding Model 1 estimated reduction was 11.2 percent, and the estimated coefficient was statistically significant at the .05 level. Similarly, for alternatives to Models 2-4, the estimated ban effects were 2 to 3 percent larger than those shown in Table 6-1 and were statistically significant at the .05 level.

Model 2 did produce a larger estimated ban effect, a statistically significant reduction of 10.3 percent in the states without their own bans.

Table 6-1. Estimated Coefficients and Changes in Gun Murder Rates from Title XI Interventions

Model	*Subgroup for 1995 impact*	*Coefficient*	*Percent change*	*test statistic*
1	All Usable (N = 42)	-0.094 +	-9.0%	-1.67
2	States without AW ban (N = 38)	-0.108 +	-10.3	-1.88
	States with AW ban (N = 4)	-0.001	-0.1	-0.01
3	States without AW or JW ban (N = 22)	-0.102	-9.7	-1.56
	States without AW, with JW ban (N = 16)	-0.115	-10.9	-1.64
	States with AW, without JW ban (N = 2)	-0.076	-7.3	-0.41
	States with AW and JW ban (N = 2)	0.044	4.5	0.39
4	California and New York excluded: States without AW or JW ban (N = 22)	-0.103	-9.8	-1.58
	States without AW, with JW ban (N = 15)	-0.069	-6.7	-0.95
	States with AW, without JW ban (N = 2)	-0.079	-7.6	-0.43
	States with AW and JW ban (N = 1)	0.056	5.8	0.30

+ Statistically significant at 10-percent level

To isolate the hypothesized Subtitle A bans from the Subtitle B ban on juvenile handgun possession, we estimated Model 3, in which D95 was used in four interaction terms with dummy variables indicating whether a state had its own assault weapon ban, juvenile handgun possession ban, both, or neither at the time of the Crime Act.[75] We also added a term, PREJBAN, which represented states with juvenile bans during their pre-ban years, for reasons analogous to the inclusion of PREBAN. The estimates of most interest are those for the 38 states without their own assault weapon bans. Among those, the estimated ban effect was slightly larger in states that

[75] A more restrictive alternative to Model 3 is based on the assumption that the impacts for states without assault weapon bans and the impacts for states without juvenile handgun possession bans are additive. A model estimate under this assumption yielded very similar point estimates and slightly smaller standard errors than Model 3. We preferred the more flexible Model 3 for two reasons. First, the less restrictive model helps us interpret the estimates clearly in light of some of the legislative changes that occurred in late 1994. Model 3 allows the reader to assess the consequences of the assault weapon ban under each set of conditions that existed at the time the ban was implemented. Second, because a juvenile handgun possession ban a fortiori prohibits the most crime-prone segment of the population from possessing the assault weapons most widely used in crime, we hesitated to impose an additivity assumption.

already had a juvenile handgun possession ban than in those that did not. We interpret the former estimate as a better estimate of the assault weapon ban effect because the State juvenile ban attenuates any confounding effects of the Federal juvenile ban. In any event, however, the estimates are not widely different, and they imply a reduction in the 10 to 11 percent range.

We were also concerned that our estimates might be distorted by the effects of relevant State and local initiatives. Therefore, we reestimated Model 3 excluding 1995 data for California and New York. We filtered out these two because combined they account for nearly one-fourth of all U.S. murders and because they were experiencing potentially relevant local interventions at the time of the ban: California's "three strikes" law and New York City's "Bratton era" in policing, coming on the heels of several years of aggressive order maintenance in that city's subway system.

The estimation results with California and New York omitted appear as Model 4 in Table 6-1. While dropping these states leaves three of the estimated coefficients largely unaffected, it has a substantial effect on New York's category, states with a juvenile handgun possession ban but no assault weapon ban. The estimated ban effect in this category drops from a nearly significant 10.9 percent reduction to a clearly insignificant 6.7 percent reduction, which we take as our best estimate.

To conclude our study of state-level gun homicide rates, we performed an auxiliary analysis. We were concerned that our Model 4 estimate of 1995 ban effects could be biased by failure to control for the additional requirements on FFL applicants that were imposed administratively by BATF in early 1994 and included statutorily in Subtitle C of Title XI, which took effect simultaneously with the assault weapon ban. These requirements were intended to discourage new and renewal applications by scofflaw dealers who planned to sell guns primarily to ineligible purchasers presumed to be disproportionately criminal. Indeed, they succeeded in decreasing the number of FFLs by some 37 percent during 1994 and 1995, from about 280,000 to about 180,000 (U.S. Department of Treasury, 1997). We were concerned that if the FFLs who left the formal market during that period were disproportionately large suppliers of guns to criminals, then failure to control for their disappearance could cause us to impute any resulting decrease in gun murder rates mistakenly to the Subtitle A ban.

Unfortunately, we could use only the 1989–95 subset of our database to test this possibility, because we could not obtain state-level FFL counts for years before 1989. Therefore, we modified Model 4 by replacing the time trend polynomial with year dummies. We then estimated the modified Model 4 both with and without a logged FFL count and an interaction term between the logged count and a 1994–95 dummy variable. Although the estimated coefficient on the interaction term was significantly negative, the estimated 1995 ban effect was essentially unchanged.

Table 6-2. Years for which gun-related homicide data are not available

	Gun homicide data 1980–95
Alabama	✓
Alaska	✓
Arizona	✓
Arkansas	✓
California	✓
Colorado	✓
Connecticut	✓

	Gun homicide data 1980–95
Delaware	No usable data
District of Columbia	No usable data
Florida	1988–91
Georgia	1980–81
Hawaii	✓
Idaho	✓
Illinois	No usable data
Indiana	1989–1991
Iowa	1991–1993
Kansas	No usable data
Kentucky	1987-89; 1994
Louisiana	1990–91
Maine	1990–92
Maryland	✓
Massachusetts	1988–90
Michigan	✓
Minnesota	✓
Mississippi	No usable data
Missouri	✓
Montana	No usable data
Nebraska	No usable data
Nevada	✓
New Hampshire	✓
New Jersey	✓
New Mexico	No usable data
New York	✓
North Carolina	✓
North Dakota	1994
Ohio	✓
Oklahoma	✓
Oregon	✓

	Gun homicide data 1980–95
Pennsylvania	✓
Rhode Island	✓
South Carolina	✓
South Dakota	No usable data
Tennessee	✓
Texas	✓
Utah	✓
Vermont	1980-83
Virginia	✓
Washington	✓
West Virginia	✓
Wisconsin	✓
Wyoming	✓

✓ indicates usable data are available for all years (1980–95) in the period

6.2. Assault Weapons, Large-Capacity Magazines, and Multiple Victim/Mass Murders

6.2.1. Trends in Multiple-Victim Gun Homicides

The use of assault weapons and other firearms with large-capacity magazines is hypothesized to facilitate a greater number of shots fired per incident, thus increasing the probability that one or more victims are hit in any given gun attack. Accordingly, one might expect there to be on average a higher number of victims per gun homicide incident for cases involving assault weapons or other firearms with large-capacity magazines. To the extent that the Crime Act brought about a permanent or temporary decrease in the use of these weapons (a result tentatively but not conclusively demonstrated for assault weapons in Chapter 5), we can hypothesize that the number of victims per gun homicide incident may have also declined.

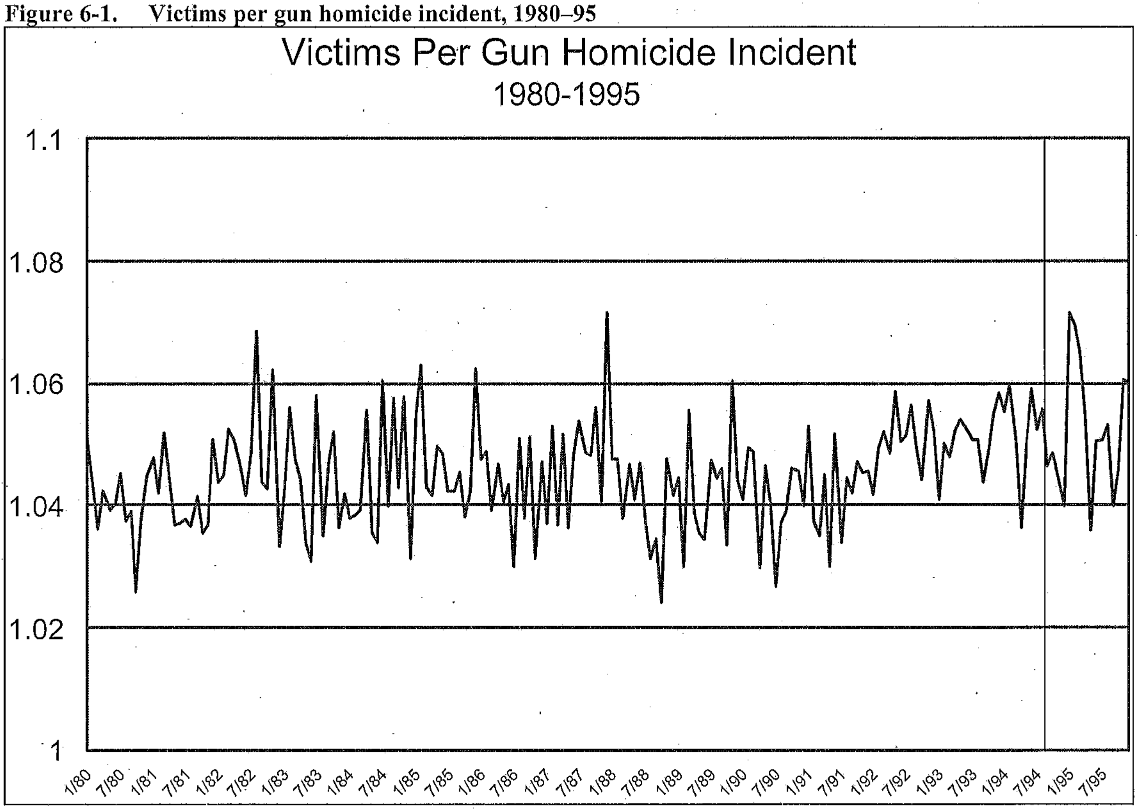
We investigated this hypothesis using data from the Federal Bureau of Investigation's Supplemental Homicide Reports (SHR) for the years 1980 through 1995. We constructed a monthly database containing the number of gun homicide incidents and victims throughout the nation.[76] The SHR does not contain information

[76] The SHR is compiled annually by the FBI based on homicide incident reports submitted voluntarily by law enforcement agencies throughout the country (see the FBI's *Uniform Crime Reports* for more information about reporting to the Uniform Crime Reports and the Supplemental Homicide Reports). Though the SHR contains data on the vast majority of homicides in the nation, not all agencies report homicide incident data to the SHR, and those agencies which do report may fail to report data for some of the homicides in their jurisdiction. In this application, it is not clear how any potential bias from

about the makes, models, and magazine capacities of firearms used in homicides. Consequently, these results rely on indirect, inferred links between expected changes in the use of banned weapons and trends in the victim per incident measure.

From 1980 through August of 1994 (the pre-ban period), there were 184,528 gun homicide incidents reported to the SHR. These cases involved 192,848 victims, for an average of 1.045 victims per gun homicide incident. For the post-ban months of September 1994 through December 1995, there were 18,720 victims killed in 17,797 incidents, for an average of 1.052 victims per incident. Thus, victims per incident increased very slightly (less than 1 percent) after the Crime Act. A graph of monthly means presented in Figure 6-1 suggests that this increase predated the assault weapon ban. Nevertheless, an interrupted time series analysis also failed to produce any evidence that the ban reduced the number of victims per gun homicide incident.[77]

Figure 6-1. Victims per gun homicide incident, 1980–95



Considering the rarity with which assault weapons are used in violent crime (for example, assault weapons are estimated to be involved in 1 to 7 percent of gun homicides),[78] this result is not unexpected. At the same time, an important qualifier is that the data available for this study have not produced much evidence regarding pre-ban/post-ban trends in the use of large-capacity magazines in gun crime. In the next section, we offer a tentative estimate, based on one city, that approximately 20 to 25 percent of gun homicides are committed

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missing cases would operate. That is, we are unaware of any data indicating whether reported and non-reported cases might differ with respect to the number of victims killed.

[77] We tested the data under different theories of impact suggested by the findings on assault weapon utilization reported in Chapter 5, but failed to find evidence of a beneficial ban effect. If anything, our time series analysis suggested that the post-ban increase in victims per gun murder incident was a meaningful change.

[78] See discussion in Chapters 2 (p.8) and 5 (p.58) and in Section 6.3 (p.87) of this chapter.

with gun equipped with large-capacity magazines banned by the Crime Act.[79] Hence, trends in the use of large-capacity magazines would seem to have more potential to produce measurable effects on gun homicides. It is not yet clear as to whether the use of large-capacity magazines has been substantially affected by the Crime Act.

Despite these ambiguities, we can at least say that this examination of SHR data produced no evidence of short term decreases in the lethality of gun violence as measured by the mean number of victims killed in gun homicide incidents.[80]

6.3. Consequences of Title XI: Multiple Wound Gun Homicides

To provide another measure of the consequences of the assault weapon/large-capacity magazine ban on the lethality of gun violence, we analyzed trends in the mean number of gunshot wounds per victim of gun homicides in a number of sites. In one jurisdiction, we were able to examine trends in multiple wound non-fatal gunshot cases. The logic of these analyses stems from the hypothesis that offenders with assault weapons or other large-capacity firearms can fire more times and at a more rapid rate, thereby increasing both the probability that they hit one or more victims and the likelihood that they inflict multiple wounds on their victims. One manifestation of this phenomenon could be a higher number of gunshot wounds for victims of gun homicides committed with assault weapons and other large-capacity firearms. To the extent that Title XI decreased the use of assault weapons and large-capacity magazines, we hypothesize a decrease in the average number of wounds per gun murder victim.

To test this hypothesis, we collected data from police and medical sources on gunshot murders (justifiable homicides were excluded) in Milwaukee County, Seattle and King County, Jersey City (New Jersey), Boston, and San Diego County. Selection of the cities was based on both data availability and theoretical relevance. Jersey City and San Diego were chosen as comparison series for the other cities because New Jersey and California had their own assault weapons bans prior to the Federal ban. The New Jersey and California laws did not ban all large-capacity magazines, but they did ban several weapons capable of accepting large-capacity magazines. Thus, we hypothesized that any reduction in gunshot wounds per gun homicide victim due to the Federal ban might be smaller in magnitude in Jersey City and San Diego.

The data from Seattle and San Diego were collected from the respective medical examiners' offices of those counties.[81] The Milwaukee data were collected from both medical and police sources by researchers at the Medical College of Wisconsin. The Jersey City data were collected from the Jersey City Police Department. Finally, the Boston data were provided by the Massachusetts Department of Public Health. From each of these sources, we were able to collect data spanning from January 1992 through at least the end of 1995. In some cities we were able to obtain data on the actual number of gunshot wounds inflicted upon victims, while in other cities we were able to classify cases only as single wound or multiple wound cases. Depending on data available, we analyzed pre-ban and post-ban data in each city for either the mean number of wounds per victim or the proportion

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[79] A New York study estimated this figure to be between 16 percent and 25 percent (New York State Division of Criminal Justice Services 1994, p.7).

[80] See Appendix A for an investigation of assault weapon use in mass murders.

[81] The Seattle data were collected for this project by researchers at the Harborview Injury Prevention and Research Center in Seattle. The San Diego County Medical Examiner's Office provided data from San Diego.

of victims with multiple wounds. We concluded this investigation with an examination of the mean number of gunshot wounds for victims killed with assault weapons and other firearms with large-capacity magazines, based on data from one city.

6.3.1. Wounds per Incident: Milwaukee, Seattle, and Jersey City

From the Milwaukee, Seattle, and Jersey City data, we were able to ascertain the number of gunshot wounds suffered by gun murder victims. Relevant data comparing pre-ban and post-ban cases are displayed in Table 6-3. The average number of gunshot wounds per victim did not decrease in any of these three cities. Gunshot wounds per victim actually increased in all these cities, but these increases were not statistically significant.[82] [83]

Table 6-3. Gunshot wounds per gun homicide victim, Milwaukee, Seattle, and Jersey City

	Cases	*Average*	*Standard deviation*	*T value*	*P level*
Milwaukee County (N = 418)					
Pre-ban: January '92 - August '94	282	2.28	2.34		
Post-ban: September '94 - December '95	136	2.52	2.90		
Difference		+ 0.24		0.85*	.40
Seattle and King County (N = 275)					
Pre-ban: January '92 - August '94	184	2.08	1.78		
Post-ban: September '94 - June '96	91	2.46	2.22		
Difference		+ 0.38		1.44*	.15
Jersey City (N =44)					
Pre-ban: January '92 - August '94	24	1.58	1.56		
Post-ban: September '94 - May '96	20	1.60	1.79		
Difference		+ 0.02		0.03	.97

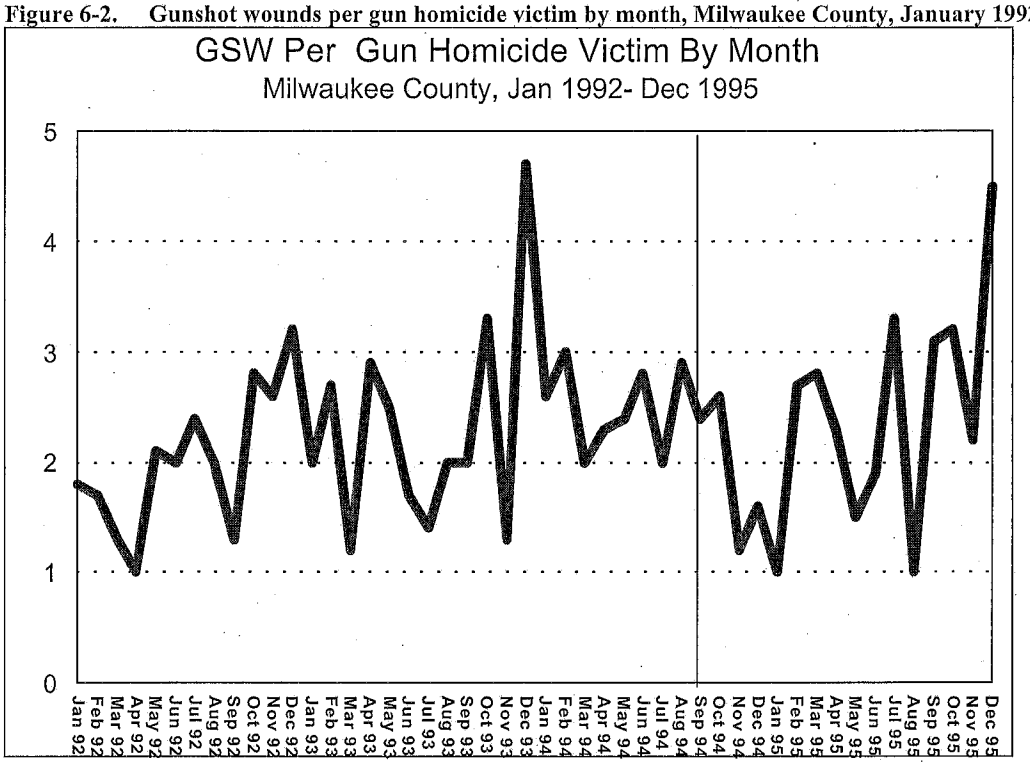
* T values were computed using formula for populations having unequal variances

[82] Our comparisons of pre-ban and post-ban cases throughout this section are based on the assumption that the cases in each sample are independent. Technically, this assumption may be violated by incidents involving multiple victims and/or common offenders. Violation of this assumption has the practical consequence of making test statistics larger, thus making it more likely that differences will appear significant. Since the observed effects in these analyses are insignificant and usually in the wrong direction, it does not appear that violation of the independence assumption is a meaningful threat to our inferences.

[83] We also ran tests comparing only cases from 1993 (the last full year prior to passage and implementation of Title XI) and 1995 (the first full year following implementation of Title XI). These tests also failed to yield evidence of a post-ban reduction in the number of wounds per case.

Time trends in the monthly average of wounds per victim for Milwaukee and Seattle are displayed in Figure 6-2 and Figure 6-3. Figure 6-4 presents quarterly time trends for Jersey City. None of the graphs provide strong visual evidence of trends or changes in trends associated with the implementation of Title XI, but the Milwaukee and Seattle graphs are somewhat suggestive of upward pre-ban trends that may have been affected by the ban. We made limited efforts to estimate interrupted time series models (McCleary and Hay 1980) for these two series. The Milwaukee model provided no evidence of a ban effect,[84] and the efforts to model the Seattle data were inconclusive.[85] Because the ban produced no effects in Milwaukee or Seattle, it was not necessary to draw inferences about Jersey City as a comparison site.

Figure 6-2. Gunshot wounds per gun homicide victim by month, Milwaukee County, January 1992–December 1995



[84] We tested the Milwaukee data under various theories of impact but failed to find evidence of an effect from the ban.

[85] The Seattle data produced an autocorrelation function (see McCleary and Hay 1980) that was uninterpretable, perhaps as a result of the small number of gun murders per month in Seattle. Aggregating the data into larger time periods (such as quarters) would have made the series substantially shorter than the 40-50 observations commonly accepted as a minimum number of observations necessary for Box-Jenkins (i.e., ARIMA) modeling techniques (e.g., see McCleary and Hay 1980, p.20).

Figure 6-3. Gunshot wounds per gun homicide victim by month, King County (Seattle), January 1992–June 1996

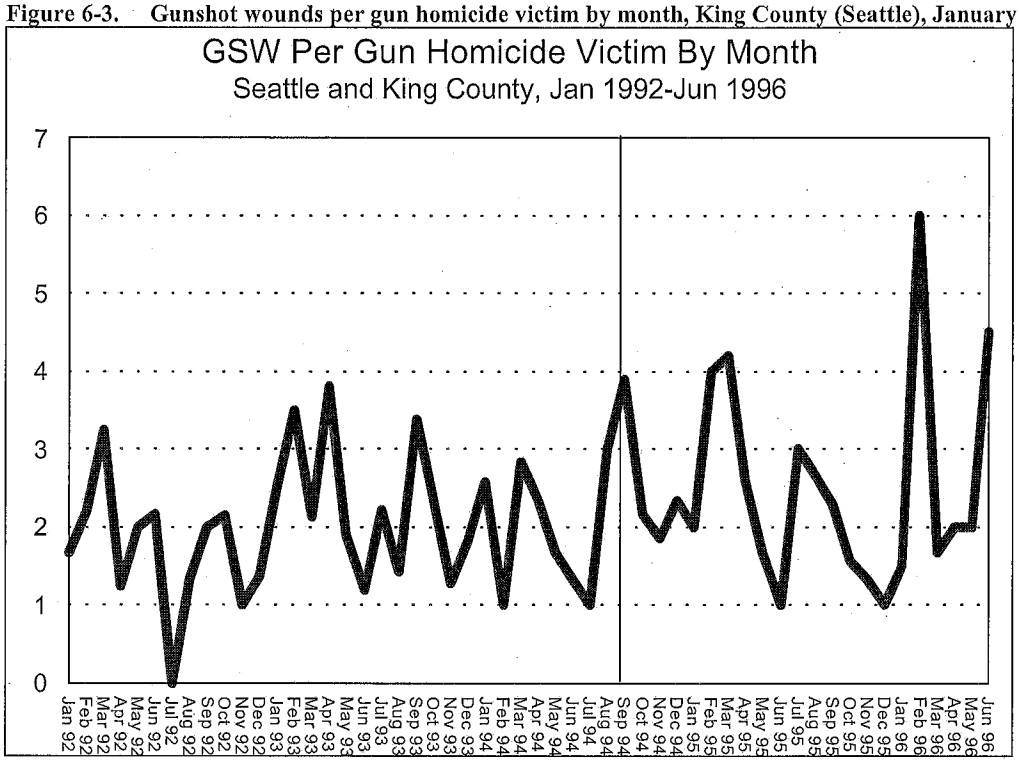
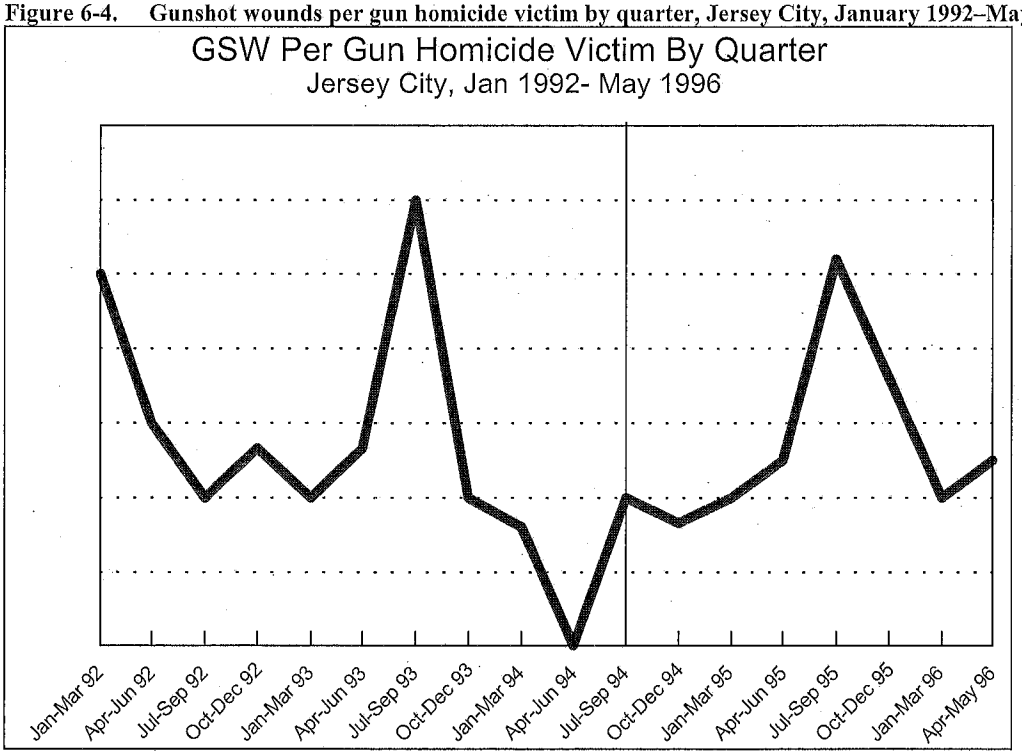


Figure 6-4. Gunshot wounds per gun homicide victim by quarter, Jersey City, January 1992–May 1996

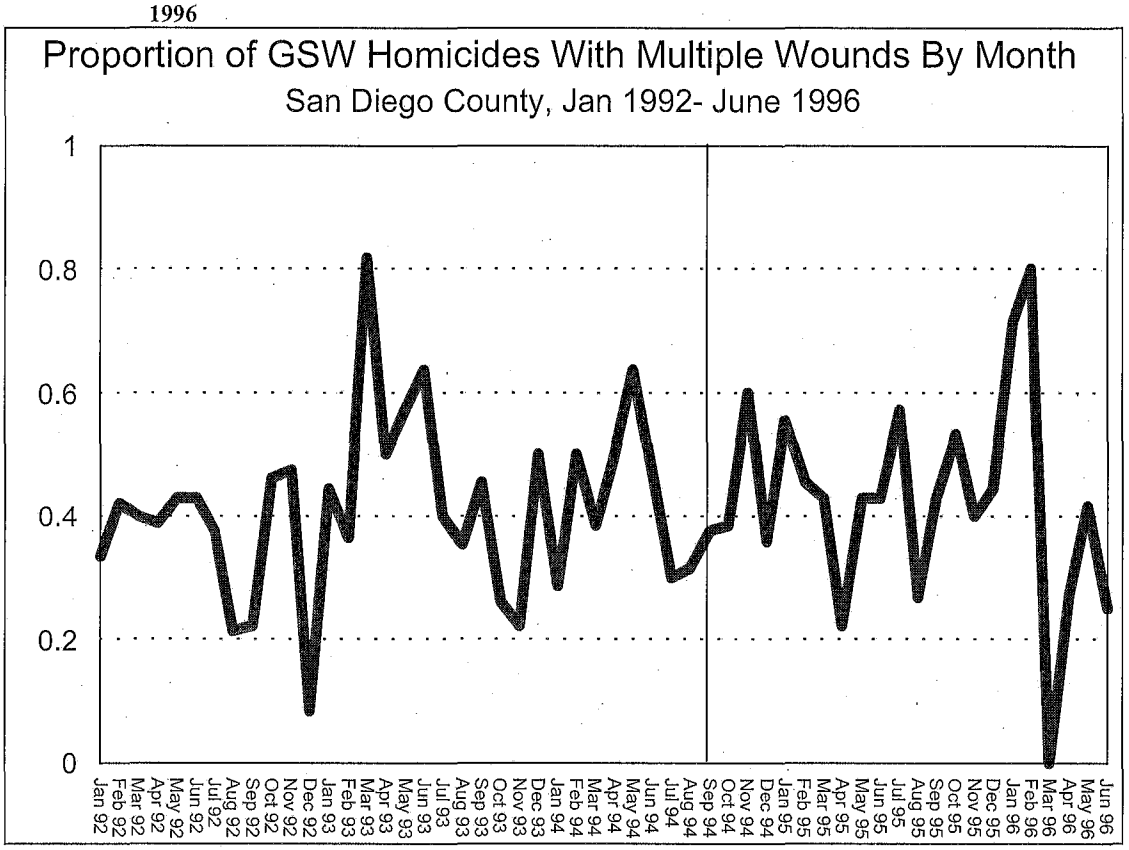


6.3.2. Proportion of Cases With Multiple Wounds: San Diego and Boston

The data from San Diego and Boston identified cases only as being single or multiple wound cases. We examined the proportions of pre-ban and post-ban cases involving multiple wounds and utilized contingency tables with chi-square tests to determine whether pre-ban and post-ban cases differed significantly.[86]

The proportion of San Diego County's gun homicide victims sustaining multiple wounds increased very slightly after the ban (see Table 6-4), thus providing no evidence of a ban impact. Nor do there appear to have been any significant temporal trends before or after the ban (see Figure 6-5).

Figure 6-5. Proportion of gunshot homicides with multiple wounds by month, San Diego County, January 1992–June 1996



The Boston data require further explanation and qualification. The data were taken from the Weapon-Related Injury Surveillance System (WRISS) of the Massachusetts Department of Public Health (MDPH). WRISS tracks gunshot and stabbing cases treated in acute care hospital emergency departments throughout the state.[87] These data have the unique advantage of providing trends for non-fatal victimizations, but they represent a biased sample of gunshot homicide cases because gun homicide victims found dead at the scene are not tracked by WRISS.[88] Since multiple wound victims can be expected to have a greater chance of dying at the scene, WRISS

[86] Monthly and quarterly averages in the fraction of cases involving multiple wounds did not appear to follow discernible time trends for any of these series (see Figure 6-5 through Figure 6-8). Therefore, we did not analyze the data using time series methods.

[87] For a discussion of error rates in the determination of wound counts by hospital staff, see Randall (1993).

[88] The MDPH also maintains a database on all homicide victims, but this database does not contain single/multiple wound designations and data for 1995 are not complete as of this writing.

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data are likely to underestimate the fraction of gun homicide victims with multiple wounds. While it is possible that this bias has remained constant over time, the gun homicide trends should be treated cautiously.

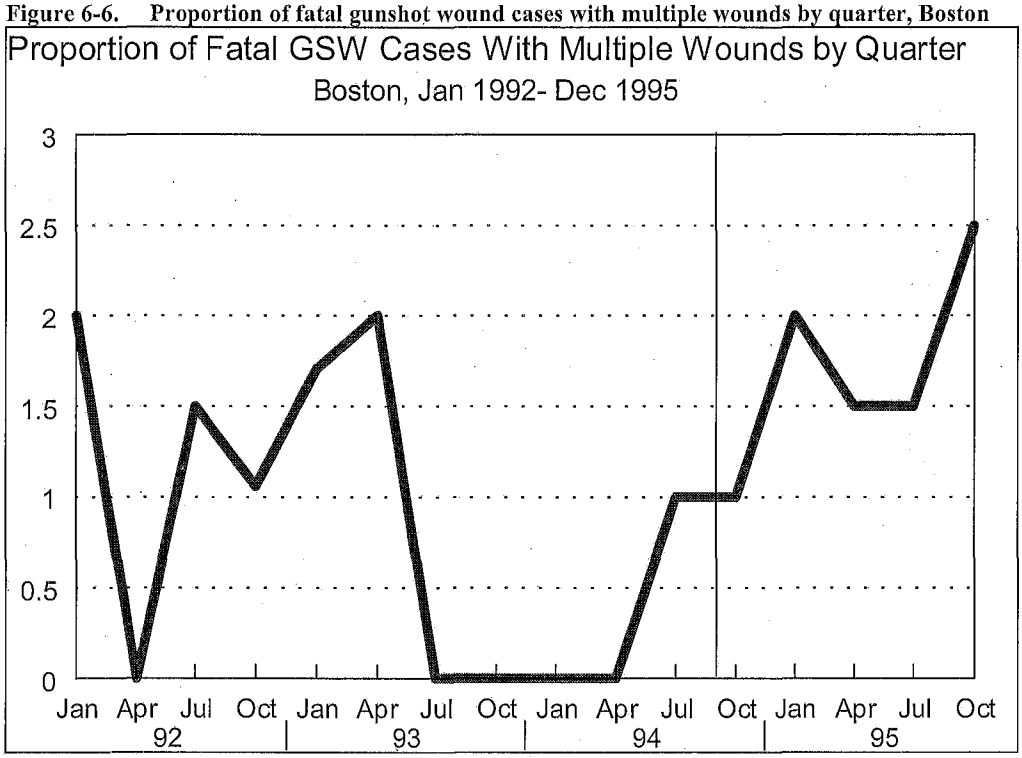
Table 6-4. Proportion of gunshot victims receiving multiple wounds, San Diego and Boston

	Cases	*Proportion with multiple wounds*	*Standard deviation*
San Diego homicides (N = 668)			
Pre-ban: January '92 - August '94	445	.41	.49
Post-ban: September '94 - June '96	223	.43	.50
Difference		.02	
$\xi^2 = 0.177$			
P level = .674			
Boston Gun homicides (N = 53)			
Pre-ban: January '92 - August '94	32	.50	.50
Post-ban: September '94 - December '95	21	.38	.50
Difference		-.12	
$\xi^2 = 0.725$			
P level = .39			
Boston non-fatal gunshot victims (N = 762)			
Pre-ban: January '92 - August '94	518	.18	.39
Post-ban: September '94 - December '95	244	.24	.43
Difference		.06	
$\xi^2 = 3.048$			
P level = .08			
Boston total gunshot victims (N = 815)			
Pre-ban: January '92 - August '94	550	.20	.40
Post-ban: September '94 - December '95	265	.27	.44
Difference		.07	
$\xi^2 = 4.506$			
P level = .03			

An additional concern with WRISS data is that system compliance is not 100 percent. Based on figures provided by MDPH, yearly hospital reporting rates in Boston during the study period were as follows: 63 percent for 1992; 69 percent for 1993; 75 percent for 1994; and 79 percent for 1995. It is thus possible that gunshot cases treated in non-reporting hospitals differ significantly from those treated in reporting hospitals with respect to single/multiple wound status. For all of these reasons, the Boston data should be interpreted cautiously. Overall, the WRISS captured 18 to 33 percent of Boston's gun homicides for the years 1992–94.

Pre-ban/post-ban comparisons for fatal, non-fatal, and total gunshot cases from WRISS are presented in Table 6-4. The proportion of multiple wound cases decreased only for gun homicides. This decrease was not statistically significant, but the sample sizes were very small and thus the statistical power of the test is rather low. Nonetheless, the non-fatal wound data, which are arguably less biased than the fatal wound data, show statistically meaningful increases in the proportion of cases with multiple wounds.[89] Figure 6-6 through Figure 6-8 present monthly or quarterly trends for each series. These trends fail to provide any visual evidence of a post-ban reduction in the proportion of multiple wound gunshot cases.[90] Thus, overall, the Boston data appear inconclusive.

Figure 6-6. Proportion of fatal gunshot wound cases with multiple wounds by quarter, Boston



[89] Further, the decrease for homicide cases could have been due to an increase in the proportion of multiple wound victims who died at the scene and were not recorded in the WRISS.

[90] As with the Milwaukee and Seattle data, we also ran supplemental tests with the San Diego and Boston data using only cases from 1993 and 1995. These comparisons also failed to produce evidence of post-ban reductions in the proportion of gunshot cases with multiple wounds.

Figure 6-7. Proportion of non-fatal gunshot wound cases with multiple wounds by month, Boston, January 1992–December 1995

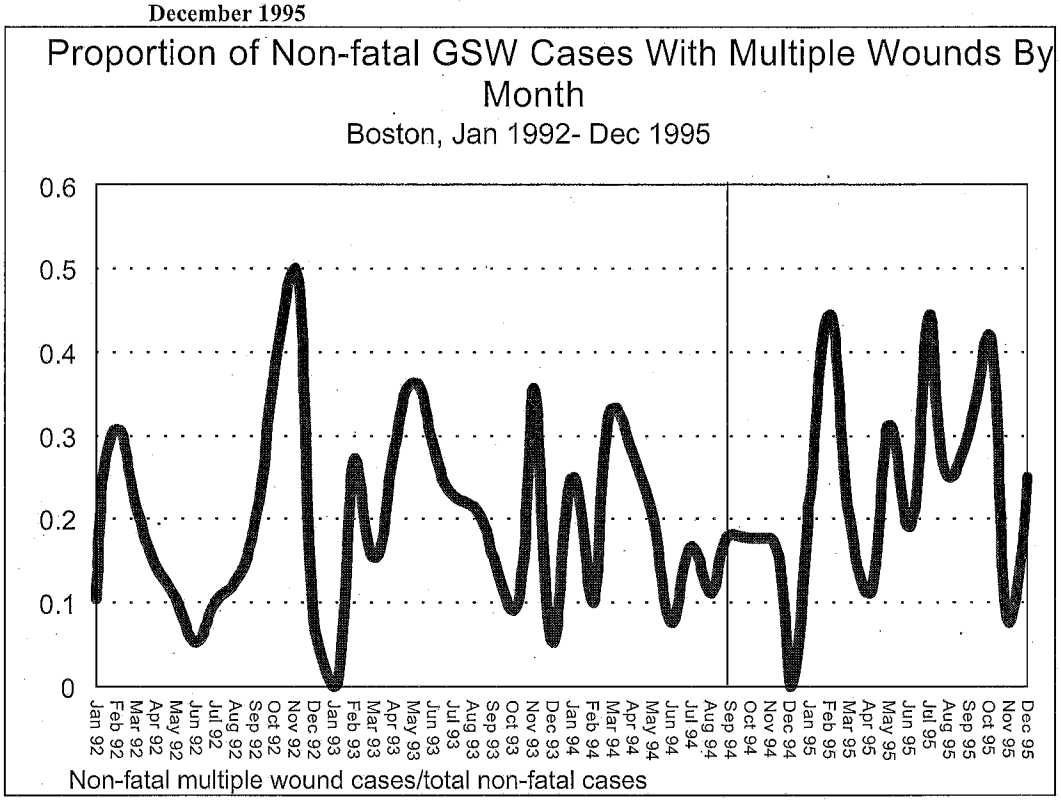
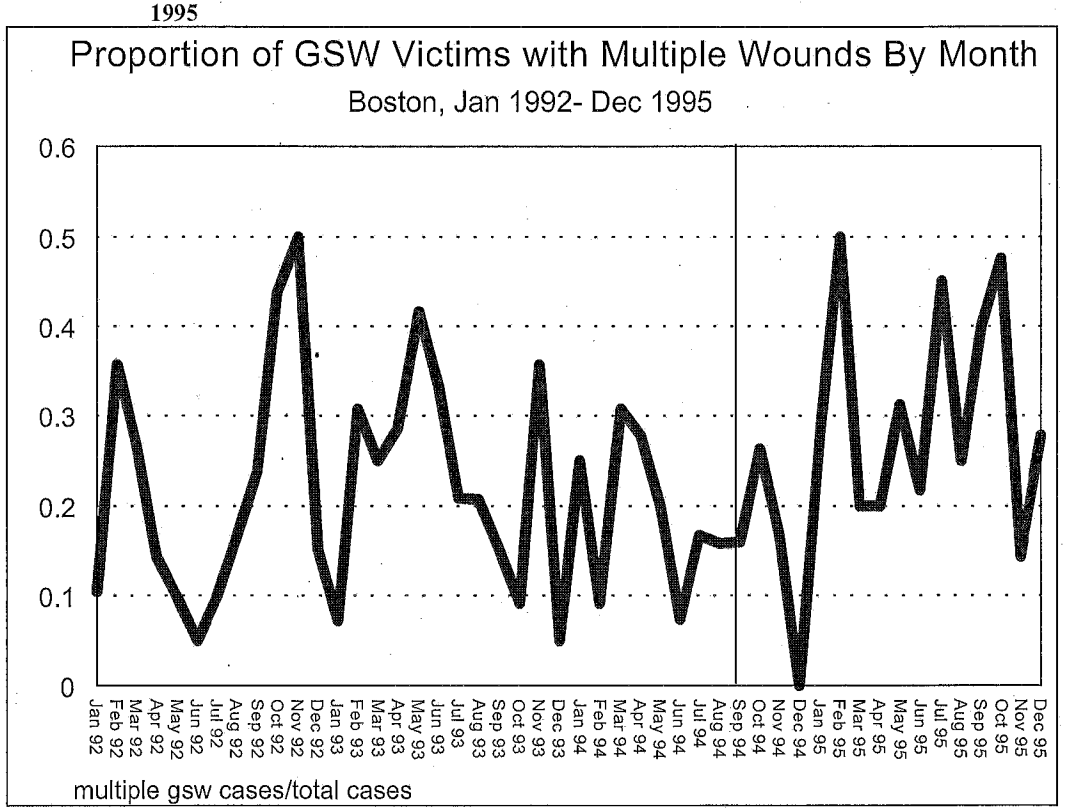


Figure 6-8. Proportion of gunshot wound victims with multiple wounds by month, Boston, January 1992–December 1995



6.3.3. Assault Weapons, Large-Capacity Magazines, and Multiple Wound Cases: Milwaukee

Most of the data sources used in this investigation contain little or no detailed information regarding weapon makes and models. Consequently, the validity of the previous analyses rest on indirect, inferred links between multiple wound gun homicides and expected changes in the use of assault weapons and large-capacity magazines.

However, we were able to make more explicit links between the banned weapons and gunshot wound counts by performing a cross-sectional analysis with the data from Milwaukee. Complete weapon make and model data were obtained for 149 guns associated with the 418 gun murders which occurred in Milwaukee County from 1992 through 1995. Eight of these firearms, or 5.4 percent, were assault weapons named in Title XI or copies of firearms named in Title XI (all of the assault weapons were handguns).[91] Table 6-5 shows the mean number of wounds for gun homicide victims killed with assault weapons and other guns. Note that in Table 6-5 we screened out two cases in which the victim appeared to have been shot with multiple firearms. One of these cases involved an assault weapon. The results in Table 6-5 indicate that victims killed with assault weapons were shot a little over three times on average, while victims killed with other firearms were shot slightly over two times on average. This difference was not statistically significant, but the small number of cases involving assault weapons makes the test rather weak.

Table 6-5. Gunshot wounds per gun homicide victim: Assault weapon and large-capacity magazine cases, Milwaukee

	Cases	*Average*	*Standard deviation*	*T value*	*P level*
Assault weapons v. other firearms (N = 147)					
Assault weapons	7	3.14	3.08		
Other firearms	140	2.21	2.87		
Difference		0.93		0.83	.41
Firearms with banned large-capacity magazines v. other firearms (N = 132)					
Large-capacity firearms	30	3.23	4.29		
Other firearms	102	2.08	2.48		
Difference		1.15		1.41*	.17

*T values were computed using formula for populations having unequal variances.

We also conducted a more general examination of cases involving any firearm with a large-capacity magazine. There were 132 cases in which a victim was killed with a firearm for which make, model, and magazine capacity could be determined (the magazine capacity variable corresponds to the magazine actually recovered with the firearm). This analysis also excluded cases in which the victim was shot with more than one firearm. In 30 of these cases (23 percent), the victim was killed with a firearm carrying a large-capacity magazine

[91] It is possible that other firearms in the database were assault weapons according to the features test of Title XI, but we did not have the opportunity to fully assess this issue.

banned by Title XI. As is shown in the bottom of Table 6-5, offenders killed with guns having banned large-capacity magazines received over three wounds on average. In contrast, persons killed with firearms having non-banned magazines received an average of two wounds. Despite the relatively small number of large magazine cases, the t statistic is moderately large and could be considered statistically meaningful with a one-tailed test.[92] In addition, we constructed a regression model in which wound counts were regressed upon magazine capacity and the number of perpetrators involved in the incident.[93] The large-capacity magazine coefficient was 1.24 with a two-tailed p level equal to 0.05 (however, the equation explained only 3 percent of the variance in wound counts). These admittedly crude comparisons support the hypothesis that large-capacity magazines are linked to higher numbers of shots fired and wounds inflicted.

6.3.4. Conclusions

Our multi-site analysis of gunshot wounds inflicted in fatal and non-fatal gunshot cases failed to produce evidence of a post-ban reduction in the average number of gunshot wounds per case or in the proportion of cases involving multiple wounds. These results are perhaps to be expected. Available data from national gun trace requests to BATF (see Chapter 5), Milwaukee (this chapter), and other cities (see Chapters 2 and 5) indicate that assault weapons account for only 1 to 7 percent of all guns used in violent crime. Likewise, our analysis of guns used in homicides in Milwaukee suggests that a substantial majority of gun homicides (approximately three-quarters) are not committed with guns having large-capacity magazines. Further, victims killed with large-capacity magazines in Milwaukee were shot three times on average, a number well below the ten-round capacity permitted for post-ban magazines. This does not tell us the actual number of shots fired in these cases, but other limited evidence also suggests that most gun attacks involve three or fewer shots (Kleck 1991; McGonigal et al. 1993). Finally, a faster rate of fire is arguably an important lethality characteristic of semiautomatics which may influence the number of wounds inflicted in gun attacks; yet one would not expect the Crime Act to have had an impact on overall use of semiautomatics, of which assault weapons were a minority even before the ban.

On the other hand, the analysis of Milwaukee gun homicides did produce some weak evidence that homicide victims killed with guns having large-capacity magazines tended to have more bullet wounds than did victims killed with other firearms. This may suggest that large-capacity magazines facilitate higher numbers of shots fired per incident, perhaps by encouraging gun offenders to fire more shots (a phenomenon we have heard some police officers refer to as a "spray and pray" mentality). If so, the gradual attrition of the stock of pre-ban large-capacity magazines could have important preventive effects on the lethality of gun violence. However, our analysis of wounds inflicted in banned and non-banned magazine cases was crude and did not control for potentially important characteristics of the incidents, victims, and offenders. We believe that such incident-based analyses would yield important information about the role of specific firearm characteristics in lethal and non-lethal gun violence and provide further guidance by which to assess this aspect of the Crime Act legislation.

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[92] Note that two cases involving attached tubular .22 caliber large-capacity magazines were included in the non-banned magazine group because these magazines are exempted by Title XI. In one of these cases, the victim sustained 13 wounds. In a second comparison, these cases were removed from the analysis entirely. The results were essentially the same; the two-tailed p level for the comparison decreased to .13.

[93] The regression model (N=138) included cases in which the victim was shot with more than one gun. Separate variables were included for the number of victims and the use of more than one firearm. Both variables proved insignificant, but the perpetrator variable had a somewhat larger t statistic and was retained for the model discussed in the main text.

6.4. Law Enforcement Officers Killed in Action

6.4.1. Introduction and Data

As a final measure of consequences stemming from the assault weapons ban, we examined firearm homicides of police officers. Assault weapons and other high capacity firearms offer substantial firepower to offenders and may be especially attractive to very dangerous offenders. Further, the firepower offered by these weapons may facilitate successful gun battles with police. We hypothesized that these weapons might turn up more frequently in police homicides than in other gun homicides, and that the Crime Act might eventually decrease their use in these crimes.

To investigate this issue, we obtained data from the Federal Bureau of Investigation (FBI) on all gun murders of police officers from January 1992 through May 1996.[94] The data include the date of the incident, the state in which the incident occurred, the agency to which the officer belonged, and the make, model, and caliber of the firearm reportedly used in the murder. During this period, 276 police officers were killed by offenders using firearms. Gun murders of police peaked in 1994 (see Table 6-6). Data for 1995 and early 1996 suggest a decline in gun murders of police. However, any drop in gun murders of police could be due to more officers using bullet-proof vests, changes in policing tactics for drug markets, or other factors unrelated to the assault weapons ban. Moreover, the 1995 and 1996 data we received are preliminary and thus perhaps incomplete. For these reasons, we concentrated on the use of assault weapons in police homicides and did not attempt to judge whether the assault weapon ban has caused a decline in gun murders of police.

Table 6-6. Murders of police officers with assault weapons

Year	*Total gun murders of police officers*	*Officers killed with assault weapons*	*Proportion of victims killed with assault weapons (minimum estimate)*	*Proportion of victims killed with assault weapons for cases in which gun make is known*
1992	54	0	0%	0%
1993	67	4	6%	8%
1994	76	9	12%	16%
1995*	61	7	11%	16%
1996* (Jan–May)	18	0	0%	0%

*Data for 1995 and 1996 are preliminary

Even this more limited task was complicated by the fact that complete data on the make, model, and caliber of the murder weapon were not reported for a substantial proportion of these cases. The number of cases by year for which at least the gun make is known are 43 (80%) for 1992, 49 (73%) for 1993, 58 (76%) for 1994, 44 (72%) for 1995, and 10 (56%) for 1996.

6.4.2. Assault Weapons and Homicides of Police Officers

We focused our investigation on all makes and models named in Title XI and their exact copies. We also included our selected features test guns (Calico and Feather models), although we did not make a systematic

[94] These data are compiled annually by the FBI based on reports submitted by law enforcement agencies throughout the country.

assessment of all guns which may have failed the features test of the Crime Act as produced by their manufacturers.[95] Using these criteria, our estimate is that 20 officers were murdered by offenders using assault weapons during this period. (In some of these cases, it appears that the same weapon was used to murder more than one officer). Of these cases, 3 involved Intratec models, 6 were committed with weapons in the SWD family, 3 involved AR15's or exact AR15 copies, 2 cases involved Uzi's, and 6 cases identified AK-47's as the murder weapons.[96] [97] These cases accounted for about 7% of all gun murders of police during this period. This 7% figure serves as a minimum estimate of assault weapon use in police gun murders. A more accurate estimate was obtained by focusing on those cases for which, at a minimum, the gun make was reported. Overall, 10% of these cases involved assault weapons, a figure higher than that for gun murders of civilians.[98]

All of the assault weapon cases took place from 1993 through 1995 (see Table 6-6). For those three years, murders with assault weapons ranged from 6% of the cases in 1993 to 12% in 1994. Among those cases for which firearm make was reported, assault weapons accounted for 8% in 1993 and 16% in both 1994 and 1995. All of these cases occurred prior to June 1995. From that point through May of 1996, there were no additional deaths of police officers attributed to assault weapons. This is perhaps another indication of the temporary or permanent decrease in the availability of these weapons which was suggested in Chapter 5.

In sum, police officers are rarely murdered with assault weapons. Yet the fraction of police gun murders perpetrated with assault weapons is higher than that for civilian gun murders. Assault weapons accounted for about 10% of police gun murders from 1992 through May of 1996 when considering only those cases for which the gun make could be ascertained. Whether the higher representation of assault weapons among police murders is due to characteristics of the weapons, characteristics of the offenders who are drawn to assault weapons, or some

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[95] With the available data, it is not possible for us to determine whether otherwise legal guns were modified so as to make them assault weapons.

[96] There is a discrepancy between our data and those provided elsewhere with respect to a November 1994 incident in which two FBI agents and a Washington, D.C. police officer were killed. In a study of police murders from January 1994 through September 1995, Adler et al. (1995) reported that the offender in this case used a TEC9 assault pistol. The FBI data identify the weapon as an M11. (The data actually identify the gun as a Smith and Wesson M11. However, Smith and Wesson does not make a model M11. We counted the weapon as an SWD M11.)

In addition, Adler et al. identified one additional pre-ban incident in which an officer was killed with a weapon which may have failed the features test (a Springfield M1A). We are not aware of any other cases in our data which would qualify as assault weapon cases based on the features test, but we did not undertake an in-depth examination of this issue. There were no cases involving our select features test guns (Calico and Feather models).

[97] The weapon identifications in these data were made by the police departments reporting the incidents, and there is likely to be some degree of error in the firearm model designations. In particular, officers may not always accurately distinguish banned assault weapons from legal substitutes or look-alike variations. We note the issue here due to the prominence of AK-47's among guns used in police homicides. There are numerous AK-47 copies and look-alikes, and firearm experts have informed us that legal guns such as the SKS rifle and the Norinco NHM-90/91 (a modified, legal version of the AK-47) are sometimes, and perhaps commonly, mistakenly identified as AK-47's.

[98] In consultation with BATF officials, we developed a list of manufacturers who produced models listed in the Crime Act and exact copies of those firearms. We were thus able to determine whether all of the identified makes in the FBI file were assault weapons.

7. REFERENCES

Adler, W.C., F.M. Bielke, D.J. Doi, and J.F. Kennedy, *Cops Under Fire: Law Enforcement Officers Killed with Assault Weapons or Guns With High Capacity Magazines*. Washington, D.C.: Handgun Control, Inc., 1995.

American Medical Association Council on Scientific Affairs. "Assault Weapons as a Public Health Hazard in the United States." *Journal of the American Medical Association,* 267:22 (1992): 3067-3070.

Berndt, Ernst R. *The Practice of Econometrics: Classic and Contemporary*. Reading, Mass: Addison Wesley, 1990.

Black, D.A. and D.S. Nagin. *Do 'Right-to-Carry' Laws Deter Violent Crime?*. Draft. Heinz School of Public Policy, Carnegie-Mellon University, 1996.

Box, G.E.P. and G.C. Tiao. "Intervention Analysis with Applications to Economic and Environmental Problems." *Journal of the American Statistical Association*, 70 (1975): 70-79.

Bureau of Alcohol, Tobacco and Firearms. *The National Tracing Center 1994 Year End Report.* Washington, D.C.: U.S. Department of the Treasury, Bureau of Alcohol, Tobacco and Firearms, 1995(a).

Bureau of Alcohol, Tobacco and Firearms. *1994 Firearms Enforcement Investigative Report*. Washington, D.C.: U.S. Department of the Treasury, U.S. Bureau of Alcohol, Tobacco and Firearms, 1995(b).

Bureau of Alcohol, Tobacco, and Firearms. *Report and Recommendation of the BATF Working Group on the Importability of Certain Semiautomatic Rifles*. Washington, D.C.: U.S. Department of the Treasury, Bureau of Alcohol, Tobacco and Firearms, 1989.

Bureau of Justice Statistics. *Murder Cases in 33 Large Urban Counties in the United States, 1988*. BJS Special Report. Washington, D.C.: U.S. Department of Justice, Bureau of Justice Statistics, 1993.

California Attorney General's Office. *Assault Weapons: Background Paper*. Sacramento: California Attorney General's Office, February 1989.

Campbell, Donald T. and Julian C. Stanley. *Experimental and Quasi-Experimental Designs for Research*. Boston: Houghton Mifflin Company, 1963.

Chinn, M.D. "Beware of Econometricians Bearing Estimates: Policy Analysis in a 'Unit Root' World." *Journal of Policy Analysis and Management*, 10:4 (1991): 546-567.

Chow, Gregory. "Technological Change and the Demand for Computers." *The American Economic Review*, 57 (1967): 1117-1130.

Cook, P.J. and J.A. Leitzel. *Perversity, Futility, Jeopardy: An Economic Analysis of the Attack on Gun Control*. Durham, NC: Sanford Institute of Public Policy, Duke University, 1996.

Cook, P.J., S. Molliconi, and T.B. Cole. Regulating Gun Markets. *Journal of Criminal Law and Criminology*, 86:1 (1995): 59-92.

Cox Newspapers. *Firepower: Assault Weapons in America.* Washington, D.C.: Cox Enterprises, 1989.

Dietz, P. "Mass, serial, and sensational homicides." *Bulletin of the New York Academy of Medicine*, 62 (1986): 477-491.

DiMaio, V.J.M. *Gunshot Wounds: Practical Aspects of Firearms, Ballistics, and Forensic Techniques*. New York: Elsevier, 1985.

Fackler, M.L. *Declaration of Martin L. Fackler, Amicus Curiae Brief, Castillo vs. City of Los Angeles*. California Court of Appeals, 1st Appellate District, Division 5, 1989.

Federal Bureau of Investigation. *Killed in the Line of Duty: A Study of Selected Felonious Killings of Law Enforcement Officers*. Washington, D.C.: U.S. Department of Justice, Federal Bureau of Investigation, Uniform Crime Reporting Section, 1992.

Federal Bureau of Investigation. *Law Enforcement Officers Killed and Assaulted, 1993*. Washington, D.C.: U.S. Department of Justice, Federal Bureau of Investigation, 1994.

Fjestad, S.J. *Blue Book of Gun Values*. 17th ed., Kennedy et al., eds. Minneapolis: Blue Book Publications, 1996.

Handgun Control, Inc. *The Assault Weapons Ban: Questions & Answers*. Washington, D.C.: Handgun Control, Inc., (n.d.).

Holmes, Ronald M. and Stephen T. Holmes. *Murder in America*. Thousand Oaks, CA: Sage Publications, 1994.

Hutson, H.R., D. Anglin and M.J. Pratts, Jr. "Adolescents and Children Injured or Killed in Drive-By Shootings in Lost Angeles." *The New England Journal of Medicine*, 330 (1994): 324-327.

Jacobs, J.B. and K.A. Potter. "Keeping Guns Out of the 'Wrong' Hands: The Brady Law and the Limits of Regulation." *Journal of Criminal Law and Criminology*, 86:1 (1995): 93-120.

Kennedy, D. "Juvenile Gun Violence in Boston: Gun Markets, Juvenile Offenders, and Use Reduction." Presentation at the annual meeting of the American Society of Criminology, Chicago, 1996.

Kennedy, D.M., A.M. Piehl, and A.A. Braga. "Youth Gun Violence in Boston: Gun Markets, Serious Youth Offenders, and a Use Reduction Strategy." *Law and Contemporary Problems,* (Forthcoming).

Kleck, G. *Point Blank: Guns and Violence in America*. New York: Aldine De Gruyter, 1991.

Knox, G.W., J.G. Houston, J.A. Laskey, T.F. McCurrie, E.D. Tromanhauser, and D.L. Laske. *Gangs and Guns*. Chicago: National Gang Crime Research Center, 1994.

Koper, C.S. *Gun Lethality and Homicide: Gun Types Used by Criminals and the Lethality of Gun Violence in Kansas City, Missouri, 1985–1993*. Ann Arbor, MI: University Microforms Inc., 1995.

Lenett, M.G. "Taking a Bite Out of Violent Crime." *University of Dayton Law Review*, 20 (1995): 573-617.

Loftin, C., D. McDowall, B. Wiersma, and T.J. Cottey. "Effects of Restrictive Licensing of Handguns on Homicide and Suicide in the District of Columbia." *New England Journal of Medicine*, 325 (December 1991): 1615-1620.

Lott, J.R. and D.B. Mustard. *Crime, Deterrence, and Right-to-Carry Concealed Handguns*. Chicago, IL: University of Chicago Law School, (Draft) 1996.

Marvell, T.B. and C.E. Moody. "The Impact of Enhanced Prison Terms for Felonies Committed with Guns." *Criminology*, 33:2 (1995): 247-282.

Mastro, Timothy D., Dwip Kitayaporn, Bruce G. Weniger, et. al. "Estimating the Number of HIV-Infected Drug Users in Bangkok: A Capture-Recapture Method." *American Journal of Public Health*, 84 (1994): 1094-1099.

Mathews, J. "Unholstering the Gun Ban." *Washington Post*, December 31, 1989.

McCleary, R. and R.A. Hay. *Applied Time Series Analysis for the Social Sciences*. Beverly Hills, CA: Sage, 1980.

McDowall, D. *Firearm Availability and Homicide Rates in Detroit, 1951–1986*. Social Forces, 1991.

McDowall, David, Colin Loftin, and Brian Wiersema. "Using Quasi-Experiments to Evaluate Firearm Laws: Comment on Britt et al.'s Reassessment of the D.C. Gun Law." *Law and Society Review*, 30 (1996): 381-391.

McGonigal, M., J.Cole, C.W. Schwab, D.R. Kauder, M.F. Rotondo, and P.B. Angood. "Urban Firearm Deaths: A Five Year Perspective." *The Journal of Trauma*, 35 (1993): 532-537.

National Alliance of Stocking Gun Dealers. "Discussion of Federal Firearms License." Statement presented to House and Senate Judiciary Committee. Havelock, NC: National Alliance of Stocking Gun Dealers, May 15, 1993.

National Institute of Justice. "Arrestees and Guns: Monitoring the Illegal Firearms Market." *Research Preview.* Washington, DC: U.S. Department of Justice, National Institute of Justice, 1995(a).

Neugebauer, Richard and Janet Wittes. "Annotation: Voluntary and Involuntary Capture-Recapture Samples - Problems in the Estimation of Hidden and Elusive Populations." *American Journal of Public Health*, 84 (1994): 1068-1069.

New York City Division of Criminal Justices Services. *Assault Weapons and Homicide in New York City.* Public Policy Report. Albany, NY: New York State Division of Criminal Justice Services, 1994.

Pierce, G.L., L. Briggs, and D.A. Carlson. *The Identification of Patterns in Firearms Trafficking: Implications for Enforcement Strategy.* Washington, D.C.: U.S. Department of the Treasury, Bureau of Alcohol, Tobacco and Firearms, Office of Enforcement, December 1995.

Randall, T. "Clinicians' Forensic Interpretations of Fatal Gunshot Wounds Often Miss the Mark." *Journal of the American Medical Association*, 269 (1993): 2058-2061.

Reiss, A.J., Jr., and J.A. Roth, eds. *Understanding and Preventing Violence Volume 1.* Washington, D.C.: National Academy Press, 1993.

Roth, J.A. *Youth Gun Violence: A Research Application Review.* Washington, D.C.: U.S. Department of Justice, National Institute of Justice, Draft submitted June 1993.

SAS Institute. *SAS/ETS User's Guide, Version 6 (2nd ed.).* Cary, NC: SAS Institute, 1993.

Shaw, James Wilford. *Community Policing Against Crime: Violence and Firearms.* PhD. Dissertation. College Park, MD: University of Maryland, Department of Criminology and Criminal Justice, 1994.

Sheley, Joseph F. and James D. Wright. "Gun Acquisition and Possession in Selected Juvenile Samples." *NIJ Research in Brief.* Washington, D.C.: U.S. Department of Justice, National Institute of Justice, 1993.

Sherman, Lawrence W., Leslie Steele, Deborah Laufersweiler, Nancy Hoffer, and Sherry A. Julian. "Stray Bullets and 'Mushrooms' : Random Shootings of Bystanders in Four Cities, 1977–1988." *Journal of Quantitative Criminology*, 5 (1989): 297-316.

U.S. Department of Treasury. *A Progress Report: Gun Dealer Licensing and Illegal Gun Trafficking.* Washington, D.C.: U.S. Department of Treasury, Undersecretary for Enforcement, January 1997.

Webster, D.W., H.R. Champion, P.S. Gainer, and L. Sykes. "Epidemiologic Changes in Gunshot Wounds in Washington, D.C., 1983–1990." *Archives of Surgery,* 127 (1992): 694-698.

Wintemute, Garen J. *Ring of Fire: The Handgun Makers of Southern California.* Sacramento, CA: Violence Prevention Research Program, 1994.

Wright, James D. and Peter H. Rossi. *Armed and Considered Dangerous: A Survey of Felons and Their Firearms.* New York: Aldine De Gruyter, 1986.

Zawitz, Marianne W. *Guns Used in Crime.* Washington, D.C.: U.S. Department of Justice, Bureau of Justice Statistics (NCJ-148201), 1995.

Appendix A
Assault Weapons and Mass Murder

Introduction: Mass Murders as an Impact Measure

As another indicator of ban effects on the consequences of assault weapon use, we attempted to analyze pre- and post-ban trends in mass murders, which we defined as the killing of four or more victims at one time and place by a lone offender. Although we lacked advance information on the proportion of mass murders involving assault weapons, we had two reasons for believing that assault weapons were more prevalent in mass murders than in events involving smaller numbers of victims:

1) A weapon lethality/facilitation hypothesis, that assault weapon characteristics, especially high magazine capacities, would enable a rational but intent killer to shoot more people more rapidly with an assault weapon than with many other firearms.

2) A selection hypothesis, that certain deranged killers might tend to select assault weapons to act out "commando" fantasies (e.g., see Holmes and Holmes 1994, pp.86-87).

In addition, we believed that newspaper reports of mass murders might carry more detail than reports of other murders, and that these reports might provide insights into the situational dynamics of mass murders involving assault weapons.

Our attempt to construct and analyze a 1992–96 trend line in mass murders using Nexis searches of U.S. news sources foundered, for two primary reasons. First, apparent variations in reporting or indexing practices forced us to alter our search parameters over the period, and so all three kinds of variation introduce validity problems into the trends. Second, newspaper accounts were surprisingly imprecise about the type of weapon involved. In some cases, the offender had not yet been apprehended and thus the make and model of the weapon was probably unknown. In other instances, there was apparent inattention or confusion regarding the make, model, and features. Finally, some offenders were armed with multiple weapons when they committed their crimes or when they were captured, and it was unclear to the reporter which weapon accounted for which death(s).[1]

Nevertheless, our mass murder analysis produced several interesting, though tentative, findings. First, SHR and news media sources both appear to undercount mass murders under our definition, and our capture-recapture analysis suggests that their true number may exceed the count based on either source by something like 50 percent. Second, contrary to our expectations, only 2 — 3.8 percent — of the 52 mass murders we gleaned from the Nexis search unambiguously involved assault weapons. This is about the same percentage as for other murders. Third, media accounts lend some tenuous support to the notion that assault weapons are more deadly than other weapons in mass murder events, as measured by victims per incident.

Our search methodology and the findings above are explained more fully in the following sections, which conclude with recommendations for further related research.

[1] It is also not unusual for news accounts to use imprecise terms like "assault rifle" when describing a military-style firearm. However, we did not encounter any such cases in our particular sample.

DEFINING MASS MURDERS AND SAMPLE SELECTION

In general terms, a mass murder is the killing of a number of people at one time and place. The time requirement in particular sets mass murders apart from serial murders, which take place over a very long timeframe. We focused our analysis upon mass murders committed with firearms, and we chose four victims for our operational definition of mass murder.[2] In addition, we focused upon cases in which the murders were committed by one offender. We selected the victim and offender criteria based on practicality and because they arguably fit better with the weapon lethality/weapon facilitation argument. If assault weapons do contribute to mass murder, we hypothesized that they will enable a single offender to murder greater numbers of people at one time. Thus, we selected a subset of mass murders for which we felt assault weapons might plausibly play a greater role.

Project staff conducted Nexis searches for multiple-victim firearm murder stories appearing in U.S. news sources from 1992 through the early summer of 1996. Fifty-two stories meeting our firearm mass murder criteria were found. A breakdown of these cases by year is shown in the bottom row of table A-1.[3] Cases ranged from a low of 3 in 1994 and 1996 to a high of 20 in 1995. We urge caution in the interpretation of these numbers. Although project staff did examine well over a thousand firearm murder stories, we do not claim to have found all firearm mass murders occurring during this time. Rather, these cases should be treated as a possibly unrepresentative sample of firearm mass murders. Further, we do not recommend using these numbers as trend indicators. We refined our search parameters several times during the course of the research, and we cannot speak to issues regarding changes in journalistic practices (or Nexis coverage) which may have occurred during this period and affected our results. This portion of the evaluation was more exploratory in nature, and the primary goal was to assess the prevalence of assault weapons among a sample of recent mass murder incidents.

Table A-1. Mass murder newspaper reports, by weapon type and year of event

	1992	*1993*	*1994*	*1995*	*1996*	*Total*
Semiautomatics						
Handgun	4	3	1	7	1	16
Rifle	0	0	0	2	0	2
Generic weapon types						
Revolver	0	0	0	1	0	1
Other non-semiautomatic handgun	0	0	0	0	0	0
Handgun, type unknown	2	2	0	1	0	5
Non-semiautomatic rifle	0	0	0	1	0	1
Rifle, type unknown	1	1	0	0	0	2
Non-semiautomatic shotgun	0	0	0	1	0	1
Shotgun, type unknown	2	3	0	1	0	6
Unknown firearm	5	2	2	6	2	17

[2] As Holmes and Holmes (1994, pp.71-73) have noted, most scholars set the victim criterion for mass murder at three or four victims.

[3] Table A-1 excludes 1 of the 52 for which we were unable to ascertain the date of the mass murder.

Total cases	14	11	3	20	3	51

ESTIMATING TOTAL FIREARM MASS MURDERS: A METHODOLOGICAL NOTE

Our investigation of multiple/mass murders utilized both the SHR and news media as data sources. Both of these sources have limitations for this task. Though the SHR is widely accepted as an accurate source of homicide data, not all agencies in the country report homicides to the SHR, and agencies that do report to the SHR program may not report all of their homicides. Likewise, some mass murders may not be reported accurately in media sources, or the stories may differ in their accessibility depending on where they occurred and the publication(s) which carried the story. Family-related mass murders, for example, seem less likely to be reported in national sources (Dietz 1986), although the availability of national electronic searches through services such as Nexis would seem to lessen this problem.[4] Our experience suggests that both sources underestimate the number of true mass murders.

Capture-recapture methods (e.g., see Mastro et al. 1994; Neugebauer and Wittes 1994) offer one potential way of improving estimation of mass murders. Capture-recapture methods enable one to estimate the true size of a population based on the number of overlapping subjects found in random samples drawn from the population. Mastro et al. (1994), for example, have used this methodology to estimate the number of HIV-infected drug users in the population of a foreign city. Similarly, researchers in the biological sciences have used this methodology to estimate the size of different wildlife populations.

Given two samples from a population, the size of the population can be estimated as:

$$N = n1 * n2 / m$$

where N is the population estimate, n1 is the size of the first sample, n2 is the size of the second sample, and m is the amount of overlap in the samples (i.e., the number of subjects which turned up in the first sample and that were subsequently recaptured in the second sample). Neugebauer and Wittes (1994, p.1068) point out that this estimate is biased but that the "bias is small when the capture and recapture sizes are large." The reliability of the estimate depends on four assumptions (Mastro et al. 1994, pp.1096-1097). First, the population must be closed (in our case, this is not a problem because our samples are drawn from the same geographic area and time period). Second, the capture sources must be independent (if more than two sources are used, log-linear modeling can be used to account for dependence between the sources, and the assumption of independence is not necessary). Third, members of the population must have an equal probability of being captured. Finally, the matching procedure must be accurate — all matches must be identified and there can be no false matches.

As mentioned previously, our work with the SHR and media sources suggests that both sources underestimate the true number of firearm mass murders occurring in the nation. That being the case, we offer a tentative illustration of how capture-recapture methods might be used to estimate the true number of mass murders occurring in the nation based on the SHR and media source numbers. We add a number of qualifiers

[4] In our experience, one factor making mass murder cases more difficult to locate is that many of these stories are not labeled with dramatic terms such as "mass murder" or "massacre." Despite the rarity and tragedy of these events, they are often described in commonplace terms (headlines may simply state something like, "Gunman shoots five persons during robbery"). Thus, it becomes necessary to develop Nexis search parameters broad enough to capture various sorts of multiple-victim incidents. This, in turn, requires one to examine a much greater number of stories.

throughout this exercise. To begin with, the SHR and media sources might not seem independent because, generally speaking, news organizations are reliant upon police for information about crime. Once a homicide is discovered, on the other hand, the reporting apparatuses for the SHR and news organizations are distinct.

With that caveat in mind, we used the year 1992 for this demonstration. For that year, we identified all cases from both sources in which one offender killed four or more persons using a firearm. The SHR search turned up 15 cases, and the Nexis search yielded 14 cases.

Next, we attempted to match these cases. Tentatively, we determined that nine cases were common to both sources (see Table A-2). Our estimate for the number of incidents during 1992 in which one offender killed four or more persons using a firearm(s) thus becomes:

$$N = (15 * 14)/9 = 23.$$

Table A-2. 1992 HR/Nexis comparisons

NEXIS	***SHR***	***NEXIS & SHR***
14	15	9
NEXIS ONLY		***NUMBER OF VICTIMS***
2/16/92	Mobile, AL	4
5/1/92	Yuba County, CA	4
6/15/92	Inglewood, CA	5
9/13/92	Harris County, TX	4
11/13/92	Spring Branch, TX	5
		NUMBER OF VICTIMS
FBI ONLY		
8/92	Dade, FL	4
9/92	Chicago, IL	4
5/92	Detroit, MI	4
3/92	New York, NY	4
1/92	Burleigh, ND	4
7/92	Houston, TX	4
		NUMBER OF VICTIMS
NEXIS & FBI		
2/12/92	Seattle, WA	4
3/21/92	Sullivan, MO	6
3/26/92	Queens, NY	5
7/23/92	Fairmont, WV	4
10/4/92	Dallas, TX	4
10/15/92	Schuyler County	4
11/1/92	Rancho Santa Fe, CA	4
12/13/92	King County, WA	4
12/24/92	Prince William County, VA	4

A number of cautionary notes are required. Obviously, our sample sizes are quite small, but, apparently, so is the population which we are trying to estimate. In addition, our matches between the sources were based on matching the town (determined from the police department's name), month of occurrence, number of victims, and number of offenders. In a more thorough investigation, one would wish to make the matches more carefully. If,

for instance, the victims were not all immediately killed, one may find a news story referring to the initial number of deaths, and that count might not match the final count appearing in the SHR. Moreover, we have focused on cases in which one offender committed the murders. However, the SHR might list two or more offenders if there were other accomplices who did not do the shooting. Finally, there could be ambiguity regarding the exact location of the SHR cases because we used the police department name to match the locations with the Nexis cases (city or town name does not appear in the file). We did not investigate these issues extensively, but they would seem to be manageable problems.

Another issue is whether each incident's probability of being captured is the same for each sample. Our tentative judgment is that this is not the case, or at least it does not appear to have been true for our sample. Referring to Table A-2, it seems that the SHR-only cases were more likely to appear in urban areas, whereas the Nexis-only cases appear to have taken place in more rural areas. We can speculate that rural police departments are somewhat less likely to participate in the SHR, and that cases in rural areas are thus less likely to be reported to the SHR. In contrast, the greater number of murders and violent acts which occur in urban areas may have the effect of making any given incident less newsworthy, even if that incident is a mass murder. A mass murder taking place among family members in an urban jurisdiction, for instance, might get less prominent coverage in news sources and might therefore be more difficult to locate in a national electronic search.

But even if we accept these biases as real, we can at least estimate the direction of the bias in the capture-recapture estimate. Biases such as those discussed above have the effect of lessening the overlap between our sources. Therefore, they decrease the denominator of the capture-recapture equation and bias the population estimate upwards. With this in mind, our 1992 estimate of 23 cases should be seen as an upper estimate of the number of these incidents for that year.

In this section, we have provided a very rough illustration of how capture-recapture models might be utilized to more accurately estimate the number of mass murders in the U.S. or any portion of the U.S. If additional homicide sources were added such as the U.S. Public Health Service's Mortality Detail Files, moreover, researchers could model any dependencies between the sources. With further research into past years and ahead into future years, researchers could build time series to track mass murders and firearm mass murders over time. This may be a worthwhile venture because though these events are only a small fraction of all homicides, they are arguably events which have a disproportionately negative impact on citizens' perceptions of safety.

Firearms Used in Mass Murders

Table A-1 displays information about the weapons used in our sample of mass murders. One of the major goals behind the Nexis search was to obtain more detailed information on the weapons used in firearm mass murders. Yet a substantial proportion of the articles said nothing about the firearm(s) used in the crime or identified the gun(s) with generic terms such as "handgun," "rifle," or "shotgun." Overall, 18 stories identified the murder weapon(s) as a semiautomatic weapon, and 16 of these guns were semiautomatic handguns. Only eight stories named the make and model of the murder weapon.

Despite the general lack of detailed weapon information, our operating assumption was that, due to their notoriety, assault weapons would draw more attention in media sources. That is, we assumed that reporters would explicitly identify any assault weapons that were involved in the incident and that unidentified weapons were most likely not assault weapons. This assumption is most reasonable for cases in which the offender was apprehended. Overall, 37 cases (71 percent) were solved and another 6 (11.5 percent) had known suspects.

Of the total 52 cases in our sample, 2, or 3.8 percent, involved assault weapons as the murder weapon. If we focus on just the 37 solved cases, assault weapons were involved in 5.4 percent (both assault weapon cases were solved). One of the assault weapon cases took place in 1993 and the other took place in 1995 after the ban's implementation. The accounts of those cases are as follows:

> Case 1 (July 3, 1993, San Francisco, California). A 55-year-old man bearing a grudge against his former attorneys for a lawsuit in which he lost 1 million dollars killed 8 persons, wounded 6 others, and then killed himself during a 15-minute rampage in which he fired 50-100 rounds. The offender was armed with two TEC-9 assault pistols, a .45 caliber semiautomatic pistol, and hundreds of rounds of ammunition.[5]

> Case 2 (June 20, 1995, Spokane, Washington). A military man assigned to Fairchild Air Force Base entered the base hospital with an AK-47 assault rifle and opened fire, killing 4 and wounding 19. The gunman was killed by a military police officer. At the time of the story, no motive for the killing had been discovered.

In addition, our search uncovered two other cases in which the offender possessed an assault weapon but did not use it in the crime. In one of these cases, the additional weapon was identified only as a "Chinese assault rifle," so there is the possibility that the gun was an SKS rifle or other firearm that was not an assault weapon by the criteria of Title XI.

Lethality of Assault Weapons Used in Mass Murders

Although assault weapons appeared rarely in our sample of firearm mass murder cases, there are some indications that mass murders involving assault weapons are more deadly than other mass murders with guns. The two unambiguous assault weapon cases in our sample involved a mean of 6 victims, a number 1.5 higher than the 4.5 victims killed on average in the other cases. Further, each assault weapon case involved a substantial number of other victims who were wounded but not killed. Other notorious mass murders committed with assault weapons also claimed particularly high numbers of victims (Cox Newspapers 1989). The numbers of victims in these cases suggests that the ability of the murder weapons to accept large-capacity magazines was probably an important factor. We offer this observation cautiously, however, for several reasons besides the small number of cases in our sample. We did not make detailed assessments of the actors or circumstances involved in these incidents. Relevant questions, for example, might include whether the offender had a set number of intended targets (and, relatedly, the relationship between the offender and victims), the number of different guns used, whether the offender had the victims trapped at the time of the murders, and the amount of time the offender had to commit the crime.

In order to refine our comparison somewhat further, we examined the number of victims in assault weapon and non-assault weapon cases after removing 19 family-related cases from consideration. This did not change the results; the average number of victims in assault weapon cases was still approximately 1.5 higher than that of non-assault weapon cases.

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[5] The story indicated that the offender had modified the firearms to make them fire more rapidly than they would have otherwise. Presumably, this means that he converted the guns to fully automatic fire, but this is not entirely clear from the article.

RECOMMENDATIONS FOR FURTHER RELATED RESEARCH

There are a number of related questions that could be pursued in future research. One concerns a more explicit examination of the role of large-capacity magazines in mass murder, particularly for incidents involving non-assault weapon firearms. Based on our experience, this information is rarely offered in media sources and would require contacting police departments which investigated mass murder incidents. Another issue concerns non-fatal victims. This was not an express focus of our research, but if the assault weapon/large-capacity semiautomatic hypothesis has validity, we can hypothesize that shootings involving these weapons will involve more total victims. Along similar lines, Sherman and his colleagues (1989) documented a rise in bystander shootings in a number of cities during the 1980s and speculated that the spread of semiautomatic weaponry was a factor in this development. Due to time and resource limitations, we did not pursue the issue of bystander shootings for this study, but further research might shed light on whether assault weapons and large-capacity magazines have been a factor in any such rise.

EXHIBIT C

To

Declaration of Christopher S. Koper in Support of Sunnyvale's Opposition to Plaintiffs' Motion for Preliminary Injunction

An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence, 1994-2003

Report to the National Institute of Justice, United States Department of Justice

By

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June 2004

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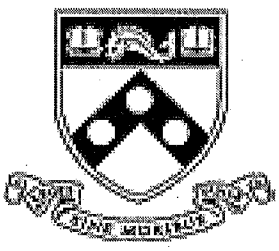

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PREFACE

Gun violence continues to be one of America's most serious crime problems. In 2000, over 10,000 persons were murdered with firearms and almost 49,000 more were shot in the course of over 340,000 assaults and robberies with guns (see the Federal Bureau of Investigation's annual *Uniform Crime Reports* and Simon et al., 2002). The total costs of gun violence in the United States – including medical, criminal justice, and other government and private costs – are on the order of at least $6 to $12 billion per year and, by more controversial estimates, could be as high as $80 billion per year (Cook and Ludwig, 2000).

However, there has been good news in recent years. Police statistics and national victimization surveys show that since the early 1990s, gun crime has plummeted to some of the lowest levels in decades (see the *Uniform Crime Reports* and Rennison, 2001). Have gun controls contributed to this decline, and, if so, which ones?

During the last decade, the federal government has undertaken a number of initiatives to suppress gun crime. These include, among others, the establishment of a national background check system for gun buyers (through the Brady Act), reforms of the licensing system for firearms dealers, a ban on juvenile handgun possession, and Project Safe Neighborhoods, a collaborative effort between U.S. Attorneys and local authorities to attack local gun crime problems and enhance punishment for gun offenders.

Perhaps the most controversial of these federal initiatives was the ban on semiautomatic assault weapons and large capacity ammunition magazines enacted as Title XI, Subtitle A of the *Violent Crime Control and Law Enforcement Act of 1994*. This law prohibits a relatively small group of weapons considered by ban advocates to be particularly dangerous and attractive for criminal purposes. In this report, we investigate the ban's impacts on gun crime through the late 1990s and beyond. This study updates a prior report on the short-term effects of the ban (1994-1996) that members of this research team prepared for the U.S. Department of Justice and the U.S. Congress (Roth and Koper, 1997; 1999).

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1. IMPACTS OF THE FEDERAL ASSAULT WEAPONS BAN, 1994-2003: KEY FINDINGS AND CONCLUSIONS

This overview presents key findings and conclusions from a study sponsored by the National Institute of Justice to investigate the effects of the federal assault weapons ban. This study updates prior reports to the National Institute of Justice and the U.S. Congress on the assault weapons legislation.

The Ban Attempts to Limit the Use of Guns with Military Style Features and Large Ammunition Capacities

- Title XI, Subtitle A of the Violent Crime Control and Law Enforcement Act of 1994 imposed a 10-year ban on the "manufacture, transfer, and possession" of certain semiautomatic firearms designated as assault weapons (AWs). The ban is directed at semiautomatic firearms having features that appear useful in military and criminal applications but unnecessary in shooting sports or self-defense (examples include flash hiders, folding rifle stocks, and threaded barrels for attaching silencers). The law bans 18 models and variations by name, as well as revolving cylinder shotguns. It also has a "features test" provision banning other semiautomatics having two or more military-style features. In sum, the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) has identified 118 models and variations that are prohibited by the law. A number of the banned guns are foreign semiautomatic rifles that have been banned from importation into the U.S. since 1989.

- The ban also prohibits most ammunition feeding devices holding more than 10 rounds of ammunition (referred to as large capacity magazines, or LCMs). An LCM is arguably the most functionally important feature of most AWs, many of which have magazines holding 30 or more rounds. The LCM ban's reach is broader than that of the AW ban because many non-banned semiautomatics accept LCMs. Approximately 18% of civilian-owned firearms and 21% of civilian-owned handguns were equipped with LCMs as of 1994.

- The ban exempts AWs and LCMs manufactured before September 13, 1994. At that time, there were upwards of 1.5 million privately owned AWs in the U.S. and nearly 25 million guns equipped with LCMs. Gun industry sources estimated that there were 25 million pre-ban LCMs available in the U.S. as of 1995. An additional 4.7 million pre-ban LCMs were imported into the country from 1995 through 2000, with the largest number in 1999.

- Arguably, the AW-LCM ban is intended to reduce gunshot victimizations by limiting the national stock of semiautomatic firearms with large ammunition capacities – which enable shooters to discharge many shots rapidly – and other features conducive to criminal uses. The AW provision targets a relatively small number of weapons based on features that have little to do with the weapons'

operation, and removing those features is sufficient to make the weapons legal. The LCM provision limits the ammunition capacity of non-banned firearms.

The Banned Guns and Magazines Were Used in Up to A Quarter of Gun Crimes Prior to the Ban

- AWs were used in only a small fraction of gun crimes prior to the ban: about 2% according to most studies and no more than 8%. Most of the AWs used in crime are assault pistols rather than assault rifles.

- LCMs are used in crime much more often than AWs and accounted for 14% to 26% of guns used in crime prior to the ban.

- AWs and other guns equipped with LCMs tend to account for a higher share of guns used in murders of police and mass public shootings, though such incidents are very rare.

The Ban's Success in Reducing Criminal Use of the Banned Guns and Magazines Has Been Mixed

- Following implementation of the ban, the share of gun crimes involving AWs declined by 17% to 72% across the localities examined for this study (Baltimore, Miami, Milwaukee, Boston, St. Louis, and Anchorage), based on data covering all or portions of the 1995-2003 post-ban period. This is consistent with patterns found in national data on guns recovered by police and reported to ATF.

- The decline in the use of AWs has been due primarily to a reduction in the use of assault pistols (APs), which are used in crime more commonly than assault rifles (ARs). There has not been a clear decline in the use of ARs, though assessments are complicated by the rarity of crimes with these weapons and by substitution of post-ban rifles that are very similar to the banned AR models.

- However, the decline in AW use was offset throughout at least the late 1990s by steady or rising use of other guns equipped with LCMs in jurisdictions studied (Baltimore, Milwaukee, Louisville, and Anchorage). The failure to reduce LCM use has likely been due to the immense stock of exempted pre-ban magazines, which has been enhanced by recent imports.

It is Premature to Make Definitive Assessments of the Ban's Impact on Gun Crime

- Because the ban has not yet reduced the use of LCMs in crime, we cannot clearly credit the ban with any of the nation's recent drop in gun violence. However, the ban's exemption of millions of pre-ban AWs and LCMs ensured that the effects

of the law would occur only gradually. Those effects are still unfolding and may not be fully felt for several years into the future, particularly if foreign, pre-ban LCMs continue to be imported into the U.S. in large numbers.

The Ban's Reauthorization or Expiration Could Affect Gunshot Victimizations, But Predictions are Tenuous

- Should it be renewed, the ban's effects on gun violence are likely to be small at best and perhaps too small for reliable measurement. AWs were rarely used in gun crimes even before the ban. LCMs are involved in a more substantial share of gun crimes, but it is not clear how often the outcomes of gun attacks depend on the ability of offenders to fire more than ten shots (the current magazine capacity limit) without reloading.

- Nonetheless, reducing criminal use of AWs and especially LCMs could have non-trivial effects on gunshot victimizations. The few available studies suggest that attacks with semiautomatics – including AWs and other semiautomatics equipped with LCMs – result in more shots fired, more persons hit, and more wounds inflicted per victim than do attacks with other firearms. Further, a study of handgun attacks in one city found that 3% of the gunfire incidents resulted in more than 10 shots fired, and those attacks produced almost 5% of the gunshot victims.

- Restricting the flow of LCMs into the country from abroad may be necessary to achieve desired effects from the ban, particularly in the near future. Whether mandating further design changes in the outward features of semiautomatic weapons (such as removing all military-style features) will produce measurable benefits beyond those of restricting ammunition capacity is unknown. Past experience also suggests that Congressional discussion of broadening the AW ban to new models or features would raise prices and production of the weapons under discussion.

- If the ban is lifted, gun and magazine manufacturers may reintroduce AW models and LCMs, perhaps in substantial numbers. In addition, pre-ban AWs may lose value and novelty, prompting some of their owners to sell them in undocumented secondhand markets where they can more easily reach high-risk users, such as criminals, terrorists, and other potential mass murderers. Any resulting increase in crimes with AWs and LCMs might increase gunshot victimizations for the reasons noted above, though this effect could be difficult to measure.

2. PROVISIONS OF THE ASSAULT WEAPONS BAN

2.1. Assault Weapons

Enacted on September 13, 1994, Title XI, Subtitle A of the *Violent Crime Control and Law Enforcement Act of 1994* imposes a 10-year ban on the "manufacture, transfer, and possession" of certain semiautomatic firearms designated as assault weapons (AWs).[1] The AW ban is not a prohibition on all semiautomatics. Rather, it is directed at semiautomatics having features that appear useful in military and criminal applications but unnecessary in shooting sports or self-defense. Examples of such features include pistol grips on rifles, flash hiders, folding rifle stocks, threaded barrels for attaching silencers, and the ability to accept ammunition magazines holding large numbers of bullets.[2] Indeed, several of the banned guns (e.g., the AR-15 and Avtomat Kalashnikov models) are civilian copies of military weapons and accept ammunition magazines made for those military weapons.

As summarized in Table 2-1, the law specifically prohibits nine narrowly defined groups of pistols, rifles, and shotguns. A number of the weapons are foreign rifles that the federal government has banned from importation into the U.S. since 1989. Exact copies of the named AWs are also banned, regardless of their manufacturer. In addition, the ban contains a generic "features test" provision that generally prohibits other semiautomatic firearms having two or more military-style features, as described in Table 2-2. In sum, the federal Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) has identified 118 model and caliber variations that meet the AW criteria established by the ban.[3]

Figures 2-1 and 2-2 illustrate a few prominent AWs and their features. Figure 2-1 displays the Intratec TEC-9 assault pistol, the AW most frequently used in crime (e.g., see Roth and Koper 1997, Chapter 2). Figure 2-2 depicts the AK-47 assault rifle, a weapon of Soviet design. There are many variations of the AK-47 produced around the world, not all of which have the full complement of features illustrated in Figure 2-2.

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[1] A semiautomatic weapon fires one bullet for each squeeze of the trigger. After each shot, the gun automatically loads the next bullet and cocks itself for the next shot, thereby permitting a somewhat faster rate of fire relative to non-automatic firearms. Semiautomatics are not to be confused with fully automatic weapons (i.e., machine guns), which fire continuously as long as the trigger is held down. Fully automatic weapons have been illegal to own in the United States without a federal permit since 1934.

[2] Ban advocates stress the importance of pistol grips on rifles and heat shrouds or forward handgrips on pistols, which in combination with large ammunition magazines enable shooters to discharge high numbers of bullets rapidly (in a "spray fire" fashion) while maintaining control of the firearm (Violence Policy Center, 2003). Ban opponents, on the other hand, argue that AW features also serve legitimate purposes for lawful gun users (e.g., see Kopel, 1995).

[3] This is based on AWs identified by ATF's Firearms Technology Branch as of December 1997.

Table 2-1. Firearms Banned by the Federal Assault Weapons Ban

cription	1993 Blue Book Price	Pre-Ban Federal Legal Status	Examples of Legal Substitutes
ıese, Russian, other foreign and domestic: .223 or x39mm caliber, semiauto. rifle; 5, 10, or 30 shot azine, may be supplied with bayonet	$550 (generic import); add 10-15% for folding stock models	Imports banned in 1989.	Norinco NHM 90/91 [1]
ili: 9mm, .41, or .45 caliber semiauto. carbine, mini-ine, or pistol. Magazine capacity of 16, 20, or 25, nding on model and type (10 or 20 on pistols).	$550-$1050 (Uzi) $875-$1150 (Galil)	Imports banned in 1989	Uzi Sporter [2]
ın: .222 or .223 caliber semiauto. paramilitary design rifle; or 30 shot magazine.	$1050	Imports banned in 1989.	
ıestic: primarily .223 caliber paramilitary rifle or carbine; ot magazines, often comes with two 5-shot detachable azines. Exact copies by DPMS, Eagle, Olympic, and rs.	$825-$1325	Legal (civilian version of military M-16)	Colt Sporter, Match H-Bar, Target models
;ian design: .308 caliber semiauto. rifle or .223 combat ine with 30 shot magazine. Rifle comes with flash hider, sition fire selector on automatic models. Discontinued in 3.	$1100-$2500	Imports banned in 1989.	L1A1 Sporter (FN, Century) [2]
rian: .223/5.56mm caliber semiauto. paramilitary design	$2500	Imports banned in 1989	
ıestic: 9mm, .380, or .45 caliber paramilitary design .auto. pistol; 32 shot magazine. Also available in .auto. carbine and fully automatic variations.	$215 (M-11/9)	Legal	Cobray PM11, 12
ıestic: 9mm caliber semiauto. paramilitary design pistol, r 32 shot magazine.; .22 caliber semiauto. paramilitary gn pistol, 30 shot magazine.	$145-$295	Legal	TEC-AB
ıestic: 12 gauge, 12 shot rotary magazine; paramilitary iguration	$525 (Street Sweeper)	Legal	

'4 under the federal embargo on the importation of firearms from China.
. executive order, April 1998.

Table 2-2. Features Test of the Federal Assault Weapons Ban

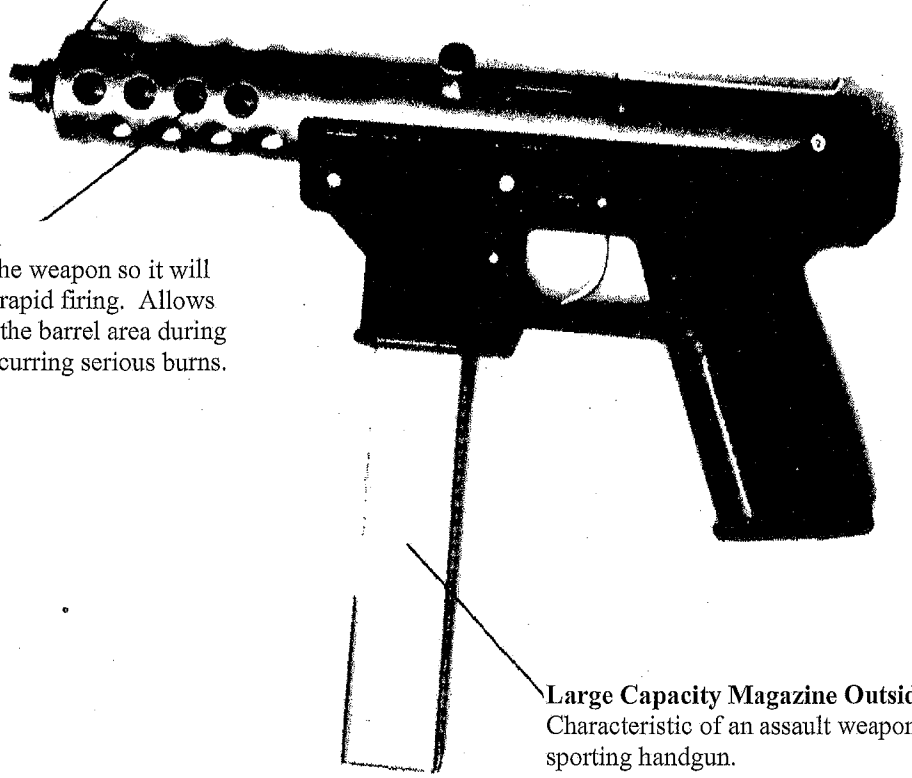
Weapon Category	Military-Style Features (Two or more qualify a firearm as an assault weapon)
Semiautomatic pistols accepting detachable magazines:	1) ammunition magazine that attaches outside the pistol grip 2) threaded barrel capable of accepting a barrel extender, flash hider, forward handgrip, or silencer 3) heat shroud attached to or encircling the barrel 4) weight of more than 50 ounces unloaded 5) semiautomatic version of a fully automatic weapon
Semiautomatic rifles accepting detachable magazines:	1) folding or telescoping stock 2) pistol grip that protrudes beneath the firing action 3) bayonet mount 4) flash hider or threaded barrel designed to accommodate one 5) grenade launcher
Semiautomatic shotguns:	1) folding or telescoping stock 2) pistol grip that protrudes beneath the firing action 3) fixed magazine capacity over 5 rounds 4) ability to accept a detachable ammunition magazine

2.2. Large Capacity Magazines

In addition, the ban prohibits most ammunition feeding devices holding more than 10 rounds of ammunition (referred to hereafter as large capacity magazines, or LCMs).[4] Most notably, this limits the capacity of detachable ammunition magazines for semiautomatic firearms. Though often overlooked in media coverage of the law, this provision impacted a larger share of the gun market than did the ban on AWs. Approximately 40 percent of the semiautomatic handgun models and a majority of the semiautomatic rifle models being manufactured and advertised prior to the ban were sold with LCMs or had a variation that was sold with an LCM (calculated from Murtz et al., 1994). Still others could accept LCMs made for other firearms and/or by other manufacturers. A national survey of gun owners found that 18% of all civilian-owned firearms and 21% of civilian-owned handguns were equipped with magazines having 10 or more rounds as of 1994 (Cook and Ludwig, 1996, p. 17). The AW provision did not affect most LCM-compatible guns, but the LCM provision limited the capacities of their magazines to 10 rounds.

[4] Technically, the ban prohibits any magazine, belt, drum, feed strip, or similar device that has the capacity to accept more than 10 rounds or ammunition, or which can be readily converted or restored to accept more than 10 rounds of ammunition. The ban exempts attached tubular devices capable of operating only with .22 caliber rimfire (i.e., low velocity) ammunition.

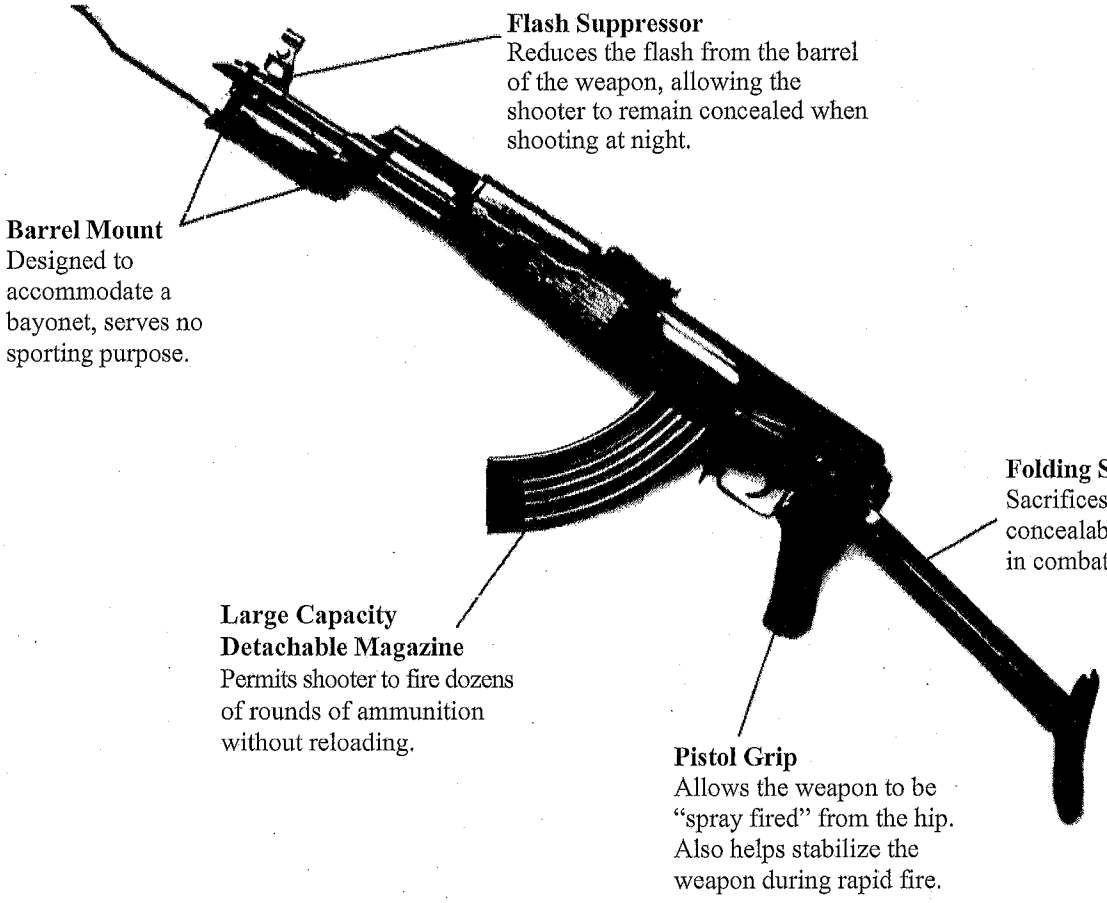
Figure 2-1. Features of Assault Weapons: The Intratec TEC-9 Assault Pistol



Adapted from exhibit of the Center to Prevent Handgun Violence.

As discussed in later chapters, an LCM is perhaps the most functionally important feature of many AWs. This point is underscored by the AW ban's exemptions for semiautomatic rifles that cannot accept a detachable magazine that holds more than five rounds of ammunition and semiautomatic shotguns that cannot hold more than five rounds in a fixed or detachable magazine. As noted by the U.S. House of Representatives, most prohibited AWs came equipped with magazines holding 30 rounds and could accept magazines holding as many as 50 or 100 rounds (U.S. Department of the Treasury, 1998, p. 14). Also, a 1998 federal executive order (discussed below) banned further importation of foreign semiautomatic rifles capable of accepting LCMs made for military rifles. Accordingly, the magazine ban plays an important role in the logic and interpretations of the analyses presented here.

Figure 2-2. Features of Assault Weapons: The AK-47 Assault Rifle



Adapted from exhibit of the Center to Prevent Handgun Violence.

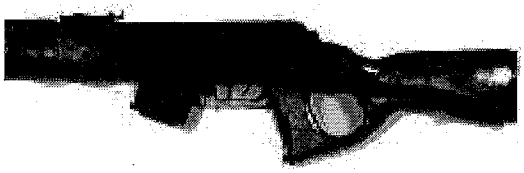
2.3. Foreign Rifles Accepting Large Capacity Military Magazines

In April of 1998, the Clinton administration broadened the range of the AW ban by prohibiting importation of an additional 58 foreign semiautomatic rifles that were still legal under the 1994 law but that can accept LCMs made for military assault rifles like the AK-47 (U.S. Department of the Treasury, 1998).[5] Figure 2-3 illustrates a few such rifles (hereafter, LCMM rifles) patterned after the banned AK-47 pictured in Figure 2-2. The LCMM rifles in Figure 2-3 do not possess the military-style features incorporated into the AK-47 (such as pistol grips, flash suppressors, and bayonet mounts), but they accept LCMs made for AK-47s.[6]

[5] In the civilian context, AWs are semiautomatic firearms. Many semiautomatic AWs are patterned after military firearms, but the military versions are capable of semiautomatic and fully automatic fire.

[6] Importation of some LCMM rifles, including a number of guns patterned after the AK-47, was halted in 1994 due to trade sanctions against China (U.S. Department of the Treasury, 1998).

gure 2-3. Foreign Semiautomatic Rifles Capable of Accepting Large Capacity Military Magazines: AK47 Copies Banned by Executive Order in 1998



MISR

ARM

MAK90

WUM 1

. Department of the Treasury (1998)

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2.4. Ban Exemptions

2.4.1. Guns and Magazines Manufactured Prior to the Ban

The ban contains important exemptions. AWs and LCMs manufactured before the effective date of the ban are "grandfathered" and thus legal to own and transfer. Around 1990, there were an estimated 1 million privately owned AWs in the U.S. (about 0.5% of the estimated civilian gun stock) (Cox Newspapers, 1989, p. 1; American Medical Association Council on Scientific Affairs, 1992), though those counts probably did not correspond exactly to the weapons prohibited by the 1994 ban. The leading domestic AW producers manufactured approximately half a million AWs from 1989 through 1993, representing roughly 2.5% of all guns manufactured in the U.S. during that time (see Chapter 5).

We are not aware of any precise estimates of the pre-ban stock of LCMs, but gun owners in the U.S. possessed an estimated 25 million guns that were equipped with LCMs or 10-round magazines in 1994 (Cook and Ludwig, 1996, p. 17), and gun industry sources estimated that, including aftermarket items for repairing and extending magazines, there were at least 25 million LCMs available in the United States as of 1995 (Gun Tests, 1995, p. 30). As discussed in Chapter 7, moreover, an additional 4.8 million pre-ban LCMs were imported into the U.S. from 1994 through 2000 under the grandfathering exemption.

2.4.2. Semiautomatics With Fewer or No Military Features

Although the law bans "copies or duplicates" of the named gun makes and models, federal authorities have emphasized exact copies. Relatively cosmetic changes, such as removing a flash hider or bayonet mount, are sufficient to transform a banned weapon into a legal substitute, and a number of manufacturers now produce modified, legal versions of some of the banned guns (examples are listed in Table 2-1). In general, the AW ban does not apply to semiautomatics possessing no more than one military-style feature listed under the ban's features test provision.[7] For instance, prior to going out of business, Intratec, makers of the banned TEC-9 featured in Figure 2-1, manufactured an AB-10 ("after ban") model that does not have a threaded barrel or a barrel shroud but is identical to the TEC-9 in other respects, including the ability to accept an ammunition magazine outside the pistol grip (Figure 2-4). As shown in the illustration, the AB-10 accepts grandfathered, 32-round magazines made for the TEC-9, but post-ban magazines produced for the AB-10 must be limited to 10 rounds.

[7] Note, however, that firearms imported into the country must still meet the "sporting purposes test" established under the federal Gun Control Act of 1968. In 1989, ATF determined that foreign semiautomatic rifles having any one of a number of named military features (including those listed in the features test of the 1994 AW ban) fail the sporting purposes test and cannot be imported into the country. In 1998, the ability to accept an LCM made for a military rifle was added to the list of disqualifying features. Consequently, it is possible for foreign rifles to pass the features test of the federal AW ban but not meet the sporting purposes test for imports (U.S. Department of the Treasury, 1998).

Another example is the Colt Match Target H-Bar rifle (Figure 2-5), which is a legalized version of the banned AR-15 (see Table 2-1). AR-15 type rifles are civilian weapons patterned after the U.S. military's M-16 rifle and were the assault rifles most commonly used in crime before the ban (Roth and Koper, 1997, Chapter 2). The post-ban version shown in Figure 2-5 (one of several legalized variations on the AR-15) is essentially identical to pre-ban versions of the AR-15 but does not have accessories like a flash hider, threaded barrel, or bayonet lug. The one remaining military feature on the post-ban gun is the pistol grip. This and other post-ban AR-15 type rifles can accept LCMs made for the banned AR15, as well as those made for the U.S. military's M-16. However, post-ban magazines manufactured for these guns must hold fewer than 11 rounds.

The LCMM rifles discussed above constituted another group of legalized AW-type weapons until 1998, when their importation was prohibited by executive order. Finally, the ban includes an appendix that exempts by name several hundred models of rifles and shotguns commonly used in hunting and recreation, 86 of which are semiautomatics. While the exempted semiautomatics generally lack the military-style features common to AWs, many take detachable magazines, and some have the ability to accept LCMs.[8]

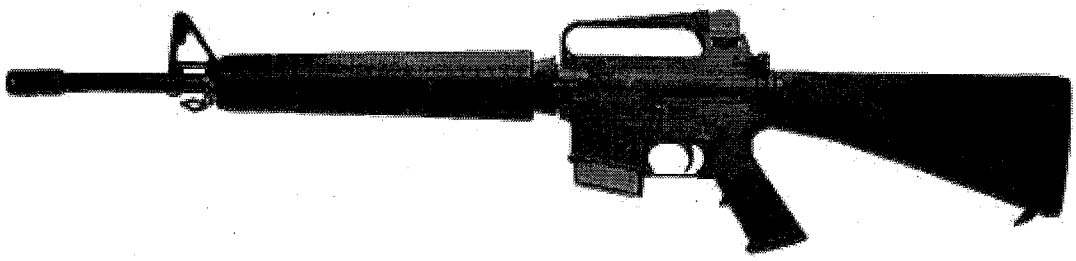
2.5. Summary

In the broadest sense, the AW-LCM ban is intended to limit crimes with semiautomatic firearms having large ammunition capacities – which enable shooters to discharge high numbers of shots rapidly – and other features conducive to criminal applications. The gun ban provision targets a relatively small number of weapons based on outward features or accessories that have little to do with the weapons' operation. Removing some or all of these features is sufficient to make the weapons legal. In other respects (e.g., type of firing mechanism, ammunition fired, and the ability to accept a detachable magazine), AWs do not differ from other legal semiautomatic weapons. The LCM provision of the law limits the ammunition capacity of non-banned firearms.

[8] Legislators inserted a number of amendments during the drafting process to broaden the consensus behind the bill (Lennett 1995). Among changes that occurred during drafting were: dropping a requirement to register post-ban sales of the grandfathered guns, dropping a ban on "substantial substitutes" as well as "exact copies" of the banned weapons, shortening the list of named makes and models covered by the ban, adding the appendix list of exempted weapons, and mandating the first impact study of the ban that is discussed below.

Figure 2-4. Post-Ban, Modified Versions of Assault Weapons: The Intratec AB ("After Ban") Model (See Featured Firearm)

Figure 2-5. Post-Ban, Modified Versions of Assault Weapons: The Colt Match Target HBAR Model



3. CRIMINAL USE OF ASSAULT WEAPONS AND LARGE CAPACITY MAGAZINES BEFORE THE BAN

During the 1980s and early 1990s, AWs and other semiautomatic firearms equipped with LCMs were involved in a number of highly publicized mass murder incidents that raised public concern about the accessibility of high powered, military-style weaponry and other guns capable of discharging high numbers of bullets in a short period of time (Cox Newspapers, 1989; Kleck, 1997, pp.124-126,144; Lenett, 1995). In one of the worst mass murders ever committed in the U.S., for example, James Huberty killed 21 persons and wounded 19 others in a San Ysidro, California MacDonald's restaurant on July 18, 1984 using an Uzi carbine, a shotgun, and another semiautomatic handgun. On September 14, 1989, Joseph Wesbecker, armed with an AK-47 rifle, two MAC-11 handguns, and a number of other firearms, killed 7 persons and wounded 15 others at his former workplace in Louisville, Kentucky before taking his own life. Another particularly notorious incident that precipitated much of the recent debate over AWs occurred on January 17, 1989 when Patrick Purdy used a civilian version of the AK-47 military rifle to open fire on a schoolyard in Stockton, California, killing 5 children and wounding 29 persons.

There were additional high profile incidents in which offenders using semiautomatic handguns with LCMs killed and wounded large numbers of persons. Armed with two handguns having LCMs (and reportedly a supply of extra LCMs), a rifle, and a shotgun, George Hennard killed 22 people and wounded another 23 in Killeen, Texas in October 1991. In a December 1993 incident, a gunman named Colin Ferguson, armed with a handgun and LCMs, opened fire on commuters on a Long Island train, killing 5 and wounding 17.

Indeed, AWs or other semiautomatics with LCMs were involved in 6, or 40%, of 15 mass shooting incidents occurring between 1984 and 1993 in which six or more persons were killed or a total of 12 or more were wounded (Kleck, 1997, pp.124-126, 144). Early studies of AWs, though sometimes based on limited and potentially unrepresentative data, also suggested that AWs recovered by police were often associated with drug trafficking and organized crime (Cox Newspapers, 1989; also see Roth and Koper, 1997, Chapter 5), fueling a perception that AWs were guns of choice among drug dealers and other particularly violent groups. All of this intensified concern over AWs and other semiautomatics with large ammunition capacities and helped spur the passage of AW bans in California, New Jersey, Connecticut, and Hawaii between 1989 and 1993, as well as the 1989 federal import ban on selected semiautomatic rifles. Maryland also passed AW legislation in 1994, just a few months prior to the passage of the 1994 federal AW ban.[9]

Looking at the nation's gun crime problem more broadly, however, AWs and LCMs were used in only a minority of gun crimes prior to the 1994 federal ban, and AWs were used in a particularly small percentage of gun crimes.

[9] A number of localities around the nation also passed AW bans during this period.

3.1. Criminal Use of Assault Weapons

Numerous studies have examined the use of AWs in crime prior to the federal ban. The definition of AWs varied across the studies and did not always correspond exactly to that of the 1994 law (in part because a number of the studies were done prior to 1994). In general, however, the studies appeared to focus on various semiautomatics with detachable magazines and military-style features. According to these accounts, AWs typically accounted for up to 8% of guns used in crime, depending on the specific AW definition and data source used (e.g., see Beck et al., 1993; Hargarten et al., 1996; Hutson et al., 1994; 1995; McGonigal et al., 1993; New York State Division of Criminal Justice Services, 1994; Roth and Koper, 1997, Chapters 2, 5, 6; Zawitz, 1995). A compilation of 38 sources indicated that AWs accounted for 2% of crime guns on average (Kleck, 1997, pp.112, 141-143).[10]

Similarly, the most common AWs prohibited by the 1994 federal ban accounted for between 1% and 6% of guns used in crime according to most of several national and local data sources examined for this and our prior study (see Chapter 6 and Roth and Koper, 1997, Chapters 5, 6):

- Baltimore (all guns recovered by police, 1992-1993): 2%
- Miami (all guns recovered by police, 1990-1993): 3%
- Milwaukee (guns recovered in murder investigations, 1991-1993): 6%
- Boston (all guns recovered by police, 1991-1993): 2%
- St. Louis (all guns recovered by police, 1991-1993): 1%
- Anchorage, Alaska (guns used in serious crimes, 1987-1993): 4%
- National (guns recovered by police and reported to ATF, 1992-1993): 5%[11]
- National (gun thefts reported to police, 1992-Aug. 1994): 2%
- National (guns used in murders of police, 1992-1994): 7-9%[12]
- National (guns used in mass murders of 4 or more persons, 1992-1994): 4-13%[13]

Although each of the sources cited above has limitations, the estimates consistently show that AWs are used in a small fraction of gun crimes. Even the highest

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[10] The source in question contains a total of 48 estimates, but our focus is on those that examined all AWs (including pistols, rifles, and shotguns) as opposed to just assault rifles.

[11] For reasons discussed in Chapter 6, the national ATF estimate likely overestimates the use of AWs in crime. Nonetheless, the ATF estimate lies within the range of other presented estimates.

[12] The minimum estimate is based on AW cases as a percentage of all gun murders of police. The maximum estimate is based on AW cases as a percentage of cases for which at least the gun manufacturer was known. Note that AWs accounted for as many as 16% of gun murders of police in 1994 (Roth and Koper, 1997, Chapter 6; also see Adler et al., 1995).

[13] These statistics are based on a sample of 28 cases found through newspaper reports (Roth and Koper, 1997, Appendix A). One case involved an AW, accounting for 3.6% of all cases and 12.5% of cases in which at least the type of gun (including whether the gun was a handgun, rifle, or shotgun and whether the gun was a semiautomatic) was known. Also see the earlier discussion of AWs and mass shootings at the beginning of this chapter.

estimates, which correspond to particularly rare events such mass murders and police murders, are no higher than 13%. Note also that the majority of AWs used in crime are assault pistols (APs) rather than assault rifles (ARs). Among AWs reported by police to ATF during 1992 and 1993, for example, APs outnumbered ARs by a ratio of 3 to 1 (see Chapter 6).

The relative rarity of AW use in crime can be attributed to a number of factors. Many AWs are long guns, which are used in crime much less often than handguns. Moreover, a number of the banned AWs are foreign weapons that were banned from importation into the U.S. in 1989. Also, AWs are more expensive (see Table 2-1) and more difficult to conceal than the types of handguns that are used most frequently in crime.

3.1.1. A Note on Survey Studies and Assault Weapons

The studies and statistics discussed above were based primarily on police information. Some survey studies have given a different impression, suggesting substantial levels of AW ownership among criminals and otherwise high-risk juvenile and adult populations, particularly urban gang members (Knox et al., 1994; Sheley and Wright, 1993a). A general problem with these studies, however, is that respondents themselves had to define terms like "military-style" and "assault rifle." Consequently, the figures from these studies may lack comparability with those from studies with police data. Further, the figures reported in some studies prompt concerns about exaggeration of AW ownership (perhaps linked to publicity over the AW issue during the early 1990s when a number of these studies were conducted), particularly among juvenile offenders, who have reported ownership levels as high as 35% just for ARs (Sheley and Wright, 1993a).[14]

Even so, most survey evidence on the actual use of AWs suggests that offenders rarely use AWs in crime. In a 1991 national survey of adult state prisoners, for example, 8% of the inmates reported possessing a "military-type" firearm at some point in the past (Beck et al., 1993, p. 19). Yet only 2% of offenders who used a firearm during their conviction offense reported using an AW for that offense (calculated from pp. 18, 33), a figure consistent with the police statistics cited above. Similarly, while 10% of adult inmates and 20% of juvenile inmates in a Virginia survey reported having owned an AR, none of the adult inmates and only 1% of the juvenile inmates reported having carried them at crime scenes (reported in Zawitz, 1995, p. 6). In contrast, 4% to 20% of inmates surveyed in eight jails across rural and urban areas of Illinois and Iowa reported having used an AR in committing crimes (Knox et al., 1994, p. 17). Nevertheless, even assuming the accuracy and honesty of the respondents' reports, it is not clear what

[14] As one example of possible exaggeration of AW ownership, a survey of incarcerated juveniles in New Mexico found that 6% reported having used a "military-style rifle" against others and 2.6% reported that someone else used such a rifle against them. However, less than 1% of guns recovered in a sample of juvenile firearms cases were "military" style guns (New Mexico Criminal Justice Statistical Analysis Center, 1998, pp. 17-19; also see Ruddell and Mays, 2003).

weapons they were counting as ARs, what percentage of their crimes were committed with ARs, or what share of all gun crimes in their respective jurisdictions were linked to their AR uses. Hence, while some surveys suggest that ownership and, to a lesser extent, use of AWs may be fairly common among certain subsets of offenders, the overwhelming weight of evidence from gun recovery and survey studies indicates that AWs are used in a small percentage of gun crimes overall.

3.1.2. Are Assault Weapons More Attractive to Criminal Users Than Other Gun Users?

Although AWs are used in a small percentage of gun crimes, some have argued that AWs are more likely to be used in crime than other guns, i.e., that AWs are more attractive to criminal than lawful gun users due to the weapons' military-style features and their particularly large ammunition magazines. Such arguments are based on data implying that AWs are more common among crime guns than among the general stock of civilian firearms. According to some estimates generated prior to the federal ban, AWs accounted for less than one percent of firearms owned by civilians but up to 11% of guns used in crime, based on firearms reported by police to ATF between 1986 and 1993 (e.g., see Cox Newspapers, 1989; Lennett, 1995). However, these estimates were problematic in a number of respects. As discussed in Chapter 6, ATF statistics are not necessarily representative of the types of guns most commonly recovered by police, and ATF statistics from the late 1980s and early 1990s in particular tended to overstate the prevalence of AWs among crime guns. Further, estimating the percentage of civilian weapons that are AWs is difficult because gun production data are not reported by model, and one must also make assumptions about the rate of attrition among the stock of civilian firearms.

Our own more recent assessment indicates that AWs accounted for about 2.5% of guns produced from 1989 through 1993 (see Chapter 5). Relative to previous estimates, this may signify that AWs accounted for a growing share of civilian firearms in the years just before the ban, though the previous estimates likely did not correspond to the exact list of weapons banned in 1994 and thus may not be entirely comparable to our estimate. At any rate, the 2.5% figure is comparable to most of the AW crime gun estimates listed above; hence, it is not clear that AWs are used disproportionately in most crimes, though AWs still seem to account for a somewhat disproportionate share of guns used in murders and other serious crimes.

Perhaps the best evidence of a criminal preference for AWs comes from a study of young adult handgun buyers in California that found buyers with minor criminal histories (i.e., arrests or misdemeanor convictions that did not disqualify them from purchasing firearms) were more than twice as likely to purchase APs than were buyers with no criminal history (4.6% to 2%, respectively) (Wintemute et al., 1998a). Those with more serious criminal histories were even more likely to purchase APs: 6.6% of those who had been charged with a gun offense bought APs, as did 10% of those who had been charged with two or more serious violent offenses. AP purchasers were also more likely to be arrested subsequent to their purchases than were other gun purchasers.

Among gun buyers with prior charges for violence, for instance, AP buyers were more than twice as likely as other handgun buyers to be charged with any new offense and three times as likely to be charged with a new violent or gun offense. To our knowledge, there have been no comparable studies contrasting AR buyers with other rifle buyers.

3.2. Criminal Use of Large Capacity Magazines

Relative to the AW issue, criminal use of LCMs has received relatively little attention. Yet the overall use of guns with LCMs, which is based on the combined use of AWs and non-banned guns with LCMs, is much greater than the use of AWs alone. Based on data examined for this and a few prior studies, guns with LCMs were used in roughly 14% to 26% of most gun crimes prior to the ban (see Chapter 8; Adler et al., 1995; Koper, 2001; New York Division of Criminal Justice Services, 1994).

- Baltimore (all guns recovered by police, 1993): 14%
- Milwaukee (guns recovered in murder investigations, 1991-1993): 21%
- Anchorage, Alaska (handguns used in serious crimes, 1992-1993): 26%
- New York City (guns recovered in murder investigations, 1993): 16-25%[15]
- Washington, DC (guns recovered from juveniles, 1991-1993): 16%[16]
- National (guns used in murders of police, 1994): 31%-41%[17]

Although based on a small number of studies, this range is generally consistent with national survey estimates indicating approximately 18% of all civilian-owned guns and 21% of civilian-owned handguns were equipped with LCMs as of 1994 (Cook and Ludwig, 1996, p. 17). The exception is that LCMs may have been used disproportionately in murders of police, though such incidents are very rare.

As with AWs and crime guns in general, most crime guns equipped with LCMs are handguns. Two handgun models manufactured with LCMs prior to the ban (the Glock 17 and Ruger P89) were among the 10 crime gun models most frequently recovered by law enforcement and reported to ATF during 1994 (ATF, 1995).

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[15] The minimum estimate is based on cases in which discharged firearms were recovered, while the maximum estimate is based on cases in which recovered firearms were positively linked to the case with ballistics evidence (New York Division of Criminal Justice Services, 1994).

[16] Note that Washington, DC prohibits semiautomatic firearms accepting magazines with more than 12 rounds (and handguns in general).

[17] The estimates are based on the sum of cases involving AWs or other guns sold with LCMs (Adler et al., 1995, p.4). The minimum estimate is based on AW-LCM cases as a percentage of all gun murders of police. The maximum estimate is based on AW-LCM cases as a percentage of cases in which the gun model was known.

3.3. Summary

In sum, AWs and LCMs were used in up to a quarter of gun crimes prior to the 1994 AW-LCM ban. By most estimates, AWs were used in less than 6% of gun crimes even before the ban. Some may have perceived their use to be more widespread, however, due to the use of AWs in particularly rare and highly publicized crimes such as mass shootings (and, to a lesser extent, murders of police), survey reports suggesting high levels of AW ownership among some groups of offenders, and evidence that some AWs are more attractive to criminal than lawful gun buyers.

In contrast, guns equipped with LCMs – of which AWs are a subset – are used in roughly 14% to 26% of gun crimes. Accordingly, the LCM ban has greater potential for affecting gun crime. However, it is not clear how often the ability to fire more than 10 shots without reloading (the current magazine capacity limit) affects the outcomes of gun attacks (see Chapter 9). All of this suggests that the ban's impact on gun violence is likely to be small.

4. OVERVIEW OF STUDY DESIGN, HYPOTHESES, AND PRIOR FINDINGS

Section 110104 of the AW-LCM ban directed the Attorney General of the United States to study the ban's impact and report the results to Congress within 30 months of the ban's enactment, a provision which was presumably motivated by a sunset provision in the legislation (section 110105) that will lift the ban in September 2004 unless Congress renews the ban. In accordance with the study requirement, the National Institute of Justice (NIJ) awarded a grant to the Urban Institute to study the ban's short-term (i.e., 1994-1996) effects. The results of that study are available in a number of reports, briefs, and articles written by members of this research team (Koper and Roth, 2001a; 2001b; 2002a; Roth and Koper, 1997; 1999).[18] In order to understand the ban's longer-term effects, NIJ provided additional funding to extend the AW research. In 2002, we delivered an interim report to NIJ based on data extending through at least the late 1990s (Koper and Roth, 2002b). This report is based largely on the 2002 interim report, but with various new and updated analyses extending as far as 2003. It is thus a compilation of analyses conducted between 1998 and 2003. The study periods vary somewhat across the analyses, depending on data availability and the time at which the data were collected.

4.1. Logical Framework for Research on the Ban

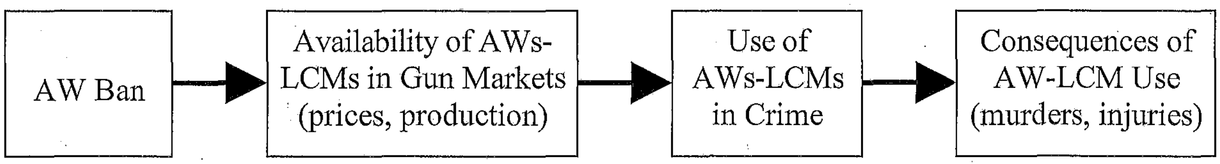
An important rationale for the AW-LCM ban is that AWs and other guns equipped with LCMs are particularly dangerous weapons because they facilitate the rapid firing of high numbers of shots, thereby potentially increasing injuries and deaths from gun violence. Although AWs and LCMs were used in only a modest share of gun crimes before the ban, it is conceivable that a decrease in their use might reduce fatal and non-fatal gunshot victimizations, even if it does not reduce the overall rate of gun crime. (In Chapter 9, we consider in more detail whether forcing offenders to substitute other guns and smaller magazines can reduce gun deaths and injuries.)

It is not clear how quickly such effects might occur, however, because the ban exempted the millions of AWs and LCMs that were manufactured prior to the ban's effective date in September 1994. This was particularly a concern for our first study, which was based on data extending through mid-1996, a period potentially too short to observe any meaningful effects. Consequently, investigation of the ban's effects on gun markets – and, most importantly, how they have affected criminal use of AWs and LCMs – has played a central role in this research. The general logic of our studies, illustrated in Figure 4-1, has been to first assess the law's impact on the availability of AWs and LCMs, examining price and production (or importation) indices in legal markets and relating them to trends in criminal use of AWs and LCMs. In turn, we can relate these market patterns to trends in the types of gun crimes most likely to be affected by changes in the use of AWs and LCMs. However, we cannot make definitive assessments of the

[18] The report to Congress was the Roth and Koper (1997) report.

ban's impact on gun violence until it is clear that the ban has indeed reduced criminal use of AWs and LCMs.

Figure 4-1. Logic Model for Research on the Assault Weapons Ban



4.2. Hypothesized Market Effects

4.2.1. A General Description of Gun Markets

Firearms are distributed in markets commonly referred to as primary and secondary markets. Illicit gun transactions occur in both markets. Primary markets include wholesale and retail transactions by federally-licensed gun dealers, referred to as federal firearm licensees. Licensed dealers are required to, among things, follow federal and state background procedures to verify the eligibility of purchasers, observe any legally required waiting period prior to making transfers, and maintain records of gun acquisitions and dispositions (though records are not required for sales of ammunition magazines).

Despite these restrictions, survey data suggest that as many as 21% of adult gun offenders obtained guns from licensed dealers in the years prior to the ban (Harlow, 2001, p. 6; also see Wright and Rossi, 1986, pp. 183,185). In more recent years, this figure has declined to 14% (Harlow, 2001, p. 6), due likely to the Brady Act, which established a national background check system for purchases from licensed dealers, and reforms of the federal firearms licensing system that have greatly reduced the number of licensed gun dealers (see ATF, 2000; Koper, 2002). Some would-be gun offenders may be legally eligible buyers at the time of their acquisitions, while others may seek out corrupt dealers or use other fraudulent or criminal means to acquire guns from retail dealers (such as recruiting a legally entitled buyer to act as a "straw purchaser" who buys a gun on behalf of a prohibited buyer).

Secondary markets encompass second-hand gun transactions made by non-licensed individuals.[19] Secondary market participants are prohibited from knowingly transferring guns to ineligible purchasers (e.g., convicted felons and drug abusers). However, secondary transfers are not subject to the federal record-keeping and background check requirements placed on licensed dealers, thus making the secondary

[19] Persons who make only occasional sales of firearms are not required to obtain a federal firearms license (ATF, 2000, p. 11).

market almost entirely unregulated and, accordingly, a better source of guns for criminal users.[20] In the secondary market, ineligible buyers may obtain guns from a wide variety of legitimate or illegitimate gun owners: relatives, friends, fences, drug dealers, drug addicts, persons selling at gun shows, or other strangers (e.g., see Wright and Rossi, 1986; Sheley and Wright, 1993a). Of course, ineligible purchasers may also steal guns from licensed gun dealers and private gun owners.

Secondary market prices are generally lower than primary market prices (because the products are used), though the former may vary substantially across a range of gun models, places, circumstances, and actors. For example, street prices of AWs and other guns can be 3 to 6 times higher than legal retail prices in jurisdictions with strict gun controls and lower levels of gun ownership (Cook et al., 1995, p. 72). Nonetheless, experts note that primary and secondary market prices correspond to one another, in that relatively expensive guns in the primary market are also relatively expensive in the secondary market. Moreover, in any given locality, trends in secondary market prices can be expected to track those in the primary market because a rise in primary market prices for new weapons will increase demand for used weapons and therefore increase secondary market prices (Cook et al., 1995, p. 71).

4.2.2. The AW-LCM Ban and Gun Markets

In the long term, we can expect prices of the banned guns and magazines to gradually rise as supplies dwindle. As prices rise, more would-be criminal users of AWs and LCMs will be unable or unwilling to pay the higher prices. Others will be discouraged by the increasing non-monetary costs (i.e., search time) of obtaining the weapons. In addition, rising legal market prices will undermine the incentive for some persons to sell AWs and LCMs to prohibited buyers for higher premiums, thereby bidding some of the weapons away from the channels through which they would otherwise reach criminal users. Finally, some would-be AW and LCM users may become less willing to risk confiscation of their AWs and LCMs as the value of the weapons increases. Therefore, we expect that over time diminishing stocks and rising prices will lead to a reduction in criminal use of AWs and LCMs.[21]

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[20] Some states require that secondary market participants notify authorities about their transactions. Even in these states, however, it is not clear how well these laws are enforced.

[21] We would expect these reductions to be apparent shortly after the price increases (an expectation that, as discussed below, was confirmed in our earlier study) because a sizeable share of guns used in crime are used within one to three years of purchase. Based on analyses of guns recovered by police in 17 cities, ATF (1997, p. 8) estimates that guns less than 3 years old (as measured by the date of first retail sale) comprise between 22% and 43% of guns seized from persons under age 18, between 30% and 54% of guns seized from persons ages 18 to 24, and between 25% and 46% of guns seized from persons over 24. In addition, guns that are one year old or less comprise the largest share of relatively new crime guns (i.e., crime guns less than three years old) (Pierce et al., 1998, p. 11). Similar data are not available for secondary market transactions, but such data would shorten the estimated time from acquisition to criminal use.

However, the expected timing of the market processes is uncertain. We can anticipate that AW and LCM prices will remain relatively stable for as long as the supply of grandfathered weapons is adequate to meet demand. If, in anticipation of the ban, gun manufacturers overestimated the demand for AWs and LCMs and produced too many of them, prices might even fall before eventually rising. Market responses can be complicated further by the continuing production of legal AW substitute models by some gun manufacturers. If potential AW buyers are content with an adequate supply of legal AW-type weapons having fewer military features, it will take longer for the grandfathered AW supply to constrict and for prices to rise. Similarly, predicting LCM price trends is complicated by the overhang of military surplus magazines that can fit civilian weapons (e.g., military M-16 rifle magazines that can be used with AR-15 type rifles) and by the market in reconditioned magazines. The "aftermarket" in gun accessories and magazine extenders that can be used to convert legal guns and magazines into banned ones introduces further complexity to the issue.

4.3. Prior Research on the Ban's Effects

To summarize the findings of our prior study, Congressional debate over the ban triggered pre-ban speculative price increases of upwards of 50% for AWs during 1994, as gun distributors, dealers, and collectors anticipated that the weapons would become valuable collectors' items. Analysis of national and local data on guns recovered by police showed reductions in criminal use of AWs during 1995 and 1996, suggesting that rising prices made the weapons less accessible to criminal users in the short-term aftermath of the ban.

However, the speculative increase in AW prices also prompted a pre-ban boost in AW production; in 1994, AW manufacturers produced more than twice their average volume for the 1989-1993 period. The oversupply of grandfathered AWs, the availability of the AW-type legal substitute models mentioned earlier, and the steady supply of other non-banned semiautomatics appeared to have saturated the legal market, causing advertised prices of AWs to fall to nearly pre-speculation levels by late 1995 or early 1996. This combination of excess supply and reduced prices implied that criminal use of AWs might rise again for some period around 1996, as the large stock of AWs would begin flowing from dealers' and speculators' gun cases to the secondary markets where ineligible purchasers may obtain guns more easily.

We were not able to gather much specific data about market trends for LCMs. However, available data did reveal speculative, pre-ban price increases for LCMs that were comparable to those for AWs (prices for some LCMs continued to climb into 1996), leading us to speculate – incorrectly, as this study will show (see Chapter 8) – that there was some reduction in LCM use after the ban.[22]

[22] To our knowledge, there have been two other studies of changes in AW and LCM use during the post-ban period. One study reported a drop in police recoveries of AWs in Baltimore during the first half of 1995 (Weil and Knox, 1995), while the other found no decline in recoveries of AWs or LCMs in Milwaukee homicide cases as of 1996 (Hargarten et al., 2000). Updated analyses for both of these cities

Determining whether the reduction in AW use (and perhaps LCM use) following the ban had an impact on gun violence was more difficult. The gun murder rate dropped more in 1995 (the first year following the ban) than would have been expected based on preexisting trends, but the short post-ban follow-up period available for the analysis precluded a definitive assessment as to whether the reduction was statistically meaningful (see especially Koper and Roth, 2001a). The reduction was also larger than would be expected from the AW-LCM ban, suggesting that other factors were at work in accelerating the decline. Using a number of national and local data sources, we also examined trends in measures of victims per gun murder incident and wounds per gunshot victim, based on the hypothesis that these measures might be more sensitive to variations in the use of AWs and LCMs. These analyses revealed no ban effects, thus failing to show confirming evidence of the mechanism through which the ban was hypothesized to affect the gun murder rate. However, newly available data presented in subsequent chapters suggest these assessments may have been premature, because any benefits from the decline in AW use were likely offset by steady or rising use of other guns equipped with LCMs, a trend that was not apparent at the time of our earlier study.

We cautioned that the short-term patterns observed in the first study might not provide a reliable guide to longer-term trends and that additional follow-up was warranted. Two key issues to be addressed were whether there had been a rebound in AW use since the 1995-1996 period and, if so, whether that rebound had yet given way to a long-term reduction in AW use. Another key issue was to seek more definitive evidence on short and long-term trends in the availability and criminal use of LCMs. These issues are critical to assessing the effectiveness of the AW-LCM ban, but they also have broader implications for other important policy concerns, namely, the establishment of reasonable timeframes for sunset and evaluation provisions in legislation. In other words, how long is long enough in evaluating policy and setting policy expiration dates?

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are presented in Chapters 6 and 8.

5. MARKET INDICATORS FOR ASSAULT WEAPONS: PRICES AND PRODUCTION

This chapter assesses the ban's impact on the availability of AWs in primary and secondary markets, as measured by trends in AW prices and post-ban production of legal AW substitute models. Understanding these trends is important because they influence the flow of grandfathered weapons to criminals and the availability of non-banned weapons that are close substitutes for banned ones. In the next chapter, we assess the impact of these trends on criminal use of AWs, as approximated by statistics on gun seizures by police. (Subsequent chapters present similar analyses for LCMs.)

Following our previous methods, we compare trends for AWs to trends for various non-banned firearms. The AW analyses generally focus on the most common AWs formerly produced in the U.S., including Intratec and SWD-type APs and AR-15-type ARs produced by Colt and others. In addition, we selected a small number of domestic pistol and rifle models made by Calico and Feather Industries that fail the features test provision of the AW legislation and that were relatively common among crime guns reported by law enforcement agencies to ATF prior to the ban (see Roth and Koper, 1997, Chapter 5). Together, this group of weapons represented over 80% of AWs used in crime and reported to ATF from 1993 through 1996, and the availability of these guns was not affected by legislation or regulations predating the AW-LCM ban.[23] We also examine substitution of legalized, post-ban versions of these weapons, including the Intratec AB-10 and Sport-22, FMJ's PM models (substitutes for the SWD group), Colt Sporters, Calico Liberty models, and others. We generally did not conduct comparative analyses of named foreign AWs (the Uzi, Galil, and AK weapons) because the 1989 federal import ban had already limited their availability, and their legal status was essentially unchanged by the 1994 ban.

The exact gun models and time periods covered vary across the analyses (based on data availability and the time at which data were collected). The details of each analysis are described in the following sections.

5.1. Price Trends for Assault Weapons and Other Firearms

To approximate trends in the prices at which AWs could be purchased throughout the 1990s, we collected annual price data for several APs, ARs, and non-banned comparison firearms from the *Blue Book of Gun Values* (Fjestad, 1990-1999). The *Blue Book* provides national average prices for an extensive list of new and used firearms based on information collected at gun shows and input provided by networks of dealers

[23] The Intratec group includes weapons made by AA Arms. The SWD group contains related models made by Military Armaments Corporation/Ingram and RPB Industries. The AR-15 group contains models made by Colt and copies made by Bushmaster, Olympic Arms, Eagle Arms, SGW Enterprises, Essential Arms, DPMS, and Sendra.

and collectors. The *Blue Book* is utilized widely in the gun industry, though prices in any given locality may differ notably from the averages appearing in the *Blue Book*.

To assess time trends in gun prices, we conducted hedonic price analyses (Berndt, 1990) in which the gun prices were regressed upon a series of year and model indicators. The coefficients for the year indicators show annual changes in the prices of the guns relative to 1994 (the year the ban went into effect), controlling for time-stable differences in the prices of various gun models. Since manufacturers' suggested retail prices (MSRP) were not available for banned AWs during post-ban years, we utilized prices for AWs in 100% condition for all years.[24] For non-banned firearms, we used MSRP.[25] For all models, we divided the gun prices by annual values of the gross domestic product price deflator provided in the December 2001 and 2000 issues of *Economic Indicators* and logged these adjusted prices.

Each model presented below is based on data pooled across a number of firearm models and years, so that observation P_{jt} represents the price of gun model j during year t. We weighted each observation, P_{jt}, based on cumulative estimates of the production of model j from 1985 or 1986 (depending on data availability) through year t using data provided by gun manufacturers to ATF and published by the Violence Policy Center (1999).[26, 27]

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[24] Project staff also collected prices of weapons in 80% condition. However, the levels and annual changes of the 80% prices were very highly correlated (0.86 to 0.99) with those of the 100% condition prices. Therefore, we limited the analysis to the 100% prices.

[25] We utilized prices for the base model of each AW and comparison firearm (in contrast to model variations with special features or accessories).

[26] The regression models are based on equal numbers of observations for each gun model. Hence, unweighted regressions would give equal weight to each gun model. This does not seem appropriate, however, because some guns are produced in much larger numbers than are other guns. Weighting the regression models by production estimates should therefore give us a better sense of what one could "typically" expect to pay for a generic gun in each study category (e.g., a generic assault pistol).

[27] Several of the selected weapons began production in 1985 or later. In other cases, available production data extended back to only the mid-1980s. Published production figures for handguns are broken down by type (semiautomatic, revolver) and caliber and thus provide perfect or very good approximations of production for the handgun models examined in this study. Rifle production data, however, are not disaggregated by gun type, caliber, or model. For the ARs under study, the production counts should be reasonable approximations of AR production because most of the rifles made by the companies in question prior to the ban were ARs. The rifles used in the comparison (i.e., non-banned) rifle analysis are made by companies (Sturm Ruger, Remington, and Marlin) that produce numerous semiautomatic and non-semiautomatic rifle models. However, the overall rifle production counts for these companies should provide some indication of differences in the availability of the comparison rifles relative to one another. Because production data were available through only 1997 at the time this particular analysis was conducted (Violence Policy Center, 1999), we used cumulative production through 1997 to weight the 1998 and 1999 observations for the comparison handgun and comparison rifle models. This was not a consideration for AWs since their production ceased in 1994 (note that the AW production figures for 1994 may include some post-ban legal substitute models manufactured after September 13, 1994). Nonetheless, weighting had very little effect on the inferences from either of the comparison gun models.

5.1.1. Assault Pistol Prices

The analysis of AP prices focuses on the Intratec TEC-9/DC-9, TEC-22, SWD M-11/9, and Calico M950 models. Regression results are shown in Table 5-1, while Figure 5-1 graphically depicts the annual trend in prices for the period 1990 through 1999. None of the yearly coefficients in Table 5-1 is statistically significant, thus indicating that average annual AP prices did not change during the 1990s after adjusting for inflation. Although the model is based on a modest number of observations (n=40) that may limit its statistical power (i.e., its ability to detect real effects), the size of the yearly coefficients confirm that prices changed very little from year to year. The largest yearly coefficient is for 1990, and it indicates that AP prices were only 4% higher in 1990 than in 1994.[28]

This stands in contrast to our earlier finding (Roth and Koper, 1997, Chapter 4) that prices for SWD APs may have risen by as much as 47% around the time of the ban. However, the earlier analyses were based on semi-annual or quarterly analyses advertised by gun distributors and were intended to capture short-term fluctuations in price that assumed greater importance in the context of the first AW study, which could examine only short-term ban outcomes. *Blue Book* editions released close in time to the ban (e.g., 1995) also cautioned that prices for some AWs were volatile at that time. This study emphasizes longer-term price trends, which appear to have been more stable.[29]

[28] To interpret the coefficient of each indicator variable in terms of a percentage change in the dependent variable, we exponentiate the coefficient, subtract 1 from the exponentiated value, and multiply the difference by 100.

[29] Although the earlier analysis of AP prices focused on the greatest variations observed in semi-annual prices, the results also provide indications that longer-term trends were more stable. Prices in 1993, for example, averaged roughly 73% of the peak prices reached at the time the ban was implemented (i.e., late 1994), while prices in early 1994 and late 1995 averaged about 83% and 79% of the peak prices, respectively. Hence, price variation was much more modest after removing the peak periods around the time of the ban's implementation (i.e., late 1994 and early 1995). The wider range of APs used in the current study may also be responsible for some of the differences between the results of this analysis and the prior study.

Table 5-1. Regression of Assault Pistol and Comparison Handgun Prices on Annual Time Indicators, 1990-1999, Controlling for Gun Model

	Assault Pistols (n=40)		Comparison Handguns (n=38)	
	Estimate	**T Value**	**Estimate**	**T Value**
Constant	1.56	26.94***	-0.21	-6.81***
1990	0.04	1.07	0.12	2.07**
1991	0.01	0.30	0.09	1.79*
1992	-0.01	-0.32	0.05	1.30
1993	-0.03	-1.09	0.02	0.48
1995	0.01	0.22	-0.02	-0.48
1996	-0.01	-0.45	-0.09	-2.69***
1997	-0.03	-1.13	-0.11	-3.26***
1998	0.00	-0.10	-0.07	-1.99*
1999	-0.02	-0.58	-0.14	-4.02***
Tec-9	-0.67	-11.95***		
Tec-22	-0.89	-15.59***		
SWD	-0.64	-11.49***		
Davis P32			0.09	3.63***
Davis P380			0.20	8.20***
Lorcin L380			0.29	11.35***
F value	27.79		16.24	
(p value)	<.01		<.01	
Adj. R-square	0.89		0.83	

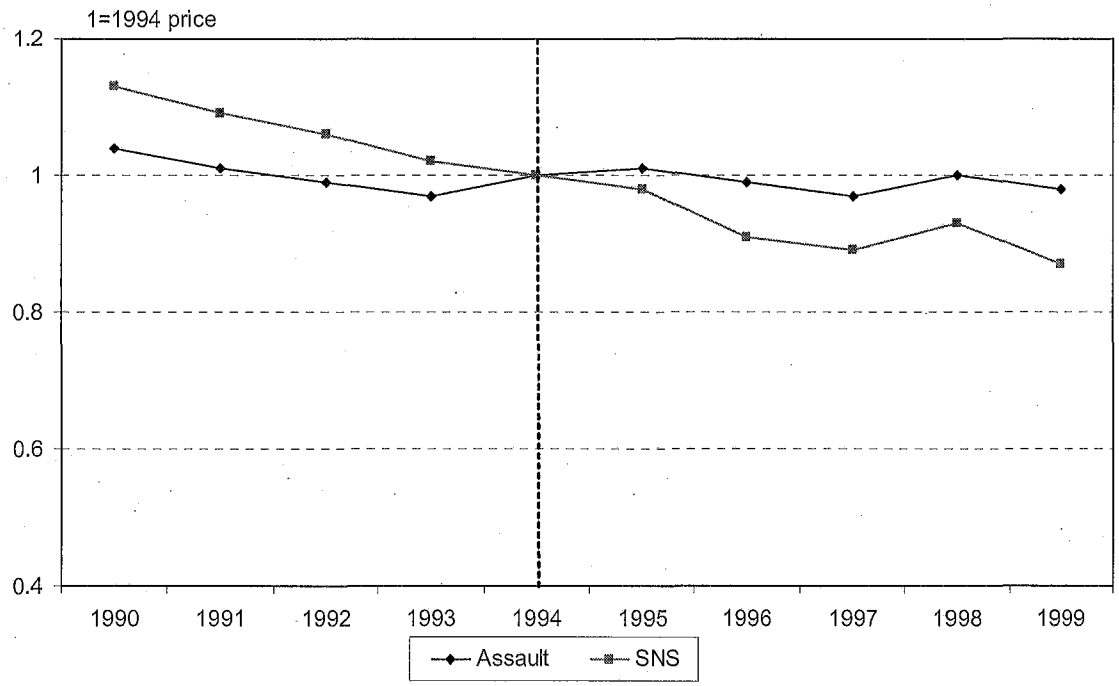
Time indicators are interpreted relative to 1994. Assault pistol model indicators are interpreted relative to Calico 9mm. Comparison handgun models are interpreted relative to Lorcin .25 caliber.

* Statistically significant at p<=.10.

** Statistically significant at p<=.05.

*** Statistically significant at p<=.01.

Figure 5-1. Annual Price Trends for Assault Pistols and SNS Handguns, 1990-1999



Assault pistol prices basd on TEC9, TEC22, SWD M11/9, and Calico M950. SNS prices based on Davis P32 and P380 and Lorcin L25 and L380.

5.1.2. Comparison Handgun Prices

For comparison, Table 5-1 and Figure 5-1 illustrate price trends for a number of non-banned, cheaply priced, and readily concealable semiautomatic handgun models: the Davis P32 and P380 and the Lorcin L25 and L380. Such guns are often referred to as Saturday night specials (SNS). By a number of accounts, SNS-type guns, and Davis and Lorcin models in particular, are among the guns most frequently used in crime (ATF, 1995; 1997; Kennedy et al., 1996; Wintemute, 1994). Although the differences between APs and SNS handguns (particularly the fact that most SNS handguns do not have LCMs) suggest they are likely to be used by gun consumers with different levels of firearms experience and sophistication, the SNS guns are arguably a good comparison group for APs because both groups of guns are particularly sensitive to criminal demand. Like AP buyers, SNS buyers are more likely than other gun buyers to have criminal histories and to be charged with new offenses, particularly violent or firearm offenses, subsequent to their purchases (Wintemute et al., 1998b).

Prices of SNS handguns dropped notably throughout the 1990s. Prices for SNS handguns were 13% higher in 1990 than in 1994. Prices then dropped another 13% from 1994 to 1999. This suggests that although AP prices remained generally stable throughout the 1990s, they increased relative to prices of other guns commonly used in crime. We say more about this below.

5.1.3. Assault Rifle Prices

To assess trends in prices of ARs, we examined prices for several Colt and Olympic rifle models in the AR-15 class, as well as Calico models M900 and M951 and Feather models AT9 and AT22.[30] Because rifle production data are not disaggregated by weapon type (semiautomatic, bolt action, etc.), caliber, or model, the regressions could only be weighted using overall rifle production counts for each company. For this reason, we calculated the average price of the ARs made by each company for each year and modeled the trends in these average prices over time, weighting by each company's total rifle production.[31]

Results shown in Table 5-2 and Figure 5-2 demonstrate that AR prices rose significantly during 1994 and 1995 before falling back to pre-ban levels in 1996 and remaining there through 1999. Prices rose 16% from 1993 to 1994 and then increased another 13% in 1995 (representing an increase of nearly one third over the 1993 level). Yet by 1996, prices had fallen to levels virtually identical to those before 1994. These patterns are consistent with those we found earlier for the 1992-1996 period (Roth and Koper, 1997, Chapter 4), though the annual price fluctuations shown here were not as dramatic as the quarterly changes shown in the earlier study.

Note, however, that these patterns were not uniform across all of the AR categories. The results of the model were driven largely by the patterns for Colt rifles, which are much more numerous than the other brands. Olympic rifles increased in price throughout the time period, while prices for most Calico and Feather rifles tended to fall throughout the 1990s without necessarily exhibiting spikes around the time of the ban.

[30] Specifically, we tracked prices for the Match Target Lightweight (R6530), Target Government Model (R6551), Competition H-Bar (R6700), and Match Target H-Bar (R6601) models by Colt and the Ultramatch, Service Match, Multimatch M1-1, AR15, and CAR15 models by Olympic Arms. Each of these models has a modified, post-ban version. We utilized prices for the pre-ban configurations during post-ban years.

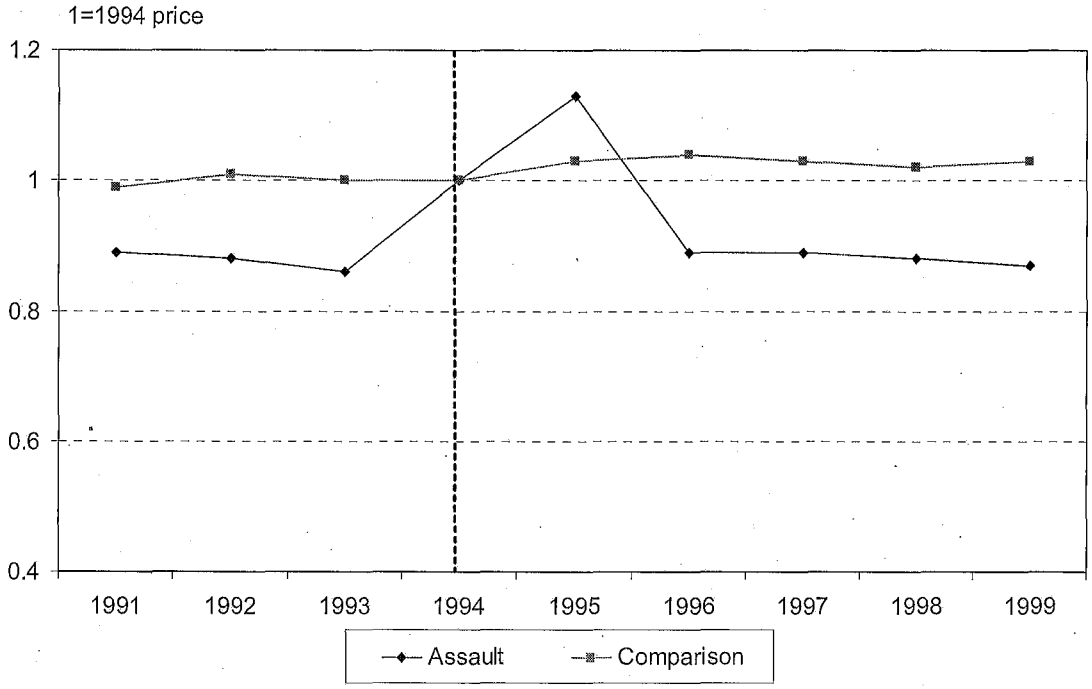
[31] Prices for the different models made by a given manufacturer tended to follow comparable trends, thus strengthening the argument for averaging prices.

Table 5-2. Regression of Assault Rifle and Comparison Semiautomatic Rifle Prices on Annual Time Indicators, 1991-1999, Controlling for Gun Make

	Assault Rifles (n=36)		Comparison Rifles (n=27)	
	Estimate	**T value**	**Estimate**	**T value**
Constant	1.31	21.15***	1.40	76.75***
1991	-0.12	-1.98*	-0.01	-0.21
1992	-0.13	-2.26**	0.01	0.30
1993	-0.15	-2.78**	0	-0.13
1995	0.12	2.47**	0.03	1.08
1996	-0.11	-2.27**	0.04	1.69
1997	-0.11	-2.23**	0.03	1.46
1998	-0.12	-2.47**	0.02	0.91
1999	-0.14	-2.71**	0.03	1.21
Colt (AR-15 type)	1.07	19.93***		
Olympic (AR-15 type)	1.14	16.08***		
Calico	0.43	5.53***		
Ruger			0.26	20.07***
Remington			0.29	21.69***
F statistic (p value)	50.52 <.01			63.62 <.01
Adj. R-square	0.94			0.96

Time indicators interpreted relative to 1994. Assault rifle makes interpreted relative to Feather.
Comparison rifle makes interpreted relative to Marlin.
* Statistically significant at p<=.10.
** Statistically significant at p<=.05.
*** Statistically significant at p<=.01.

Figure 5-2. Annual Price Trends for Assault Rifles and Comparison Semiautomatic Rifles, 1991-1999



Assault rifle prices based on Colt and Olympic AR-type, Calico, and Feather models. Comparison rifle prices based on selected Remington, Marlin, and Sturm Ruger models.

5.1.4. Comparison Semiautomatic Rifles.

The analysis of comparison rifle prices includes the Remington 7400, Marlin Model 9, and Sturm Ruger Mini-14 and Mini-30 models (the Ruger model prices were averaged for each year). The AW legislation exempted each of these semiautomatic rifles by name, though the exemption does not apply to Mini-14 models with folding stocks (a feature included in the ban's features test). The Ruger models are of particular interest since they are among only four exempted guns that can accept LCMs made for military rifles (U.S. Department of the Treasury, 1998, p. 23), though Ruger produced LCMs only for the Mini-14 model and substituted a 5-round magazine for this gun in 1989 (Fjestad, 2002, pp. 1361-1362). The Marlin model was also manufactured with an LCM prior to 1990 (Fjestad, 2002, p. 917). The Remington model is manufactured with a detachable 4-round magazine.

Prices for these guns remained steady throughout the decade (see Table 5-2 and Figure 5-2). The largest change was a 4% increase (non-significant) in prices in 1996 relative to prices in 1994. Therefore, the rifle price spikes in 1994 and 1995 were specific to assault rifles. However, the steady annual price trends may mask short-term fluctuations that we found

previously (Roth and Koper, 1997, Chapter 4) for some non-banned semiautomatic rifles (including the Ruger Mini-14) during 1994 and early 1995.[32]

5.2. Production Trends for Assault Weapons and Other Firearms

To more fully assess the ban's effects on gun markets, examination of pre and post-ban trends in production of AWs and legal AW substitutes is a useful complement to studying price trends. Our earlier work revealed a spike in AW production during 1994 as the ban was being debated. Post-ban production of legal AW substitutes should reveal additional information about the reaction of gun markets to the ban. If production of these models has fallen off dramatically, it may suggest that the market for AWs has been temporarily saturated and/or that consumers of AWs favor the original AW models that have more military-style features. Stable or rising production levels, on the other hand, may indicate substantial consumer demand for AW substitutes, which would suggest that consumers consider the legal substitute models to be as desirable as the banned models.

5.2.1. Production of Assault Pistols and Other Handguns

Figure 5-3 presents production trends for a number of domestic AP manufacturers from 1985 through 2001 (the most recent year available for data on individual manufacturers).[33] After rising in the early 1990s and surging notably to a peak in 1994, production by these companies dropped off dramatically, falling 80% from 1993-1994 to 1996-1997 and falling another 35% by 1999-2000 (Table 5-3).[34] Makers of Intratec and SWD-type APs continued manufacturing modified versions of their APs for at least a few years following the ban, but at much lower volumes than that at which they produced APs just prior to the ban. Companies like AA Arms and Calico produced very few or no AP-type pistols from 1995 onward, and Intratec – producers of the APs most frequently used in crime – went out of business after 1999.

However, the pattern of rising and then falling production was not entirely unique to APs. Table 5-3 shows that production of all handguns and production of SNS-type pistols both declined sharply in the mid to late 1990s following a peak in 1993. Nonetheless, the trends –

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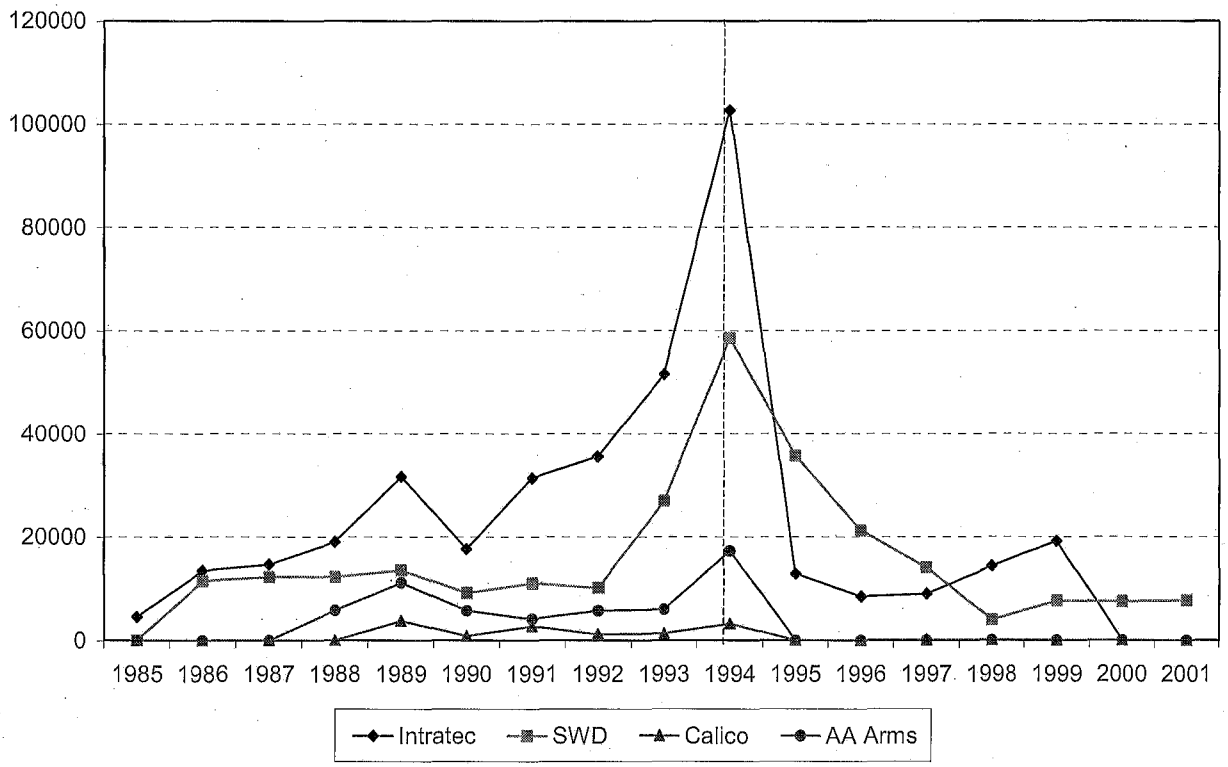
[32] We attributed those short-term fluctuations to pre-ban uncertainty regarding which semiautomatic rifles would be prohibited by the ban. Also note that the prior findings were based on a different set of comparison semiautomatic rifles that included a number of foreign rifles. We concentrated on domestically produced rifles for this updated analysis in order to make more explicit links between rifle price and production trends (data for the latter are available only for domestic firearms).

[33] Production figures for individual manufacturers through 2000 have been compiled by the Violence Policy Center (2002). Year 2001 data are available from ATF via the Internet (see www.atf.treas.gov). National gun production totals through 1998 are also available from ATF (2000, p. A-3).

[34] The assault pistol production figures used here and in the price analysis include 9mm and .22 caliber pistols made by Intratec, 9mm pistols manufactured by AA Arms, all non-.22 caliber pistols manufactured by S.W. Daniels, Wayne Daniels, and Military Armaments Corporation (which together constitute the SWD group), and .22 and 9mm pistols manufactured by Calico. Intratec produces a few non-AW models in .22 and 9mm calibers, so the Intratec figures will overstate production of assault pistols and their legal substitutes to some degree. The comparison, SNS production figures are based on all handguns produced by Lorcin Engineering and Davis Industries.

both peak and decline – were more dramatic for APs than for other handguns. Production of APs rose 69% from 1990-1991 to 1993-1994, while SNS production and overall handgun production each increased 47%. From 1993-1994 to 1996-1997, production of AP-type handguns, SNS models, and all handguns declined 80%, 66%, and 47%, respectively. Further, production of AP-type handguns continued to decline at a faster rate than that of other handguns through the end of the decade.[35]

Figure 5-3. Assault Pistol Production, 1985-2001



[35] Lorcin, a prominent SNS brand that we examined for the price and production analyses, went out of business after 1998. Unlike the situation in the AP market (where, to our knowledge, former AP makers have not been replaced on any large scale), the SNS market appears to have compensated somewhat to offset the loss of Lorcin. The SNS change from 1996-1997 to 1999-2000 is based on examination of a larger group of SNS-type makers, including Lorcin, Davis, Bryco, Phoenix Arms, and Hi-Point. Production among this group declined by 22% from 1996-1997 to 1999-2000, a decline greater than that for total handgun production but less than that for AP-type production.

Table 5-3. Production Trends for Assault Weapons and Other Firearms, 1990-2000*

Firearm Category	% Change 1990/91 to 1993/94	% Change 1993/94 to 1996/97	% Change 1996/97 to 1999/2000
Total Handguns	47%	-47%	-10%
Assault Pistols (or Post-Ban Models)	69%	-80%	-35%
SNS Handguns	47%	-66%	-22%
Total Rifles	22%	8%	18%
Assault Rifles (or Post-Ban Models)	81%	-51%	156%
Comparison Rifles	15%	13%	-16%

* Total handgun and rifle figures include all production by U.S. manufacturers. Assault pistols include Intratec group, SWD group, and Calico models. SNS figures are based on Lorcin Engineering and Davis Industries for changes up through 1996-1997. Because Lorcin went out of business after 1998, the SNS change from 1996-1997 to 1999-2000 is based on a larger group of SNS makers including Lorcin, Davis, Bryco, Phoenix Arms, and Hi-Point. Assault rifles include AR-15 type models by Colt and others. Comparison rifles include Sturm Ruger, Remington, and Marlin.

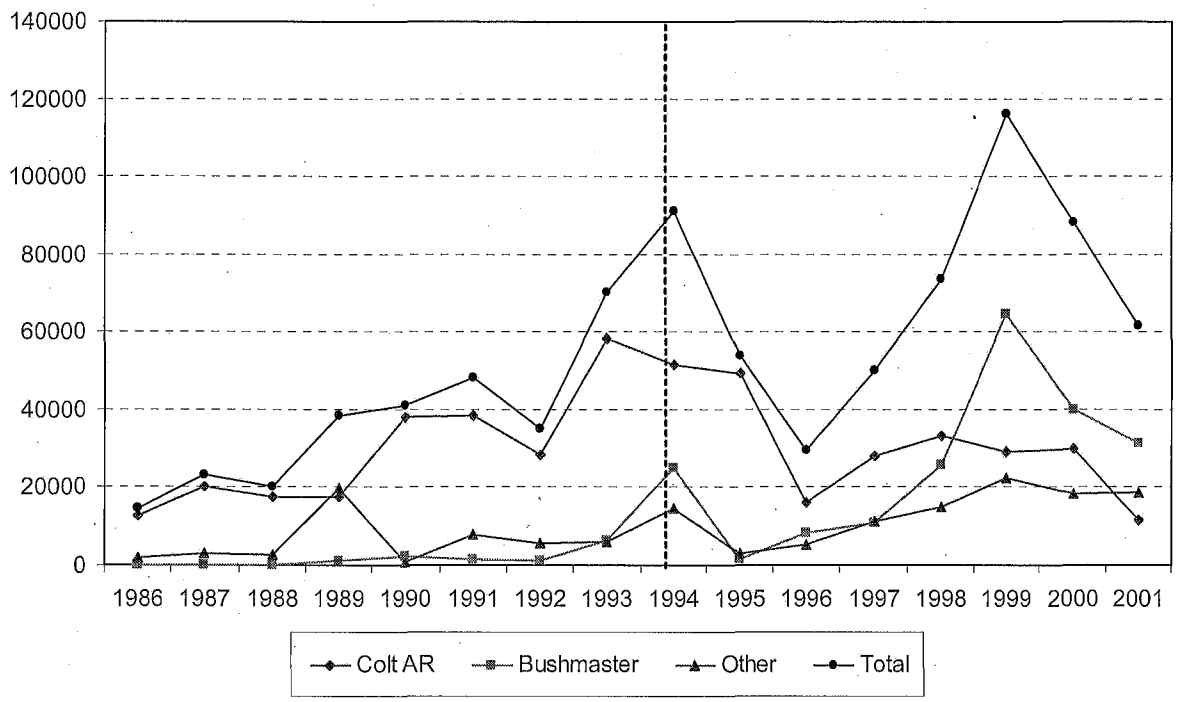
5.2.2. Production of Assault Rifles and Other Rifles

As shown in Figure 5-4, production of AR-15 type rifles surged during the early 1990s, reaching a peak in 1994.[36] AR production during the early 1990s rose almost 4 times faster than total rifle production and over 5 times faster than production of the comparison rifles examined in the price analysis (Table 5-3). Yet, by 1996 and 1997, production of legalized AR-type rifles had fallen by 51%, as production of other rifles continued increasing. AR production trends reversed again during the late 1990s, however, rising over 150%.[37] Total rifle production increased much more modestly during this time (18%), while production of the comparison rifles declined.

[36] Note again that the AR and legalized AR production figures are approximations based on all rifles produced by the companies in question (rifle production data are not available by type, caliber, or model), but it appears that most rifles made by these companies during the study period were AR-type rifles. Also, the figures for the comparison rifle companies (Ruger, Marlin, and Remington) are based on all rifles produced by these companies (the price analysis focused on selected semiautomatic models).

[37] There was also a notable shift in market shares among AR makers, as Bushmaster overtook Colt as the leading producer of AR-15 type rifles (Figure 5-4).

Figure 5-4. Assault Rifle Production, 1986-2001 (AR-15 Type)



Other: Olympic, Eagle/Armalite, DPMS, Essential Arms, Sendra.

5.3. Summary and Interpretations

Below, we offer some interpretations of the patterns found in the price and production analyses, keeping in mind that these analyses were largely descriptive, so causal inferences must be made cautiously. As documented in our earlier study, Congressional debate over the AW-LCM ban triggered speculative price increases for AWs in the months leading up to the ban's enactment. This study's examination of longer-term, annual price trends suggests that this speculative effect was very brief (and perhaps quite variable across jurisdictions) for APs but persisted through 1995 for ARs. This implies that speculators and sophisticated gun collectors (who we suspect played a large role in driving price trends) have more interest in ARs, which tend to be higher in quality and price than APs.

Responding to the speculative price growth, AW manufacturers boosted their production of AWs in 1994. Although total handgun and rifle production were increasing during the early 1990s, the rise in AW production was steeper, and there was a production peak unique to AWs in 1994 (production of other handguns peaked in 1993). It seems that this boost in the supply of grandfathered AWs was sufficient to satisfy speculative demand, thereby restoring national average AP prices to pre-ban levels within a year of the ban and doing the same for AR prices by 1996. AW prices remained stable through the late 1990s, and production of legalized AW-type weapons dropped off

substantially, at least through 1998. This suggests that the supply of grandfathered AWs was sufficient to meet demand through the late 1990s.

However, prices of APs rose relative to other handguns commonly used in crime during the 1990s. Handgun prices and production declined in general during the late 1990s, implying a decrease in demand for APs and other handguns that probably stemmed from the nation's declining crime rates.[38] But the AW ban's restriction of the AP supply, combined with the interest of speculators and collectors in these guns, may have prevented AP prices from falling as did prices for other handguns. The market patterns also suggest that consumers of APs are not as easily satisfied by legalized APs with fewer military-style features; despite the increasing value of APs (in relative terms), post-ban production of legalized APs declined faster than did production of other handguns, and some AP makers went out of business.

Prices of ARs, on the other hand, remained steady during the late 1990s (after the speculative price bubble of 1994-1995) both in absolute terms and relative to other rifles. The failure of AR prices to rise in at least relative terms, as occurred for APs, and the temporary drop in production of AR-type rifles after the ban may signify that the AR market was saturated relative to the AP market for a least a number of years following the ban. However, demand for AR-type rifles later rebounded, as evidenced by the resurgence in production of legalized, AR-type rifles in the late 1990s. In fact, more of these guns were produced in 1999 than in 1994. Unlike AP users, therefore, rifle users appear to be readily substituting the legalized AR-type rifles for the banned ARs, which may be another factor that has kept prices of the latter rifles from rising. All of this suggests that rifle owners, who have a lower prevalence of criminal users than do handgun owners, can more easily substitute rifles with fewer or no military features for the hunting and other sporting purposes that predominate among rifle consumers.

Another relevant factor may have been a surge in the supply of foreign semiautomatic rifles that can accept LCMs for military weapons (the LCMM rifles discussed in Chapter 2) during the early 1990s. Examples of LCMM rifles include legalized versions of banned AK-47, FN-FAL, and Uzi rifles. Importation of LCMM rifles rose from 19,147 in 1991 to 191, 341 in 1993, a nine-fold increase (Department of the Treasury, 1998, p. 34). Due to an embargo on the importation of firearms from China (where many legalized AK-type rifles are produced), imports of LCMM rifles dropped

[38] It seems likely that the rise and fall of handgun production was linked to the rising crime rates of the late 1980s and early 1990s and the falling crime rates of the mid and late 1990s. Self-defense and fear of crime are important motivations for handgun ownership among the general population (e.g., Cook and Ludwig, 1996; McDowall and Loftin, 1983), and the concealability and price of handguns make them the firearms of choice for criminal offenders. It is likely that the peak in 1993 was also linked to the Congressional debate and passage of the Brady Act, which established a background check system for gun purchases from retail dealers. It is widely recognized in the gun industry that the consideration of new gun control legislation tends to increase gun sales.

The decline in production was more pronounced for SNS handguns, whose sales are likely to be particularly sensitive to crime trends. Criminal offenders make disproportionate use of these guns. We can also speculate that they are prominent among guns purchased by low-income citizens desiring guns for protection. In contrast, the poor quality and reliability of these guns make them less popular among more knowledgeable and affluent gun buyers.

back down to 21,261 in 1994. Importation of all foreign LCMM rifles was ended by federal executive order in 1998.

ATF has reported that criminal use of LCMM rifles increased more quickly during the early 1990s than did that of other military-style rifles (U.S. Department of the Treasury, 1998, p. 33; also see Chapter 6). Accordingly, it is possible that the availability of LCMM rifles also helped to depress the prices of domestic ARs and discourage the production of legalized ARs during the 1990s, particularly if criminal users of rifles place a premium on the ability to accept LCMs. It is noteworthy, moreover, that the rebound in domestic production of legalized ARs came on the heels of the 1998 ban on LCMM rifles, perhaps suggesting the LCMM ban increased demand for domestic rifles accepting LCMs.

In sum, this examination of the AW ban's impact on gun prices and production suggests that there has likely been a sustained reduction in criminal use of APs since the ban but not necessarily ARs. Since most AWs used in crime are APs, this should result in an overall decline in AW use. In the following chapter, we examine the accuracy of this prediction.

6. CRIMINAL USE OF ASSAULT WEAPONS AFTER THE BAN

6.1. Measuring Criminal Use of Assault Weapons: A Methodological Note

In this chapter, we examine trends in the use of AWs using a number of national and local data sources on guns recovered by law enforcement agencies (we focus on the domestic AW models discussed at the beginning of the previous chapter). Such data provide the best available indicator of changes over time in the types (and especially the specific makes and models) of guns used in violent crime and possessed and/or carried by criminal and otherwise deviant or high-risk persons. The majority of firearms recovered by police are tied to weapon possession and carrying offenses, while the remainder are linked primarily to violent crimes and narcotics offenses (e.g., see ATF, 1976; 1977; 1997; Brill, 1977). In general, up to a quarter of guns confiscated by police are associated with violent offenses or shots fired incidents (calculated from ATF, 1977, pp. 96-98; 1997; Brill, 1977, pp. 24,71; Shaw, 1994, pp. 63, 65; also see data presented later in this chapter). Other confiscated guns may be found by officers, turned in voluntarily by citizens, or seized by officers for temporary safekeeping in situations that have the potential for violence (e.g., domestic disputes).

Because not all recovered guns are linked to violent crime investigations, we present analyses based on all gun recoveries and gun recoveries linked to violent crimes where appropriate (some of the data sources are based exclusively, or nearly so, on guns linked to violent crimes). However, the fact that a seized gun is not clearly linked to a violent crime does not rule out the possibility that it had been or would have been used in a violent crime. Many offenders carry firearms on a regular basis for protection and to be prepared for criminal opportunities (Sheley and Wright, 1993a; Wright and Rossi, 1986). In addition, many confiscated guns are taken from persons involved in drugs, a group involved disproportionately in violence and illegal gun trafficking (National Institute of Justice, 1995; Sheley and Wright, 1993a). In some instances, criminal users, including those fleeing crime scenes, may have even possessed discarded guns found by patrol officers. For all these reasons, guns recovered by police should serve as a good approximation of the types of guns used in violent crime, even though many are not clearly linked to such crimes.

Two additional caveats should be noted with respect to tracking the use of AWs. First, we can only identify AWs based on banned makes and models. The databases do not contain information about the specific features of firearms, thus precluding any assessment of non-banned gun models that were altered after purchase in ways making them illegal. In this respect, our numbers may understate the use of AWs, but we know of no data source with which to evaluate the commonality of such alterations. Second, one cannot always distinguish pre-ban versions of AWs from post-ban, legalized versions of the same weapons based on weapon make and model information (this occurs when the post-ban version of an AW has the same name as the pre-ban version), a factor which may have caused us to overstate the use of AWs after the ban. This was more of a problem for our assessment of ARs, as will be discussed below.

Finally, we generally emphasize trends in the percentage of crime guns that are AWs in order to control for overall trends in gun violence and gun recoveries. Because gun violence was declining throughout the 1990s, we expected the number of AW recoveries to drop independently of the ban's impact.

6.2. National Analysis of Guns Reported By Police to the Federal Bureau of Alcohol, Tobacco, and Firearms

6.2.1. An Introduction to Gun Tracing Data

In this section, we examine national trends in AW use based on firearm trace requests submitted to ATF by federal, state, and local law enforcement personnel throughout the nation. A gun trace is an investigation that typically tracks a gun from its manufacture to its first point of sale by a licensed dealer. Upon request, ATF traces guns seized by law enforcement as a service to federal, state, and local agencies. In order to initiate a trace on a firearm, the requesting law enforcement agency provides information about the firearm, such as make, model, and serial number.

Although ATF tracing data provide the only available national sample of the types of guns used in crime and otherwise possessed or carried by criminal and high-risk groups, they do have limitations for research purposes. Gun tracing is voluntary, and police in most jurisdictions do not submit trace requests for all, or in some cases any, guns they seize. Crime and tracing data for 1994, for example, suggest that law enforcement agencies requested traces for 27% of gun homicides but only 1% of gun robberies and gun assaults known to police during that year (calculated from ATF, 1995 and Federal Bureau of Investigation, 1995, pp. 13, 18, 26, 29, 31, 32).

The processes by which state and local law enforcement agencies decide to submit guns for tracing are largely unknown, and there are undoubtedly important sources of variation between agencies in different states and localities. For example, agencies may be less likely to submit trace requests in states that maintain their own registers of gun dealers' sales. Knowledge of ATF's tracing capabilities and procedures,[39] as well as participation in federal/state/local law enforcement task forces, are some of the other factors that may affect an agency's tracing practices. Further, these factors are likely to vary over time, a point that is reinforced below.

Therefore, firearms submitted to ATF for tracing may not be representative of the

[39] To illustrate, ATF cannot (or does not) trace military surplus weapons, imported guns without the importer name (generally, pre-1968 guns), stolen guns, or guns without a legible serial number (Zawitz 1995). Tracing guns manufactured before 1968 is also difficult because licensed dealers were not required to keep records of their transactions prior to that time. Throughout much of the 1990s, ATF did not generally trace guns older than 5-10 years without special investigative reasons (Kennedy et al., 1996, p. 171). Our data are based on trace requests rather than successful traces, but knowledge of the preceding operational guidelines might have influenced which guns law enforcement agencies chose to trace in some instances.

types of firearms typically seized by police. In general, not much is known about the nature of potential bias in tracing data. In prior studies, however, AWs tended to be more common in tracing data than in more representative samples of guns confiscated by police (Kleck, 1997, pp. 112, 141). This suggests that police have been more likely historically to initiate traces for seized AWs than for other seized guns. Although comparisons across studies are complicated by varying definitions of AWs used in different analyses, studies of guns confiscated by police or used in particular types of crimes generally suggest that AWs accounted for up to 6% of crime guns and about 2% on average prior to the federal AW ban (see Chapter 3 and Kleck, 1997, p. 141), whereas studies of pre-ban tracing data indicated that 8% of traced guns, and sometimes as many as 11%, were AWs (Cox Newspapers, 1989; Lenett, 1995; Zawitz, 1995).

Changes over time in the tracing practices of law enforcement agencies present additional complexities in analyzing tracing data. Due to improvements in the tracing process, ATF promotional efforts, and special initiatives like the Youth Crime Gun Interdiction Initiative (see ATF, 1997; 1999 and more recent reports available via the Internet at www.atf.treas.gov),[40] the utilization of tracing grew substantially throughout the 1990s in jurisdictions that chose to participate (also see ATF, 2000; Roth and Koper, 1997). To illustrate, trace requests to ATF rose from roughly 42,300 in 1991 to 229,500 in 2002 (see Table 6-1 in the next section), an increase of 443%. This growth reflects changes in tracing practices (i.e., changes in the number of agencies submitting trace requests and/or changes in the percentage of recovered guns for which participating agencies requested traces) rather than changes in gun crime; gun homicides, for example, were falling throughout the 1990s (see Table 6-1 in the next section) and were a third lower in 2002 than in 1991.

Therefore, an increase in trace requests for AWs does not necessarily signal a real increase in the use of AWs. Further, examining trends in the percentage of trace requests associated with AWs is also problematic. Because law enforcement agencies were more likely to request traces for AWs than for other guns in years past, we can expect the growth rate in tracing for non-AWs to exceed the growth rate in traces for AWs as gun tracing becomes more comprehensive. Consequently, AWs are likely to decline over time as a share of trace requests due simply to reporting effects, except perhaps during periods when AWs figure prominently in public discourse on crime.[41]

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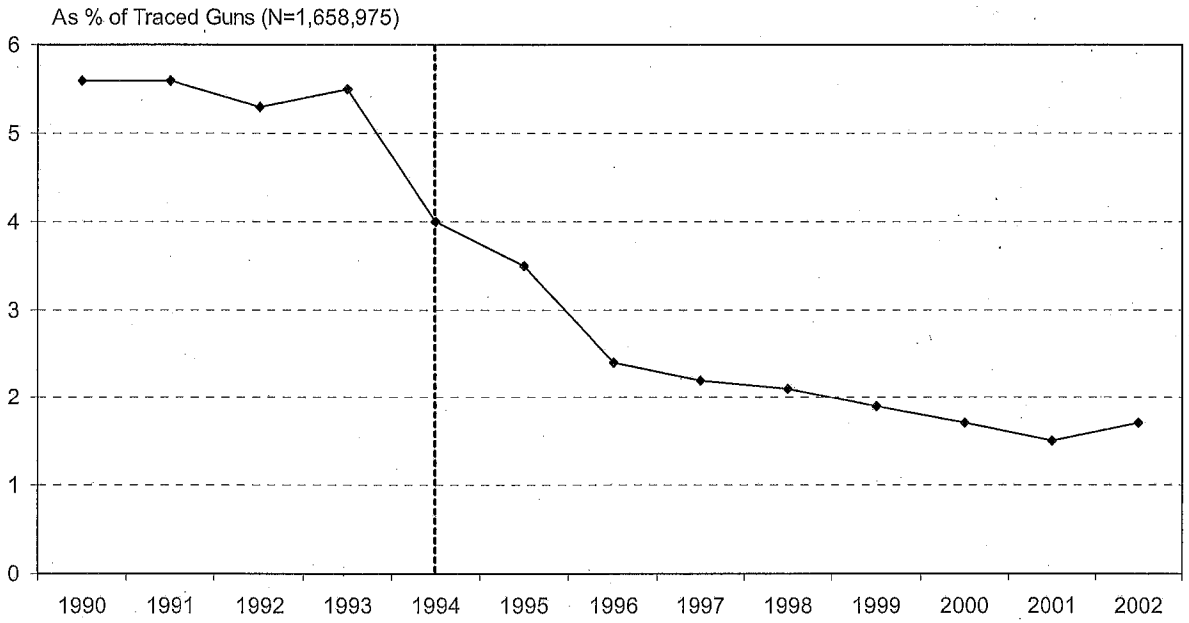
[40] As part of this initiative, police in a few dozen large cities are submitting trace requests to ATF for all guns that they confiscate. The initiative began with 17 cities in 1996 and has since spread to 55 major urban jurisdictions.

[41] To illustrate, assume that a hypothetical police agency recovers 100 guns a year, 2 of which are AWs, and that the agency has a selective tracing policy that results in the submission of trace requests for 20 of the guns, including 1 of the recovered AWs. Under this scenario, the department would be almost three times as likely to request traces for AWs as for other guns. If the department adopted a policy to request traces on all guns (and again recovered 2 AWs and 98 other guns), AW traces would double and traces of other guns would increase by more than 400%. Moreover, AWs would decline from 5% of traced guns to 2% of traced guns due simply to the change in tracing policy.

6.2.2. Traces of Assault Weapons, 1990-2002

Figure 6-1 illustrates the share of all traces that were for AWs from 1990 through 2002. A more detailed assessment of annual changes in traces for AWs and other guns is presented in Table 6-1. Changes in gun murders are also shown in Table 6-1 to emphasize the differences in trends for tracing and gun crime. Below, we summarize key points from the analysis. Due to the instrumentation problems inherent in tracing data, statistical tests are not presented.[42]

Figure 6-1. Police Recoveries of Assault Weapons Reported to ATF (National), 1990-2002



Includes Intratec group, SWD group, AR-15 group, and selected Calico and Feather models.

[42] Nearly 30% of the tracing records lack specific gun model designations (the crucial elements for conducting a trace are the gun make and serial number). For the makes and types of guns likely to be AWs, however, the missing model rate was slightly under 10%. Further, we were able to identity some of the latter weapons as AWs with reasonable confidence based on the makes, types, and calibers alone. Nevertheless, we conducted a supplemental analysis using only those records for which the gun model was identified. The results of that analysis were substantively very similar to those presented below.

Table 6-1. Annual Percentage Changes in Gun Murders and Police Requests to ATF for Traces of Assault Weapons and Other Firearms, 1991-2002 (Number of Traces in Parentheses)

Year	Gun Murders (1)	All Traces (2)	AW Traces* (3)	AP Traces (4)	AR Traces (5)	AW and AW Substitute Traces (6)	Violent Crime Traces (7)	AW Violent Crime Traces (8)	LCMM Rifle Traces** (9)
1991	9%	14% (42281)	14% (2378)	24% (1775)	-6% (603)	14% (2378)	19% (6394)	20% (344)	--
1992	-1%	6% (44992)	1% (2398)	4% (1838)	-7% (560)	1% (2398)	3% (6558)	7% (367)	--
1993	5%	20% (54189)	25% (2994)	20% (2199)	42% (795)	25% (2994)	26% (8248)	41% (516)	252% (183)
1994	-4%	53% (82791)	11% (3337)	23% (2706)	-21% (631)	11% (3337)	22% (10083)	-18% (424)	223% (592)
1995	-10%	-6% (77503)	-19% (2730)	-24% (2051)	8% (679)	-18% (2747)	23% (12439)	-15% (362)	-10% (530)
1996	-9%	66% (128653)	12% (3059)	13% (2309)	10% (750)	17% (3214)	67% (20816)	27% (459)	40% (743)
1997	-7%	42% (183225)	31% (4019)	31% (3017)	34% (1002)	36% (4362)	11% (23147)	13% (519)	24% (925)
1998	-11%	5% (192115)	0% (4014)	-9% (2751)	26% (1263)	7% (4681)	3% (23844)	-22% (404)	33% (1227)
1999	-8%	-2% (188296)	-11% (3581)	-12% (2414)	-8% (1167)	-6% (4406)	3% (24663)	0% (404)	-18% (1003)
2000	1%	-3% (182961)	-11% (3196)	-16% (2027)	0% (1169)	-6% (4143)	-13% (21465)	-25% (305)	-14% (859)
2001	-1%	18% (215282)	1% (3238)	5% (2138)	-6% (1100)	3% (4273)	20% (25822)	6% (322)	-3% (833)
2002	6%	7% (229525)	19% (3839)	4% (2214)	48% (1625)	12% (4765)	20% (30985)	65% (531)	4% (865)

* Based on Intratec group, SWD group, AR-15 group, and Calico and Feather models.
** Foreign semiautomatic rifles accepting large capacity military magazines (banned by executive order in 1998). (Data are not shown for 1991 and 1992 because very few of these guns were traced in those years.)

6.2.2.1. Assault Weapons as a Percentage of Crime Gun Traces

As shown in Figure 6-1, AWs declined from 5.4% of crime gun traces in 1992-1993 to 1.6% in 2001-2002, a decline of 70%. Although this downward trend could be attributable in large part to changes in tracing practices, it is noteworthy that it did not begin until 1994 (the year of the ban); during the pre-ban years, 1990 to 1993, AWs accounted for a steady share of traces despite a 46% increase in total tracing volume. It is also remarkable that about 3,200 AWs were traced in both 2000 and 2001, which is virtually identical to the average number traced during 1993 and 1994 (3,166) even though total traces increased more than 190% during the same period (Table 6-1, columns 2 and 3).[43]

6.2.2.2. Annual Changes in Traces for Assault Weapons and Other Guns

Throughout most of the post-ban period (particularly 1995 to 2001), AW traces either increased less or declined more than total traces (Table 6-1, columns 2 and 3), a pattern that is also consistent with a decline in the use of AWs relative to other guns, though it too may be distorted by changes in tracing practices. This pattern was largely consistent whether analyzing all traces or only traces associated with violent crimes (columns 7 and 8).[44]

The years when total traces declined or were relatively flat are arguably the most informative in the series because they appear to have been less affected by changes in tracing practices. For example, there was a 6% decline in total trace requests from 1994 to 1995 (the years featured in our earlier study) that coincided with a 10% drop in gun murders (Table 6-1, column 1). Therefore, it seems tracing practices were relatively stable (or, conversely, reporting effects were relatively small) from 1994 to 1995. The 19% reduction in AW traces during this same period implies that AW use was declining faster than that of other guns. Furthermore, there were fewer AW traces in 1995 than in 1993, the year prior to the ban. The fact that this occurred during a period when the AW issue was very prominent (and hence police might have been expected to trace more of the AWs they recovered) arguably strengthens the causal inference of a ban effect.[45]

Total traces also declined slightly (2%-3%) in 1999 and 2000. In each of those years, the decline was greater for AWs (11%). Thus, in years when tracing declined overall, AW traces fell 3 to 6 times faster than did total traces. Put another way, AWs fell between 9% and 13% as a percentage of all traces in each of these years.

The general pattern of AW traces increasing less or declining more than those of

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[43] These general findings are consistent with those of other tracing analyses conducted by ATF (2003 Congressional Q&A memo provided to the author) and the Brady Center to Prevent Gun Violence (2004).

[44] A caveat is that requests without specific crime type information are often grouped with weapons offenses (ATF, 1999). Therefore, traces associated with violent crimes are likely understated to some degree.

[45] This inference is also supported by our earlier finding that trace requests for AWs declined by only 8% in states that had their own AW bans prior to the federal ban (Roth and Koper, 1997, Chapter 5).

other crime guns was clearly apparent for APs but less consistent for ARs (Table 6-1, columns 4 and 5). For example, AR traces went up 26% in 1998 while total traces went up only 5% and AP traces declined 9%. In 2000, total and AP traces fell 3% and 16%, respectively, but AR traces remained flat. This is consistent with predictions derived from the price and production analyses described above. But note that the post-ban AR counts could be overstated because the data do not distinguish pre-ban from post-ban versions of some popular AR-15 type rifles like the Colt Sporter and Bushmaster XM-15. (Also note that the percentage of traces for ARs did fall from 1.4% in 1992-1993 to 0.6% in 2001-2002.)

More generally, the use of post-ban AW-type weapons (including both legalized APs and ARs) has not been widespread enough to completely offset the apparent decline in the use of banned AWs. Combined traces for banned AWs and AW substitutes (Table 6-1, column 6) also followed the pattern of increasing less or declining more than did total traces throughout most of the period, though the differences were not as pronounced as those between AWs and total traces. In 1999 and 2000, for example, AWs traces dropped 11%, while combined traces for AWs and legal substitutes declined only 6%. Still, the latter figure was greater than the 2%-3% drop for total traces.

Finally, traces of the LCMM rifles banned by executive order in 1998 were generally rising to that point, reaching levels as high as those for AR-15 type rifles (Table 6-1, column 9). Since 1998, however, the number of traces for LCMM rifles has fallen substantially. Despite a 4% increase from 2001 to 2002, the number of LCMM traces in 2002 (865) was 30% lower than the peak number traced in 1998 (1,227). Tentatively, this suggests that the 1998 extension of the ban has been effective in curtailing weapons that offenders may have been substituting for the ARs banned in 1994.

6.2.2.3. Did Use of Assault Weapons Rebound in 2002?

In 2002, tracing volume increased 7%, which closely matched the 6% increase in gun murders for that year. In contrast to the general pattern, AW traces increased by 19%, suggesting a possible rebound in AW use independent of changes in tracing practices, a development that we have predicted elsewhere (Roth and Koper, 1997) based on the boom in AW production leading up to the ban. The disproportionate growth in AW traces was due to ARs, however, so it could partially reflect increasing use of post-ban AR-type rifles (see the discussion above).

Moreover, this pattern could be illusory. With data from the most recent years, it was possible to run a supplementary analysis screening out traces of older weapons (not shown). Focusing on just those guns recovered and traced in the same year for 2000 through 2002 revealed that recoveries of AWs declined in 2001, more so for ARs (16%) than for APs (9%), while total traces increased 1%.[46] Traces for APs and ARs then

[46] The tracing database indicates when guns were recovered and when they were traced. However, the recovery dates were missing for 30% of the records overall and were particularly problematic for years prior to 1998. For this reason, the main analysis is based on request dates. The auxiliary analysis for 2000-

increased in 2002 (1% and 6%, respectively) but by less than total traces (8%). Therefore, the disproportionate growth in AR traces in 2002 shown in Table 6-1 may have been due to tracing of older AWs by newly participating police agencies.

6.2.2.4. Summary of the ATF Gun Tracing Analysis

Complexities arising from recent changes in the use of gun tracing by law enforcement warrant caution in the interpretation of ATF gun tracing data. Notwithstanding, the data suggest that use of AWs in crime, though relatively rare from the start, has been declining. The percentage of gun traces that were for AWs plummeted 70% between 1992-1993 and 2001-2002 (from 5.4% to 1.6%), and this trend did not begin until the year of the AW ban. On a year-to-year basis, AW traces generally increased less or declined by more than other gun traces. Moreover, in years when tracing volume declined – that is, years when changes in reporting practices were least likely to distort the data – traces of AWs fell 3 to 6 times faster than gun traces in general. The drop in AW use seemed most apparent for APs and LCMM rifles (banned in 1998). Inferences were less clear for domestic ARs, but assessment of those guns is complicated by the possible substitution of post-ban legal variations.

6.3. Local Analyses of Guns Recovered By Police

Due to concerns over the validity of national ATF tracing data for investigating the types of guns used in crime, we sought to confirm the preceding findings using local data on guns recovered by police. To this end, we examined data from half a dozen localities and time periods.

- All guns recovered by the Baltimore Police Department from 1992 to 2000 (N=33,933)
- All guns recovered by the Metro-Dade Police Department (Miami and Dade County, Florida) from 1990 to 2000 (N=39,456)
- All guns recovered by the St. Louis Police Department from 1992 to 2003 (N=34,143)
- All guns recovered by the Boston Police Department (as approximated by trace requests submitted by the Department to ATF) from 1991 to 1993 and 2000 to 2002 (N=4,617)[47]

2002 focuses on guns both recovered and traced in the same year because it is likely that some guns recovered in 2002 had not yet been traced by the spring of 2003 when this database was created. Using only guns recovered and traced in the same year should mitigate this bias.

[47] The Boston Police Department has been tracing guns comprehensively since 1991 (Kennedy et al., 1996). However, we encountered difficulties in identifying Boston Police Department traces for several years in the mid-1990s. For this reason, we chose to contrast the 1991 to 1993 period with the 2000 to 2002 period.

- Guns recovered during murder investigations in Milwaukee County from 1991 to 1998 (N=592)[48]
- Guns linked to serious crimes in Anchorage and other parts of Alaska and submitted to state firearm examiners for evidentiary testing from 1987 to 2000 (N=900)[49]

The selection of these particular locations and samples reflects data availability.[50] The locations were not selected randomly, and some of the samples are small for conducting trend analysis of relatively rare events (i.e., AW recoveries). Accordingly, we must use caution in generalizing the results to other places. However, the data sources reflect a wide geographic range and cover post-ban periods extending through at least the latter 1990s (and typically through the year 2000 or beyond). To the extent that the results are similar across these jurisdictions, therefore, we can have more confidence that they reflect national patterns.

In each jurisdiction, we examined pre-post changes in recoveries of AWs (focusing on the domestic AW group defined earlier) and substitution of post-ban AW models for the banned models. Where possible, we conducted separate analyses of all AW recoveries and those linked specifically to violent crimes.[51] We also differentiated between AP and AR trends using the larger databases from Baltimore, Miami, and St. Louis. But since most of these databases do not extend more than two years beyond 1998, we do not present analyses specifically for LCMM rifles.

Key summary results are summarized in Table 6-2, while more detailed results from each site appear at the end of the chapter in Tables 6-3 through 6-6 and Figures 6-2 through 6-6.[52] The number of AW recoveries declined by 28% to 82% across these

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[48] The data are described in reports from the Medical College of Wisconsin (Hargarten et al., 1996; 2000) and include guns used in the murders and other guns recovered at the crime scenes. Guns are recovered in approximately one-third of Milwaukee homicide cases.

[49] The data include guns submitted by federal, state, and local agencies throughout the state. Roughly half come from the Anchorage area. Guns submitted by police to the state lab are most typically guns that were used in major crimes against persons (e.g. murder, attempted murder, assault, robbery).

[50] We contacted at least 20 police departments and crime labs in the course of our data search, focusing much of our attention on police departments participating in ATF's Youth Crime Gun Interdiction Initiative (YCGII) (ATF, 1997; 1999). Departments participating in the YCGII submit data to ATF on all guns that they recover. Though the YCGII did not begin until 1996 (well after the implementation of the AW ban), we suspected that these departments would be among those most likely to have electronically-stored gun data potentially extending back in time to before the ban. Unfortunately, most of these departments either did not have their gun data in electronic format or could not provide data for other reasons (e.g., resource constraints). In the course of our first AW study (Roth and Koper, 1997), we contacted many other police departments that also did not have adequate data for the study.

[51] All of the Milwaukee and Anchorage analyses were limited to guns involved in murders or other serious crimes. Despite evidence of a decline, AW recoveries linked to violence were too rare in Boston to conduct valid test statistics.

[52] We omitted guns recovered in 1994 from both the pre and post-ban counts because the speculative price increases for AWs that occurred in 1994 (see previous section and Roth and Koper, 1997, Chapter 4) raise questions about the precise timing of the ban's impact on AW use during that year, thereby clouding the designation of the intervention point. This is particularly a concern for the Baltimore analysis due to a

locations and time periods, but the discussion below focuses on changes in AWs as a share of crime guns in order to control for general trends in gun crime and gun seizures. Prior to the ban, AWs ranged from about 1% of guns linked to violent crimes in St. Louis to nearly 6% of guns recovered in Milwaukee murder cases.[53]

AWs dropped as share of crime guns in all jurisdictions after the ban. Reductions ranged from a low of 17% in Milwaukee (based on guns linked to homicides) to a high of 72% in Boston (based on all crime guns) but were generally between 32% and 40%.[54, 55] A decline in the use of AWs relative to other guns was generally apparent whether examining all AW recoveries or just those linked to violent crimes.[56] An exception was in St. Louis, where

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state AP ban that took effect a few months prior to the federal AW ban.

[53] These figures should be treated as approximations of the prevalence of AWs. On the one hand, the numbers may understate the prevalence of AWs to a small degree because they are based on only the domestic AW group defined earlier. Based on analysis of national ATF gun tracing data, we estimated previously that the domestic AW group accounts for 82% of AWs used in crime (Roth and Koper, 1997, Chapter 5). To further test the reliability of this assessment, we investigated the prevalence of all banned AW models among guns recovered in Baltimore using an ATF list of all guns defined as AWs under the 1994 Crime Act criteria (118 model and caliber combinations). We chose the Baltimore database because it provides a complete inventory of guns recovered by police in that city during the study period and, having been maintained by crime lab personnel, is particularly thorough with regard to make and model identifications. Though there was some ambiguity in classifying a small number of AK-type semiautomatic rifles (there are many civilian variations of the AK-47 rifle, some of which were legal under the 1994 legislation), our examination suggested that the domestic AW group accounted for approximately 90% of the AWs recovered in Baltimore. (In addition, including all AWs had virtually no effect on the pre-post changes in AW use in Baltimore.) But as discussed previously, the counts could also overstate AW use to some degree because imprecision in the identification of gun models in some data sources may have resulted in some legalized firearms being counted as banned AWs.

[54] The AW counts for Miami also include Interdynamics KG9 and KG99 models. These models were produced during the early 1980s and were forerunners to the Intratec models (ATF restricted the KG9 during the early 1980s because it could be converted too easily to fully automatic fire). These weapons were very rare or non-existent in most of the local data sources, but they were more common in Miami, where Interdynamics was formerly based. Including these guns increased the AW count in Miami by about 9% but did not affect pre-post changes in AW recoveries.

[55] State AW legislation passed in Maryland and Massachusetts could have had some impact on AW trends in Baltimore and Boston, respectively. Maryland implemented an AP ban, similar in coverage to the federal AW ban, in June 1994 (Maryland has also required background checks for retail sales of a broader list of state-defined AWs since 1989), and Massachusetts implemented additional legislation on federally-defined AWs in late 1998. The timing and scope of these laws make them largely redundant with the federal ban, so they should not unduly complicate inferences from the analysis. However, Maryland forbids additional transfers of grandfathered APs, and Massachusetts has imposed additional requirements for possession and transfer of LCMs and guns accepting LCMs. Both states also have enhanced penalties for certain crimes involving APs, LCMs, and/or guns accepting LCMs. Hence, the ban on AWs was arguably strengthened in Baltimore and Boston, relative to the other jurisdictions under study. This does not appear to have affected trends in AW use in Baltimore, which were very similar to those found in the other study sites. However, use of AWs and combined use of AWs and post-ban AW substitutes declined more in Boston than in any other study site. Although the trends in Boston could reflect ongoing, post-2000 reductions in use of AWs and similar weapons (Boston was one of the only study sites from which we obtained post-2000 data), it is possible that the Massachusetts legislation was also a contributing factor.

[56] There may be some inconsistency across jurisdictions in the identification of guns associated with violent crimes. In Miami, for example, 28% of the guns had an offense code equal to "other/not listed," and this percentage was notably higher for the later years of the data series.

Table 6-2. Pre-Post Changes in Assault Weapons As a Share of Recovered Crime Guns For Selected Localities and Time Periods: Summary Results (Total Number of Assault Weapons for Pre and Post Periods in Parentheses) [a]

Locality and Time Period	AWs	AWs (Linked to Violence)	APs	ARs	AWs and Post-Ban Substitutes
Baltimore (all recoveries) pre=1992-1993, post=1995-2000	-34%*** (425)	-41%** (75)	-35%*** (383)	-24% (42)	-29%*** (444)
Miami-Dade (all recoveries) pre=1990-1993, post=1995-2000	-32%*** (733)	-39%*** (101)	-40%*** (611)	37%* (115)	-30%*** (746)
St. Louis (all recoveries) pre=1992-1993, post=1995-2003	-32%*** (306)	1% (28)	-34%*** (274)	10% (32)	-24%** (328)
Boston (all recoveries) pre=1991-1993, post=2000-2002	-72%*** (71)	N/A	N/A	N/A	-60%*** (76)
Milwaukee (recoveries in murder cases) pre=1991-1993, post=1995-1998	N/A	-17% (28)	N/A	N/A	2% (31)
Anchorage, AK (recoveries in serious crimes) pre=1987-1993, post=1995-2000	N/A	-40% (24)	N/A	N/A	-40% (24)

a. Based on Intratec group, SWD group, AR-15 group, and Calico and Feather models. See the text for additional details about each sample and Tables 6-3 through 6-6 for more detailed results from each locality.

* Statistically significant change at chi-square p level < .1

** Statistically significant change at chi-square p level < .05

*** Statistically significant change at chi-square p level < .01

AWs declined as share of all guns but not of guns linked to violent crimes, though the latter test was based on rather small samples.

These reductions were not due to any obvious pre-ban trends (see Figures 6-2 through 6-6 at the end of the chapter). On the contrary, AW recoveries reached a peak in most of these jurisdictions during 1993 or 1994 (Boston, which is not shown in the graphs due to missing years, was an exception). We tested changes in AW prevalence using simple chi-square tests since there were no observable pre-existing time trends in the data. Due to the small number of AWs in some of these samples, these changes were not all statistically significant. Nonetheless, the uniformity of the results is highly suggestive, especially when one considers the consistency of these results with those found in the national ATF tracing analysis.

The changes in Tables 6-2 through 6-6 reflect the average decline in recoveries of AWs during the post-ban period in each locality. However, some of these figures may understate reductions to date. In several of the localities, the prevalence of AWs among crime guns was at, or close to, its lowest mark during the most recent year analyzed (see Figures 6-2 through 6-6 at the end of the chapter), suggesting that AW use continues to decline. In Miami, for example, AWs accounted for 1.7% of crime guns for the whole 1995 to 2000 period but had fallen to 1% by 2000. Further, the largest AW decline was recorded in Boston, one of two cities for which data extended beyond the year 2000 (however, this was not the case in St. Louis, the other locality with post-2000 data).

Breakouts of APs and ARs in Baltimore, Miami, and St. Louis show that the decline in AW recoveries was due largely to APs, which accounted for the majority of AWs in these and almost all of the other localities (the exception was Anchorage, where crimes with rifles were more common, as a share of gun crimes, than in the other sites). Pre-post changes in recoveries of the domestic AR group weapons, which accounted for less than 1% of crime guns in Baltimore, Miami, and St. Louis, were inconsistent. AR recoveries declined after the ban in Baltimore but increased in St. Louis and Miami. As discussed previously, however, the AR figures may partly reflect the substitution of post-ban, legalized versions of these rifles, thus overstating post-ban use of the banned configurations. Further, trends for these particular rifles may not be indicative of those for the full range of banned rifles, including the various foreign rifles banned by the 1994 law and the import restrictions of 1989 and 1998 (e.g., see the ATF gun tracing analysis of LCMM rifles).[57]

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[57] As discussed in the last chapter, our research design focused on common AWs that were likely to be most affected by the 1994 ban as opposed to earlier regulations (namely, the 1989 import ban) or other events (e.g., company closings or model discontinuations prior to 1994). However, an auxiliary analysis with the Baltimore data revealed a statistically meaningful drop in recoveries of all ARs covered by the 1994 legislation (not including the LCMM rifles) that was larger than that found for just the domestic group ARs discussed in the text. Similarly, an expanded AR analysis in Miami showed that total AR recoveries declined after the ban, in contrast to the increase found for the domestic group ARs. (Even after expanding the analysis, ARs still accounted for no more than 0.64% of crime guns before the ban in both locations. As with the domestic AR group, there are complexities in identifying banned versus non-banned versions of some of the other ARs, so these numbers are approximations.) Consequently, a more nuanced view of AR trends may be that AR use is declining overall, but this decline may be due largely to the 1989 import

Finally, the overall decline in AW use was only partially offset by substitution of the post-ban legalized models. Even if the post-ban models are counted as AWs, the share of crime guns that were AWs still fell 24% to 60% across most jurisdictions. The exception was Milwaukee where recoveries of a few post-ban models negated the drop in banned models in a small sample of guns recovered during murder investigations.[58]

6.4. Summary

Consistent with predictions derived from the analysis of market indicators in Chapter 5, analyses of national ATF gun tracing data and local databases on guns recovered by police in several localities have been largely consistent in showing that criminal use of AWs, while accounting for no more than 6% of gun crimes even before the ban, declined after 1994, independently of trends in gun crime. In various places and times from the late 1990s through 2003, AWs typically fell by one-third or more as a share of guns used in crime.[59, 60] Some of the most recent, post-2000 data suggest

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restrictions that predated the AW ban. It is not yet clear that there has been a decline in the most common ARs prohibited exclusively by the 1994 ban.

[58] This was not true when focusing on just those guns that were used in the incident as opposed to all guns recovered during the investigations. However, the samples of AWs identified as murder weapons were too small for valid statistical tests of pre-post changes.

[59] These findings are also supported by prior research in which we found that reported thefts of AWs declined 7% in absolute terms and 14% as a fraction of stolen guns in the early period following the ban (i.e., late 1994 through early 1996) (Koper and Roth, 2002a, p. 21). We conducted that analysis to account for the possibility that an increase in thefts of AWs might have offset the effect of rising AW prices on the availability of AWs to criminals. Because crimes with AWs appear to have declined after the ban, the theft analysis is not as central to the arguments in this paper.

[60] National surveys of state prisoners conducted by the federal Bureau of Justice Statistics show an increase from 1991 to 1997 in the percentage of prisoners who reported having used an AW (Beck et al., 1993; Harlow, 2001). The 1991 survey (discussed in Chapter 3) found that 2% of violent gun offenders had carried or used an AW in the offense for which they were sentenced (calculated from Beck et al. 1993, pp. 18,33). The comparable figure from the 1997 survey was nearly 7% (Harlow, 2001, pp.3, 7).

Although these figures appear contrary to the patterns shown by gun recovery data, there are ambiguities in the survey findings that warrant caution in such an interpretation. First, the definition of an AW (and most likely the respondents' interpretation of this term) was broader in the 1997 survey. For the 1991 survey, respondents were asked about prior ownership and use of a "...military-type weapon, such as an Uzi, AK-47, AR-15, or M-16" (Beck et al., 1993, p. 18), all of which are ARs or have AR variations. The 1997 survey project defined AWs to "...include the Uzi, TEC-9, and the MAC-10 for handguns, the AR-15 and AK-47 for rifles, and the 'Street Sweeper' for shotguns" (Harlow, 2001, p. 2). (Survey codebooks available from the Inter-University Consortium for Political and Social Research also show that the 1997 survey provided more detail and elaboration about AWs and their features than did the 1991 survey, including separate definitions of APs, ARs, and assault shotguns.)

A second consideration is that many of the respondents in the 1997 survey were probably reporting criminal activity prior to or just around the time of the ban. Violent offenders participating in the survey, for example, had been incarcerated nearly six years on average at the time they were interviewed (Bureau of Justice Statistics, 2000, p. 55). Consequently, the increase in reported AW use may reflect an upward trend in the use of AWs from the 1980s through the early to mid 1990s, as well as a growing recognition of these weapons (and a greater tendency to report owning or using them) stemming from publicity about the AW issue during the early 1990s.

Finally, we might view the 1997 estimate skeptically because it is somewhat higher than that from most other sources. Nevertheless, it is within the range of estimates discussed earlier and could reflect a

reductions as high as 70%.[61] This trend has been driven primarily by a decline in the use of APs, which account for a majority of AWs used in crime. AR trends have been more varied and complicated by the substitution of post-ban guns that are very similar to some banned ARs. More generally, however, the substitution of post-ban AW-type models with fewer military features has only partially offset the decline in banned AWs.

These findings raise questions as to the whereabouts of surplus AWs, particularly APs, produced just prior to the ban. Presumably, many are in the hands of collectors and speculators holding them for their novelty and value.[62] Even criminal possessors may be more sensitive to the value of their AWs and less likely to use them for risk of losing them to police.

Finally, it is worth noting the ban has not completely eliminated the use of AWs, and, despite large relative reductions, the share of gun crimes involving AWs is similar to that before the ban. Based on year 2000 or more recent data, the most common AWs continue to be used in up to 1.7% of gun crimes.

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somewhat higher use of AWs among the subset of offenders who are most active and/or dangerous; recall that the highest estimate of AW use among the sources examined in this chapter came from a sample of guns recovered during murder investigations in Milwaukee (also see the discussion of offender surveys and AWs in Chapter 3).

[61] Developing a national estimate of the number of AW crimes prevented by the ban is complicated by the range of estimates of AW use and changes therein derived from different data sources. Tentatively, nonetheless, it appears the ban prevents a few thousand crimes with AWs annually. For example, using 2% as the best estimate of the share of gun crimes involving AWs prior to the ban (see Chapter 3) and 40% as a reasonable estimate of the post-ban drop in this figure implies that almost 2,900 murders, robberies, and assaults with AWs were prevented in 2002 (this assumes that 1.2% of the roughly 358,000 gun murders, gun robberies, and gun assaults reported to police in 2002 [see the *Uniform Crime Reports*] involved AWs but that 2% would have involved AWs had the ban not been in effect). Even if this estimate is accurate, however, it does not mean the ban prevented 2,900 gun crimes in 2002; indeed, the preceding calculation assumes that offenders prevented from using AWs committed their crimes using other guns. Whether forcing such weapon substitution can reduce the number of persons wounded or killed in gun crimes is considered in more detail in Chapter 9.

[62] The 1997 national survey of state prisoners discussed in footnote 60 found that nearly 49% of AW offenders obtained their gun from a "street" or illegal source, in contrast to 36% to 42% for other gun users (Harlow, 2001, p. 9). This could be another sign that AWs have become harder to acquire since the ban, but the data cannot be used to make an assessment over time.

Table 6-3. Trends in Police Recoveries of Domestic Assault Weapons in Baltimore, 1992-2000 [a]

	Pre-Ban Period	Post-Ban Period	Change
A. All Recoveries	Jan. 1992-Dec. 1993	Jan. 1995-Dec. 2000	
Total AWs	135	290	
Annual Mean	67.5	48.33	-28%
AW's as % of Guns	1.88%	1.25%	-34%**
APs	123	260	
Annual Mean	61.5	43.33	-30%
APs as % of Guns	1.71%	1.12%	-35%**
ARs	12	30	
Annual Mean	6	5	-17%
ARs as % of Guns	0.17%	0.13%	-24%
Total AWs and Substitutes	135	309	
Annual Mean	67.5	51.5	-24%
AWs/Subs as % of Guns	1.88%	1.33%	-29%**
B. Recoveries Linked to Violent Crimes [b]			
Total AWs	28	47	
Annual Mean	14	7.83	-44%
AWs as % of Violent Crime Guns	2.1%	1.24%	-41%*

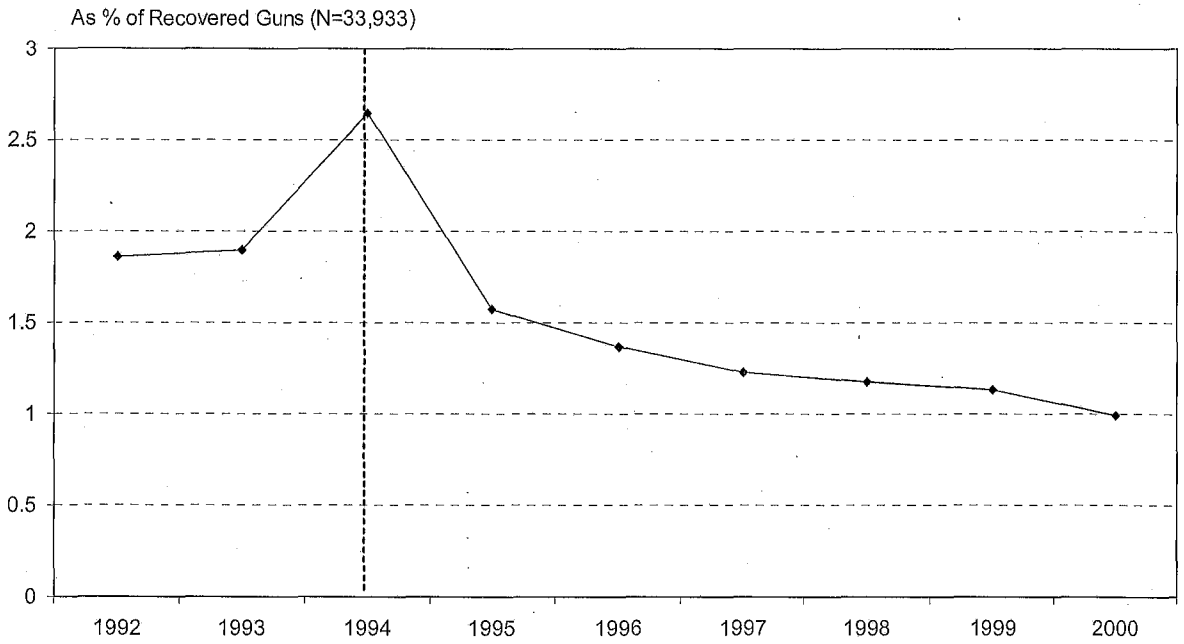
a. Domestic assault weapons include Intratec group, SWD group, AR-15 group, and Calico and Feather models.

b. Murders, assaults, and robberies

* Chi-square p level < .05 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance).

** Chi-square p level < .01 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance).

Figure 6-2. Police Recoveries of Assault Weapons in Baltimore, 1992-2000



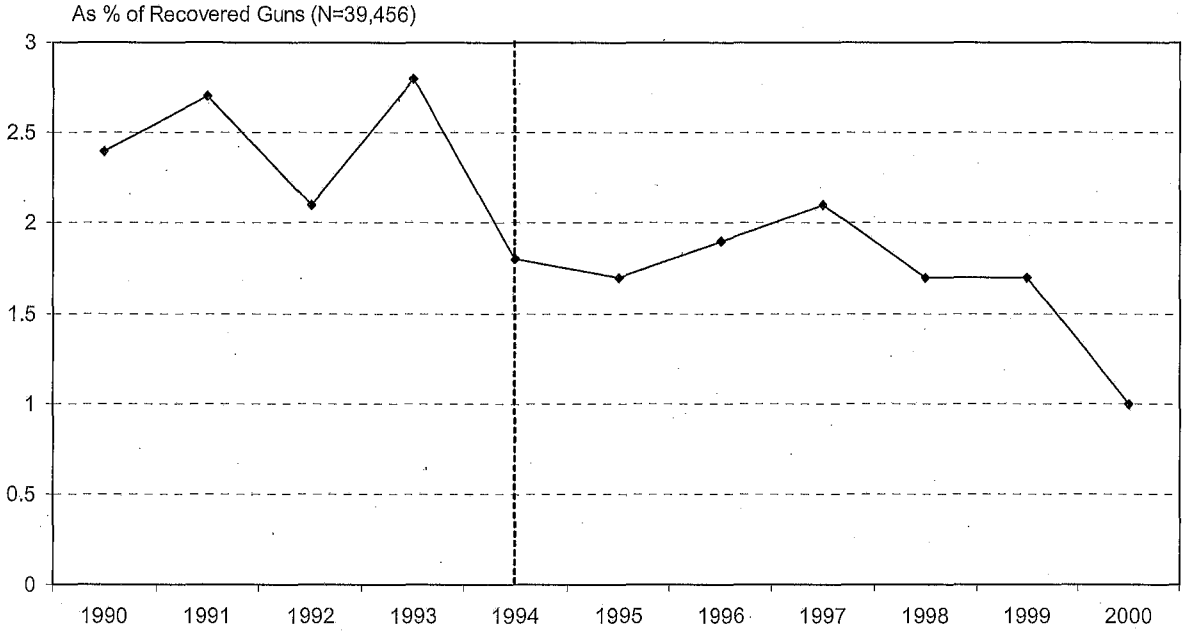
Includes Intratec group, SWD group, AR-15 group, and selected Calico and Feather models.

Table 6-4. Trends in Police Recoveries of Domestic Assault Weapons in Miami (Metro-Dade), 1990-2000 [a]

	Pre-Ban Period	Post-Ban Period	Change
A. All Recoveries	Jan. 1990-Dec. 1993	Jan. 1995-Dec. 2000	
Total AWs	403	330	
Annual Mean	100.75	55	-45%
AW's as % of Guns	2.53%	1.71%	-32%***
APs	355	256	
Annual Mean	88.75	42.67	-52%
APs as % of Guns	2.23%	1.33%	-40%***
ARs	43	72	
Annual Mean	10.75	12	12%
ARs as % of Guns	0.27%	0.37%	37%*
Total AWs and Substitutes	403	343	
Annual Mean	100.75	57.17	-43%
AWs/Subs as % of Guns	2.53%	1.78%	-30%***
B. Recoveries Linked to Violent Crimes [b]			
Total AWs	69	32	
Annual Mean	17.25	5.33	-69%
AWs as % of Violent Crime Guns	2.28%	1.39%	-39%**

a. Domestic assault weapons include Intratec group, SWD group, AR-15 group, and Calico and Feather models.
b. Murders, assaults, and robberies
* Chi-square p level < .1 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance)
** Chi-square p level < .05 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance)
*** Chi-square p level <.01 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance)

Figure 6-3. Police Recoveries of Assault Weapons in Miami (Metro-Dade), 1990-2000



Includes Intratec group, SWD group, AR-15 group, and selected Calico and Feather models.

Table 6-5. Trends in Police Recoveries of Domestic Assault Weapons in St. Louis, 1992-2003 [a]

	Pre-Ban Period	Post-Ban Period	Change
A. All Recoveries	Jan. 1992-Dec. 1993	Jan. 1995-Dec. 2003	
Total AWs	94	212	
Annual Mean	47	23.56	-50%
AW's as % of Guns	1.33%	0.91%	-32%**
APs	87	187	
Annual Mean	43.5	20.78	-52%
APs as % of Guns	1.23%	0.81%	-34%**
ARs	7	25	
Annual Mean	3.5	2.78	-21%
ARs as % of Guns	0.1%	0.11%	10%
Total AWs and Substitutes	94	234	
Annual Mean	47	26	-45%
AWs/Subs as % of Guns	1.33%	1.01%	-24%*
B. Recoveries Linked to Violent Crimes [b]			
Total AWs	8	20	
Annual Mean	4	2.2	-45%
AWs as % of Violent Crime Guns	0.8%	0.81%	1%

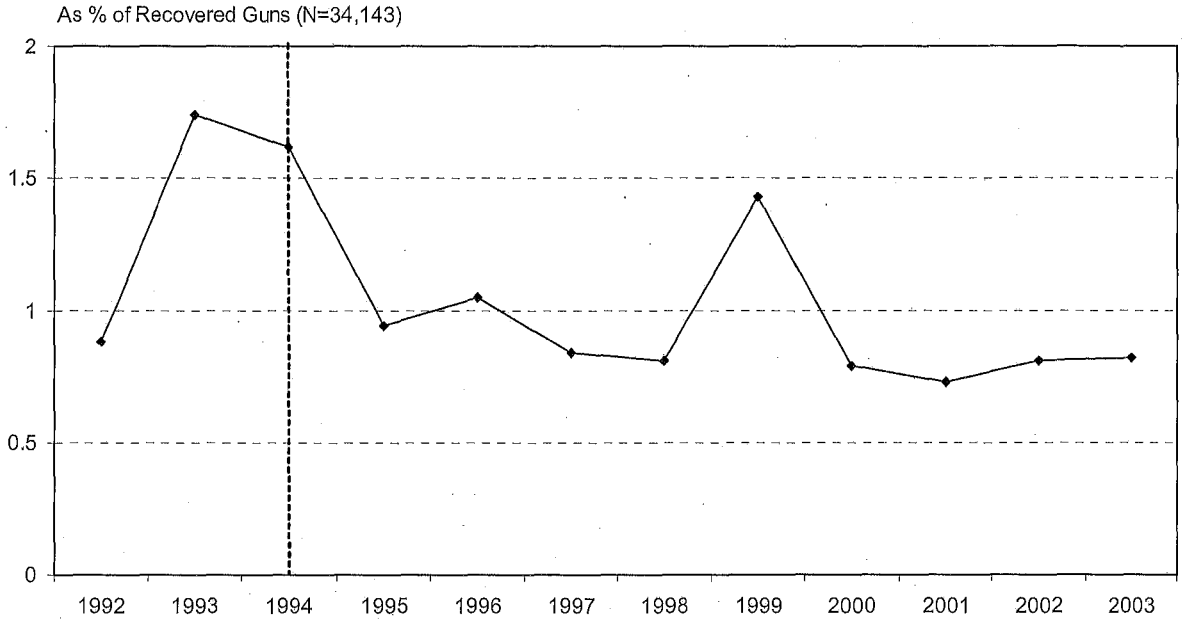
a. Domestic assault weapons include Intratec group, SWD group, AR-15 group, and Calico and Feather models.

b. Murders, assaults, and robberies

* Chi-square p level < .05 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance)

** Chi-square p level <.01 (changes in percentages of guns that were AWs/APs/ARs/AW-subs were tested for statistical significance)

Figure 6-4. Police Recoveries of Assault Weapons in St. Louis, 1992-2003



Includes Intratec group, SWD group, AR-15 group, and selected Calico and Feather models.

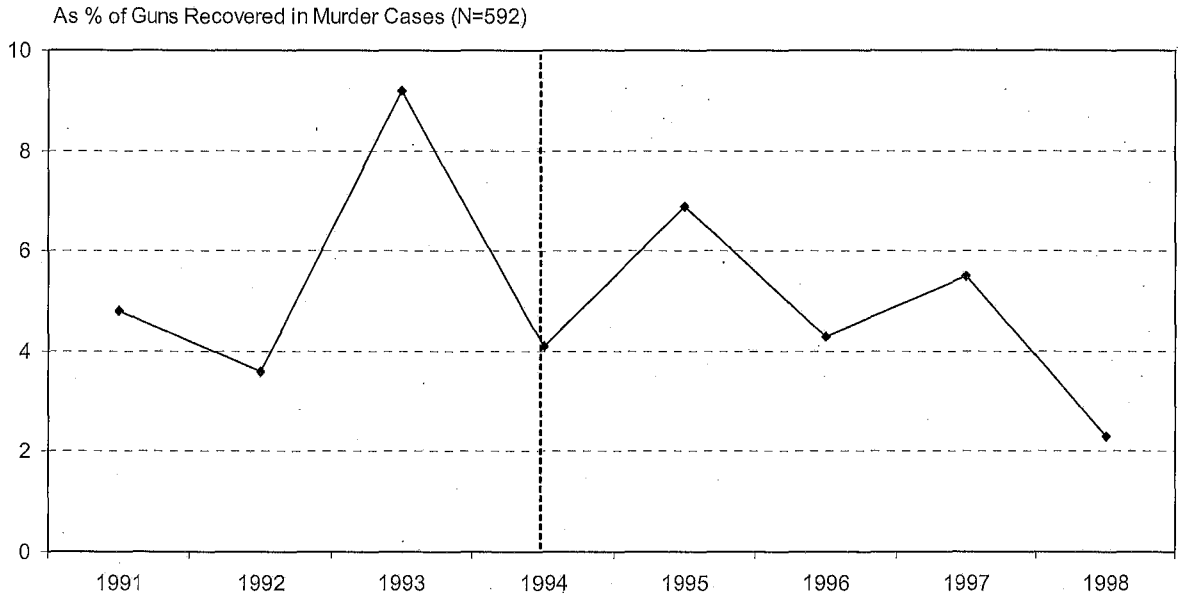
Table 6-6. Trends in Police Recoveries of Domestic Assault Weapons in Boston, Milwaukee, and Anchorage (Alaska) [a]

	Pre-Ban Period	Post-Ban Period	Change
Boston	Jan. 1991-Dec. 1993	Jan. 2000-Dec. 2002	
(All Gun Traces)			
AWs	60	11	
Annual Mean	20	3.7	-82%
AWs as % of Guns	2.16%	0.6%	-72%*
AWs and Substitutes	60	16	
Annual Mean	20	5.3	-74%
AWs/Subs as % of Guns	2.16%	0.87%	-60%*
Milwaukee	Jan. 1991-Dec. 1993	Jan. 1995-Dec. 1998	
(Guns Recovered in Murder Cases)			
AWs	15	13	
Annual Mean	5	3.25	-35%
AWs as % of Guns	5.91%	4.91%	-17%
AWs and Substitutes	15	16	
Annual Mean	5	4	-20%
AWs/Subs as % of Guns	5.91%	6.04%	2%
Anchorage	Jan. 1987-Dec. 1993	Jan. 1995-Dec. 2000	
(Guns Tested for Evidence)			
AWs	16	8	
Annual Mean	2.29	1.33	-42%
AW's as % of Guns	3.57%	2.13%	-40%
AWs and Substitutes	N/A	N/A	

a. Domestic assault weapons include Intratec group, SWD group, AR-15 group, and Calico and Feather models.

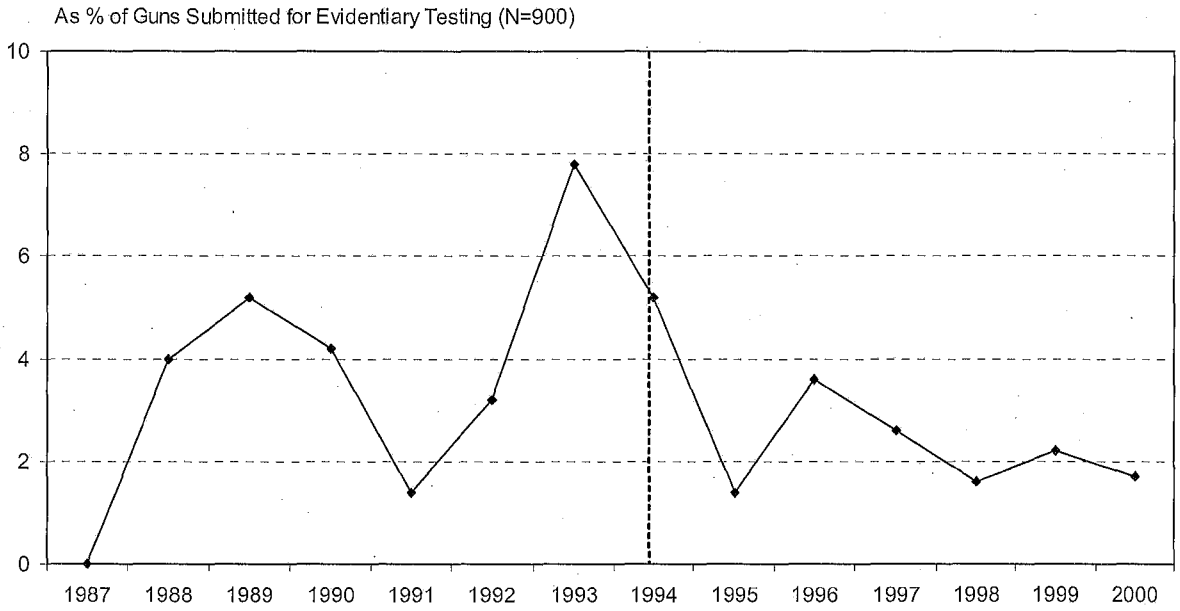
* Chi-square p level < .01 (changes in percentages of guns that were AWs/AW-subs were tested for statistical significance)

Figure 6-5. Assault Weapons Recovered in Milwaukee County Murder Cases, 1991-1998



Includes intratec group, SWD group, AR-15 group, and selected Calico and Feather models.

Figure 6-6. Police Recoveries of Assault Weapons in Anchorage (Alaska), 1987-2000



Includes Intratec group, SWD group, AR-15 group, and selected Calico and Feather models.

7. MARKET INDICATORS FOR LARGE CAPACITY MAGAZINES: PRICES AND IMPORTATION

The previous chapters examined the AW-LCM ban's impact on the availability and criminal use of AWs. In this chapter and the next, we consider the impact of the ban's much broader prohibition on LCMs made for numerous banned and non-banned firearms. We begin by studying market indicators. Our earlier study of LCM prices for a few gun models revealed that prices rose substantially during 1994 and into 1995 (Roth and Koper, 1997, Chapter 4). Prices of some LCMs remained high into 1996, while others returned to pre-ban levels or oscillated more unpredictably. The price increases may have reduced LCM use at least temporarily in the short-term aftermath of the ban, but we could not confirm this in our prior investigation.

7.1. Price Trends for Large Capacity Magazines

For this study, we sought to approximate longer term trends in the prices at which users could purchase banned LCMs throughout the country. To that end, we analyzed quarterly data on the prices of LCMs advertised by eleven gun and magazine distributors in *Shotgun News*, a national gun industry publication, from April 1992 to December 1998.[63] Those prices are available to any gun dealer, and primary market retailers generally re-sell within 15% of the distributors' prices.[64] The distributors were chosen during the course of the first AW study (Roth and Koper, 1997) based on the frequency with which they advertised during the April 1992 to June 1996 period. For each quarterly period, project staff coded prices for one issue from a randomly selected month. We generally used the first issue of each selected month based on a preliminary, informal assessment suggesting that the selected distributors advertised more frequently in those issues. In a few instances, first-of-month issues were unavailable to us or provided too few observations, so we substituted other issues.[65] Also, we were unable to obtain *Shotgun News* issues for the last two quarters of 1996. However, we aggregated the data annually to study price trends, and the omission of those quarters did not appear to affect the results (this is explained further below).

We ascertained trends in LCM prices by conducting hedonic price analyses,

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[63] The *Blue Book of Gun Values*, which served as the data source for the AW price analysis, does not contain ammunition magazine prices.

[64] According to gun market experts, retail prices track wholesale prices quite closely (Cook et al., 1995, p. 71). Retail prices to eligible purchasers generally exceed wholesale (or original-purchase) prices by 3% to 5% in the large chain stores, by about 15% in independent dealerships, and by about 10% at gun shows (where overhead costs are lower).

[65] The decision to focus on first-of-month issues was made prior to data collection for price analysis update. For the earlier study (Roth and Koper, 1997), project staff coded data for one or more randomly selected issues of every month of the April 1992 to June 1996 period. For this analysis, we utilized data from only the first-of-month issues selected at random during the prior study. If multiple first-of-month issues were available for a given quarter, we selected one at random or based on the number of recorded advertisements. If no first-of-month issue was available for a given quarter, we selected another issue at random from among those coded during the first study.

similar to those described in the AW price analysis (Chapter 5), in which we regressed inflation-adjusted LCM prices (logged) on several predictors: magazine capacity (logged), gun make (for which the LCM was made), year of the advertisement, and distributor. We cannot account fully for the meaning of significant distributor effects. They may represent unmeasured quality differentials in the merchandise of different distributors, or they may represent other differences in stock volume or selling or service practices between the distributors.[66] We included the distributor indicators when they proved to be significant predictors of advertised price. In addition, we focused on LCMs made for several of the most common LCM-compatible handguns and rifles, rather than try to model the differences in LCM prices between the several hundred miscellaneous makes and models of firearms that were captured in the data. Finally, for both the handgun and rifle models, we created and tested seasonal indicator variables to determine if their incorporation would affect the coefficient for 1996 (the year with winter/spring data only), but they proved to be statistically insignificant and are not shown in the results below.[67]

7.1.1. Large Capacity Magazines for Handguns

The handgun LCM analysis tracks the prices of LCMs made for Intratec and Cobray (i.e., SWD) APs and non-banned semiautomatic pistols made by Smith and Wesson, Glock, Sturm Ruger, Sig-Sauer, Taurus, and Beretta (each of the manufacturers in the former group produces numerous models capable of accepting LCMs). In general, LCMs with greater magazine capacities commanded higher prices, and there were significant price differentials between LCMs made for different guns and sold by different distributors (see Table 7-1). Not surprisingly, LCMs made for Glock handguns were most expensive, followed by those made for Beretta and Sig-Sauer firearms.

Turning to the time trend indicators (see Table 7-1 and Figure 7-1), prices for these magazines increased nearly 50% from 1993 to 1994, and they rose another 56% in 1995. Prices declined somewhat, though not steadily, from 1996 to 1998. Nevertheless, prices in 1998 remained 22% higher than prices in 1994 and nearly 80% higher than those in 1993.

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[66] For example, one possible difference between the distributors may have been the extent to which they sold magazines made of different materials (e.g., steel, aluminum, etc.) or generic magazines manufactured by companies other than the companies manufacturing the firearms for which the magazines were made. For example, there were indications in the data that 3% of the handgun LCMs and 10% of the AR-15 and Mini-14 rifle LCMs used in the analyses (described below) were generic magazines. We did not control for these characteristic, however, because such information was often unclear from the advertisements and was not recorded consistently by coders.

[67] Project staff coded all LCM advertisements by the selected distributors. Therefore, the data are inherently weighted. However, the weights are based on the frequency with which the different LCMs were advertised (i.e., the LCMs that were advertised most frequently have the greatest weight in the models) rather than by production volume.

Table 7-1. Regression of Handgun and Rifle Large Capacity Magazine Prices on Annual Time Indicators, 1992-1998, Controlling for Gun Makes/Models and Distributors

	Handgun LCMs (n=1,277)		Rifle LCMs (n=674)	
	Estimate	**T value**	**Estimate**	**T value**
Constant	-1.79	-12.74***	-4.10	-19.12***
1992	-0.19	-2.11**	-0.48	-4.20***
1993	-0.38	-6.00***	-0.55	-6.14***
1995	0.44	6.88***	-0.25	-2.64***
1996	0.29	4.05***	-0.12	-0.93
1997	0.36	6.33***	-0.31	-3.68***
1998	0.20	3.51***	-0.44	-5.19***
Rounds (logged)	0.26	5.73***	0.84	15.08***
Cobray	-0.36	-4.15***		
Glock	0.41	8.15***		
Intratec	-0.40	-4.18***		
Ruger	-0.42	-7.79***		
Smith&Wesson	-0.08	-1.71*		
Sig-Sauer	0	-0.09		
Taurus	-0.31	-6.10***		
AK-type			-0.25	-3.15***
Colt AR-15			0.14	1.68*
Ruger Mini-14			-0.08	-0.92
Distributor 1	-0.72	-16.38***	-0.35	-5.15***
Distributor 2	-0.15	-0.97	-0.83	-5.24***
Distributor 3	-0.16	-3.93***	0.19	2.69***
Distributor 4	-0.55	-5.72***	0.16	0.80
Distributor 5	-0.07	-1.79*	-0.18	-2.65***
Distributor 6	-0.53	-1.23	-0.12	-0.32
Distributor 7	-1.59	-3.70***	-0.10	-0.91
Distributor 8			0.14	0.70
Distributor 9	-0.91	-12.52***	-0.48	-4.00***
F statistic	58.76		21.22	
(p value)	<.0001		<.0001	
Adj. R-square	0.51		0.38	

Year indicators are interpreted relative to 1994, and distributors are interpreted relative to distributor 10. Handgun makes are relative to Beretta and rifle models are relative to SKS.

* Statistically significant at p<=.10.

** Statistically significant at p<=.05.

*** Statistically significant at p<=.01.

Figure 7-1. Annual Price Trends for Large Capacity Magazines, 1992-1998

Based on 1,277 sampled ads for LCMs fitting models of 8 handgun makers and 674 sampled ads for LCMs fitting 4 rifle model groups.

7.1.2. Large Capacity Magazines for Rifles

We approximated trends in the prices of LCMs for rifles by modeling the prices of LCMs manufactured for AR-15, Mini-14, SKS,[68] and AK-type rifle models (including various non-banned AK-type models). As in the handgun LCM model, larger LCMs drew higher prices, and there were several significant model and distributor effects. AR-15 magazines tended to have the highest prices, and magazines for AK-type models had the lowest prices (Table 7-1).

Like their handgun counterparts, prices for rifle LCMs increased over 40% from 1993 to 1994, as the ban was debated and implemented (see Table 7-1 and Figure 7-1). However, prices declined over 20% in 1995. Following a rebound in 1996, prices moved downward again during 1997 and 1998. Prices in 1998 were over one third lower than the peak prices of 1994 and were comparable to pre-ban prices in 1992 and 1993.

[68] The SKS is a very popular imported rifle (there are Russian and Chinese versions) that was not covered by either the 1989 AR import ban or the 1994 AW ban. However, importation of SKS rifles from China was discontinued in 1994 due to trade restrictions.

7.2. Post-Ban Importation of Large Capacity Magazines

ATF does not collect (or at least does not publicize) statistics on production of LCMs. Therefore, we cannot clearly document pre-ban production trends. Nevertheless, it seems likely that gun and magazine manufacturers boosted their production of LCMs during the debate over the ban, just as AW makers increased production of AWs. Regardless, gun industry sources estimated that there were 25 million LCMs available as of 1995 (including aftermarket items for repairing magazines or converting them to LCMs) (Gun Tests, 1995, p. 30).

Moreover, the supply of LCMs continued to grow even after the ban due to importation of foreign LCMs that were manufactured prior to the ban (and thus grandfathered by the LCM legislation), according to ATF importation data.[69] As shown in Table 7-2, nearly 4.8 million LCMs were imported for commercial sale (as opposed to law enforcement uses) from 1994 through 2000, with the largest number (nearly 3.7 million) arriving in 1999.[70] During this period, furthermore, importers received permission to import a total of 47.2 million LCMs; consequently, an additional 42 million LCMs may have arrived after 2000 or still be on the way, based on just those approved through 2000.[71, 72]

To put this in perspective, gun owners in the U.S. possessed 25 million firearms that were equipped with magazines holding 10 or more rounds as of 1994 (Cook and Ludwig, 1996, p. 17). Therefore, the 4.7 million LCMs imported in the U.S. from 1994 through 2000 could conceivably replenish 19% of the LCMs that were owned at the time of the ban. The 47.2 million approved during this period could supply nearly 2 additional LCMs for all guns that were so equipped as of 1994.

7.3. Summary and Interpretations

Prices of LCMs for handguns rose significantly around the time of the ban and, despite some decline from their peak levels in 1995, remained significantly higher than pre-ban prices through at least 1998. The increase in LCM prices for rifles proved to be more temporary, with prices returning to roughly pre-ban levels by 1998.[73]

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[69] To import LCMs into the country, importers must certify that the magazines were made prior to the ban. (The law requires companies to mark post-ban LCMs with serial numbers.) As a practical matter, however, it is hard for U.S. authorities to know for certain whether imported LCMs were produced prior to the ban.

[70] The data do not distinguish between handgun and rifle magazines or the specific models for which the LCMs were made. But note that roughly two-thirds of the LCMs imported from 1994 through 2000 had capacities between 11 and 19 rounds, a range that covers almost all handgun LCMs as well as many rifle LCMs. It seems most likely that the remaining LCMs (those with capacities of 20 or more rounds) were primarily for rifles.

[71] The statistics in Table 7-2 do not include belt devices used for machine guns.

[72] A caveat to the number of approved LCMs is that importers may overstate the number of LCMs they have available to give themselves leeway to import additional LCMs, should they become available.

[73] A caveat is that we did not examine prices of smaller magazines, so the price trends described here may not have been entirely unique to LCMs. Yet it seems likely that these trends reflect the unique impact of the ban on the market for LCMs.

Table 7-2. Large Capacity Magazines Imported into the United States or Approved For Importation for Commercial Sale, 1994-2000

Year	Imported	Approved
1994	67,063	77,666
1995	3,776	2,066,228
1996	280,425	2,795,173
1997	99,972	1,889,773
1998	337,172	20,814,574
1999	3,663,619	13,291,593
2000	346,416	6,272,876
Total	*4,798,443*	*47,207,883*

Source: Firearms and Explosives Imports Branch, Bureau of Alcohol, Tobacco, Firearms, and Explosives. Counts do not include "links" (belt devices) or imports for law enforcement purposes.

The drop in rifle LCM prices between 1994 and 1998 may have due to the simultaneous importation of approximately 788,400 grandfathered LCMs, most of which appear to have been rifle magazines (based on the fact that nearly two-thirds had capacities over 19 rounds), as well as the availability of U.S. military surplus LCMs that fit rifles like the AR-15 and Mini-14. We can also speculate that demand for LCMs is not as great among rifle consumers, who are less likely to acquire their guns for defensive or criminal purposes.

The pre-ban supply of handgun LCMs may have been more constricted than the supply of rifle LCMs for at least a few years following the ban, based on prices from 1994 to 1998. Although there were an estimated 25 million LCMs available in the U.S. as of 1995, some major handgun manufacturers (including Ruger, Sig Sauer, and Glock) had or were close to running out of new LCMs by that time (Gun Tests, 1995, p. 30). Yet the frequency of advertisements for handgun LCMs during 1997 and 1998, as well as the drop in prices from their 1995 peak, suggests that the supply had not become particularly low. In 1998, for example, the selected distributors posted a combined total of 92 LCM ads per issue (some of which may have been for the same make, model, and capacity combinations) for just the handguns that we incorporated into our model.[74] Perhaps the

[74] Project staff found substantially more advertisements per issue for 1997 and 1998 than for earlier years. For the LCMs studied in the handgun analysis, staff recorded an average of 412 LCM advertisements per year (103 per issue) during 1997 and 1998. For 1992-1996, staff recorded an average of about 100 ads per year (25 per issue) for the same LCMs. A similar but smaller differential existed in the volume of ads for the LCMs used in the rifle analysis. The increase in LCM ads over time may reflect changes in supply and

demand for enhanced firepower among handgun consumers, who are more likely to acquire guns for crime or defense against crime, was also a factor (and perhaps a large one) putting a premium on handgun LCMs.

Although we might hypothesize that high prices depressed use of handguns with LCMs for at least a few years after the ban, a qualification to this prediction is that LCM use may be less sensitive to prices than is use of AWs because LCMs are much less expensive than the firearms they complement and therefore account for a smaller fraction of users' income (e.g., see Friedman, 1962). To illustrate, TEC-9 APs typically cost $260 at retail during 1992 and 1993, while LCMs for the TEC-9, ranging in capacity from 30 to 36 rounds, averaged $16.50 in *Shotgun News* advertisements (and probably $19 or less at retail) during the same period. So, for example, a doubling of both gun and LCM prices would likely have a much greater impact on purchases of TEC-9 pistols than purchases of LCMs for the TEC-9. Users willing and able to pay for a gun that accepts an LCM are most likely willing and able to pay for an LCM to use with the gun.

Moreover, the LCM supply was enhanced considerably by a surge in LCM imports that occurred after the period of our price analysis. During 1999 and 2000, an additional 4 million grandfathered LCMs were imported into the U.S., over two-thirds of which had capacities of 11-19 rounds, a range that covers almost all handgun LCMs (as well as many rifle LCMs). This may have driven prices down further after 1998.

In sum, market indicators yield conflicting signs on the availability of LCMs. It is perhaps too early to expect a reduction in crimes with LCMs, considering that tens of millions of grandfathered LCMs were available at the time of the ban, an additional 4.8 million – enough to replenish one-fifth of those owned by civilians – were imported from 1994 through 2000, and that the elasticity of demand for LCMs may be more limited than that of firearms. And if the additional 42 million foreign LCMs approved for importation become available, there may not be a reduction in crimes with LCMs anytime in the near future.

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demand for LCMs during the study period, as well as product shifts by distributors and perhaps changes in ad formats (e.g., ads during the early period may have been more likely to list magazines by handgun model without listing the exact capacity of each magazine, in which case coders would have been more likely to miss some LCMs during the early period). Because the data collection effort for the early period was part of a larger effort that involved coding prices in *Shotgun News* for LCMs and numerous banned and non-banned firearms, it is also possible that coders were more likely to miss LCM ads during that period due to random factors like fatigue or time constraints.

8. CRIMINAL USE OF LARGE CAPACITY MAGAZINES AFTER THE BAN

Assessing trends in criminal use of LCMs is difficult. There is no national data source on crime guns equipped with LCMs (ATF national tracing data do not include information about magazines recovered with traced firearms), and, based on our contacts with numerous police departments over the course of this study and the first AW study, it seems that even those police departments that maintain electronic databases on recovered firearms do not typically record the capacity of the magazines with which the guns are equipped.[75,76] Indeed, we were unable to acquire sufficient data to examine LCM use for the first AW study (Roth and Koper, 1997).

For the current study, we obtained four data sources with which to investigate trends in criminal use of LCMs. Three of the databases utilized in the AW analysis – those from Baltimore, Milwaukee, and Anchorage – contained information about the magazines recovered with the guns (see the descriptions of these databases in Chapter 6). Using updated versions of these databases, we examined all LCM recoveries in Baltimore from 1993 through 2003, recoveries of LCMs in Milwaukee murder cases from 1991 to 2001, and recoveries of LCMs linked to serious crimes in Anchorage (and other parts of Alaska) from 1992 through 2002.[77] In addition, we studied records of guns and magazines submitted to the Jefferson Regional Forensics Lab in Louisville, Kentucky from 1996 through 2000. This lab of the Kentucky State Police services law enforcement agencies throughout roughly half of Kentucky, but most guns submitted to the lab are from the Louisville area. Guns examined at the lab are most typically those associated with serious crimes such as murders, robberies, and assaults.

The LCM analyses and findings were not as uniform across locations as were those for AWs. Therefore, we discuss each site separately. As in the AW analysis, we emphasize changes in the percentage of guns equipped with LCMs to control for overall trends in gun crime and gun recoveries. Because gun crime was falling during the latter 1990s, we anticipated that the number of guns recovered with LCMs might decline independently of the ban's impact. (Hereafter, we refer to guns equipped with LCMs as LCM guns.)

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[75] For the pre-ban period, one can usually infer magazine capacity based on the firearm model. For post-ban recoveries, this is more problematic because gun models capable of accepting LCMs may have been equipped with grandfathered LCMs or with post-ban magazines designed to fit the same gun but holding fewer rounds.

[76] As for the AW analysis in Chapter 6, we utilize police data to examine trends in criminal use of LCMs. The reader is referred to the general discussion of police gun seizure data in Chapter 6.

[77] Findings presented in our 2002 interim report (Koper and Roth, 2002b) indicated that LCM use had not declined as of the late 1990s. Therefore, we sought to update the LCM analyses where possible for this version of the report.

8.1. Baltimore

In Baltimore, about 14% of guns recovered by police were LCM guns in 1993. This figure remained relatively stable for a few years after the ban but had dropped notably by 2002 and 2003 (Figure 8-1). For the entire post-ban period (1995-2003), recoveries of LCM guns were down 8% relative to those of guns with smaller magazines (Table 8-1, panel A), a change of borderline statistical significance. Focusing on the most recent years, however, LCM gun recoveries were 24% lower in 2002 and 2003 than during the year prior to the ban, a difference that was clearly significant (Table 8-1, panel B).[78,79,80] This change was attributable to a 36% drop in LCM handguns (Table 8-1, panel C). LCM rifles actually increased 36% as a share of crime guns, although they still accounted for no more than 3% in 2002 and 2003 (Table 8-1, panel D).[81]

Yet there was no decline in recoveries of LCM guns used in violent crimes (i.e., murders, shootings, robberies, and other assaults). After the ban, the percentage of violent crime guns with LCMs generally oscillated in a range consistent with the pre-ban level (14%) and hit peaks of roughly 16% to 17% in 1996 and 2003 (Figure 8-1).[82] Whether comparing the pre-ban period to the entire post-ban period (1995-2003) or the most recent years (2002-2003), there was no meaningful decline in LCM recoveries linked to violent crimes (Table 8-2, panels A and B).[83] Neither violent uses of LCM

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[78] Data on handgun magazines were also available for 1992. An auxiliary analysis of those data did not change the substantive inferences described in the text.

[79] The Maryland AP ban enacted in June 1994 also prohibited ammunition magazines holding over 20 rounds and did not permit additional sales or transfers of such magazines manufactured prior to the ban. This ban, as well as the Maryland and federal bans on AWs that account for many of the guns with magazines over 20 rounds, may have contributed to the downward trend in LCMs in Baltimore, but only 2% of the guns recovered in Baltimore from 1993 to 2000 were equipped with such magazines.

[80] All comparisons of 1993 to 2002-2003 in the Baltimore data are based on information from the months of January through November of each year. At the time we received these data, information was not yet available for December 2003, and preliminary analysis revealed that guns with LCMs were somewhat less likely to be recovered in December than in other months for years prior to 2003. Nevertheless, utilizing the December data for 1993 and 2002 did not change the substantive inferences. We did not remove December data from the comparisons of 1993 and the full post-ban period because those comparisons seemed less likely to be influenced by the absence of one month of data.

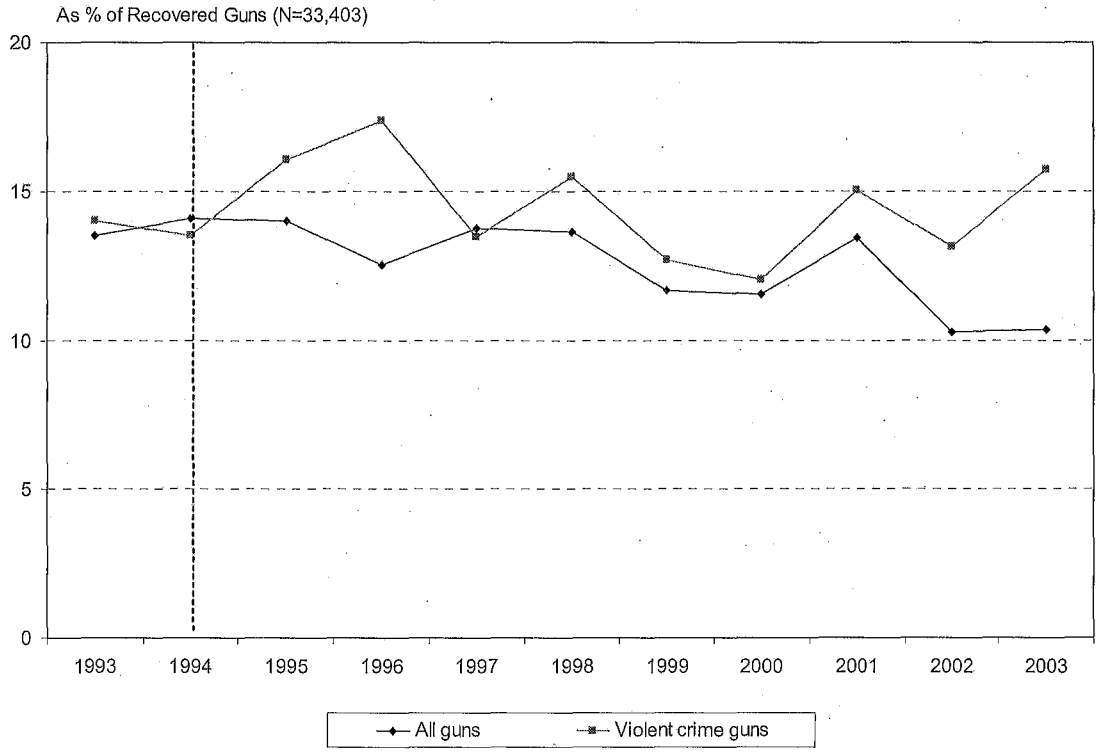
[81] This increase may have been due largely to a general increase in rifle seizures. LCM rifles actually dropped as a percentage of all rifle recoveries from 1993 to 2002-2003, suggesting that recoveries of LCM rifles were increasing less than recoveries of other rifles.

[82] For 1996, 45% of all records and 24% of those linked to violent crimes had missing data for magazine capacity (due to temporary changes in operational procedures in the Baltimore crime lab). For other years, missing data rates were no more than 6%. Based on those cases for which data were available, the share of guns with LCMs in 1996 was comparable to that in other years, particularly when examining all gun recoveries. At any rate, the analyses focusing on 1993, 2002, and 2003 reinforce the findings of those that include the 1996 data.

[83] The ammunition capacity code in the Baltimore data usually reflected the full capacity of the magazine and weapon, but sometimes reflected the capacity of the magazine only. (For instance, a semiautomatic with a 10-round magazine and the ability to accept one additional round in the chamber might have been coded as having a capacity of 10 or 11.) Informal assessment suggested that capacity was more likely to reflect the exact capacity of the magazine in the early years of the database and more likely to reflect the full capacity of the gun and magazine in later years. For the main runs presented in the text and tables, guns were counted as having LCMs if the coded capacity was greater than 11 rounds. This ensured that LCMs were not overestimated, but it potentially understated LCM prevalence, particularly for the earlier

handguns or LCM rifles had declined appreciably by 2002-2003 (Table 8-2, panels C and D). Hence, the general decline in LCM recoveries may reflect differences in the availability and use of LCMs among less serious offenders, changes in police practices,[84] or other factors.

Figure 8-1. Police Recoveries of Guns Equipped With Large Capacity Magazines in Baltimore, 1993-2003



years. However, coding the guns as LCM weapons based on a threshold of 10 (i.e., a coded capacity over 10 rounds) in 1993 and a threshold of 11 (i.e., a coded capacity over 11 rounds) for 2002-2003 did not change the inferences of the violent crime analysis. Further, this coding increased the pre-ban prevalence of LCMs by very little (about 4% in relative terms).

[84] During the late 1990s, for example, Baltimore police put greater emphasis on detecting illegal gun carrying (this statement is based on prior research and interviews the author has done in Baltimore as well as the discussion in Center to Prevent Handgun Violence, 1998). One can hypothesize that this effort reduced the fraction of recovered guns with LCMs because illegal gun carriers are probably more likely to carry smaller, more concealable handguns that are less likely to have LCMs.

Table 8-1. Trends in All Police Recoveries of Firearms Equipped With Large Capacity Magazines, Baltimore, 1993-2003

	Pre-Ban Period	Post-Ban Period	Change
A. All LCM Guns	Jan.-Dec. 1993	Jan. 1995-Nov. 2003	
Total	473	3703	
Annual Mean	473	445.86 [a]	-6%
LCM Guns as % of All Guns	13.51%	12.38%	-8%*
B. All LCM Guns	Jan.-Nov. 1993	Jan.-Nov. 2002-2003	
Total	430	626	
Annual Mean	430	313	-27%
LCM Guns as % of All Guns	13.47%	10.3%	-24%***
C. LCM Handguns	Jan.-Nov. 1993	Jan.-Nov. 2002-2003	
Total	359	440	
Annual Mean	359	220	-39%
LCM Handguns as % of All Guns	11.25%	7.24%	-36%***
D. LCM Rifles	Jan.-Nov. 1993	Jan.-Nov. 2002-2003	
LCM Rifles	71	183	
Annual Mean	71	91.5	29%
LCM Rifles as % of All Guns	2.22%	3.01%	36%**

a. Annual average calculated without 1996 and 2003 (to correct for missing months or missing magazine data).
* Chi-square p level < .10 (changes in percentages of guns equipped with LCMs were tested for statistical significance)
** Chi-square p level <.05 (changes in percentages of guns equipped with LCMs were tested for statistical significance)
** Chi-square p level < .01 (changes in percentages of guns equipped with LCMs were tested for statistical significance)

Table 8-2. Trends in Police Recoveries of Firearms Equipped With Large Capacity Magazines in Violent Crime Cases, Baltimore, 1993-2003

	Pre-Ban Period	Post-Ban Period	Change [a]
A. All LCM Guns	Jan.-Dec. 1993	Jan. 1995-Nov. 2003	
Total	87	711	
Annual Mean	87	81.86 [b]	-6%
LCM Guns as % of All Guns	14.01%	14.44%	3%
B. All LCM Guns	Jan.-Nov. 1993	Jan.-Nov. 2002-2003	
Total	79	104	
Annual Mean	79	52	-34%
LCM Guns as % of All Guns	13.96%	13.65%	-2%
C. LCM Handguns	Jan.-Nov. 1993	Jan.-Nov. 2002-2003	
Total	62	81	
Annual Mean	62	40.5	-35%
LCM Handguns as % of All Guns	10.95%	10.63%	-3%
D. LCM Rifles	Jan.-Nov. 1993	Jan.-Nov. 2002-2003	
LCM Rifles	17	23	
Annual Mean	17	11.5	-32%
LCM Rifles as % of All Guns	3%	3.02%	1%

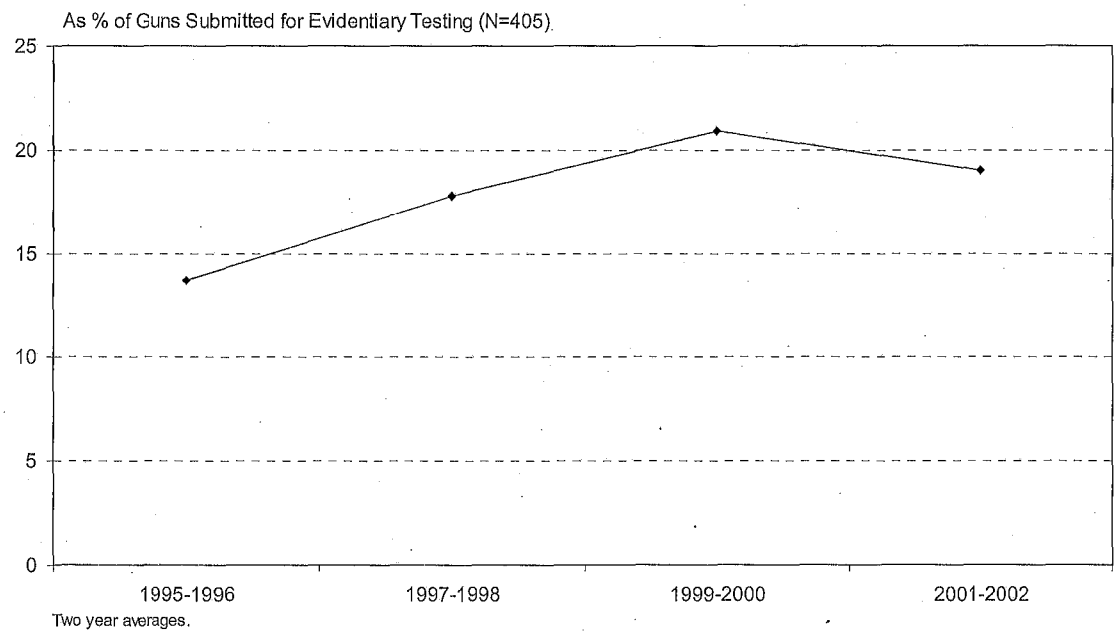
a. Changes in the percentages of guns with LCMs were statistically insignificant in chi-square tests.
b. Annual average calculated without 1996 and 2003 (to correct for missing months or missing magazine data).

8.2. Anchorage

In the Alaska database, magazine capacity was recorded only for guns recovered during the post-ban years, 1995 through 2002. However, we estimated pre-ban use of LCM handguns by identifying handgun models inspected during 1992 and 1993 that were manufactured with LCMs prior to the ban.[85] This permitted an assessment of pre-post changes in the use of LCM handguns.

As shown in Figure 8-2 (also see Table 8-3, panel A), LCM guns rose from 14.5% of crime guns in 1995-1996 to 24% in 2000-2001 (we present two-year averages because the sample are relatively small, particularly for the most recent years) and averaged about 20% for the entire post-ban period. LCM handguns drove much of this trend, but LCM rifles also increased from about 3% of crime guns in 1995-96 to 11% in 2000-2001.

Figure 8-2. Police Recoveries of Guns Equipped With Large Capacity Magazines in Anchorage (Alaska), 1995-2002



[85] To make these determinations, we consulted gun catalogs such as the *Blue Book of Gun Values* and *Guns Illustrated.*

Table 8-3. Trends in Police Recoveries of Firearms Equipped With Large Capacity Magazines in Violent Crime Cases, Anchorage (Alaska), 1992-2002 [a]

	Pre-Ban Period	Post-Ban Period	Change [b]
A. All LCM Guns	N/A	Jan. 1995-Dec. 2002	
Total		80	
Annual Mean		10	N/A
LCM Guns as % of All Guns		19.75%	N/A
B. LCM Handguns	Jan. 1992-Dec. 1993	Jan. 1995-Dec. 2002	
Total	17	57	
Annual Mean	8.5	7.13	-16%
LCM Handguns as % All Handguns	26.15%	22.35%	-15%
C. LCM Handguns	Jan. 1992-Dec. 1993	Jan. 2001-Dec. 2002	
Total	17	10	
Annual Mean	8.5	5	-41%
LCM Handguns as % of All Handguns	26.15%	19.23%	-26%

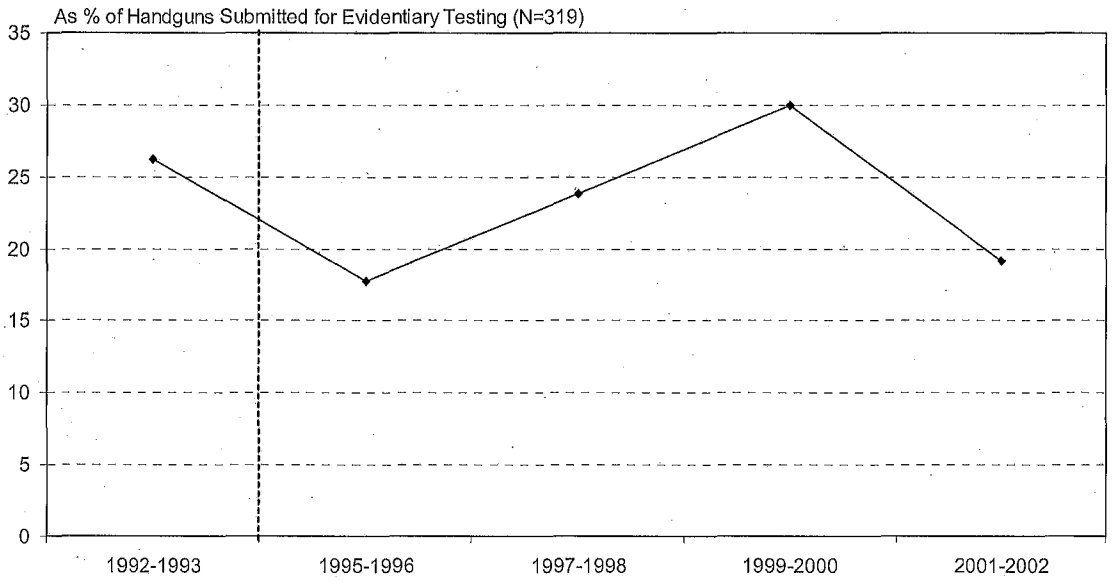
a. Based on guns submitted to State Police for evidentiary testing.
b. Changes in the percentages of guns equipped with LCMs were statistically insignificant in chi-square tests.

Investigation of pre-post changes for handguns revealed an inconsistent pattern (Figure 8-3). LCM handguns dropped initially after the ban, declining from 26% of handguns in 1992-1993 to 18% in 1995-1996. However, they rebounded after 1996, reaching a peak of 30% of handguns in 1999-2000 before declining to 19% in 2001-2002.

For the entire post-ban period, the share of handguns with LCMs was about 15% lower than in the pre-ban period (Table 8-3, panel B). By the two most recent post-ban years (2001-2002), LCM use had dropped 26% from the pre-ban years (Table 8-3, panel C). These changes were not statistically significant, but the samples of LCM handguns were rather small for rigorous statistical testing. Even so, it seems premature to conclude

that there has been a lasting reduction in LCM use in Alaska. LCM use in 2001-2002 was somewhat higher than that immediately following the ban in 1995-1996, after which there was a substantial rebound. Considering the inconsistency of post-ban patterns, further follow-up seems warranted before making definitive conclusions about LCM use in Alaska.

Figure 8-3. Police Recoveries of Handguns Equipped With Large Capacity Magazines in Anchorage (Alaska), 1992-2002



Two-year averages. Data for 1994 excluded.

8.3. Milwaukee

LCM guns accounted for 21% of guns recovered in Milwaukee murder investigations from 1991 to 1993 (Table 8-4, panel A). Following the ban, this figure rose until reaching a plateau of over 36% in 1997 and 1998 (Figure 8-4). On average, the share of guns with LCMs grew 55% from 1991-1993 to 1995-1998, a trend that was driven by LCM handguns (Table 8-4, panels A and B).[86] LCM rifles held steady at between 4% and 5% of the guns (Table 8-4, panel C).

We also analyzed a preliminary database on 48 guns used in murders during 2000 and 2001 (unlike the 1991-1998 database, this database did not include information on other guns recovered during the murder investigations). About 11% of these guns were LCM guns, as compared to 19% of guns used in murders from 1991 to 1993 (analyses not shown). However, nearly a quarter of the 2000-2001 records were missing information on magazine capacity.[87] Examination of the types and models of guns with

[86] LCM guns also increased as share of guns that were used in the murders (the full sample results discussed in the text include all guns recovered during the investigations).

[87] Magazine capacity was missing for less than 4% of the records in earlier years.

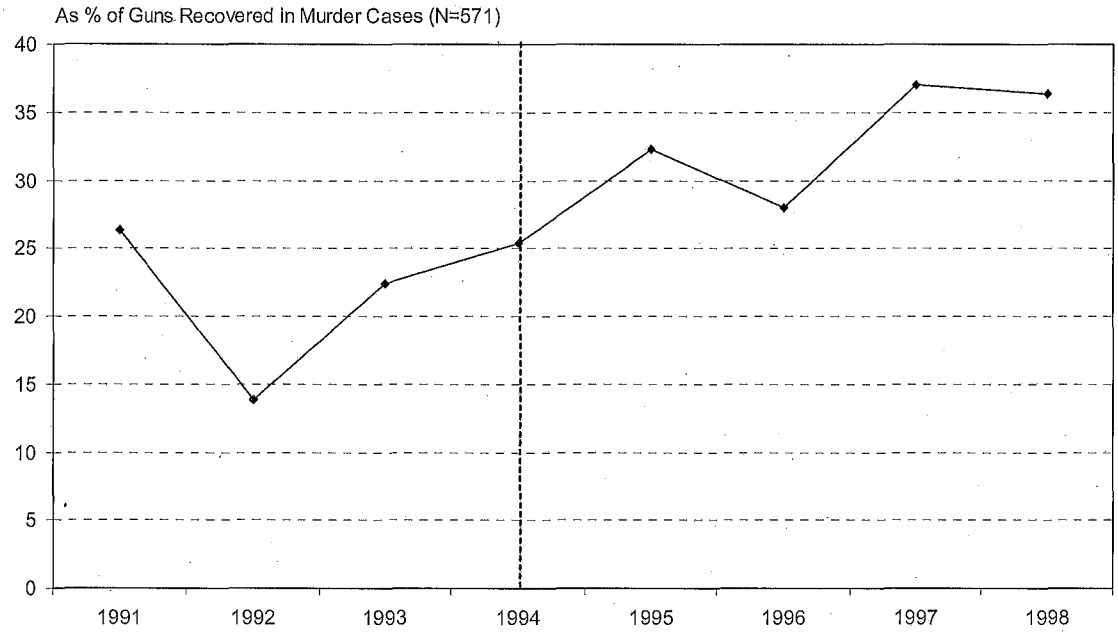
unidentified magazines suggested that as many as 17% of guns used in murders during 2000 and 2001 may have been LCM guns (based on all those that either had LCMs, were models sold with LCMs prior to the ban, or were unidentified semiautomatics). While this still suggests a drop in LCM use from the peak levels of the late 1990s (26% of guns used in murders from 1995 to 1998 had LCMs), it is not clear that LCM use has declined significantly below pre-ban levels.

Table 8-4. Trends in Police Recoveries of Firearms Equipped With Large Capacity Magazines in Murder Cases, Milwaukee County, 1991-1998

	Pre-Ban Period	Post-Ban Period	Change
A. All LCM Guns	Jan. 1991-Dec. 1993	Jan. 1995-Dec. 1998	
Total	51	83	
Annual Mean	17	20.75	22%
LCM Guns as % of All Guns	20.9%	32.42%	55%*
B. LCM Handguns	Jan. 1991-Dec. 1993	Jan. 1995-Dec. 1998	
Total	40	71	
Annual Mean	13.33	17.75	33%
LCM Handguns as % of All Guns	16.39%	27.73%	69%*
C. LCM Rifles	Jan. 1991-Dec. 1993	Jan. 1995-Dec. 1998	
Total	11	12	
Annual Mean	3.67	3	-18%
LCM Rifles as % of All Guns	4.51%	4.69%	4%

* Chi-square p level < .01 (changes in percentages of guns equipped with LCMs were tested for statistical significance)

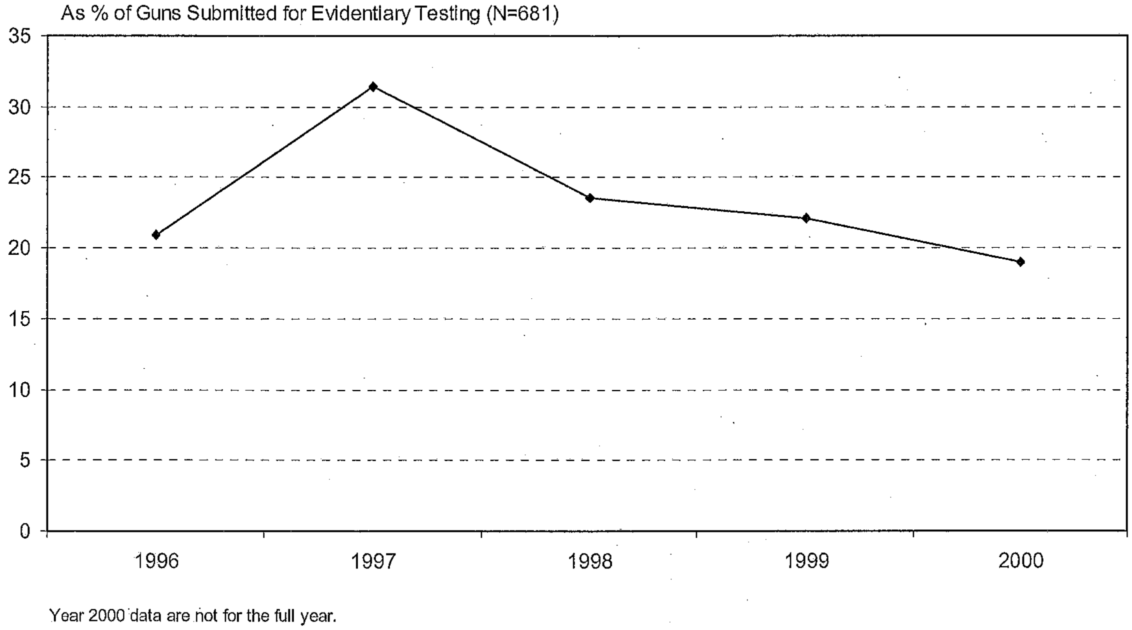
Figure 8-4. Recoveries of Guns Equipped With Large Capacity Magazines in Milwaukee County Murder Cases, 1991-1998



8.4. Louisville

The Louisville LCM data are all post-ban (1996-2000), so we cannot make pre-post comparisons. Nonetheless, the share of crime guns with LCMs in Louisville (24%) was within the range of that observed in the other cities during this period. And similar to post-ban trends in the other sites, LCM recoveries peaked in 1997 before leveling off and remaining steady through the year 2000 (Figure 8-5). LCM rifles dropped 21% as a share of crime guns between 1996 and 2000 (analyses not shown), but there were few in the database, and they never accounted for more than 6.2% of guns in any year.

Figure 8-5. Police Recoveries of Guns Equipped With Large Capacity Magazines in Louisville (Kentucky), 1996-2000



8.5. Summary

Despite a doubling of handgun LCM prices between 1993 and 1995 and a 40% increase in rifle LCM prices from 1993 to 1994, criminal use of LCMs was rising or steady through at least the latter 1990s, based on police recovery data from four jurisdictions studied in this chapter. These findings are also consistent with an earlier study finding no decline in seizures of LCM guns from juveniles in Washington, DC in the year after the ban (Koper, 2001).[88] Post-2000 data, though more limited and inconsistent, suggest that LCM use may be dropping from peak levels of the late 1990s but provide no definitive evidence of a drop below pre-ban levels.[89] These trends have been driven primarily by LCM handguns, which are used in crime roughly three times as

[88] From 1991 to 1993, 16.4% of guns recovered from juveniles in Washington, DC had LCMs (14.2% had LCMs in 1993). In 1995, this percentage increased to 17.1%. We did not present these findings in this chapter because the data were limited to guns recovered from juveniles, the post-ban data series was very short, and the gun markets supplying DC and Baltimore are likely to have much overlap (Maryland is a leading supplier of guns to DC – see ATF, 1997; 1999).

[89] We reran selected key analyses with the Baltimore, Milwaukee, and Louisville data after excluding .22 caliber guns, some of which could have been equipped with attached tubular magazines that are exempted from the LCM ban, and obtained results consistent with those reported in the text. It was possible to identify these exempted magazines in the Anchorage data. When they were removed from Anchorage's LCM count, the general pattern in use of banned LCMs was similar to that presented in the main 1995-2002 analysis: guns with banned LCMs rose, reaching a peak of 21% of crime guns in 1999-2000, before declining slightly to 19% in 2001-2002.

often as LCM rifles. Nonetheless, there has been no consistent reduction in the use of LCM rifles either.

The observed patterns are likely due to several factors: a hangover from pre-ban growth in the production and marketing of LCM guns (Cook and Ludwig, 1997, pp. 5-6; Wintemute, 1996);[90] the low cost of LCMs relative to the firearms they complement, which seems to make LCM use less sensitive to prices than is firearm use;[91] the utility that gun users, particularly handgun users, attach to LCMs; a plentiful supply of grandfathered LCMs, likely enhanced by a pre-ban surge in production (though this has not been documented) and the importation of millions of foreign LCMs since the ban;[92] thefts of LCM firearms (see Roth and Koper, 1997, Chapter 4); or some combination of these factors.[93] However, it is worth noting that our analysis did not reveal an upswing in use of LCM guns following the surge of LCM importation in 1999 (see the previous chapter). It remains to be seen whether recent imports will have a demonstrable effect on patterns of LCM use.

Finally, we must be cautious in generalizing these results to the nation because they are based on a small number of non-randomly selected jurisdictions. Nonetheless, the consistent failure to find clear evidence of a pre-post drop in LCM use across these geographically diverse locations strengthens the inference that the findings are indicative of a national pattern.

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[90] To illustrate this trend, 38% of handguns acquired by gun owners during 1993 and 1994 were equipped with magazines holding 10 or more rounds, whereas only 14% of handguns acquired before 1993 were so equipped (Cook and Ludwig, 1997, pp. 5-6).

[91] Although elevated post-ban prices did not suppress use of LCMs, a more subtle point is that LCM use rose in most of these locations between 1995 and 1998, as LCM prices were falling from their peak levels of 1994-1995. Therefore, LCM use may have some sensitivity to price trends.

[92] However, we do not have the necessary data to determine if LCMs used in crime after the ban were acquired before or after the ban.

[93] In light of these considerations, it is conceivable that the ban slowed the rate of growth in LCM use, accelerated it temporarily (due to a pre-ban production boom), or had no effect. We do not have the data necessary to examine this issue rigorously. Moreover, the issue might be regarded as somewhat superfluous; the more critical point would seem to be that nearly a decade after the ban, LCM use has still not declined demonstrably below pre-ban levels.

9. THE CONSEQUENCES OF CRIMES WITH ASSAULT WEAPONS AND LARGE CAPACITY MAGAZINES

One of the primary considerations motivating passage of the ban on AWs and LCMs was a concern over the perceived dangerousness of these guns and magazines. In principal, semiautomatic weapons with LCMs enable offenders to fire high numbers of shots rapidly, thereby potentially increasing both the number of person wounded per gunfire incident (including both intended targets and innocent bystanders) and the number of gunshot victims suffering multiple wounds, both of which would increase deaths and injuries from gun violence. Ban advocates also argued that the banned AWs possessed additional features conducive to criminal applications.

The findings of the previous chapters suggest that it is premature to make definitive assessments of the ban's impact on gun violence. Although criminal use of AWs has declined since the ban, this reduction was offset through at least the late 1990s by steady or rising use of other guns equipped with LCMs. As argued previously, the LCM ban has greater potential for reducing gun deaths and injuries than does the AW ban. Guns with LCMs – of which AWs are only a subset – were used in up to 25% of gun crimes before the ban, whereas AWs were used in no more than 8% (Chapter 3). Furthermore, an LCM is arguably the most important feature of an AW. Hence, use of guns with LCMs is probably more consequential than use of guns with other military-style features, such as flash hiders, folding rifle stocks, threaded barrels for attaching a silencers, and so on.[94]

This is not to say that reducing use of AWs will have no effect on gun crime; a decline in the use of AWs does imply fewer crimes with guns having particularly large magazines (20 or more rounds) and other military-style features that could facilitate some crimes. However, it seems that any such effects would be outweighed, or at least

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[94] While it is conceivable that changing features of AWs other than their magazines might prevent some gunshot victimizations, available data provide little if any empirical basis for judging the likely size of such effects. Speculatively, some of the most beneficial weapon redesigns may be the removal of folding stocks and pistol grips from rifles. It is plausible that some offenders who cannot obtain rifles with folding stocks (which make the guns more concealable) might switch to handguns, which are more concealable but generally cause less severe wounds (e.g. see DiMaio, 1985). However, such substitution patterns cannot be predicted with certainty. Police gun databases rarely have information sufficiently detailed to make assessments of changes over time in the use of weapons with specific features like folding stocks. Based on informal assessments, there was no consistent pattern in post-ban use of rifles (as a share of crime guns) in the local databases examined in the prior chapters (also see the specific comments on LCM rifles in the previous chapters).

Pistol grips enhance the ability of shooters to maintain control of a rifle during rapid, "spray and pray" firing (e.g., see Violence Policy Center, 2003). (Heat shrouds and forward handgrips on APs serve the same function.) While this feature may prove useful in military contexts (e.g., firefights among groups at 100 meters or less – see data of the U.S. Army's Operations Research Office as cited in Violence Policy Center, 2003), it is unknown whether civilian attacks with semiautomatic rifles having pistol grips claim more victims per attack than do those with other semiautomatic rifles. At any rate, most post-ban AR-type rifles still have pistol grips. Further, the ban does not count a stock thumbhole grip, which serves the same function as a pistol grip (e.g., see the illustration of LCMM rifles in Chapter 2), as an AR feature.

obscured, by the wider effects of LCM use, which themselves are likely to be small at best, as we argue below.[95]

Because offenders can substitute non-banned guns and small magazines for banned AWs and LCMs, there is not a clear rationale for expecting the ban to reduce assaults and robberies with guns.[96] But by forcing AW and LCM offenders to substitute non-AWs with small magazines, the ban might reduce the number of shots fired per gun attack, thereby reducing both victims shot per gunfire incident and gunshot victims sustaining multiple wounds. In the following sections, we consider the evidence linking high-capacity semiautomatics and AWs to gun violence and briefly examine recent trends in lethal and injurious gun violence.

9.1. The Spread of Semiautomatic Weaponry and Trends in Lethal and Injurious Gun Violence Prior to the Ban

Nationally, semiautomatic handguns grew from 28% of handgun production in 1973 to 80% in 1993 (Zawitz, 1995, p. 3). Most of this growth occurred from the late 1980s onward, during which time the gun industry also increased marketing and production of semiautomatics with LCMs (Wintemute, 1996). Likewise, semiautomatics grew as a percentage of crime guns (Koper, 1995; 1997), implying an increase in the average firing rate and ammunition capacity of guns used in crime.[97]

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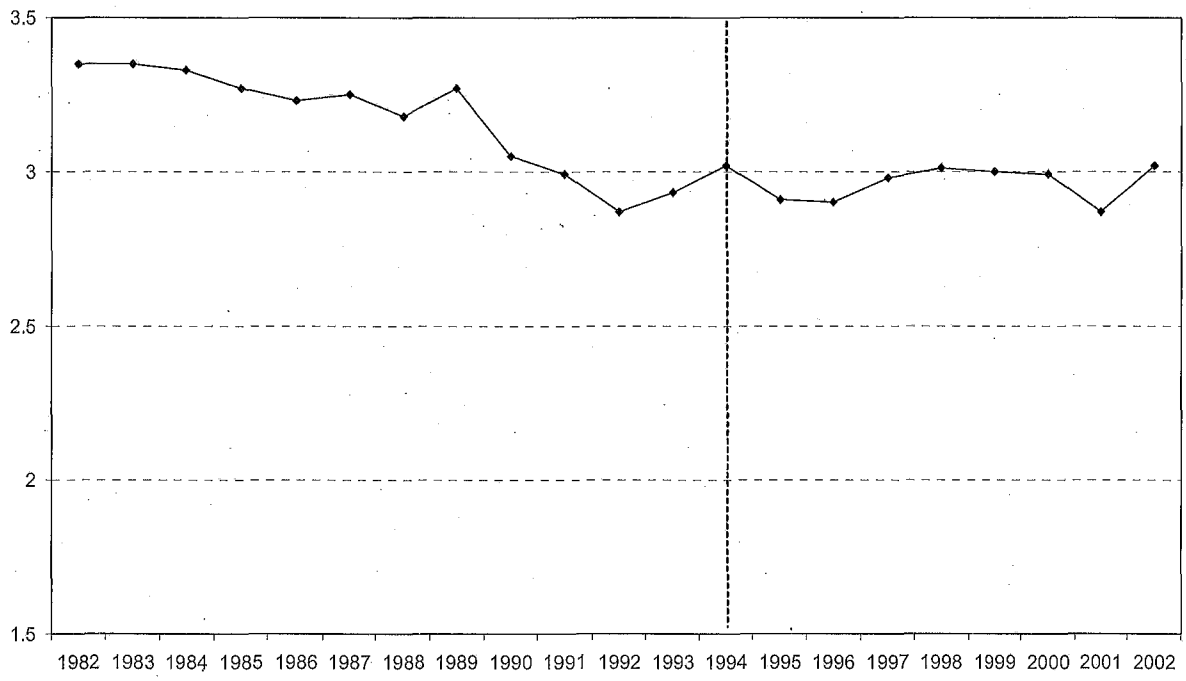
[95] On a related note, a few studies suggest that state-level AW bans have not reduced crime (Koper and Roth, 2001a; Lott, 2003). This could be construed as evidence that the federal AW ban will not reduce gunshot victimizations without reducing LCM use because the state bans tested in those studies, as written at the time, either lacked LCM bans or had LCM provisions that were less restrictive than that of the federal ban. (New Jersey's 1990 AW ban prohibited magazines holding more than 15 rounds. AP bans passed by Maryland and Hawaii prohibited magazines holding more than 20 rounds and pistol magazines holding more than 10 rounds, respectively, but these provisions did not take effect until just a few months prior to the federal ban.) However, it is hard to draw definitive conclusions from these studies for a number of reasons, perhaps the most salient of which are the following: there is little evidence on how state AW bans affect the availability and use of AWs (the impact of these laws is likely undermined to some degree by the influx of AWs from other states, a problem that was probably more pronounced prior to the federal ban when the state laws were most relevant); studies have not always examined the effects of these laws on gun homicides and shootings, the crimes that are arguably most likely to be affected by AW bans (see discussion in the main text); and the state AW bans that were passed prior to the federal ban (those in California, New Jersey, Hawaii, Connecticut, and Maryland) were in effect for only three months to five years (two years or less in most cases) before the imposition of the federal ban, after which they became largely redundant with the federal legislation and their effects more difficult to predict and estimate.

[96] One might hypothesize that the firepower provided by AWs and other semiautomatics with LCMs emboldens some offenders to engage in aggressive behaviors that prompt more shooting incidents. On the other hand, these weapons might also prevent some acts of violence by intimidating adversaries, thus discouraging attacks or resistance. We suspect that firepower does influence perceptions, considering that many police departments have upgraded their weaponry in recent years – often adopting semiautomatics with LCMs – because their officers felt outgunned by offenders. However, hypotheses about gun types and offender behavior are very speculative, and, pending additional research on such issues, it seems prudent to focus on indicators with stronger theoretical and empirical foundations.

[97] Revolvers, the most common type of non-semiautomatic handgun, typically hold only 5 or 6 rounds (and sometimes up to 9). Semiautomatic pistols, in contrast, hold ammunition in detachable magazines that, prior to the ban, typically held 5 to 17 bullets and sometimes upwards of 30 (Murtz et al., 1994).

The impact of this trend is debatable. Although the gun homicide rate rose considerably during the late 1980s and early 1990s (Bureau of Justice Statistics, 1994, p. 13), the percentage of violent gun crimes resulting in death was declining (see Figure 9-1 and the related discussion in section 9.3). Similarly, the percentage of victims killed or wounded in handgun discharge incidents declined from 27% during the 1979-1987 period to 25% for the 1987-1992 period (calculated from Rand, 1990, p. 5; 1994, p. 2) as semiautomatics were becoming more common crime weapons.[98] On the other hand, an increasing percentage of gunshot victims died from 1992 to 1995 according to hospital data (Cherry et al., 1998), a trend that could have been caused in part by a higher number of gunshot victims with multiple wounds (also see McGonigal et al., 1993). Most notably, the case fatality rate for assaultive gunshot cases involving 15 to 24-year-old males rose from 15.9% in late 1993 to 17.5% in early 1995 (p. 56).

Figure 9-1. Percentage of Violent Gun Crimes Resulting in Death (National), 1982-2002



Based on gun homicides, gun robberies, and gun assaults reported in the Uniform Crime Reports and Supplemental Homicide Reports.

[98] A related point is that there was a general upward trend in the average number of shots fired by offenders in gunfights with New York City police from the late 1980s through 1992 (calculated from Goehl, 1993, p. 51). However, the average was no higher during this time than during many years of the early 1980s and 1970s.

Some researchers have inferred links between the growing use of semiautomatics in crime and the rise of both gun homicides and bystander shootings in a number of cities during the late 1980s and early 1990s (Block and Block, 1993; McGonigal et al., 1993; Sherman et al., 1989; Webster et al., 1992). A study in Washington, DC, for example, reported increases in wounds per gunshot victim and gunshot patient mortality during the 1980s that coincided with a reported increase in the percentage of crime guns that were semiautomatics (Webster et al., 1992).

Nevertheless, changes in offender behavior, coupled with other changes in crime guns (e.g., growing use of large caliber handguns – see Caruso et al., 1999; Koper, 1995; 1997; Wintemute, 1996), may have been key factors driving such trends. Washington, DC, for example, was experiencing an exploding crack epidemic at the time of the aforementioned study, and this may have raised the percentage of gun attacks in which offenders had a clear intention to injure or kill their victims. Moreover, studies that attempted to make more explicit links between the use of semiautomatic firearms and trends in lethal gun violence via time series analysis failed to produce convincing evidence of such links (Koper, 1995; 1997). However, none of the preceding research related specific trends in the use of AWs or LCMs to trends in lethal gun violence.

9.2. Shots Fired in Gun Attacks and the Effects of Weaponry on Attack Outcomes

The evidence most directly relevant to the potential of the AW-LCM ban to reduce gun deaths and injuries comes from studies examining shots fired in gun attacks and/or the outcomes of attacks involving different types of guns. Unfortunately, such evidence is very sparse.

As a general point, the faster firing rate and larger ammunition capacities of semiautomatics, especially those equipped with LCMs, have the potential to affect the outcomes of many gun attacks because gun offenders are not particularly good shooters. Offenders wounded their victims in no more than 29% of gunfire incidents according to national, pre-ban estimates (computed from Rand, 1994, p. 2; also see estimates presented later in this chapter). Similarly, a study of handgun assaults in one city revealed a 31% hit rate per shot, based on the sum totals of all shots fired and wounds inflicted (Reedy and Koper, 2003, p. 154). Other studies have yielded hit rates per shot ranging from 8% in gunfights with police (Goehl, 1993, p. 8) to 50% in mass murders (Kleck, 1997, p. 144). Even police officers, who are presumably certified and regularly re-certified as proficient marksman and who are almost certainly better shooters than are average gun offenders, hit their targets with only 22% to 39% of their shots (Kleck, 1991, p. 163; Goehl, 1993). Therefore, the ability to deliver more shots rapidly should raise the likelihood that offenders hit their targets, not to mention innocent bystanders.[99]

[99] However, some argue that this capability is offset to some degree by the effects of recoil on shooter aim, the limited number of shots fired in most criminal attacks (see below), and the fact that criminals using non-semiautomatics or semiautomatics with small magazines usually have the time and ability to deliver multiple shots if desired (Kleck, 1991, pp. 78-79).

A few studies have compared attacks with semiautomatics, sometimes specifically those with LCMs (including AWs), to other gun assaults in terms of shots fired, persons hit, and wounds inflicted (see Tables 9-1 and 9-2). The most comprehensive of these studies examined police reports of attacks with semiautomatic pistols and revolvers in Jersey City, New Jersey from 1992 through 1996 (Reedy and Koper, 2003), finding that use of pistols resulted in more shots fired and higher numbers of gunshot victims (Table 9-1), though not more gunshot wounds per victim (Table 9-2).[100] Results implied there would have been 9.4% fewer gunshot victims overall had semiautomatics not been used in any of the attacks. Similarly, studies of gun murders in Philadelphia (see McGonigal et al., 1993 in Table 9-1) and a number of smaller cities in Pennsylvania, Ohio, and Iowa (see Richmond et al., 2003 in Table 9-2) found that attacks with semiautomatics resulted in more shots fired and gunshot wounds per victim. An exception is that the differential in shots fired between pistol and revolver cases in Philadelphia during 1990 did not exist for cases that occurred in 1985, when semiautomatics and revolvers had been fired an average of 1.6 and 1.9 times, respectively. It is not clear whether the increase in shots fired for pistol cases from 1985 to 1990 was due to changes in offender behavior, changes in the design or quality of pistols (especially an increase in the use of models with LCMs – see Wintemute, 1996), the larger sample for 1990, or other factors.

[100] But unlike other studies that have examined wounds per victim (see Table 9-2), this study relied on police reports of wounds inflicted rather than medical reports, which are likely to be more accurate.

Table 9-1. Shots Fired and Victims Hit in Gunfire Attacks By Type of Gun and Magazine

Data Source	Measure	Outcome
Gun attacks with semiautomatic pistols and revolvers, Jersey City, 1992-1996 [a]	Shots Fired	Avg. = 3.2 – 3.7 (n=165 pistol cases) * Avg. = 2.3 – 2.6 (n=71 revolver cases) *
Gun homicides with semiautomatic pistols and revolvers, Philadelphia, 1985 and 1990 [b]	Shots Fired	Avg. = 1.6 (n=21 pistol cases, 1985) Avg. = 1.9 (n=57 revolver cases, 1985) Avg. = 2.7 (n=95 pistol cases, 1990) Avg. = 2.1 (n=108 revolver cases, 1990)
Gun attacks with semiautomatic pistols and revolvers, Jersey City, 1992-1996 [a]	Victims Hit	Avg. = 1.15 (n=95 pistol cases) * Avg. = 1.0 (n=40 revolver cases) *
Mass shootings with AWs, semiautomatics having LCMs, or other guns, 6+ dead or 12+ shot, United States, 1984-1993 [c]	Victims Hit	Avg. = 29 (n=6 AW/LCM cases) Avg. = 13 (n=9 non-AW/LCM cases)
Self-reported gunfire attacks by state prisoners with AWs, other semiautomatics, and non-semiautomatic firearms, United States, 1997 or earlier [d]	% of Attacks With Victims Hit	19.5% (n=72 AW or machine gun cases) 22.3% (n=419 non-AW, semiautomatic cases) 23.3% (n=608 non-AW, non-semiautomatic cases)

a. Reedy and Koper (2003)
b. McGonigal et al. (1993)
c. Figures calculated by Koper and Roth (2001a) based on data presented by Kleck (1997, p. 144)
d. Calculated from Harlow (2001, p. 11). (Sample sizes are based on unpublished information provided by the author of the survey report.)
* Pistol/revolver differences statistically significant at $p<.05$ (only Reedy and Koper [2003] and Harlow [2001] tested for statistically significant differences). The shots fired ranges in Reedy and Koper are based on minimum and maximum estimates.

Table 9-2. Gunshot Wounds Per Victim By Type of Gun and Magazine

Data Source	Measure	Outcome
Gun attacks with semiautomatic pistols and revolvers, Jersey City, 1992-1996 [a]	Gunshot Wounds	Avg. = 1.4 (n=107 pistol victims) Avg. = 1.5 (n=40 revolver victims)
Gun homicides with semiautomatic pistols and revolvers, Iowa City (IA), Youngstown (OH), and Bethlehem (PA), 1994-1998 [b]	Gunshot Wounds	Avg. = 4.5 total (n=212 pistol victims)* Avg. = 2.9 entry Avg. = 2.0 total (n=63 revolver victims)* Avg. = 1.5 entry
Gun homicides with assault weapons (AWs), guns having large capacity magazines (LCMs), and other firearms, Milwaukee, 1992-1995 [c]	Gunshot Wounds	Avg. = 3.23 (n=30 LCM victims) ** Avg. = 3.14 (n=7 AW victims) Avg. = 2.08 (n=102 non-AW/LCM victims)**

a. Reedy and Koper (2003)
b. Richmond et al. (2003)
c. Roth and Koper (1997, Chapter 6)
* Pistol/revolver differences statistically significant at $p<.01$.
** The basic comparison between LCM victims and non-AW/LCM victims was moderately significant ($p<.10$) with a one-tailed test. Regression results (with a slightly modified sample) revealed a difference significant at $p=.05$ (two-tailed test). Note that the non-LCM group included a few cases involving non-banned LCMs (.22 caliber attached tubular devices).

Also, a national survey of state prisoners found that, contrary to expectations, offenders who reported firing on victims with AWs and other semiautomatics were no more likely to report having killed or injured victims than were other gun offenders who reported firing on victims (Table 9-1). However, the measurement of guns used and attack outcomes were arguably less precise in this study, which was based on offender self-reports, than in other studies utilizing police and medical reports.[101]

Attacks with AWs or other guns with LCMs may be particularly lethal and injurious, based on very limited evidence. In mass shooting incidents (defined as those in which at least 6 persons were killed or at least 12 were wounded) that occurred during the decade preceding the ban, offenders using AWs and other semiautomatics with LCMs (sometimes in addition to other guns) claimed an average of 29 victims in comparison to an average of 13 victims for other cases (Table 9-1). (But also see the study discussed in the preceding paragraph in regards to victims hit in AW cases.)

Further, a study of Milwaukee homicide victims from 1992 through 1995 revealed that those killed with AWs were shot 3.14 times on average, while those killed with any

[101] See the discussion of self-reports and AW use in Chapter 3.

gun having an LCM were shot 3.23 times on average (Table 9-2). In contrast, victims shot with guns having small magazines had only 2.1 wounds on average. If such a wound differential can be generalized to other gun attacks – if, that is, both fatal and non-fatal LCM gunshot victims are generally hit one or more extra times – then LCM use could have a considerable effect on the number of gunshot victims who die. To illustrate, the fatality rate among gunshot victims in Jersey City during the 1990s was 63% higher for those shot twice than for those shot once (26% to 16%) (Koper and Roth, 2001a; 2001b). Likewise, fatality rates are 61% higher for patients with multiple chest wounds than for patients with a single chest wound (49% to 30.5%), based on a Washington, DC study (Webster et al., 1992, p. 696).

Similar conclusions can also be inferred indirectly from the types of crimes involving LCM guns. To illustrate, handguns associated with gunshot victimizations in Baltimore (see the description of the Baltimore gun and magazine data in the preceding chapter) are 20% to 50% more likely to have LCMs than are handguns associated with other violent crimes, controlling for weapon caliber (Table 9-3). This difference may be due to higher numbers of shots and hits in crimes committed with LCMs, although it is also possible that offenders using LCMs are more likely to fire on victims. But controlling for gunfire, guns used in shootings are 17% to 26% more likely to have LCMs than guns used in gunfire cases resulting in no wounded victims (perhaps reflecting higher numbers of shots fired and victims hit in LCM cases), and guns linked to murders are 8% to 17% more likely to have LCMs than guns linked to non-fatal gunshot victimizations (perhaps indicating higher numbers of shots fired and wounds per victim in LCM cases).[102] These differences are not all statistically significant, but the pattern is consistent. And as discussed in Chapter 3, AWs account for a larger share of guns used in mass murders and murders of police, crimes for which weapons with greater firepower would seem particularly useful.

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[102] Cases with and without gunfire and gunshot victims were approximated based on offense codes contained in the gun seizure data (some gunfire cases not resulting in wounded victims may not have been identified as such, and it is possible that some homicides were not committed with the guns recovered during the investigations). In order to control for caliber effects, we focused on 9mm and .38 caliber handguns. Over 80% of the LCM handguns linked to violent crimes were 9mm handguns. Since all (or virtually all) 9mm handguns are semiautomatics, we also selected .38 caliber guns, which are close to 9mm in size and consist almost entirely of revolvers and derringers.

The disproportionate involvement of LCM handguns in injury and death cases is greatest in the comparisons including both 9mm and .38 caliber handguns. This may reflect a greater differential in average ammunition capacity between LCM handguns and revolvers/derringers than between LCM handguns and other semiautomatics. The differential in fatal and non-fatal gunshot victims may also be due to caliber effects; 9mm is generally a more powerful caliber than .38 based on measures like kinetic energy or relative stopping power (e.g., see DiMaio, 1985, p. 140; Warner 1995, p. 223; Wintemute, 1996, p. 1751).

Table 9-3. Probabilities That Handguns Associated With Murders, Non-Fatal Shootings, and Other Violent Crimes Were Equipped With Large Capacity Magazines in Baltimore, 1993-2000

Handgun Sample	% With LCM	% Difference (#2 Relative to #1)
A. Handguns Used in Violent Crimes With and Without Gunshot Injury		
1) 9mm and .38: violence, no gunshot victims	23.21%	
2) 9mm and .38: violence with gunshot victims	34.87%	50%*
1) 9mm: violence, no gunshot victims	52.92%	
2) 9mm: violence with gunshot victims	63.24%	20%*
B. Handguns Used in Gunfire Cases With and Without Gunshot Injury		
1) 9mm and .38: gunfire, no gunshot victims	27.66%	
2) 9mm and .38: gunfire with gunshot victims	34.87%	26%
1) 9mm: gunfire, no gunshot victims	54.17%	
2) 9mm: gunfire with gunshot victims	63.24%	17%
C. Handguns Used in Fatal Versus Non-Fatal Gunshot Victimizations		
1) 9mm and .38: non-fatal gunshot victims	32.58%	
2) 9mm and .38: homicides	38.18%	17%
1) 9mm: non-fatal gunshot victims	61.14%	
2) 9mm: homicides	66.04%	8%

* Statistically significant difference at p<.01 (chi-square).

The findings of the preceding studies are subject to numerous caveats. There were few if any attempts to control for characteristics of the actors or situations that might have influenced weapon choices and/or attack outcomes.[103] Weapons data were typically missing for substantial percentages of cases. Further, many of the comparisons in the tables were not tested for statistical significance (see the notes to Tables 9-1 and 9-2).[104]

Tentatively, nonetheless, the evidence suggests more often than not that attacks with semiautomatics, particularly those equipped with LCMs, result in more shots fired, leading to both more injuries and injuries of greater severity. Perhaps the faster firing rate and larger ammunition capacities afforded by these weapons prompt some offenders to fire more frequently (i.e., encouraging what some police and military persons refer to as a "spray and pray" mentality). But this still begs the question of whether a 10-round limit on magazine capacity will affect the outcomes of enough gun attacks to measurably reduce gun injuries and deaths.

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[103] In terms of offender characteristics, recall from Chapter 3 that AP buyers are more likely than other gun buyers to have criminal histories and commit subsequent crimes. This does not seem to apply, however, to the broader class of semiautomatic users: handgun buyers with and without criminal histories tend to buy pistols in virtually the same proportions (Wintemute et al., 1998b), and youthful gun offenders using pistols and revolvers have very comparable criminal histories (Sheley and Wright, 1993b, p. 381). Further, semiautomatic users, including many of those using AWs, show no greater propensity to shoot at victims than do other gun offenders (Harlow, 2001, p. 11; Reedy and Koper, 2003). Other potential confounders to the comparisons in Tables 9-1 and 9-2 might include shooter age and skill, the nature of the circumstances (e.g., whether the shooting was an execution-style shooting), the health of the victim(s), the type of location (e.g., indoor or outdoor location), the distance between the shooter and intended victim(s), the presence of multiple persons who could have been shot intentionally or accidentally (as bystanders), and (in the mass shooting incidents) the use of multiple firearms.

[104] Tables 9-1 and 9-2 present the strongest evidence from the available studies. However, there are additional findings from these studies and others that, while weaker, are relevant. Based on gun model information available for a subset of cases in the Jersey City study, there were 12 gunfire cases involving guns manufactured with LCMs before the ban (7 of which resulted in wounded victims) and 94 gunfire cases involving revolvers or semiautomatic models without LCMs. Comparisons of these cases produced results similar to those of the main analysis: shot fired estimates ranged from 2.83 to 3.25 for the LCM cases and 2.22 to 2.6 for the non-LCM cases; 1.14 victims were wounded on average in the LCM gunshot cases and 1.06 in the non-LCM gunshot cases; and LCM gunshot victims had 1.14 wound on average, which, contrary to expectations, was less than the 1.47 average for other gunshot victims.

The compilation of mass shooting incidents cited in Table 9-1 had tentative shots fired estimates for 3 of the AW-LCM cases and 4 of the other cases. The AW-LCM cases averaged 93 shots per incident, a figure two and a half times greater than the 36.5 shot average for the other cases.

Finally, another study of firearm mass murders found that the average number of victims killed (tallies did not include others wounded) was 6 in AW cases and 4.5 in other cases (Roth and Koper, 1997, Appendix A). Only 2 of the 52 cases studied clearly involved AWs (or very similar guns). However, the make and model of the firearm were available for only eight cases, so additional incidents may have involved LCMs; in fact, at least 35% of the cases involved unidentified semiautomatics. (For those cases in which at least the gun type and firing action were known, semiautomatics outnumbered non-semiautomatics by 6 to 1, perhaps suggesting that semiautomatics are used disproportionately in mass murders.)

9.2.1. Will a 10-Round Magazine Limit Reduce Gunshot Victimizations?

Specific data on shots fired in gun attacks are quite fragmentary and often inferred indirectly, but they suggest that relatively few attacks involve more than 10 shots fired.[105] Based on national data compiled by the FBI, for example, there were only about 19 gun murder incidents a year involving four or more victims from 1976 through 1995 (for a total of 375) (Fox and Levin, 1998, p. 435) and only about one a year involving six or more victims from 1976 through 1992 (for a total of 17) (Kleck, 1997, p. 126). Similarly, gun murder victims are shot two to three times on average according to a number of sources (see Table 9-2 and Koper and Roth, 2001a), and a study at a Washington, DC trauma center reported that only 8% of all gunshot victims treated from 1988 through 1990 had five or more wounds (Webster et al., 1992, p. 696).

However, counts of victims hit or wounds inflicted provide only a lower bound estimate of the number of shots fired in an attack, which could be considerably higher in light of the low hit rates in gunfire incidents (see above).[106] The few available studies on shots fired show that assailants fire less than four shots on average (see sources in Table 9-1 and Goehl, 1993), a number well within the 10-round magazine limit imposed by the AW-LCM ban, but these studies have not usually presented the full distribution of shots fired for all cases, so it is usually unclear how many cases, if any, involved more than 10 shots.

An exception is the aforementioned study of handgun murders and assaults in Jersey City (Reedy and Koper, 2003). Focusing on cases for which at least the type of handgun (semiautomatic, revolver, derringer) could be determined, 2.5% of the gunfire cases involved more than 10 shots.[107] These incidents – all of which involved pistols – had a 100% injury rate and accounted for 4.7% of all gunshot victims in the sample (see Figure 9-2). Offenders fired a total of 83 shots in these cases, wounding 7 victims, only 1 of whom was wounded more than once. Overall, therefore, attackers fired over 8 shots

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[105] Although the focus of the discussion is on attacks with more than 10 shots fired, a gun user with a post-ban 10-round magazine can attain a firing capacity of 11 shots with many semiautomatics by loading one bullet into the chamber before loading the magazine.

[106] As a dramatic example, consider the heavily publicized case of Amadou Diallo, who was shot to death by four New York City police officers just a few years ago. The officers in this case fired upon Diallo 41 times but hit him with only 19 shots (a 46% hit rate), despite his being confined in a vestibule. Two of the officers reportedly fired until they had emptied their 16-round magazines, a reaction that may not be uncommon in such high-stress situations. In official statistics, this case will appear as having only one victim.

[107] The shots fired estimates were based on reported gunshot injuries, physical evidence (for example, shell casings found at the scene), and the accounts of witnesses and actors. The 2.5% figure is based on minimum estimates of shots fired. Using maximum estimates, 3% of the gunfire incidents involved more than 10 shots (Reedy and Koper, 2003, p. 154).

A caveat to these figures is that the federal LCM ban was in effect for much of the study period (which spanned January 1992 to November 1996), and a New Jersey ban on magazines with more than 15 rounds predated the study period. It is thus conceivable that these laws reduced attacks with LCM guns and attacks with more than 10 shots fired, though it seems unlikely that the federal ban had any such effect (see the analyses of LCM use presented in the previous chapter). Approximately 1% of the gunfire incidents involved more than 15 shots.

for every wound inflicted, suggesting that perhaps fewer persons would have been wounded had the offenders not been able to fire as often.[108]

Figure 9-2. Attacks With More Than 10 Shots Fired

Jersey City Handgun Attacks, 1992-1996

- **2.5% - 3% of gunfire incidents involved 11+ shots**
  - **3.6% - 4.2% of semiauto pistol attacks**
- **100% injury rate**
- **Produced 4.7% of all gunshot wound victims**
- **8.3 shots per gunshot wound**

Based on data reported by Reedy and Koper (2003). Injury statistics based on the 2.5% of cases involving 11+ shots by minimum estimate.

Caution is warranted in generalizing from these results because they are based on a very small number of incidents (6) from one sample in one city. Further, it is not known if the offenders in these cases had LCMs (gun model and magazine information was very limited); they may have emptied small magazines, reloaded, and continued firing. But subject to these caveats, the findings suggest that the ability to deliver more than 10 shots without reloading may be instrumental in a small but non-trivial percentage of gunshot victimizations.

On the other hand, the Jersey City study also implies that eliminating AWs and LCMs might only reduce gunshot victimizations by up to 5%. And even this estimate is probably overly optimistic because the LCM ban cannot be expected to prevent all incidents with more than 10 shots. Consequently, any effects from the ban (should it be extended) are likely to be smaller and perhaps quite difficult to detect with standard statistical methods (see Koper and Roth, 2001a), especially in the near future, if recent patterns of LCM use continue.

9.3. Post-Ban Trends in Lethal and Injurious Gun Violence

Having established some basis for believing the AW-LCM ban could have at least a small effect on lethal and injurious gun violence, is there any evidence of such an effect to date? Gun homicides plummeted from approximately 16,300 in 1994 to 10,100 in 1999, a reduction of about 38% (see the Federal Bureau of Investigation's *Uniform Crime*

[108] These figures are based on a supplemental analysis not contained in the published study. We thank Darin Reedy for this analysis.

Reports). Likewise, non-fatal, assaultive gunshot injuries treated in hospitals nationwide declined one-third, from about 68,400 to under 46,400, between 1994 and 1998 (Gotsch et al., 2001, pp. 23-24). Experts believe numerous factors contributed to the recent drop in these and other crimes, including changing drug markets, a strong economy, better policing, and higher incarceration rates, among others (Blumstein and Wallman, 2000). Attributing the decline in gun murders and shootings to the AW-LCM ban is problematic, however, considering that crimes with LCMs appear to have been steady or rising since the ban. For this reason, we do not undertake a rigorous investigation of the ban's effects on gun violence.[109]

But a more casual assessment shows that gun crimes since the ban have been no less likely to cause death or injury than those before the ban, contrary to what we might expect if crimes with AWs and LCMs had both declined. For instance, the percentage of violent gun crimes resulting in death has been very stable since 1990 according to national statistics on crimes reported to police (see Figure 9-1 in section 9.1).[110] In fact, the percentage of gun crimes resulting in death during 2001 and 2002 (2.94%) was slightly higher than that during 1992 and 1993 (2.9%).

Similarly, neither medical nor criminological data sources have shown any post-ban reduction in the percentage of crime-related gunshot victims who die. If anything, this percentage has been higher since the ban, a pattern that could be linked in part to more multiple wound victimizations stemming from elevated levels of LCM use. According to medical examiners' reports and hospitalization estimates, about 20% of gunshot victims died nationwide in 1993 (Gotsch et al., 2001). This figure rose to 23% in 1996, before declining to 21% in 1998 (Figure 9-3).[111] Estimates derived from the Uniform Crime Reports and the Bureau of Justice Statistics' annual National Crime Victimization Survey follow a similar pattern from 1992 to 1999 (although the ratio of fatal to non-fatal cases is much higher in these data than that in the medical data) and also show a considerable increase in the percentage of gunshot victims who died in 2000 and 2001 (Figure 9-3).[112] Of course, changes in offender behavior or other changes in crime

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[109] In our prior study (Koper and Roth 2001a; Roth and Koper, 1997, Chapter 6), we estimated that gun murders were about 7% lower than expected in 1995 (the first year after the ban), adjusting for pre-existing trends. However, the very limited post-ban data available for that study precluded a definitive judgment as to whether this drop was statistically meaningful (see especially Koper and Roth, 2001a). Furthermore, that analysis was based on the assumption that crimes with both AWs and LCMs had dropped in the short-term aftermath of the ban, an assumption called into question by the findings of this study. It is now more difficult to credit the ban with any of the drop in gun murders in 1995 or anytime since. We did not update the gun murder analysis because interpreting the results would be unavoidably ambiguous. Such an investigation will be more productive after demonstrating that the ban has reduced crimes with both AWs and LCMs.

[110] The decline in this figure during the 1980s was likely due in part to changes in police reporting of aggravated assaults in recent decades (Blumstein, 2000). The ratio of gun murders to gun robberies rose during the 1980s, then declined and remained relatively flat during the 1990s.

[111] Combining homicide data from 1999 with non-fatal gunshot estimates for 2000 suggests that about 20% of gunshot victimizations resulted in death during 1999 and 2000 (Simon et al., 2002).

[112] The SHR/NCVS estimates should be interpreted cautiously because the NCVS appears to undercount non-fatal gunshot wound cases by as much as two-thirds relative to police data, most likely because it fails to represent adequately the types of people most likely to be victims of serious crime (i.e., young urban males who engage in deviant lifestyles) (Cook, 1985). Indeed, the rate of death among gunshot victims

weaponry (such as an increase in shootings with large caliber handguns) may have influenced these trends. Yet is worth noting that multiple wound shootings were elevated over pre-ban levels during 1995 and 1996 in four of five localities examined during our first AW study, though most of the differences were not statistically significant (Table 9-4, panels B through E).

Another potential indicator of ban effects is the percentage of gunfire incidents resulting in fatal or non-fatal gunshot victimizations. If attacks with AWs and LCMs result in more shots fired and victims hit than attacks with other guns and magazines, we might expect a decline in crimes with AWs and LCMs to reduce the share of gunfire incidents resulting in victims wounded or killed. Measured nationally with UCR and NCVS data, this indicator was relatively stable at around 30% from 1992 to 1997, before rising to about 40% from 1998 through 2000 (Figure 9-4).[113] Along similar lines, multiple victim gun homicides remained at relatively high levels through at least 1998, based on the national average of victims killed per gun murder incident (Table 9-4, panel A).[114]

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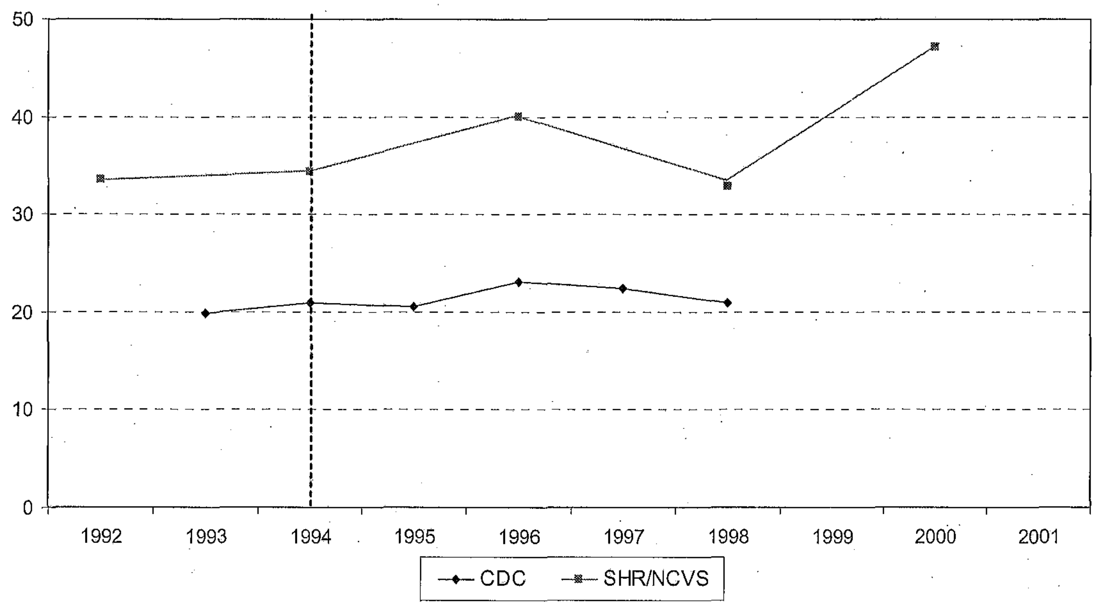
appears much higher in the SHR/NCVS series than in data compiled from medical examiners and hospitals (see the CDC series in Figure 9-3). But if these biases are relatively consistent over time, the data may still provide useful insights into trends over time.

[113] The NCVS estimates are based on a compilation of 1992-2002 data recently produced by the Inter-University Consortium for Political and Social Research (ICPSR study 3691). In 2002, only 9% of non-fatal gunfire incidents resulted in gunshot victimizations. This implies a hit rate for 2002 that was below pre-ban levels, even after incorporating gun homicide cases into the estimate. However, the 2002 NCVS estimate deviates quite substantially from earlier years, for which the average hit rate in non-fatal gunfire incidents was 24% (and the estimate for 2001 was 20%). Therefore, we did not include the 2002 data in our analysis. We used two-year averages in Figures 9-3 and 9-4 because the annual NCVS estimates are based on very small samples of gunfire incidents. The 2002 sample was especially small, so it seems prudent to wait for more data to become available before drawing conclusions about hit rates since 2001.

[114] We thank David Huffer for this analysis.

Figure 9-3. Percentage of Gunshot Victimizations Resulting in Death (National), 1992-2001



SHR/NCVS series based on two-year averages from the Supplemental Homicide Reports and National Crime Victimization Survey. CDC series based on homicide and hospitalization data from the Centers for Disease Control (reported by Gotsch et al. 2001).

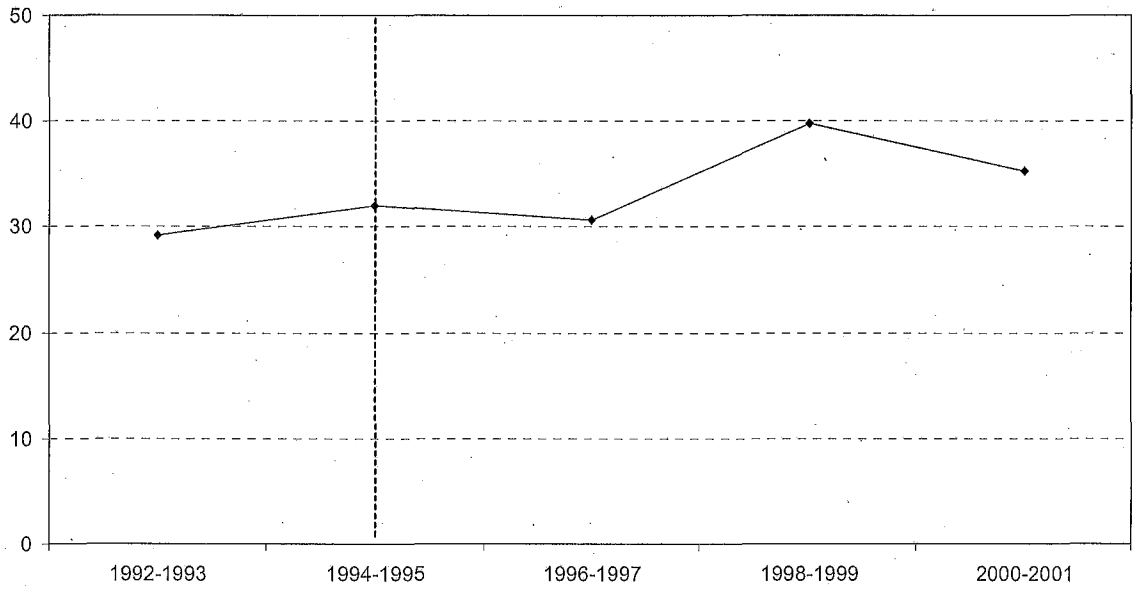
Table 9-4. Short-Term, Post-Ban Changes in the Lethality and Injuriousness of Gun Violence: National and Local Indicators, 1994-1998 [a]

Measure and Location	Pre-Ban Period	Post-Ban Period	Change
A. Victims Per Gun Homicide Incident (National)	Jan. 1986-Sept. 1994 1.05 (N=106,668)	Oct. 1994-Dec. 1998 1.06 (N=47,511)	1%**
B. Wounds per Gun Homicide Victim: Milwaukee County	Jan. 1992-Aug. 1994 2.28 (N=282)	Sept. 1994-Dec. 1995 2.52 (N=136)	11%
C. Wounds Per Gun Homicide Victim: Seattle (King County)	Jan. 1992-Aug. 1994 2.08 (N=184)	Sept. 1994-Jun. 1996 2.46 (N=91)	18%
D. Wounds Per Gunshot Victim: Jersey City (NJ)	Jan. 1992-Aug. 94 1.42 (N=125)	Sept. 1994-Jun. 1996 1.39 (N=137)	-2%
E. % of Gun Homicide Victims With Multiple Wounds: San Diego County	Jan. 1992-Aug. 1994 41% (N=445)	Sept. 1994-Jun. 1996 43% (N=223)	5%
F. % of Non-Fatal Gunshot Victims With Multiple Wounds: Boston	Jan. 1992-Aug. 1994 18% (N=584)	Sept. 1994-Dec. 1995 24% (N=244)	33%*

a. National victims per incident figures based on unpublished update of analysis reported in Roth and Koper (1997, Chapter 5). Gunshot wound data are taken from Roth and Koper (1997, Chapter 6) and Koper and Roth (2001a). Wound data are based on medical examiners' reports (Milwaukee, Seattle, San Diego), hospitalization data (Boston), and police reports (Jersey City).
* Chi-square p level < .1.
** T-test p level < .01.

If anything, therefore, gun attacks appear to have been more lethal and injurious since the ban. Perhaps elevated LCM use has contributed to this pattern. But if this is true, then the reverse would also be true – a reduction in crimes with LCMs, should the ban be extended, would reduce injuries and deaths from gun violence.

Figure 9-4. Percentage of Gunfire Cases Resulting in Gunshot Victimizations (National), 1992-2001



Based on two-year averages from the Supplemental Homicide Reports and National Crime Victimization Survey.

9.4. Summary

Although the ban has been successful in reducing crimes with AWs, any benefits from this reduction are likely to have been outweighed by steady or rising use of non-banned semiautomatics with LCMs, which are used in crime much more frequently than AWs. Therefore, we cannot clearly credit the ban with any of the nation's recent drop in gun violence. And, indeed, there has been no discernible reduction in the lethality and injuriousness of gun violence, based on indicators like the percentage of gun crimes resulting in death or the share of gunfire incidents resulting in injury, as we might have expected had the ban reduced crimes with both AWs and LCMs.

However, the grandfathering provision of the AW-LCM ban guaranteed that the effects of this law would occur only gradually over time. Those effects are still unfolding and may not be fully felt for several years into the future, particularly if foreign, pre-ban LCMs continue to be imported into the U.S. in large numbers. It is thus premature to make definitive assessments of the ban's impact on gun violence.

Having said this, the ban's impact on gun violence is likely to be small at best, and perhaps too small for reliable measurement. AWs were used in no more than 8% of gun crimes even before the ban. Guns with LCMs are used in up to a quarter of gun crimes, but it is not clear how often the outcomes of gun attacks depend on the ability to fire more than 10 shots (the current limit on magazine capacity) without reloading.

Nonetheless, reducing crimes with AWs and especially LCMs could have non-trivial effects on gunshot victimizations. As a general matter, hit rates tend to be low in gunfire incidents, so having more shots to fire rapidly can increase the likelihood that offenders hit their targets, and perhaps bystanders as well. While not entirely consistent, the few available studies contrasting attacks with different types of guns and magazines generally suggest that attacks with semiautomatics – including AWs and other semiautomatics with LCMs – result in more shots fired, persons wounded, and wounds per victim than do other gun attacks. Further, a study of handgun attacks in one city found that about 3% of gunfire incidents involved more than 10 shots fired, and those cases accounted for nearly 5% of gunshot victims. However, the evidence on these matters is too limited (both in volume and quality) to make firm projections of the ban's impact, should it be reauthorized.

10. LOOKING TO THE FUTURE: RESEARCH RECOMMENDATIONS AND SPECULATION ABOUT THE CONSEQUENCES OF REAUTHORIZING, MODIFYING, OR LIFTING THE ASSAULT WEAPONS BAN

In this chapter, we discuss future lines of inquiry that would be informative whether or not the AW-LCM ban is renewed in September 2004. We then offer some brief thoughts about the possible consequences of reauthorizing the ban, modifying it, or allowing it to expire.

10.1. Research Recommendations and Data Requirements

10.1.1. An Agenda for Assault Weapons Research and Recommendations for Data Collection by Law Enforcement

The effects of the AW-LCM ban have yet to be fully realized; therefore, we recommend continued study of trends in the availability and criminal use of AWs and LCMs. Even if the ban is lifted, longer-term study of crimes with AWs and LCMs will inform future assessment of the consequences of these policy shifts and improve understanding of the responses of gun markets to gun legislation more generally.[115]

Developing better data on crimes with LCMs is especially important. To this end, we urge police departments and their affiliated crime labs to record information about magazines recovered with crime guns. Further, we recommend that ATF integrate ammunition magazine data into its national gun tracing system and encourage reporting of magazine data by police departments that trace firearms.

As better data on LCM use become available, more research is warranted on the impacts of AW and LCM trends (which may go up or down depending on the ban's fate) on gun murders and shootings, as well as levels of death and injury per gun crime. Indicators of the latter, such as victims per gunfire incident and wounds per gunshot victim, are useful complementary outcome measures because they reflect the mechanisms through which use of AWs and LCMs is hypothesized to affect gun deaths and injuries.[116] Other potentially promising lines of inquiry might relate AW and LCM use to mass murders and murders of police, crimes that are very rare but appear more likely to involve AWs (and perhaps LCMs) and to disproportionately affect public perceptions.[117]

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[115] Establishing time series data on primary and secondary market prices and production or importation of various guns and magazines of policy interest could provide benefits for policy researchers. Like similar statistical series maintained for illegal drugs, such price and production series would be valuable instruments for monitoring effects of policy changes and other influences on markets for various weapons.

[116] However, more research is needed on the full range of factors that cause variation in these indicators over time and between places.

[117] Studying these crimes poses a number of challenges, including modeling of rare events, establishing the reliability and validity of methods for measuring the frequency and characteristics of mass murders (such as through media searchers; see Duwe, 2000, Roth and Koper, 1997, Appendix A), and controlling for factors like the use of bullet-proof vests by police.

Finally, statistical studies relating AW and LCM use to trends in gun violence should include statistical power analysis to ensure that estimated models have sufficient ability to detect small effects, an issue that has been problematic in some of our prior time series research on the ban (Koper and Roth, 2001a) and is applicable more generally to the study of modest, incremental policy changes.

Research on aggregate trends should be complemented by more incident-based studies that contrast the dynamics and outcomes of attacks with different types of guns and magazines, while controlling for relevant characteristics of the actors and situations. Such studies would refine predictions of the change in gun deaths and injuries that would follow reductions in attacks with AWs and LCMs. For instance, how many homicides and injuries involving AWs and LCMs could be prevented if offenders were forced to substitute other guns and magazines? In what percentage of gun attacks does the ability to fire more than ten rounds without reloading affect the number of wounded victims or determine the difference between a fatal and non-fatal attack? Do other AW features (such as flash hiders and pistol grips on rifles) have demonstrable effects on the outcomes of gun attacks? Studies of gun attacks could draw upon police incident reports, forensic examinations of recovered guns and magazines, and medical and law enforcement data on wounded victims.

10.1.2. Studying the Implementation and Market Impacts of Gun Control

More broadly, this study reiterates the importance of examining the implementation of gun policies and the workings of gun markets, considerations that have been largely absent from prior research on gun control. Typical methods of evaluating gun policies involve statistical comparisons of total or gun crime rates between places and/or time periods with and without different gun control provisions. Without complimentary implementation and market measures, such studies have a "black box" quality and may lead to misleading conclusions. For example, a time series study of gun murder rates before and after the AW-LCM ban might find that the ban has not reduced gun murders. Yet the interpretation of such a finding would be ambiguous, absent market or implementation measures. Reducing attacks with AWs and LCMs may in fact have no more than a trivial impact on gun deaths and injuries, but any such impact cannot be realized or adequately assessed until the availability and use of the banned guns and magazines decline appreciably. Additionally, it may take many years for the effects of modest, incremental policy changes to be fully felt, a reality that both researchers and policy makers should heed. Similar implementation concerns apply to the evaluation of various gun control policies, ranging from gun bans to enhanced sentences for gun offenders.

Our studies of the AW ban have shown that the reaction of manufacturers, dealers, and consumers to gun control policies can have substantial effects on demand and supply for affected weapons both before and after a law's implementation. It is important to study these factors because they affect the timing and form of a law's impact

on the availability of weapons to criminals and, by extension, the law's impact on gun violence.

10.2. Potential Consequences of Reauthorizing, Modifying, or Lifting the Assault Weapons Ban

10.2.1. Potential Consequences of Reauthorizing the Ban As Is

Should it be renewed, the ban might reduce gunshot victimizations. This effect is likely to be small at best and possibly too small for reliable measurement. A 5% reduction in gunshot victimizations is perhaps a reasonable upper bound estimate of the ban's potential impact (based on the only available estimate of gunshot victimizations resulting from attacks in which more than 10 shots were fired), but the actual impact is likely to be smaller and may not be fully realized for many years into the future, particularly if pre-ban LCMs continue to be imported into the U.S. from abroad. Just as the restrictions imposed by the ban are modest – they are essentially limits on weapon accessories like LCMs, flash hiders, threaded barrels, and the like – so too are the potential benefits.[118] In time, the ban may be seen as an effective prevention measure that stopped further spread of weaponry considered to be particularly dangerous (in a manner similar to federal restrictions on fully automatic weapons). But that conclusion will be contingent on further research validating the dangers of AWs and LCMs.

10.2.2. Potential Consequences of Modifying the Ban

We have not examined the specifics of legislative proposals to modify the AW ban. However, we offer a few general comments about the possible consequences of such efforts, particularly as they relate to expanding the range of the ban as some have advocated (Halstead, 2003, pp. 11-12).

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[118] But note that although the ban's impact on gunshot victimizations would be small in percentage terms and unlikely to have much effect on the public's fear of crime, it could conceivably prevent hundreds of gunshot victimizations annually and produce notable cost savings in medical care alone. To help place this in perspective, there were about 10,200 gun homicides and 48,600 non-fatal, assault-related shootings in 2000 (see the FBI's *Uniform Crime Reports* for the gun homicide estimate and Simon et al. [2002] for the estimate of non-fatal shootings). Reducing these crimes by 1% would have thus prevented 588 gunshot victimizations in 2000 (we assume the ban did not actually produce such benefits because the reduction in AW use as of 2000 was outweighed by steady or rising levels of LCM use). This may seem insubstantial compared to the 342,000 murders, assaults, and robberies committed with guns in 2000 (see the *Uniform Crime Reports*). Yet, gunshot victimizations are particularly costly crimes. Setting aside the less tangible costs of lost lives and human suffering, the lifetime medical costs of assault-related gunshot injuries (fatal and non-fatal) were estimated to be about $18,600 per injury in 1994 (Cook et al., 1999). Therefore, the lifetime costs of 588 gun homicides and shootings would be nearly $11 million in 1994 dollars (the net medical costs could be lower for reasons discussed by Cook and Ludwig [2000] but, on the other hand, this estimate does not consider other governmental and private costs that Cook and Ludwig attribute to gun violence). This implies that small reductions in gunshot victimizations sustained over many years could produce considerable long-term savings for society. We do not wish to push this point too far, however, considering the uncertainty regarding the ban's potential impact.

Gun markets react strongly merely to debates over gun legislation. Indeed, debate over the AW ban's original passage triggered spikes upwards of 50% in gun distributors' advertised AW prices (Roth and Koper, 1997, Chapter 4). In turn, this prompted a surge in AW production in 1994 (Chapter 5). Therefore, it seems likely that discussion of broadening the AW ban to additional firearms would raise prices and production of the weapons under discussion. (Such market reactions may already be underway in response to existing proposals to expand the ban, but we have not investigated this issue.) Heightened production levels could saturate the market for the weapons in question, depressing prices and delaying desired reductions in crimes with the weapons, as appears to have happened with banned ARs.

Mandating further design changes in the outward features of semiautomatic weapons (e.g., banning weapons having any military-style features) may not produce benefits beyond those of the current ban. As noted throughout this report, the most important feature of military-style weapons may be their ability to accept LCMs, and this feature has been addressed by the LCM ban and the LCMM rifle ban. Whether changing other features of military-style firearms will produce measurable benefits is unknown.

Finally, curbing importation of pre-ban LCMs should help reduce crimes with LCMs and possibly gunshot victimizations. Crimes with LCMs may not decline substantially for quite some time if millions of LCMs continue to be imported into the U.S.

10.2.3. Potential Consequences of Lifting the Ban

If the ban is lifted, it is likely that gun and magazine manufacturers will reintroduce AW models and LCMs, perhaps in substantial numbers.[119] In addition, AWs grandfathered under the 1994 law may lose value and novelty, prompting some of their lawful owners to sell them in secondary markets, where they may reach criminal users. Any resulting increase in crimes with AWs and LCMs might increase gunshot victimizations, though this effect could be difficult to discern statistically.

It is also possible, and perhaps probable, that new AWs and LCMs will eventually be used to commit mass murder. Mass murders garner much media attention, particularly when they involve AWs (Duwe, 2000). The notoriety likely to accompany mass murders if committed with AWs and LCMs, especially after these guns and magazines have been deregulated, could have a considerable negative impact on public perceptions, an effect that would almost certainly be intensified if such crimes were committed by terrorists operating in the U.S.

[119] Note, however, that foreign semiautomatic rifles with military features, including the LCMM rifles and several rifles prohibited by the 1994 ban, would still be restricted by executive orders passed in 1989 and 1998. Those orders stem from the sporting purposes test of the Gun Control Act of 1968.

REFERENCES

Adler, W.C., Bielke, F.M., Doi, D.J., and Kennedy, J.F. (1995). *Cops Under Fire: Law Enforcement Officers Killed with Assault Weapons or Guns With High Capacity Magazines*, Handgun Control, Inc., Washington, DC.

American Medical Association Council on Scientific Affairs. (1992). Assault weapons as a public health hazard in the United States. *JAMA* 267:3067-3070.

Berndt, E.R. (1990). *The Practice of Econometrics: Classic and Contemporary*, Addison Wesley, Reading, MA.

Beck, A., Gilliard, D., Greenfeld, L., Harlow, C., Hester, T., Jankowski, L., Snell, T., Stephan, J., and Morton, D. (1993). *Survey of State Prison Inmates, 1991* (NCJ-136949), Bureau of Justice Statistics, United States Department of Justice, Washington, DC.

Block, C.R. and Block, R. (1993). *Street Gang Crime in Chicago* (NCJ-144782), National Institute of Justice, United States Department of Justice, Washington, DC.

Blumstein, A. (2000). Disaggregating the violence trends. In Blumstein, A. and Wallman, J. (eds.), *The Crime Drop in America*, Cambridge University Press, New York, pp. 13-44.

Blumstein, A. and Wallman, J. (eds.), (2000). *The Crime Drop in America*, Cambridge University Press, New York.

Brady Center to Prevent Gun Violence. (2004). *On Target: The Impact of the 1994 Federal Assault Weapons Act*, Washington, DC.

Brill, S. (1977). *Firearm Abuse: A Research and Policy Report,* Police Foundation, Washington, DC.

Bureau of Alcohol, Tobacco, and Firearms. (1976). *Project Identification: A Study of Handguns Used in Crime,* United States Department of the Treasury, Washington, DC.

Bureau of Alcohol, Tobacco, and Firearms. (1977). *Concentrated Urban Enforcement (CUE),* United States Department of the Treasury, Washington, DC.

Bureau of Alcohol, Tobacco, and Firearms. (1995). *The National Tracing Center 1994 Yearend Report*, United States Department of the Treasury, Washington, DC.

Bureau of Alcohol, Tobacco, and Firearms. (1997). *Crime Gun Trace Analysis Reports: The Illegal Youth Firearms Markets in 17 Communities*, United States Department of the Treasury, Washington, DC.

Bureau of Alcohol, Tobacco, and Firearms. (1999). *Crime Gun Trace Analysis Reports: The Illegal Youth Firearms Markets in 27 Communities*, United States Department of the Treasury, Washington, DC.

Bureau of Alcohol, Tobacco, and Firearms. (2000). *Commerce in Firearms in the United States*, United States Department of the Treasury, Washington, DC.

Bureau of Justice Statistics. (1994). *Firearms and Crimes of Violence: Selected Findings from National Statistical Series* (NCJ-146844), United States Department of Justice, Washington, DC.

Bureau of Justice Statistics. (2000). *Correctional Populations in the United States, 1997* (NCJ-177613), United States Department of Justice, Washington, DC.

Caruso, R.P., Jara, D.I. and Swan, K.G. (1999). Gunshot wounds: Bullet caliber is increasing. *The Journal of Trauma: Injury, Infection, and Critical Care* 46:462-465.

Center to Prevent Handgun Violence. (1998). *On the Front Line: Making Gun Interdiction Work,* Handgun Control, Inc., Washington, DC.

Cherry, D., Annest, J.L., Mercy, J.A., Kresnow, M., and Pollock, D.A. (1998). Trends in nonfatal and fatal firearm-related injury rates in the United States, 1985-1995. *Annals of Emergency Medicine* 32:51-59.

Cook, P.J. (1985). The case of the missing victims: Gunshot woundings in the National Crime Survey." *Journal of Quantitative Criminology* 1:91-102.

Cook, P.J., Lawrence, B.A., Ludwig, J., and Miller, T.R. (1999). The medical costs of gunshot injuries in the United States. *JAMA* 282:447-454.

Cook, P.J. and Ludwig, J. (1996). *Guns in America: Results of a Comprehensive National Survey on Firearms Ownership and Use*, Police Foundation, Washington, DC.

Cook, P.J. and Ludwig, J. (1997). *Guns in America: National Survey on Private Ownership and Use of Firearms* (NCJ-165476), National Institute of Justice, United States Department of Justice, Washington, DC.

Cook, P.J. and Ludwig, J. (2000). *Gun Violence: The Real Costs*. New York: Oxford University Press.

Cook, P.J., Molliconi, S., and Cole, T.B. (1995). Regulating gun markets. *Journal of Criminal Law and Criminology* 86:59-92.

Cox Newspapers. (1989). *Firepower: Assault Weapons in America*, Cox Enterprises, Washington, DC.

DiMaio, V.J.M. (1985). *Gunshot Wounds: Practical Aspects of Firearms, Ballistics, and Forensic Techniques,* Elsevier, New York.

Duwe, G. (2000). Body-count journalism: The presentation of mass murder in the news media. *Homicide Studies* 4:364-399.

Federal Bureau of Investigation, (1982-2003). *Crime in the United States*, United States Department of Justice, Washington, DC.

Fjestad, S.J. (1990-2002). *Blue Book of Gun Values* (11th-23rd eds.), Blue Book Publications, Minneapolis.

Fox, J.A. and Levin, J. (1998). Multiple homicide: Patterns of serial and mass murder. In Tonry, M. (ed.), *Crime and Justice, Vol. 23*, University of Chicago Press, Chicago, pp. 407-455.

Friedman, M. (1962). *Price Theory: A Provisional Text*, Aldine Publishing Company, Chicago.

Goehl, G. (1993). *1992 Firearms Discharge Assault Report,* Police Academy Firearms and Tactics Section, New York City Police Department, New York.

Gotsch, K.E., Annest, J.L., Mercy, J.A., and Ryan, G.W. (2001). Surveillance for fatal and nonfatal firearm-related injuries – United States, 1993-1998. *Morbidity and Mortality Weekly Report (MMWR) CDC Surveillance Summaries* 50(SS-2):1-34.

Gun Tests. (1995). Magazine rule change unlikely. March.

Halstead, T.J. (2003). *The Assault Weapons Ban: Legal Challenges and Legislative Issues*, Congressional Research Service, Washington, DC (distributed by Penny Hill Press, Derwood, MD).

Hargarten, S.W., Karlson, T.A., O'Brien, M., Hancock, J., and Quebbeman, E. (1996). Characteristics of firearms involved in fatalities. *JAMA* 275:42-45.

Hargarten, S.W., Kuhn, E.M., Nie, C.L., O'Brien, M.E., Withers, R.L., and Wintemute, G.J. (2000). Homicide gun characteristics before and after the 1994 crime bill. In Blackman, P.H., Leggett, V.L., Olson, B.L., and Jarvis, J.P. (eds.), *The Varieties of Homicide and Its Research: Proceedings of the 1999 Meeting of the Homicide Research Working Group*, FBI Academy, Federal Bureau of Investigation, U.S. Department of Justice, Quantico, VA.

Harlow, C.W. (2001). *Firearm Use By Offenders* (NCJ-189369, Revised Feb. 2002), Bureau of Justice Statistics, U.S. Department of Justice, Washington, DC.

Hutson, H.R., Anglin, D., and Pratts, M.J., Jr. (1994). Adolescents and children injured or killed in drive-by shootings in Los Angeles. *New England Journal of Medicine* 330:324-327.

Hutson, H.R., Anglin, D., Kyriacou, D.N., Hart, J., and Spears, K. (1995). The epidemic of gang-related homicides in Los Angeles County from 1979 through 1994. *JAMA* 274:1031-1036.

Kennedy, D.M., Piehl, A.M., and Braga, A.A. (1996). Youth violence in Boston: gun markets, serious youth offenders, and a use-reduction strategy. *Law and Contemporary Problems* 59:147-196.

Kleck, G. (1991). *Point Blank: Guns and Violence in America.* Aldine de Gruyter, New York.

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

Knox, G.W., Houston, J.G., Laskey, J.A., McCurrie, T.F., Tromanhauser, E.D., Laske, D.L. (1994). *Gangs and Guns: A Task Force Report from the National Gang Crime Research Center*, National Gang Crime Research Center, Chicago

Kopel, D.B. (1995). Assault weapons. In Kopel (ed.), *Guns: Who Should Have Them?* Prometheus Books, Amherst, NY, pp. 159-232.

Koper, C.S. (1995). *Gun Lethality and Homicide: Gun Types Used By Criminals and the Lethality of Gun Violence in Kansas City, Missouri, 1985-1993,* (Ph.D. Dissertation), Department of Criminology and Criminal Justice, University of Maryland, College Park.

Koper, C.S. (1997). *Gun Density Versus Gun Type: Did the Availability of More Guns or More Lethal Guns Drive Up the Dallas Homicide Rate, 1980-1992?* (Report NCJ-187106 to the National Institute of Justice), Crime Control Institute, Philadelphia.

Koper, C.S. (2001). *A Follow-Up Assessment of the 1994 Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence*, Presentation at the annual meeting of the American Society of Criminology, Atlanta.

Koper, C.S. (2002). Federal legislation and gun markets: How much have recent reforms of the federal firearms licensing system reduce criminal gun suppliers? *Criminology and Public Policy* 1:151-178.

Koper, C.S. and Roth, J.A. (2001a). The impact of the 1994 federal assault weapon ban on gun violence outcomes: an assessment of multiple outcome measures and some lessons for policy evaluation. *Journal of Quantitative Criminology* 17:33-74.

Koper, C.S. and Roth, J.A. (2001b). A priori assertions versus empirical inquiry: A reply to Kleck. *Journal of Quantitative Criminology* 17:81-88.

Koper, C.S. and Roth, J.A. (2002a). The impact of the 1994 federal assault weapons ban on gun markets: An assessment of short-term primary and secondary market effects. *Journal of Quantitative Criminology* 18:239-266.

Koper, C.S and Roth, J.A. (2002b). *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets, 1994-2000* (Draft Report to the National Institute of Justice), Jerry Lee Center of Criminology, University of Pennsylvania, Philadelphia and The Urban Institute, Washington, DC.

Lennet, M.G. (1995). Taking a bite out of violent crime. *University of Daytona Law Review* 20:573-617.

Lott, J.R., Jr. (2003). *The Bias Against Guns: Why Almost Everything You've Heard About Gun Control is Wrong*, Regnery Publishing, Washington, DC.

McDowall, D. and Loftin, C. (1983). Collective security and the demand for legal handguns. *American Journal of Sociology* 88:1146-1161.

McGonigal, M.D., Cole, J., Schwab, C.W., Kauder, D.R., Rotondo, M.F., and Angood, P.B. (1993). Urban firearm deaths: a five-year perspective. *The Journal of Trauma*: 35:532-537.

Murtz, H.A. and the Editors of Gun Digest. (1994). *Guns Illustrated 1994*, DBI Books, Northbrook, IL.

National Institute of Justice. (1995). *Arrestees and Guns: Monitoring the Illegal Firearms Market* (NCJ-184205), United States Department of Justice, Washington, DC.

New Mexico Criminal Justice Statistical Analysis Center. (1998). *Controlling New Mexico Juveniles' Possession of Firearms*, Institute for Social Research, University of New Mexico, Albuquerque.

New York State Division of Criminal Justice Services. (1994). *Assault Weapons and Homicide in New York City*, Albany, New York.

Pierce, G.L., Briggs, L.R., and Carlson, D.A. (1998). *National Report on Firearm Trace Analysis for 1996-1997*, Northeastern University, Boston.

Rand, M.R. (1990). *Handgun Crime Victims* (NCJ-123559), Bureau of Justice Statistics, United States Department of Justice, Washington, DC.

Rand, M.R. (1994). *Guns and Crime* (NCJ-147003), Bureau of Justice Statistics, United States Department of Justice, Washington, DC.

Reedy, D.C. and Koper, C.S. (2003). Impact of handgun types on gun assault outcomes: a comparison of gun assaults involving semiautomatic pistols and revolvers. *Injury Prevention* 9:151-155.

Rennison, C.M. (2001). *Criminal Victimization 2000: Changes 1999-2000 With Trends 1993-2000* (NCJ-187007), Bureau of Justice Statistics, United States Department of Justice, Washington, DC.

Richmond, T.S, Branas, C.C, Cheney, R.A, and Schwab, C.W. (2004, under review). *The Case for Enhanced Data Collection of Handgun Type*, Firearm and Injury Center at Penn, University of Pennsylvania, Philadelphia.

Roth, J.A. and Koper, C.S. (1997). *Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994*, The Urban Institute, Washington, DC.

Roth, J.A. and Koper, C.S. (1999). *Impacts of the 1994 Assault Weapons Ban: 1994-96* (NCJ-173405), National Institute of Justice, United States Department of Justice, Washington, DC.

Ruddell, R. and Mays, G.L. (2003). Examining the arsenal of juvenile gunslingers: trends and policy implications. *Crime and Delinquency* 49:231-252.

Shaw, J.W. (1994). *Community Policing Against Crime: Violence and Firearms* (Ph.D. dissertation), Department of Criminology and Criminal Justice, University of Maryland, College Park.

Sheley, J.F. and Wright, J.D. (1993a). *Gun Acquisition and Possession in Selected Juvenile Samples* (NCJ-145326), National Institute of Justice, United States Department of Justice, Washington, DC.

Sheley, J.F. and Wright, J.D. (1993b). Motivations for gun possession and carrying among serious juvenile offenders. *Behavioral Sciences and the Law* 11:375-388.

Sherman, L.W., Steele, L., Laufersweiler, D., Hoffer, N., and Julian, S.A. (1989). Stray bullets and 'mushrooms': Random shootings of bystanders in four cities, 1977-1988. *Journal of Quantitative Criminology* 5:297-316.

Simon, T.R., Saltzman, L.E., Swahn, M.H., Mercy, J.A., Ingram, E.M., and Mahendra, R.R, Annest, J.L., and Holmgreen, P. (2002). Nonfatal physical assault-related injuries treated in hospital emergency departments – United States, 2000. *Morbidity and Mortality Weekly Report* 51:460-463.

United States Department of the Treasury. (1998). *Department of the Treasury Study on the Sporting Suitability of Modified Semiautomatic Assault Rifles*, Washington, DC.

Violence Policy Center. (1999). *Firearms Production in America* (1999 Edition), Washington, DC.

Violence Policy Center (2002). *Firearms Production in America* (2002 Edition), Washington, DC.

Violence Policy Center (2003). *Bullet Hoses: Semiautomatic Assault Weapons – What Are They? What's So Bad About Them?* Washington, DC.

Warner, K. (ed.). (1995). *Gun Digest 1995/49th Annual Edition,* DBI Books, Northbrook, IL.

Webster, D.W., Champion, H.R., Gainer, P.S., and Sykes, L. (1992). Epidemiologic changes in gunshot wounds in Washington, DC, 1983-1990. *Archives of Surgery* 127:694-8.

Weil, D.S. and Knox, R. (1995). *Estimating the Impact in Baltimore of the Maryland Ban on the Sale of Assault Pistols and High Capacity Magazines*, The Center to Prevent Handgun Violence, Washington, DC.

Wintemute, G.J. (1994). *Ring of Fire: The Handgun Makers of Southern California*, Violence Prevention Research Program, University of California, Davis.

Wintemute, G.J. (1996). The relationship between firearm design and firearm violence: Handguns in the 1990s." *JAMA* 275:1749-1753.

Wintemute, G.J., Wright, M.A., Parham, C.A., Drake, C.M., Beaumont, J.J. (1998a). Criminal activity and assault-type handguns: A study of young adults. *Annals of Emergency Medicine* 32.

Wintemute, G.J., Parham, C.A., Wright, M.A., Beaumont, J.J., and Drake, C.M. (1998b). Weapons of choice: Previous criminal history, later criminal activity, and firearm preference among legally authorized young adult purchasers of handguns. *The Journal of Trauma: Injury, Infection, and Critical Care* 44:155-160.

Wright, J.D. and Rossi, P.H. (1986). *Armed and Considered Dangerous: A Survey of Felons and Their Firearms*, Aldine de Gruyter, New York.

Zawitz, M.W. (1995). *Guns Used in Crime* (NCJ-148201), Bureau of Justice Statistics, United States Department of Justice, Washington, DC.

EXHIBIT D

To

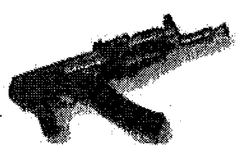
Declaration of Christopher S. Koper in Support of Sunnyvale's Opposition to Plaintiffs' Motion for Preliminary Injunction

REDUCING GUN VIOLENCE IN AMERICA

Informing Policy with Evidence and Analysis

Edited by
DANIEL W. WEBSTER
and **JON S. VERNICK**

Foreword by
MICHAEL R. BLOOMBERG



Reducing Gun Violence in America

Informing Policy with Evidence and Analysis

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To victims of gun violence a
to those who work daily
to reduce it

America's Experience with the Federal Assault Weapons Ban, 1994–2004

Key Findings and Implications

Christopher S. Koper

In 1994, the federal government imposed a ten-year ban on military-style semi-automatic firearms and ammunition-feeding devices holding more than ten rounds of ammunition. This legislation, commonly known as the federal assault weapons ban, was intended in the broadest sense to reduce gunshot victimizations by limiting the national stock of semi-automatic firearms with large ammunition capacities and other features conducive to criminal uses. Reflecting America's general political divisions over the issue of gun control, the debate over the law was highly contentious. Ten years later, Congress allowed the ban to expire.

More recently, there have been growing calls for a reexamination of the assault weapons issue. This debate has been fueled by a series of mass shooting incidents involving previously banned firearms or magazines. Since 2007, for example, there have been at least 11 incidents in which offenders using

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assault weapons or other semi-automatics with magazines larger than 10 rounds have wounded or killed eight or more people (Violence Policy Center 2012). Some of the most notorious of these incidents have been a 2007 shooting on the college campus of Virginia Tech that left 33 dead and 17 wounded; a 2011 shooting in an Arizona parking lot that killed 6 and wounded 13, including Congresswoman Gabrielle Giffords; a 2012 shooting in an Aurora, Colorado, movie theatre that left 12 dead and 58 wounded; and, most recently, a shooting in a Newtown, Connecticut, elementary school that left 26 victims dead, 20 of whom were children (an additional victim was killed elsewhere).

To help inform the new dialogue on this issue, this essay examines America's experience with the 1994 assault weapons law. During the course of the ban, the National Institute of Justice (NIJ) funded a series of studies on the law's impacts for the U.S. Department of Justice and the U.S. Congress (Koper 2004; Koper and Roth 2001, 2002; Roth and Koper 1997, 1999). I present highlights from those studies, with an emphasis on findings from the final evaluation reported in 2004 (Koper 2004). These studies sought to assess the law's impacts on (1) the availability of assault weapons (AWs) and large-capacity magazines (LCMs) as measured by price and production (or importation) indices in legal markets; (2) trends in criminal uses of AWs and LCMs; and (3) trends in the types of gun crimes that seemed most likely to be affected by changes in the use of AWs and LCMs. (The latter two issues are emphasized in this summary.) Finally, the research team examined studies of gun attacks more generally in order to estimate the ban's potential to produce longer-term reductions in shootings.

In summary, the ban had mixed effects in reducing crimes with the banned weaponry because of various exemptions and loopholes in the legislation. The ban did not appear to affect gun crime during the time it was in effect, but some evidence suggests it may have modestly reduced gunshot victimizations had it remained in place for a longer period. The ban's most important provision was arguably its prohibition on ammunition magazines holding more than 10 rounds. Policymakers considering a new version of the ban might particularly focus on this aspect of the previous legislation and reconsider the exemptions and loopholes that undermined the effectiveness of the original ban.

Provisions of the Assault Weapons Ban

Enacted on September 13, 1994, Title XI, Subtitle A of the Violent Crime Control and Law Enforcement Act of 1994 imposed a ten-year ban on the "manufacture, transfer, and possession" of certain semi-automatic firearms designated as assault weapons. The AW ban did not prohibit all semi-automatics; rather, it was directed at semi-automatics having features that appear to be useful in military and criminal applications but unnecessary in shooting sports or self-defense. Examples of such features include pistol grips on rifles, flash hiders, folding rifle stocks, threaded barrels for attaching silencers, and the ability to accept ammunition magazines holding large numbers of bullets. The law specifically prohibited 18 models and variations by name (e.g., the Intratec TEC-9 pistol and the Colt AR-15 rifle), as well as revolving cylinder shotguns (see Koper 2004, 5). This list included a number of foreign rifles that the federal government had banned from importation into the country beginning in 1989 (e.g., Avtomat Kalashnikov models). In addition, the ban contained a generic "features test" provision that generally prohibited other semi-automatic firearms having two or more military-style features, as described in Table 12.1. In total, the federal Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) identified 118 model and caliber variations that met the AW criteria established by the ban.

The law also banned "copies or duplicates" of the named gun makes and models, but federal authorities emphasized exact copies. Relatively cosmetic changes, such as removing a flash hider or bayonet mount, were thus sufficient to transform a banned weapon into a legal substitute. In this sense, the law is perhaps best understood not as a gun ban but as a law that restricted weapon accessories. A number of gun manufacturers began producing modified, legal versions of some of the banned guns, though not all of these substitute weapons proved as popular as the banned versions.[1] In other respects (e.g., type of firing mechanism, ammunition fired, and the ability to accept a detachable magazine), the banned AWs did not differ from other legal semi-automatic weapons.

The other major component of the assault weapons legislation was a ban on most ammunition-feeding devices holding more than 10 rounds of ammunition (referred to as large-capacity magazines).[2] The LCM ban was arguably the most important part of the assault weapons law for two reasons. First, an LCM is the most functionally important feature of an AW-type firearm. As noted by the U.S. House of Representatives, most prohibited AWs came equipped with magazines holding 30 rounds and could accept magazines holding as

Table 12.1 Features test of the federal assault weapons ban

Weapon category	Military-style features (2 or more qualified a firearm as an assault weapon)
Semi-automatic pistols accepting detachable magazines	1) ammunition magazine that attaches outside the pistol grip 2) threaded barrel capable of accepting a barrel extender, flash hider, forward handgrip, or silencer 3) heat shroud attached to or encircling the barrel 4) weight of more than 50 ounces unloaded 5) semiautomatic version of a fully automatic weapon
Semi-automatic rifles accepting detachable magazines	1) folding or telescoping stock 2) pistol grip that protrudes beneath the firing action 3) bayonet mount 4) flash hider or a threaded barrel designed to accommodate one 5) grenade launcher
Semi-automatic shotguns	1) folding or telescoping stock 2) pistol grip that protrudes beneath the firing action 3) fixed magazine capacity over 5 rounds 4) ability to accept a detachable ammunition magazine

many as 50 or 100 rounds (United States Department of the Treasury 1998, 14). Removing LCMs from these weapons thus greatly limits their firepower.

Second, the reach of the LCM ban was much broader than that of the AW ban because many semi-automatics that were not banned by the AW provision could accept LCMs. Approximately 40 percent of the semi-automatic handgun models and a majority of the semi-automatic rifle models that were being manufactured and advertised prior to the ban were sold with LCMs or had a variation that was sold with an LCM (calculated from Murtz and the Editors of Gun Digest 1994). Still others could accept LCMs made for other firearms and/or by other manufacturers. A national survey of gun owners in 1994 found that 18% of all civilian-owned firearms and 21% of civilian-owned handguns were equipped with magazines having 10 or more rounds (Cook and Ludwig 1996, 17). The AW provision did not affect most LCM-compatible guns, but the LCM provision limited the capacities of their magazines to 10 rounds.

The AW ban also contained important exemptions. AWs and LCMs manufactured before the effective date of the ban were "grandfathered" and thus legal to own and transfer. Though not precise, estimates suggest there were

upward of 1.5 million privately owned AWs in the United States when the ban took effect (American Medical Association Council on Scientific Affairs 1992; Cox Newspapers 1989, 1; Koper 2004, 10). Gun owners in America possessed an estimated 25 million guns that were equipped with LCMs or 10-round magazines in 1994 (Cook and Ludwig 1996, 17), and gun industry sources estimated that, including aftermarket items for repairing and extending magazines, there were at least 25 million LCMs available in the United States as of 1995 (Gun Tests 1995, 30). Moreover, an additional 4.8 million pre-ban LCMs were imported into the country from 1994 through 2000 under the grandfathering exemption, with the largest number arriving in 1999. During this same period, importers were also authorized to import another 42 million pre-ban LCMs that may have arrived after 2000.

Criminal Use of Assault Weapons and Large-Capacity Magazines Prior to the Ban

During the 1980s and early 1990s, AWs and other semi-automatic firearms equipped with LCMs were involved in a number of highly publicized mass shootings that raised public concern about the accessibility of high-powered, military-style weaponry and other guns capable of rapidly discharging high numbers of bullets (Cox Newspapers 1989; Kleck 1997, 124–126, 144; Lenett 1995; Violence Policy Center 2012). Perhaps most notably, AWs or other semi-automatics with LCMs were used in 6, or 40%, of 15 particularly severe mass shooting incidents between 1984 and 1993 that resulted in at least 6 deaths or at least 12 killed or wounded (Kleck, 1997, 124–126, 144). Early studies of AWs, though sometimes based on limited and potentially unrepresentative data, also suggested that AWs recovered by police were often associated with drug trafficking and organized crime (Cox Newspapers 1989, 4; also see Roth and Koper 1997, chap. 5), fueling a perception that AWs were guns of choice among drug dealers and other particularly violent groups. These events intensified concern over AWs and other semi-automatics with LCMs and helped spur the 1989 federal import ban on selected semi-automatic rifles (implemented by executive order) and the passage of the 1994 federal AW ban (the states of California, New Jersey, Connecticut, Hawaii, and Maryland also passed AW legislation between 1989 and 1994).

Looking at the nation's gun crime problem more broadly, numerous studies of AW-type weapons conducted prior to the federal ban found that AWs

typically accounted for up to 8% of guns used in crime, depending on the specific AW definition and data source used (e.g., see Beck et al. 1993; Hargarten et al. 1996; Hutson, Anglin, and Pratts 1994; Hutson et al. 1995; McGonigal et al. 1993; New York State Division of Criminal Justice Services 1994; Roth and Koper 1997, chap. 2; Zawitz 1995). A compilation of 38 sources indicated that AWs accounted for about 2% of crime guns on average (Kleck 1997, 112, 141–143). Similarly, the most common AWs prohibited by the 1994 federal ban accounted for between 1% and 6% of guns used in crime according to most of several national and local data sources examined for the NIJ-funded studies summarized here (Koper 2004, 15).

As with crime guns in general, the majority of AWs used in crime were assault pistols rather than assault rifles. Among AWs reported by police to ATF during 1992 and 1993, for example, assault pistols outnumbered assault rifles by a ratio of three to one.

The relative rarity of AW use in crime can be attributed to a number of factors. Many of these models are long guns, which are used in crime much less often than handguns. Also, as noted, a number of the rifles named in the 1994 law were banned from importation into the United States in 1989. Further, AWs in general are more expensive and more difficult to conceal than the types of handguns that are used most frequently in crime.

Criminal use of guns equipped with LCMs had not been studied as extensively as criminal use of AWs at the time of the ban. However, the overall use of guns with LCMs, which is based on the combined use of AWs and nonbanned guns with LCMs, is much greater than the use of AWs alone. Based on data examined for this and a few prior studies, guns with LCMs were used in roughly 13% to 26% of most gun crimes prior to the ban, though they appeared to be used in 31% to 41% of gun murders of police (see summary in Koper 2004, 18; also see Adler et al. 1995; Fallis 2011; New York Division of Criminal Justice Services 1994).

The Ban's Effects on Crimes with Assault Weapons and Large-Capacity Magazines

Although there was a surge in production of AW-type weapons as Congress debated the ban in 1994, the law's restriction of the new AW supply and the interest of collectors and speculators in these weapons helped to drive prices higher for many AWs (notably assault pistols) through the end of the 1990s

Table 12.2 Assault weapons as a percentage of guns recovered by police

City	Pre-ban	Post-ban	% change
Baltimore, MD	1.88% (1992–1993)	1.25% (1995–2000)	–34%
Boston, MA	2.16% (1991–1993)	0.6% (2000–2002)	–72%
Miami, FL	2.53% (1990–1993)	1.71% (1995–2000)	–32%
St. Louis, MO	1.33% (1992–1993)	0.91% (1995–2003)	–32%
Anchorage, AK	3.57% (1987–1993)	2.13% (1995–2000)	–40%
Milwaukee, WI	5.91% (1991–1993)	4.91% (1995–1998)	–17%

Note: Figures for Baltimore, Boston, Miami, and St. Louis are based on all recovered guns. Figures for Anchorage and Milwaukee are based on, respectively, guns tested for evidence and guns recovered in murder cases. Changes in Baltimore, Boston, Miami, and St. Louis were statistically significant at $p < .05$. See Koper (2004) for further details about the data and analyses.

and appeared to make them less accessible and/or affordable to criminal users.[3] Analyses of several national and local databases on guns recovered by police indicated that crimes with AWs declined following the ban.

To illustrate, the share of gun crimes involving the most commonly used AWs declined by 17% to 72% across six major cities examined for this study (Baltimore, Miami, Milwaukee, Boston, St. Louis, and Anchorage), based on data covering all or portions of the 1995–2003 post-ban period (Table 12.2). (The number of AW recoveries also declined by 28% to 82% across these locations and time periods; the discussion here focuses on changes in AWs as a share of crime guns in order to control for general trends in gun crime and gun seizures.) Similar patterns were found in a national analysis of recovered guns reported by law enforcement agencies around the country to ATF for investigative gun tracing.[4] The percentage of gun traces that were for AWs fell 70% between 1992–1993 and 2001–2002 (from 5.4% to 1.6%), though the interpretation of these data was complicated by changes that occurred during this time in gun tracing practices (see Koper 2004 for further discussion).

The decline in crimes with AWs was due primarily to a reduction in the use of assault pistols. Assessment of trends in the use of assault rifles was complicated by the rarity of crimes with such rifles and by the substitution in some cases of post-ban rifles that were very similar to the banned models. In general, however, the decline in AW use was only partially offset by substitution of post-ban AW-type models. Even counting the post-ban models as AWs, the share of crime guns that were AWs fell 24% to 60% across most of the local

jurisdictions studied. Patterns in the local data sources also suggested that crimes with AWs were becoming increasingly rare as the years passed.

The decline in crimes with AWs appeared to have been offset throughout at least the late 1990s by steady or rising use of other semi-automatics equipped with LCMs. Assessing trends in LCM use was difficult because there is no national data source on crimes with LCMs and few contacted jurisdictions maintained such information. It was possible, nonetheless, to examine trends in the use of guns with LCMs in four jurisdictions: Baltimore, Milwaukee, Anchorage, and Louisville (KY). Across the different samples analyzed from these cities (some databases included all recovered guns and some included only guns associated with particular crimes), the share of guns with an LCM generally varied from 14% to 26% prior to the ban. In all four jurisdictions, the share of crime guns equipped with LCMs rose or remained steady through the late 1990s (Table 12.3). These trends were driven primarily by handguns with LCMs, which were used in crime roughly three times as often as rifles with LCMs (though crimes with rifles having LCMs also showed no general decline). Generalizing from such a small number of jurisdictions must be done very cautiously, but the consistency of the findings across these geographically diverse locations strengthens the inference that they reflected a national pattern.

Failure to reduce LCM use for at least several years after the ban was likely because of the immense stock of exempted pre-ban magazines, which, as noted, was enhanced by post-ban imports. The trend in crimes with LCMs may have been changing by the early 2000s, but the available data were too limited and inconsistent to draw clear inferences (post-2000 data were available for only two of the four study sites).

Table 12.3 Guns with large-capacity magazines as a percentage of guns recovered by police (selected years)

City	Pre-ban	Late 1990s	Early 2000s
Baltimore, MD	14.0% (1993)	15.5% (1998)	15.7% (2003)
Anchorage, AK	26.2% (1992–1993)	30.0% (1999–2000)	19.2% (2001–2002)
Milwaukee, WI	22.4% (1993)	36.4% (1998)	N/A
Louisville, KY	N/A	20.9 (1996)	19.0% (2000)

Note: Figures for Baltimore and Milwaukee are based on, respectively, guns associated with violent crimes and with murders. Figures for Anchorage and Louisville are based on guns submitted for evidentiary testing. The Anchorage figures are based on handguns only. See Koper (2004) for further details about the data and analyses.

A later media investigation of LCM use in Richmond, Virginia, suggests that the ban may have had a more substantial impact on the supply of LCMs to criminal users by the time it expired in 2004. In that city, the share of recovered guns with LCMs generally varied between 18% and 20% from 1994 through 2000 but fell to 10% by 2004 (Fallis 2011). It is not clear whether the Richmond results represented a wider national or even regional trend. (The data from this study also show that after the ban was lifted, the share of Richmond crime guns with an LCM rose to 22% by 2008.)

The Ban's Impacts on Gun Violence

Because offenders could substitute non-banned guns and small magazines for banned AWs and LCMs, there was not a clear rationale for expecting the ban to reduce assaults and robberies with guns. But by forcing this weapon substitution, it was conceivable that the ban would reduce the number and severity of shooting deaths and injuries by reducing the number of shots fired in gun attacks (thus reducing the number of victims per gunfire incident and the share of gunshot victims sustaining multiple wounds). Based on this logic, the research team examined several indicators of trends in the lethality and injuriousness of gun violence for different portions of the 1995–2002 post-ban period. These included national-level analyses of gun murders, the percentage of violent gun crimes resulting in death, the share of gunfire cases resulting in wounded victims, the percentage of gunshot victimizations resulting in death, and the average number of victims per gun homicide incident. For selected localities, the team also examined trends in wounds per gunshot victim or the percentage of gunshot victims sustaining multiple wounds.

On balance, these analyses showed no discernible reduction in the lethality or injuriousness of gun violence during the post-ban years (see Koper 2004, Koper and Roth 2001, and Roth and Koper 1997). Nationally, for example, the percentage of violent gun crimes resulting in death (based on gun homicides, gun assaults, and gun robberies reported to the Uniform Crime Reports) was the same for the period 2001–2002 (2.9%) as it was for the immediate pre-ban period 1992–1993 (Koper 2004, 82, 92). Accordingly, it was difficult to credit the ban with contributing to the general decline in gun crime and gun homicide that occurred during the 1990s.

However, the ban's exemption of millions of pre-ban AWs and LCMs meant that the effects of the law would occur only gradually. Those effects were still

unfolding when the ban was lifted and may not have been fully realized until several years beyond that, particularly if importation of foreign, pre-ban LCMs had continued in large numbers. In light of this, it was impossible to make definitive assessments of the ban's impact on gun violence.

It was also difficult to judge the ban's effects on the more specific problem of mass shootings. The research team attempted to assess changes in mass shootings during the first few years of the ban, but this effort was hampered by the difficulty of counting these incidents (results can be sensitive to the definitions and data sources used) and identifying the specific types of guns and magazines used in them (Roth and Koper 1997, app. A). There is no national data source that provides detailed information on the types of guns and magazines used in shooting incidents or that provides full counts of victims killed and wounded in these attacks. Studying mass shootings in particular poses a number of challenges with regard to defining these events, establishing the validity and reliability of methods for measuring their frequency and characteristics (particularly if done through media searches, as is often necessary), and modeling their trends, as they are particularly rare events (e.g., see Duwe 2000; Roth and Koper 1997, app. A).

Nonetheless, the issue of mass shootings continues to be a catalyst to the debate surrounding AW legislation. A recent media compilation of 62 mass shooting incidents that involved the death of four or more people over the period 1982–2012, for instance, suggests that 25% of the guns used in these attacks were AW-type weapons (these were not precisely defined) and another 48% were other types of semi-automatic handguns (Follman, Aronsen, and Pan 2012). Continuing improvements in media search tools and greater attention to the types of guns and magazines used in multiple-victim attacks may improve prospects for examining this issue more rigorously in future studies.

Assessing the Potential Long-Term Effects of Banning Assault Weapons and Large-Capacity Magazines

Although available evidence is too limited to make firm projections, it suggests that the ban may have reduced shootings slightly had it remained in place long enough to substantially reduce crimes with both LCMs and AWs. A small number of studies suggest that gun attacks with semi-automatics—including AWs and other guns equipped with LCMs—tend to result in more shots fired, more persons wounded, and more wounds inflicted per victim

than do attacks with other firearms (see reviews in Koper 2004; Koper and Roth 2001; also see McGonigal et al. 1993; Richmond et al. 2003; Reedy and Koper 2003; Roth and Koper 1997). For example, in mass shooting incidents that resulted in at least 6 deaths or at least 12 total gunshot victims from 1984 through 1993, offenders who clearly possessed AWs or other semi-automatics with LCMs (sometimes in addition to other guns) wounded or killed an average of 29 victims in comparison to an average of 13 victims wounded or killed by other offenders (see Koper and Roth's [2001] analysis of data compiled by Kleck [1997, 144]).

Similarly, a study of handgun attacks in Jersey City, New Jersey, during the 1990s found that the average number of victims wounded in gunfire incidents involving semi-automatic pistols was in general 15% higher than in those involving revolvers (Reedy and Koper 2003). The study also found that attackers using semi-automatics to fire more than 10 shots were responsible for nearly 5% of the gunshot victims in the sample. Used as a tentative guide, this implies that the LCM ban could have eventually produced a small reduction in shootings overall, perhaps up to 5%, even if some gun attackers had the foresight to carry more than one small magazine (or more than one firearm) and the time and poise to reload during an attack.

Effects of this magnitude might be difficult to measure reliably, but they could nonetheless yield significant societal benefits. Consider that in 2010 there were 11,078 gun homicides in the United States and another 53,738 nonfatal assault-related shootings according to the federal Centers for Disease Control and Prevention (see the CDC's web-based injury statistics query and reporting system at http://www.cdc.gov/injury/wisqars/index.html). At these levels, reducing shootings by just 1% (arguably a reasonable ballpark estimate for the long-term impact of substantially reducing AW and LCM use) would amount to preventing about 650 shootings annually. The lifetime medical costs of assault-related gunshot injuries (fatal and nonfatal) were estimated to be about $18,600 per injury in 1994 (Cook et al. 1999). Adjusting for inflation, this amounts to $28,894 in today's dollars. Moreover, some estimates suggest that the full societal costs of gun violence—including medical, criminal justice, and other government and private costs (both tangible and intangible)—could be as high as $1 million per shooting (Cook and Ludwig 2000). Hence, reducing shootings by even a very small margin could produce substantial long-term savings for society, especially as the shootings prevented accrue over many years.

Lessons and Implications from the 1994 Ban

Studies of America's previous assault weapons ban provide a number of lessons that can inform future policymaking. A new law similar to the old ban will have little impact on most gun crimes, but it may prevent some shootings, particularly those involving high numbers of shots and victims. It may thus help to reduce the number and severity of mass shooting incidents as well as produce a small reduction in shootings overall.

The most important feature of the previous ban was the prohibition on large-capacity ammunition magazines. A large magazine is arguably the most critical feature of an assault weapon, and restrictions on magazines have the potential to affect many more gun crimes than do those on military-style weapons. Restrictions focused on magazine capacity may also have a greater chance of gaining sufficient public and political support for passage than would new restrictions on assault weapons, though current polling suggests that both measures are supported by three-quarters of non-gun owners and nearly half of gun owners (Barry et al., in this volume). To enhance the potential impact of magazine restrictions, policymakers might also consider limiting magazine capacity to fewer than 10 rounds for all or selected weapons (for example, lower limits might be set for magazines made for semi-automatic rifles).[5] It is unknown whether further restrictions on the outward features of semi-automatic weapons, such as banning weapons having any military-style features, will produce measurable benefits beyond those of restricting magazine capacity.

Policymakers must also consider the implications of any grandfathering provisions in new legislation. Assessing the political and practical difficulties of registering all assault weapons and large magazines or establishing turn-in or buyback programs for them is beyond the scope of this essay. Policymakers should note, however, that it may take many years to attain substantial reductions in crimes with banned weapons and/or magazines if a new law exempts the existing stock (which has likely grown considerably since the time of the original ban). Policies regarding exemptions must also explicitly address the status of imported guns and magazines.

Past experience further suggests that public debate on reinstating the ban or crafting a new one will raise prices and production of the guns and magazines likely to be affected. This could temporarily saturate the market for the guns and magazines in question (particularly if close substitutes emerge) and delay desired reductions in crimes with some categories of the banned weap-

onry (this appeared to happen with assault rifles that were banned by the 1994 law and may have contributed as well to the observed trends in use of large magazines).

A new ban on assault weapons and/or large-capacity magazines will certainly not be a panacea for America's gun violence problem nor will it stop all mass shootings. However, it is one modest measure that, like federal restrictions on fully automatic weapons and armor-piercing ammunition, can help to prevent the further spread of particularly dangerous weaponry.

NOTES

1. In general, the AW ban did not apply to semi-automatics possessing no more than one military-style feature listed under the ban's features test provision. Note, however, that firearms imported into the country still had to meet the "sporting purposes test" established under the federal Gun Control Act of 1968. In 1989, ATF determined that foreign semi-automatic rifles having any one of a number of named military features (including those listed in the features test of the 1994 AW ban) fail the sporting purposes test and cannot be imported into the country. In 1998, the ability to accept an LCM made for a military rifle was added to the list of disqualifying features. Consequently, it was possible for foreign rifles to pass the features test of the federal AW ban but not meet the sporting purposes test for imports (U.S. Department of the Treasury 1998).

2. Technically, the ban prohibited any magazine, belt, drum, feed strip, or similar device that has the capacity to accept more than 10 rounds of ammunition or which can be readily converted or restored to accept more than 10 rounds of ammunition. The ban exempted attached tubular devices capable of operating only with .22 caliber rimfire (i.e., low velocity) ammunition.

3. See Koper (2004), Koper and Roth (2002), and Roth and Koper (1997) for more extensive discussions of the ban's impacts on prices and production of AWs, nonbanned firearms, and LCMs.

4. A gun trace is an investigation into the sales history of a firearm (e.g., see ATF 2000).

5. To support the formulation and evaluation of policy in this area, there are also a number of research needs worth noting. For one, it is important to develop better data on crimes with guns having LCMs. Policymakers should thus encourage police agencies to record information about magazines recovered with crime guns. Likewise, ATF should consider integrating ammunition magazine data into its national gun tracing system and encourage reporting of magazine data by police agencies that trace firearms. Second, there is a need for more studies that contrast the outcomes of attacks with different types of guns and magazines. Such studies would help to refine predictions of the change in gun deaths and injuries that would follow reductions in attacks with firearms having large-capacity magazines.

REFERENCES

Adler, Wendy, C., Frederick M. Bielke, David J. Doi, and John F. Kennedy. (1995). *Cops under Fire: Law Enforcement Officers Killed with Assault Weapons or Guns with High Capacity Magazines.* Washington, DC: Handgun Control, Inc.

American Medical Association Council on Scientific Affairs. 1992. "Assault Weapons as a Public Health Hazard in the United States." *JAMA* 267:3067–3070.

Beck, Allen, Darrell Gilliard, Lawrence Greenfeld, Caroline Harlow, Thomas Hester, Louis Jankowski, Tracy Snell, James Stephan, and Danielle Morton. 1993. *Survey of State Prison Inmates, 1991.* Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

Bureau of Alcohol, Tobacco, and Firearms (ATF). (2000). *Commerce in Firearms in the United States.* Washington, DC: United States Department of the Treasury.

Cook, Philip J., Bruce A. Lawrence, Jens Ludwig, and Ted R. Miller. 1999. "The Medical Costs of Gunshot Injuries in the United States." *JAMA* 282:447–454.

Cook, Philip J., and Jens Ludwig. 1996. *Guns in America: Results of a Comprehensive National Survey on Firearms Ownership and Use.* Washington, DC: Police Foundation.

Cook, Philip J., and Jens Ludwig. 2000. *Gun Violence: The Real Costs.* New York: Oxford University Press.

Cox Newspapers. 1989. *Firepower: Assault Weapons in America.* Washington, DC: Cox Enterprises.

Duwe, Grant. 2000. "Body-Count Journalism: The Presentation of Mass Murder in the News Media." *Homicide Studies* 4:364–399.

Fallis, David. 2011. "VA Data Show Drop in Criminal Firepower During Assault Gun Ban." *Washington Post,* January 23.

Follman, Mark, Gavin Aronsen, and Deanna Pan. 2012. "A Guide to Mass Shootings in America." *Mother Jones,* Dec. 15. http://www.motherjones.com/politics/2012/07/mass-shootings-map.

Gun Tests. 1995. "Magazine Rule Change Unlikely." March.

Hargarten, Stephen W., Trudy A. Karlson, Mallory O'Brien, Jerry Hancock, and Edward Quebbeman. 1996. "Characteristics of Firearms Involved in Fatalities." *JAMA* 275:42–45.

Hutson, H. Range, Deirdre Anglin, Demetrios N. Kyriacou, Joel Hart, and Kelvin Spears. 1995. "The Epidemic of Gang-Related Homicides in Los Angeles County from 1979 through 1994." *JAMA* 274:1031–1036.

Hutson, H. Range, Deirdre Anglin, and Michael J. Pratts, Jr. 1994. "Adolescents and Children Injured or Killed in Drive-By Shootings in Los Angeles." *New England Journal of Medicine* 330:324–327.

Kleck, Gary. (1997). *Targeting Guns: Firearms and Their Control.* New York: Aldine de Gruyter.

Koper, Christopher S. 2004. *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence, 1994–2003.* Report to the National Institute of Justice, U.S. Department of Justice. Jerry Lee Center of Criminology, University of Pennsylvania, Philadelphia, PA.

Koper, Christopher S., and Jeffrey A. Roth. 2001. "The Impact of the 1994 Federal Assault Weapon Ban on Gun Violence Outcomes: An Assessment of Multiple

Outcome Measures and Some Lessons for Policy Evaluation." *Journal of Quantitative Criminology* 17:33–74.

Koper, Christopher S., and Jeffrey A. Roth. 2002. "The Impact of the 1994 Federal Assault Weapons Ban on Gun Markets: An Assessment of Short-Term Primary and Secondary Market Effects." *Journal of Quantitative Criminology* 18:239–266.

Lenett, Michael G. 1995. "Taking a Bite Out of Violent Crime." *University of Daytona Law Review* 20:573–617.

McGonigal, Michael D., John Cole, C. William Schwab, Donald R. Kauder, Michael F. Rotondo, and Peter B. Angood. 1993. "Urban Firearm Deaths: A Five-Year Perspective." *Journal of Trauma*: 35:532–537.

Murtz, H.A., and the Editors of Gun Digest. 1994. *Guns Illustrated 1994*. Northbrook, IL: DBI Books.

New York State Division of Criminal Justice Services. 1994. *Assault Weapons and Homicide in New York City*. Albany, NY.

Reedy, Darin C., and Christopher S. Koper. 2003. "Impact of Handgun Types on Gun Assault Outcomes: A Comparison of Gun Assaults Involving Semiautomatic Pistols and Revolvers." *Injury Prevention* 9:151–155.

Richmond, Therese S., Charles C. Branas, Rose A. Cheney, and C. William Schwab. 2003. *The Case for Enhanced Data Collection of Handgun Type*. Firearm and Injury Center at Penn, University of Pennsylvania, Philadelphia, PA.

Roth, Jeffrey A., and Christopher S. Koper. 1997. *Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994*. Washington, DC: The Urban Institute.

Roth, Jeffrey A., and Christopher S. Koper. 1999. *Impacts of the 1994 Assault Weapons Ban: 1994–96*. Washington, DC: National Institute of Justice, U.S. Department of Justice.

United States Department of the Treasury. (1998). *Department of the Treasury Study on the Sporting Suitability of Modified Semiautomatic Assault Rifles*. Washington, DC.

Violence Policy Center (2012). *Mass Shootings in the United States Involving High-Capacity Ammunition Magazines*. Washington, DC.

Zawitz, Marianne W. 1995. *Guns Used in Crime*. Washington, DC: Bureau of Justice Statistics, U.S. Department of Justice.

EXHIBIT E

Declaration of Christopher S. Koper in Support of Sunnyvale's Opposition to Plaintiffs' Motion for Preliminary Injunction

The Washington Post

CORRECTION TO THIS ARTICLE
An earlier version of this story incorrectly reported the limit on the capacity of gun magazines in Maryland. The limit is 20. This version has been corrected.

Va. data show drop in criminal firepower during assault gun ban

By David S. Fallis and James V. Grimaldi
Washington Post Staff Writers
Sunday, January 23, 2011; 9:17 AM

The number of guns with high-capacity magazines seized by Virginia police dropped during a decade-long federal prohibition on assault weapons, but the rate has rebounded sharply since the ban was lifted in late 2004, according to a Washington Post analysis.

More than 15,000 guns equipped with high-capacity magazines - defined under the lapsed federal law as holding 11 or more bullets - have been seized by Virginia police in a wide range of investigations since 1993, the data show.

The role of high-capacity magazines in gun crime was thrust into the national spotlight two weeks ago when 22-year-old Jared Lee Loughner allegedly opened fire with a semiautomatic handgun outside a Tucson grocery store, killing six and wounding 13, including Rep. Gabrielle Giffords (D-Ariz.). Authorities say Loughner used a legally purchased 9mm Glock 19 handgun with a 31-round clip and was tackled while changing magazines.

Of the seized Virginia weapons, 2,000 had magazines with a capacity of 30 or more bullets. Some states still limit magazine capacity. California, for example, limits them to 10 and Maryland to 20.

Last year in Virginia, guns with high-capacity magazines amounted to 22 percent of the weapons recovered and reported by police. In 2004, when the ban expired, the rate had reached a low of 10 percent. In each year since then, the rate has gone up.

"Maybe the federal ban was finally starting to make a dent in the market by the time it ended," said Christopher Koper, head of research at the Police Executive Research Forum, who studied the assault weapons ban for the National Institute of Justice, the research arm of the Justice Department.

Congress is considering legislation to reinstitute the assault weapon ban's prohibition on high-capacity magazines, a measure strongly opposed by gun rights advocates.

The analysis of the Virginia records, obtained under the state's public information law, provides a rare window into the firepower of guns used in crimes. The Bureau of Alcohol, Tobacco, Firearms and Explosives, which traces guns for local police agencies and regulates the firearms industry, does not track magazine sizes. Academic researchers said they were unaware of any other comprehensive study of firearms magazines.

The pattern in Virginia "may be a pivotal piece of evidence" that the assault weapons ban eventually had an impact on the proliferation of high-capacity magazines on the streets, said Garen Wintemute, head of the Violence Prevention Research Program at the University of California at Davis.

"Many people, me included, were skeptical about the chances that the magazine ban would make a difference back in 1994," Wintemute said. "But what I am seeing here is that after a few years' lag time the prevalence of high-capacity magazines was declining. The increase since the ban's repeal is quite striking."

Guns with high-capacity magazines have appeared in Virginia crimes ranging from the mundane to the murderous. The Post found that 200 guns with high-capacity magazines figured in Virginia homicides, including these incidents:

- In Richmond in 2003, Michael Antoine Wilson, 21, used his semiautomatic rifle with its 30-round magazine to shoot his 17-year-old girlfriend to death in front of children and relatives. Then he went to a nearby convenience store, killed two workers and stole a van before turning the gun on himself.

- In Roanoke in 2004, Marcus Jerome Nance, 22, used his legally purchased 9mm Glock 17 handgun with a high-capacity magazine to spray 33 bullets into a crowd that had gathered outside a Roanoke gas station after a nightclub closing, killing one and wounding two.

- In Newport News last year, Antonio Johnson, 34, began shooting at police during a traffic stop with a 9mm semiautomatic handgun outfitted with a 15-round magazine. "Subject shot police officer and then killed himself with weapon," state records say.

In the Arizona shootings, Loughner allegedly used a Glock 19 that he had legally purchased at a Tucson sporting goods store in November. The gun's capacity allowed Loughner to squeeze off more than 30 shots without reloading, authorities said.

The federal assault weapons ban from late 1994 through late 2004 prohibited the manufacturing of magazines capable of holding more than 10 rounds. But the act permitted the sale of magazines manufactured before the ban.

The federal prohibition was spurred by a mass killing in 1989 in Stockton, Calif., where Patrick Edward Purdy, 24, a mentally unbalanced drug addict, fired 110 shots from an AK-47 into a schoolyard, killing five children and wounding 29 others and a teacher. He used a 75-round rotary clip and a 35-round banana clip, one of four he was carrying.

New legislative interest

Rep. Carolyn McCarthy (N.Y.) and 57 other Democrats proposed legislation last week to ban the sale or transfer of high-capacity magazines, no matter when they were manufactured. McCarthy's husband and five others were killed in 1993 on the Long Island Rail Road by a gunman armed with a semiautomatic pistol and four 15-round magazines. He fired 30 shots before being subdued while changing magazines.

The bill's prospects are considered slim in the Republican-controlled House. In the Senate, the National Rifle Association says it has a solid 50-senator pro-gun block that could delay any legislation.

The NRA has announced its opposition to proposals that limit magazine capacity.

"These magazines are standard equipment for self-defense handguns and other firearms owned by tens of millions of Americans," according to a statement on its politics Web page, and in a letter circulating to members of Congress. "Law-abiding private citizens choose them for many reasons, including the same reason police officers do: to improve their odds in defensive situations."

The firearms industry also opposes the proposal. "The tragedy in Tucson was not about firearms, ammunition or magazine capacity," said Ted Novin, a spokesman for the National Shooting Sports Foundation, a gun industry group. "It was about the actions of a madman. Period."

The analysis by The Post is possible because of a little-known database of guns seized in Virginia. The database, called the Criminal Firearms Clearinghouse, has information on more than 100,000 firearms recovered by more than 200 local police departments since 1993. A federal law in 2003, known as the Tiahrt Amendment after the congressman who sponsored it, banned the release of federal data on guns recovered in crimes.

Last year, The Post mined the database to pierce the secrecy imposed by Congress on federal gun-tracing records. The analysis found that a fraction of licensed dealers in Virginia sell most of guns later seized by police. The vast majority of the guns in the database were confiscated because of illegal-possession charges. But thousands were swept up in the wake of assaults, robberies and shootings.

Two months before the ban expired in September 2004, Marcus Nance bought an extended magazine and a 9mm Glock 17 handgun at a Roanoke gun store. Three nights later, down the street from the store, Nance opened fire on a crowded parking lot after arguing and fighting with people in the crowd.

A police officer called to investigate a disturbance heard shots and saw Nance holding a gun at arm's length and firing "randomly into the mass of people" before shooting several rounds into the air.

A police car's dashboard camera recorded the jackhammer sound of gunfire. In a car parked nearby, police found a Glock gun box and two boxes of ammunition, one of them partially empty.

Police went to the gun shop and confirmed that Nance had bought the handgun ($555), a laser sight ($380) and two extended magazines ($135), paying cash in an entirely legal transaction. Police noted: "The magazines in question were manufactured before 1994 and not considered prohibited."

Nance, who said he had been attacked by members of the crowd and shot in self-defense, was convicted of second-degree murder and is in prison.

The 2004 study

Koper's 108-page 2004 study for the National Institute of Justice found the ban on assault weapons had mixed results.

"Assault weapons were rarely used in gun crimes even before the ban," he said in the report. But he also concluded that the prohibition on high-capacity magazines might have affected public safety, because such magazines allow shooters to inflict more damage.

"Tentatively I was able to show that guns associated with large-capacity magazines tended to be associated with more serious crimes, more serious outcomes," he said.

Some gun rights activists argue that a ban on high-capacity magazines would violate the Second Amendment right to bear arms. One prominent gun rights activist who takes a less absolute position is Robert A. Levy, chairman of the Cato Institute. He is also the lawyer who brought the case that overturned D.C.'s handgun ban.

But Levy said the government would need to prove that such a ban was effective.

"The burden is on the government, not on the individual to show that the regulation isn't unduly intrusive," Levy said.

Colin Goddard, a lobbyist for the Brady Campaign to Prevent Gun Violence and a victim of the 2007 Virginia Tech shootings, said the high-capacity ban could save lives. The Virginia Tech shooter, Seung Hui Cho, used several 15-round magazines to fire 174 shots and kill 32 people in the worst gun-related mass murder by an individual in U.S. history.

"When you double and triple the amount of the clip size, you don't double or triple the number of deer you kill, you double and triple the amount of innocent people who are killed in shootings like this," said Goddard, 25, who was shot four times by Cho.

Bradley A. Buckles, ATF director from 1999 to 2004, said bureau officials advised Congress to focus on high-capacity magazines, which were "completely unregulated" and had almost no sporting purpose.

"The whole thing with magazine capacity came out of ATF," Buckles said. "It wasn't so much guns, but it was firepower. What made them more deadly than a hunting rifle was the fact that you could have a 20-round, 30-round clip, when most hunting rifles wouldn't have more than five rounds."

Buckles said lawmakers should have extended the ban on high-capacity magazines in 2004. Banning them now, he said, just puts everyone back at square one.

"There are so many millions of them out there, it probably wouldn't make any immediate difference over the course of 20 years," Buckles said. "It is not a short-term solution to anything."

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Research editor Alice Crites and staff writer Sari Horwitz contributed to this story.

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EXHIBIT F

Declaration of Christopher S. Koper in Support of Sunnyvale's Opposition to Plaintiffs' Motion for Preliminary Injunction

The Washington Post

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Data indicate drop in high-capacity magazines during federal gun ban

By David S. Fallis, Published: January 10, 2013

During the 10-year federal ban on assault weapons, the percentage of firearms equipped with high-capacity magazines seized by police agencies in Virginia dropped, only to rise sharply once the restrictions were lifted in 2004, according to an analysis by The Washington Post.

The White House is leading a push to reinstate a national ban on large-capacity magazines and assault weapons after a gunman armed with an AR-15 and 30-round magazines killed 20 children and seven adults in Connecticut. Vice President Biden has been holding advisory meetings to hammer out a course of action that will address the issue of the larger magazines, which under the lapsed federal ban were those that held 11 or more rounds of ammunition.

In Virginia, The Post found that the rate at which police recovered firearms with high-capacity magazines — mostly handguns and, to a smaller extent, rifles — began to drop around 1998, four years into the ban. It hit a low of 9 percent of the total number of guns recovered the year the ban expired, 2004.

The next year, the rate began to climb and continued to rise in subsequent years, reaching 20 percent in 2010, according to the analysis of a little-known Virginia database of guns recovered by police. In the period The Post studied, police in Virginia recovered more than 100,000 firearms, more than 14,000 of which had high-capacity magazines.

Researchers see impact

To some researchers, the snapshot in Virginia suggests that the federal ban may have started to curb the widespread availability of the larger magazines.

"I was skeptical that the ban would be effective, and I was wrong," said Garen Wintemute, head of the Violence Prevention Research Program at the University of California at Davis School of Medicine. The database analysis offers "about as clear an example as we could ask for of evidence that the ban was working."

The analysis is based on an examination of the Criminal Firearms Clearinghouse, a database obtained from state police under Virginia's public information law. The data, which were first studied by The Post in 2011, offer a rare glimpse into the size of the magazines of guns seized during criminal investigations. The Bureau of Alcohol, Tobacco, Firearms and Explosives, which traces guns and regulates the industry, tracks details about the guns seized after crimes but not the magazine size.

The initial Post analysis was prompted by a mass shooting in Tucson. Jared Lee Loughner — armed with a legally purchased 9mm semiautomatic handgun and a 33-round magazine — opened fire outside a grocery store, killing six people and wounding 13, including Rep. Gabrielle Giffords (D-Ariz.).

In the following two years, a succession of mass shootings has occurred, including several in which the gunmen reportedly had high-capacity magazines.

At the Dec. 14 shooting in Newtown, Conn., the gunman was reported to have been armed with two handguns, an AR-15 rifle and numerous 30-round magazines. He killed himself at the scene. The guns were legally purchased by his mother.

The federal ban that expired in 2004 prohibited the manufacture of magazines capable of holding more than 10 rounds. But the law permitted the sale of magazines manufactured before the ban. By some estimates, 25 million of the large-capacity magazines were still on the market in 1995.

Many semiautomatic rifles and semiautomatic handguns accept magazines of various sizes. Larger magazines increase a gun's firepower, enabling more shots before reloading.

The Virginia database analyzed by The Post lists about three-quarters of guns recovered by police, missing the rest because some agencies failed to report their recoveries to the state. The database contains details about more than 100,000 guns recovered by 200 police departments in a wide range of investigations from 1993 through August 2010, when The Post last obtained it.

In recent weeks, The Post conducted additional analysis into the type of guns confiscated with large-capacity magazines. The guns included Glock and TEC-9 handguns and Bushmaster rifles. Most had magazines ranging from 11 to 30 rounds.

Of 14,478 guns equipped with large-capacity magazines that were confiscated by police, more than 87 percent — 12,664 — were classified as semiautomatic pistols. The remainder were mostly semiautomatic rifles.

The Post also identified and excluded from the counts more than 1,000 .22-caliber rifles with large-capacity tubular magazines, which were not subject to the ban.

In Virginia, handguns outfitted with large-capacity magazines saw the biggest fluctuation during and after the ban.

In 1997, three years into the ban, police across the state reported seizing 944 handguns with large-capacity magazines. In 2004, the year the ban ended, they confiscated 452. In 2009, the last full year for which data were available, the number had rebounded to 986 handguns, analysis showed.

Of these, the single biggest group were handguns equipped with 15-round magazines, accounting overall for 4,270 firearms over the 18 years.

Effect hard to measure

Nationwide, researchers who studied the federal ban had difficulty determining its effect, in part because weapons and magazines manufactured before the ban could still be sold and in part because most criminals do not use assault weapons.

Christopher Koper, who studied the ban's effect for the National Institute of Justice, the research arm of the Justice Department, noted in a 2004 report that the "success in reducing criminal use of the banned guns and magazines has been mixed."

He found that gun crimes involving assault weapons declined between 17 and 72 percent in the six cities covered in the study — Anchorage, Baltimore, Boston, Miami, Milwaukee and St. Louis. But he said he found no decline in crimes committed with other guns with large-capacity magazines, most likely "due to the immense stock of exempted pre-ban magazines."

Koper's study tracked guns through 2003. He said that The Post's findings, which looked at magazine capacity of guns recovered in Virginia before and after 2003, suggests that "maybe the federal ban was finally starting to make a dent in the market by the time it ended."

Koper, now an associate professor of criminology at George Mason University, also noted the ban on high-capacity magazines might improve public safety because larger magazines enable shooters to inflict more damage.

The use of high-capacity magazines is a contentious point in the gun debate.

"Anyone who's thought seriously about armed self-defense knows why honest Americans — private citizens and police alike — choose magazines that hold more than 10 rounds. Quite simply, they improve good people's odds in defensive situations," Chris W. Cox, the executive director of the National Rifle Association's legislative institute wrote in a piece posted online. He called the ban a "dismal failure."

The federal prohibition on high-capacity magazines and assault weapons was spurred in part by the 1989 mass killing in Stockton, Calif. Patrick Edward Purdy, a mentally unbalanced drug addict, fired 110 rounds from an AK-47 into a schoolyard, killing five children and wounding 29 others and a teacher. Purdy used a 75-round drum magazine and a 35-round banana clip, one of four he carried.

Some states still limit magazine size. Maryland limits the size to 20 rounds; California limits it to 10. Connecticut, the location of Sandy Hook Elementary School, does not.

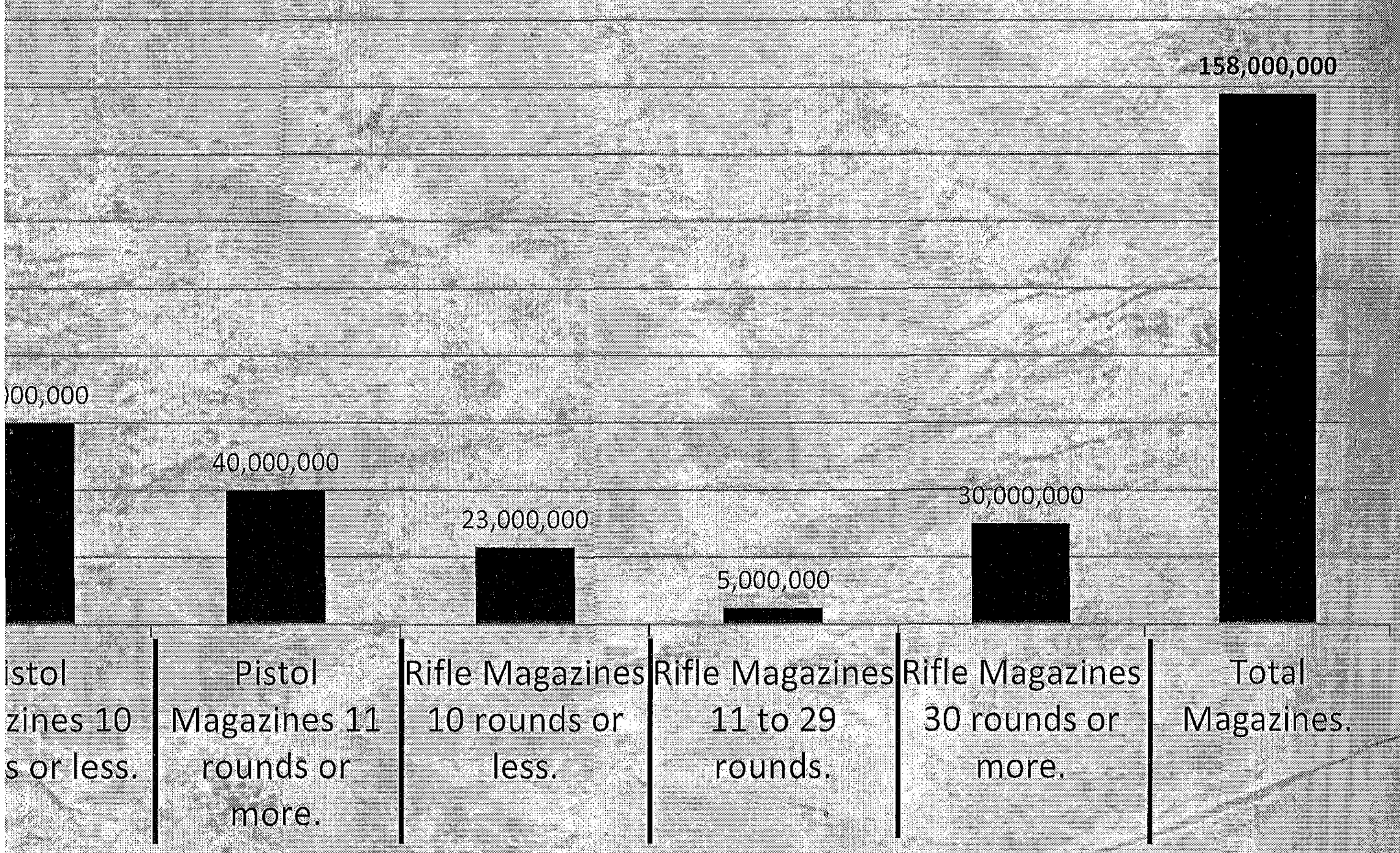
After Giffords's shooting, Rep. Carolyn McCarthy (N.Y.) and other Democrats proposed legislation to ban the sale or transfer of high-capacity magazines. McCarthy's husband and five others were killed in 1993 on the Long Island Rail Road by a gunman armed with a semiautomatic pistol and four 15-round magazines. He fired 30 shots before being subdued as he swapped magazines.

In the wake of the Newtown shooting, President Obama and lawmakers urged that a ban on assault weapons and high-capacity magazines be made permanent.

The NRA and the National Shooting Sports Foundation, a gun industry group, have historically opposed any restrictions on magazine capacity. The NRA did not respond to requests for comment, and the sports foundation declined to comment.

Exhibit 15

ated 158 Million Pistol and Rifle Magazines in J.S. Consumer Possession 1990 – 2012.



FMER, US International Trade Commission figures combined wtih NSSF and Firearms Industry estimates.

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