14-0319-cv

United States Court of Appeals

for the

Second Circuit

JUNE SHEW, STEPHANIE CYPHER, PETER OWENS, BRIAN MCCLAIN, HILLER SPORTS, LLC, MD SHOOTING SPORTS, LLC, CONNECTICUT CITIZENS' DEFENSE LEAGUE, COALITION OF CONNECTICUT SPORTSMEN, RABBI MITCHELL ROCKLIN, STEPHEN HOLLY,

Plaintiffs-Appellants,

– v. –

DANNEL P. MALLOY, in his official capacity as Governor of the State of Connecticut, KEVIN T. KANE, in his official capacity as Chief State's Attorney of the State of Connecticut, REUBEN F. BRADFORD, in his official capacity as Commissioner of the Connecticut Department of Emergency Services and Public

(For Continuation of Caption See Inside Cover)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF CONNECTICUT

JOINT APPENDIX
Volume 3 of 10 (Pages A-581 to A-866)

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TABLE OF CONTENTS

Page

Page

Page

Page

Page

Page

Page

Page

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* Exhibits B – I and L of the Counter-Statement are reproduced on CD-Rom

Page

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* Exhibits B – I and L of the Counter-Statement are reproduced on CD-Rom

Page

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.

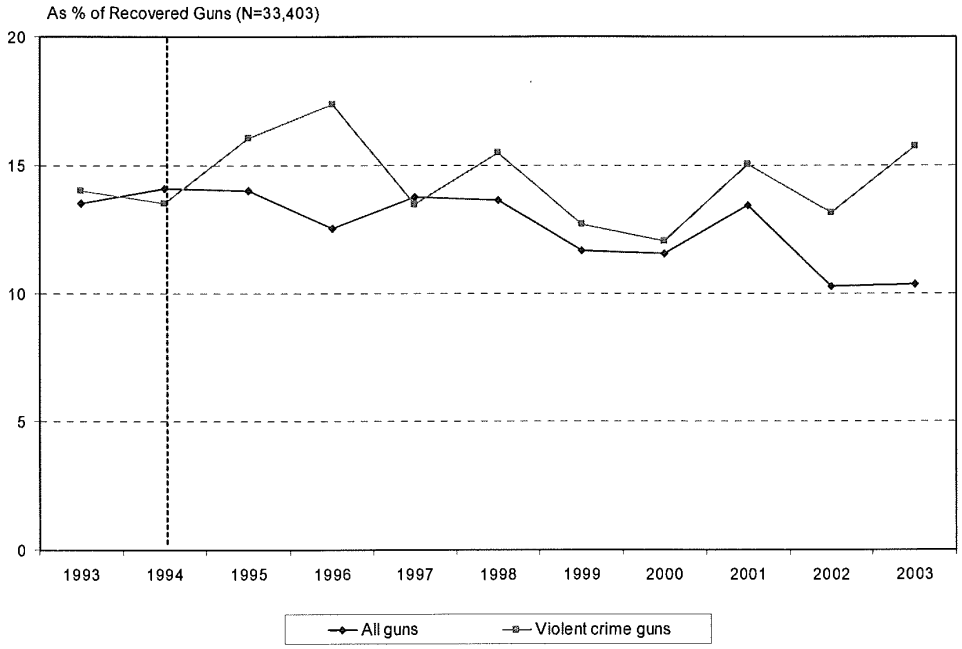
[81] This increase may have been due largely to a general increase in rifle seizures. LCM rifles actually dropped as a percentage of all rifle recoveries from 1993 to 2002-2003, suggesting that recoveries of LCM rifles were increasing less than recoveries of other rifles.

[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%

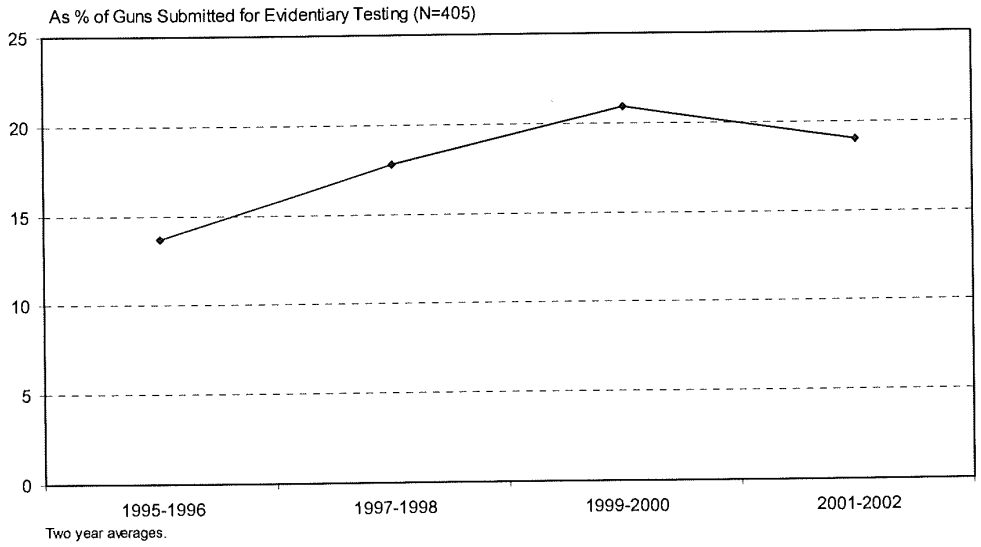
a. Changes in the percentages of guns with LCMs were statistically insignificant in chi-square tests.
b. Annual average calculated without 1996 and 2003 (to correct for missing months or missing magazine data).

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%

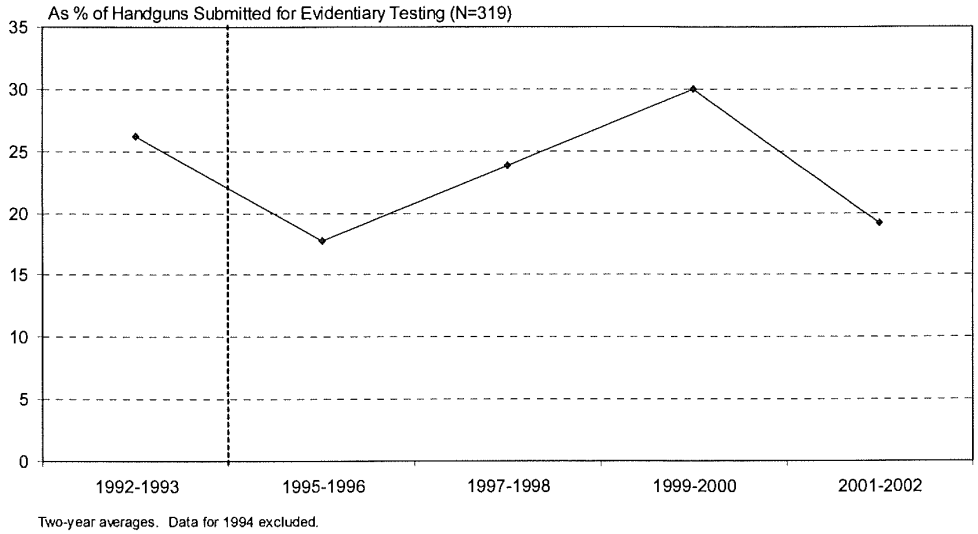
a. Based on guns submitted to State Police for evidentiary testing.
b. Changes in the percentages of guns equipped with LCMs were statistically insignificant in chi-square tests.

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



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.

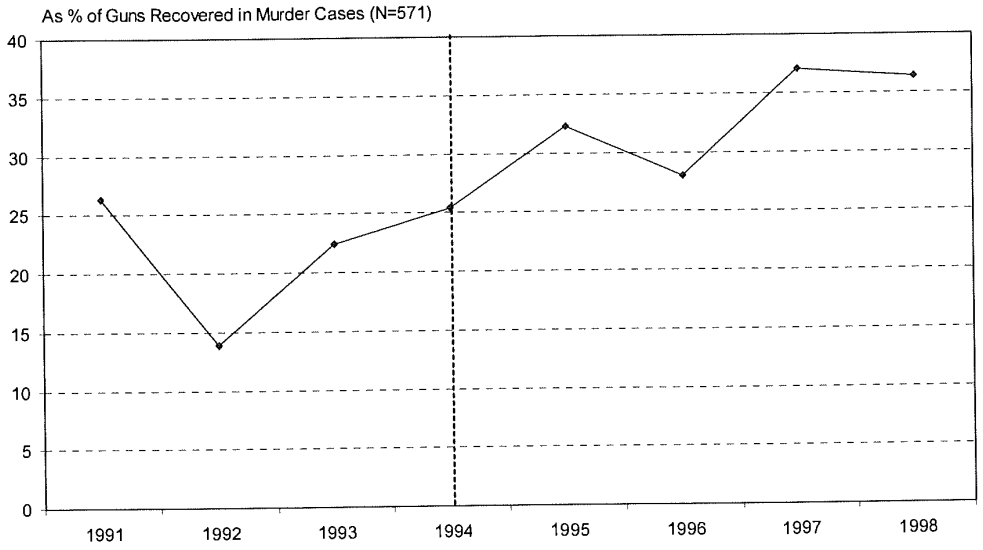
unidentified magazines suggested that as many as 17% of guns used in murders during 2000 and 2001 may have been LCM guns (based on all those that either had LCMs, were models sold with LCMs prior to the ban, or were unidentified semiautomatics). While this still suggests a drop in LCM use from the peak 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)

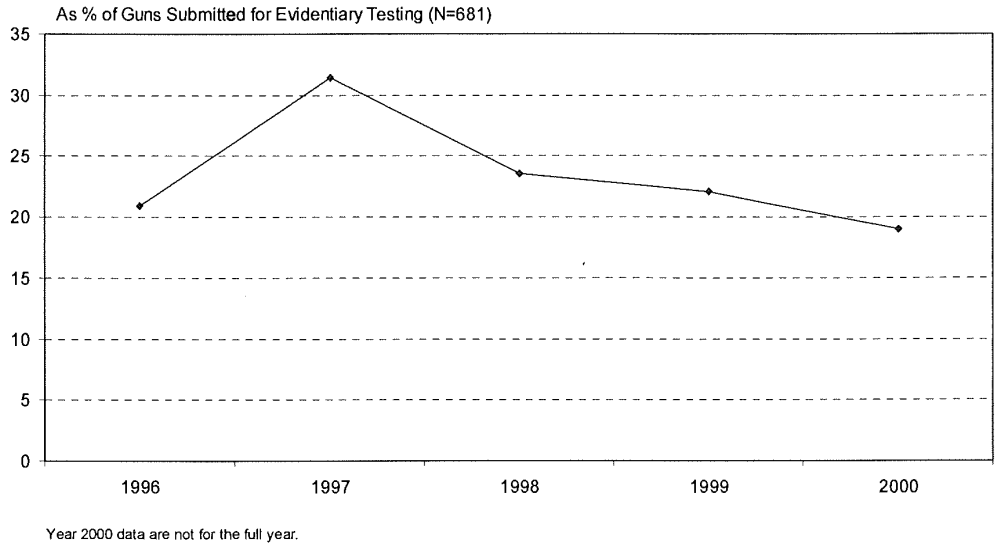
Figure 8-4. Recoveries of Guns Equipped With Large Capacity Magazines in Milwaukee County Murder Cases, 1991-1998



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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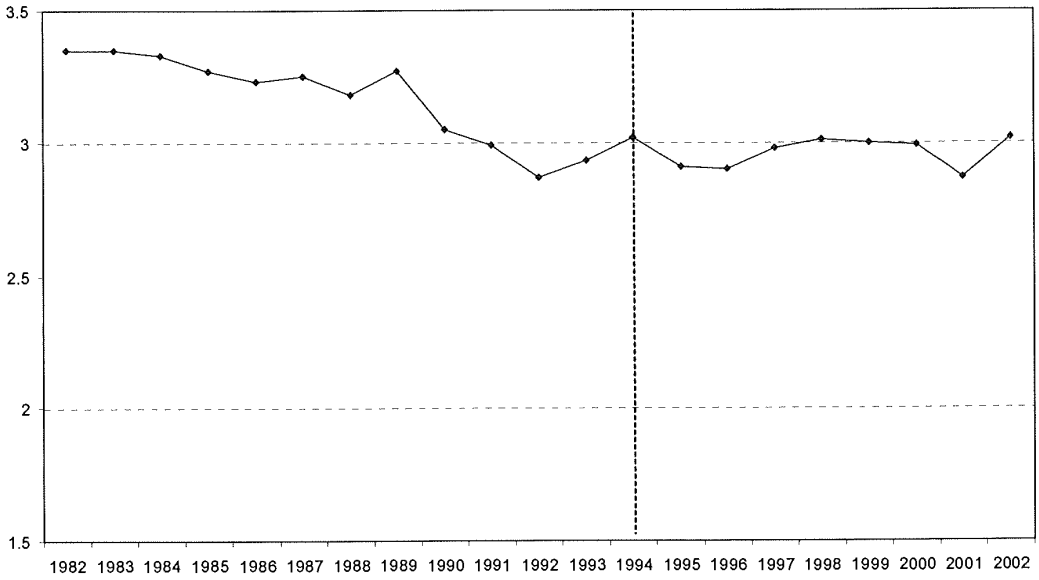
[95] On a related note, a few studies suggest that state-level AW bans have not reduced crime (Koper and Roth, 2001a; Lott, 2003). This could be construed as evidence that the federal AW ban will not reduce gunshot victimizations without reducing LCM use because the state bans tested in those studies, 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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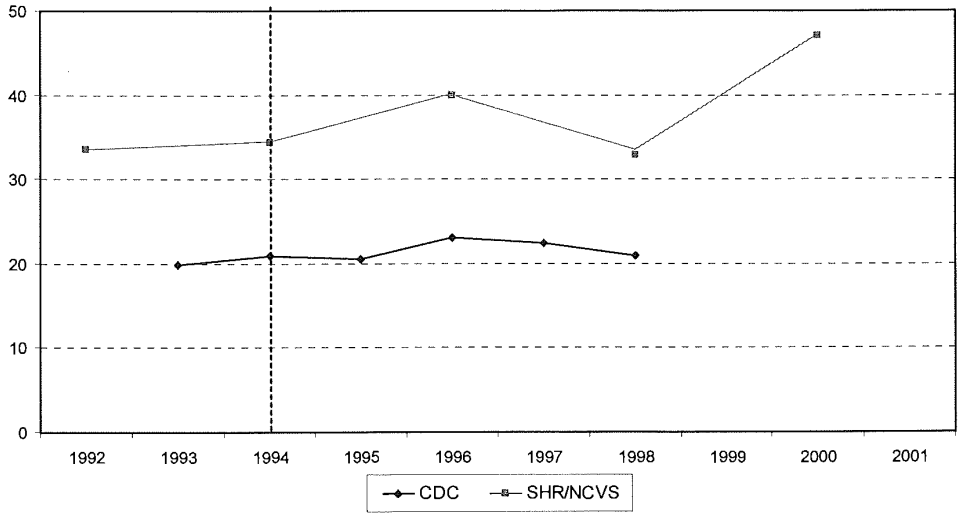
appears much higher in the SHR/NCVS series than in data compiled from medical examiners and hospitals (see the CDC series in Figure 9-3). But if these biases are relatively consistent over time, the data may still provide useful insights into trends over time.

[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%*

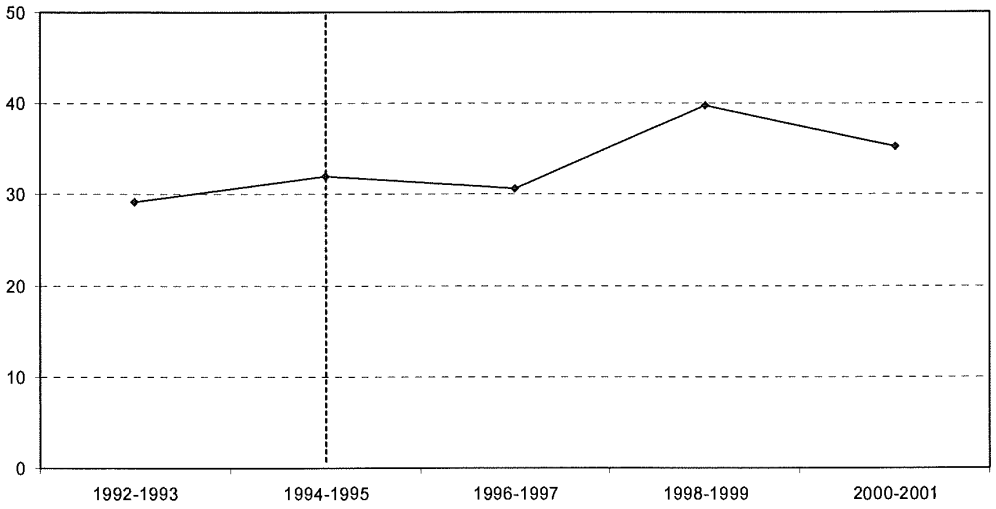
a. National victims per incident figures based on unpublished update of analysis reported in Roth and Koper (1997, Chapter 5). Gunshot wound data are taken from Roth and Koper (1997, Chapter 6) and Koper and Roth (2001a). Wound data are based on medical examiners' reports (Milwaukee, Seattle, San Diego), 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.

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IMPACT EVALUATION OF THE PUBLIC SAFETY AND RECREATIONAL FIREARMS USE PROTECTION ACT OF 1994

Final Report

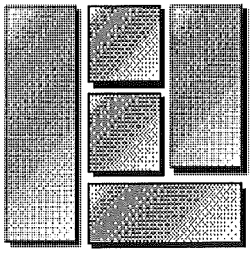

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Table of Contents

List of Tables

List of Figures

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.

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[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

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[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.

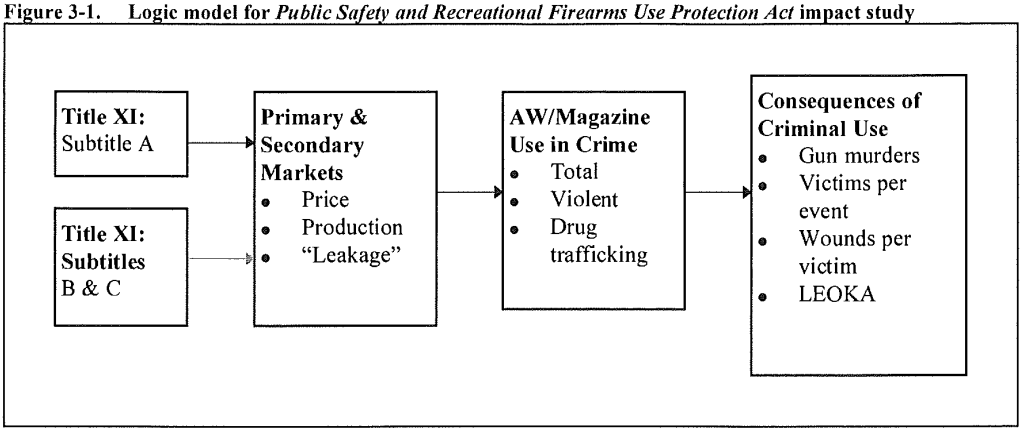
3.1. POTENTIAL BAN EFFECTS

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.

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[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

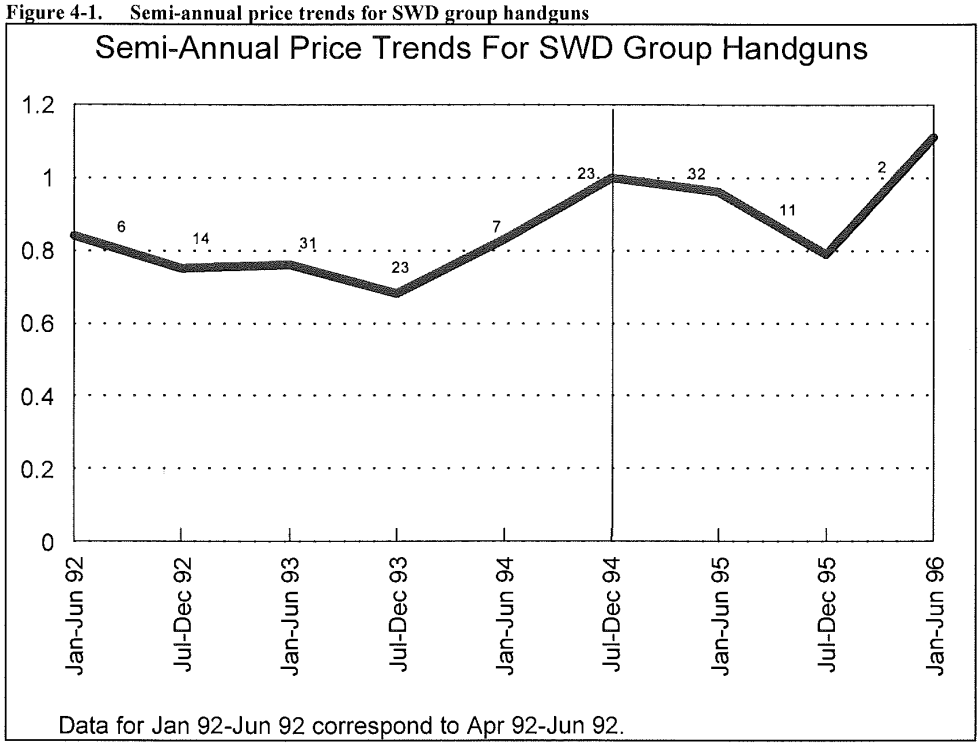
The coefficients for the time indicator variables provide quality-adjusted price trends. The time indicator t6 has been omitted from the equation.[20] This indicator corresponds to the period of July 1994 through December 1994 which encompasses the ban implementation date of September 13, 1994. The coefficients 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			

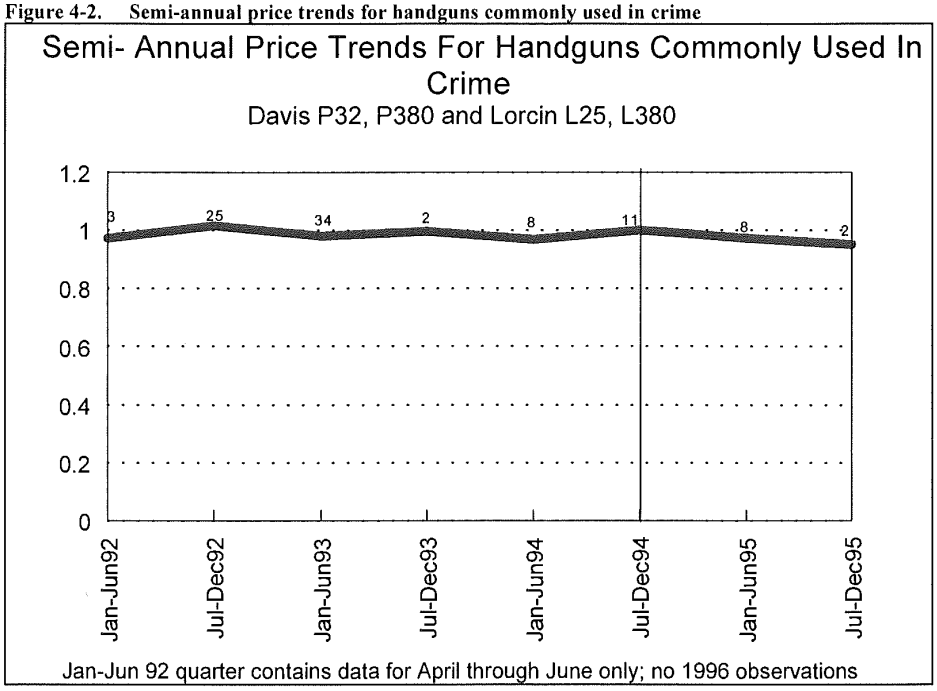
Root MSE	0.10332	R–square	0.8064
Dep Mean	-0.60396	Adj R–square	0.7801
C.V.	-17.10713		

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		

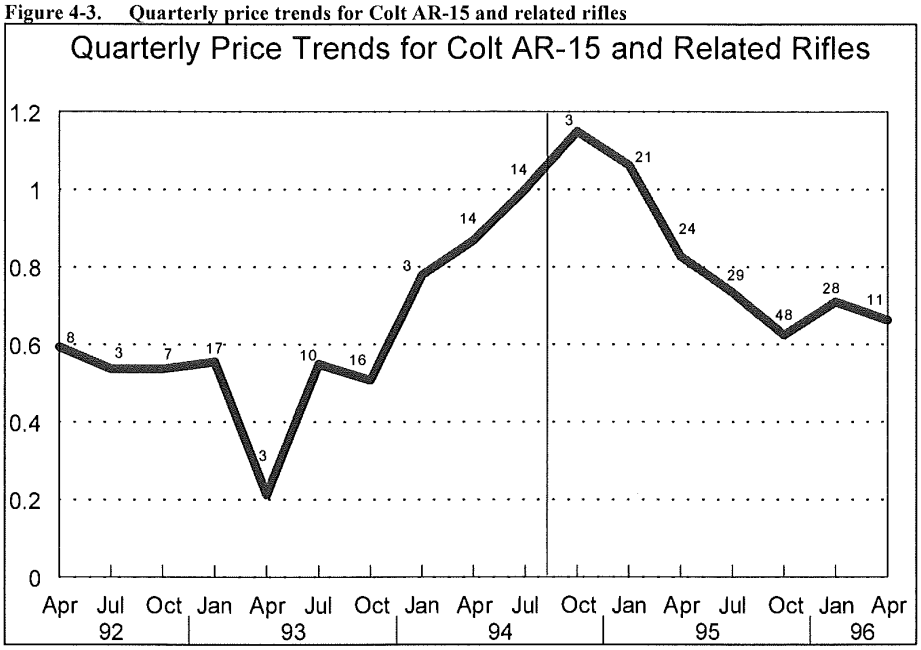
Parameter Estimates

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

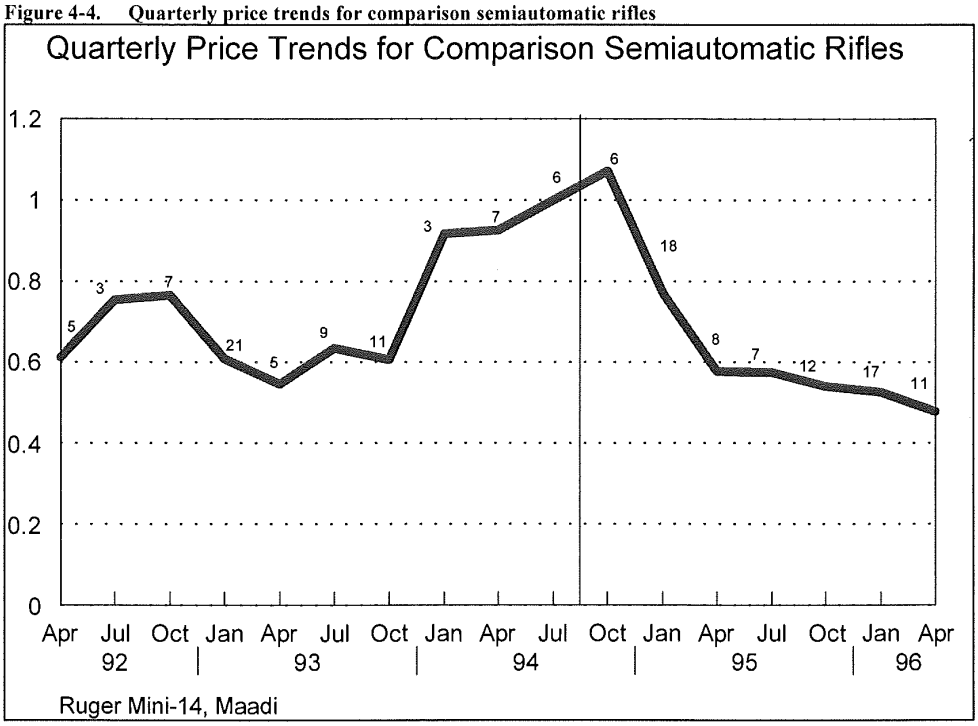
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	23	15.72251	0.68359	12.468	0.0001
Error	132	7.23741	0.05483		
C Total	155	22.95993			

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.

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[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

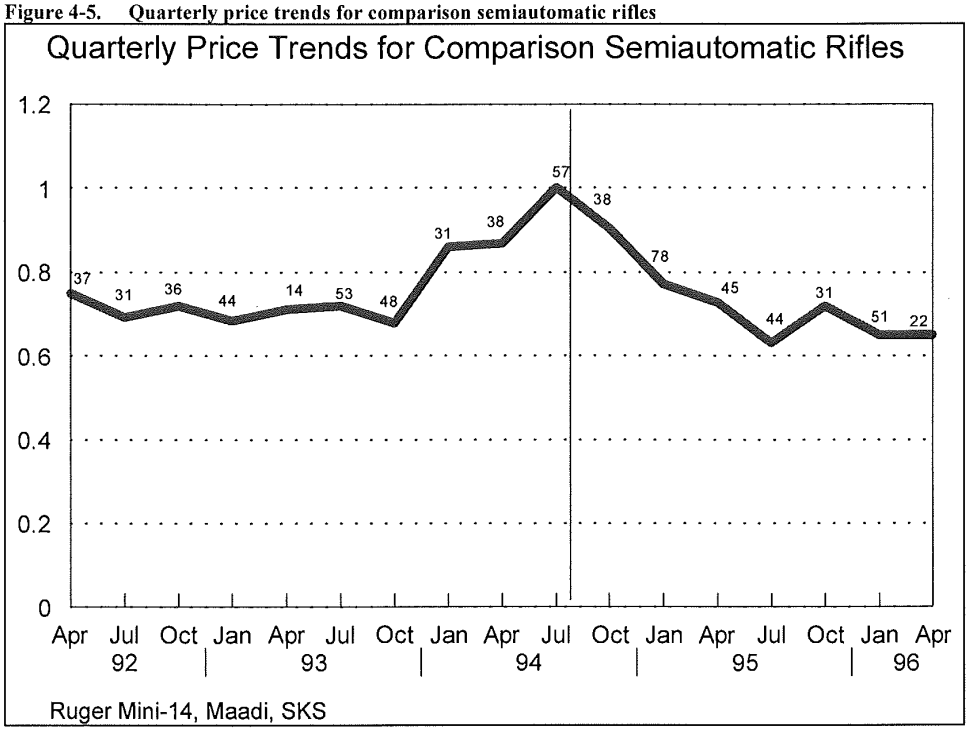
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	19	145.53206	7.65958	105.960	0.0001
Error	678	49.01094	0.07229		
C Total	697	194.54300			

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

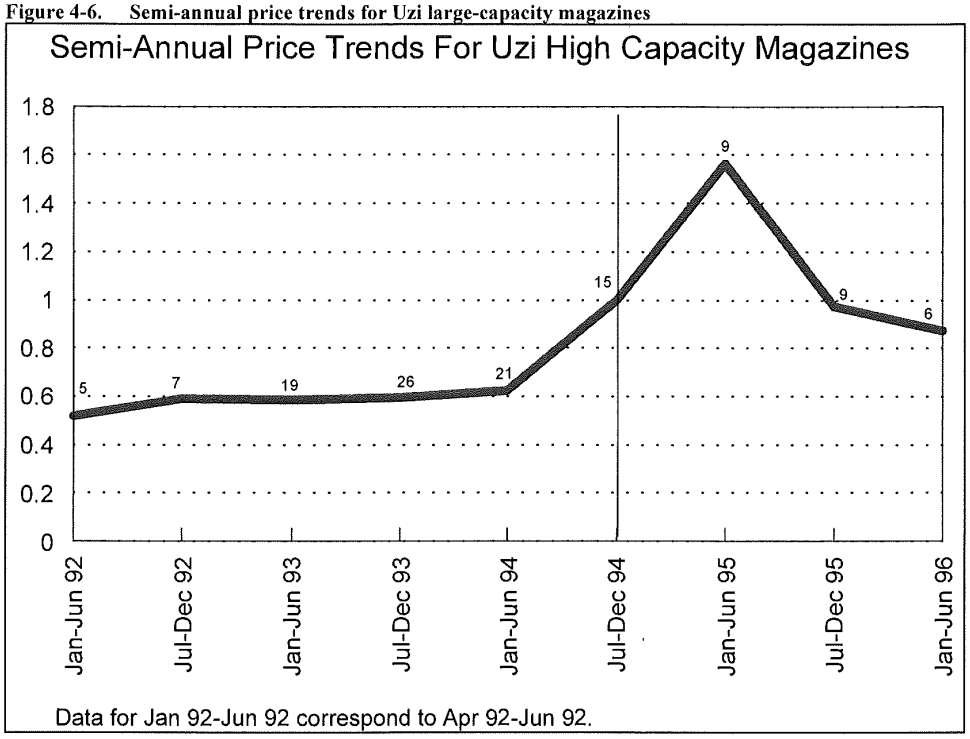
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	9	12.80484	1.42276	9.670	0.0001
Error	107	15.74298	0.14713		
C Total	116	28.54782			

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

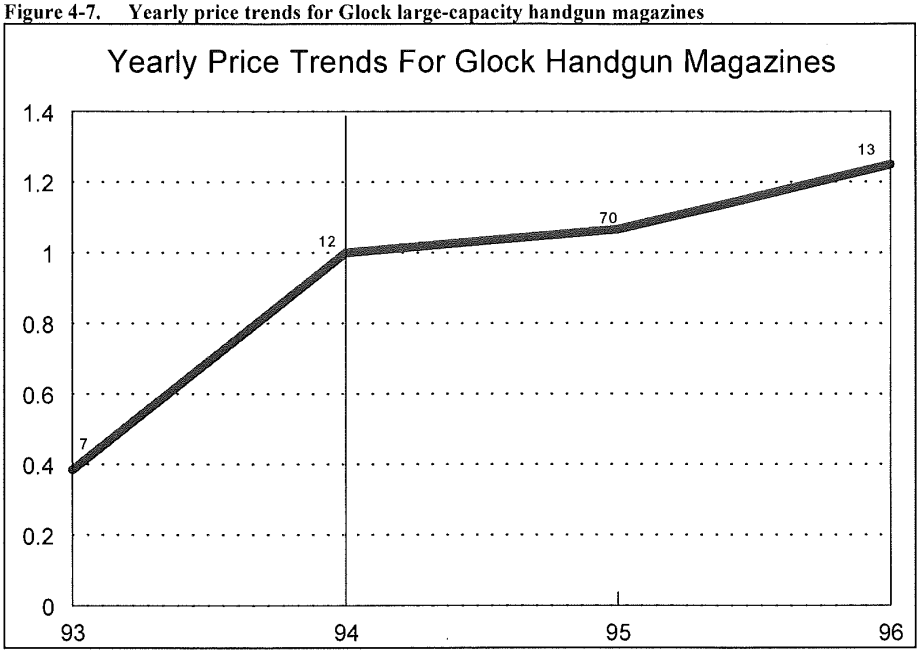
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	10	29.85755	2.98575	28.020	0.0001
Error	91	9.69680	0.10656		
C Total	101	39.55434			

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

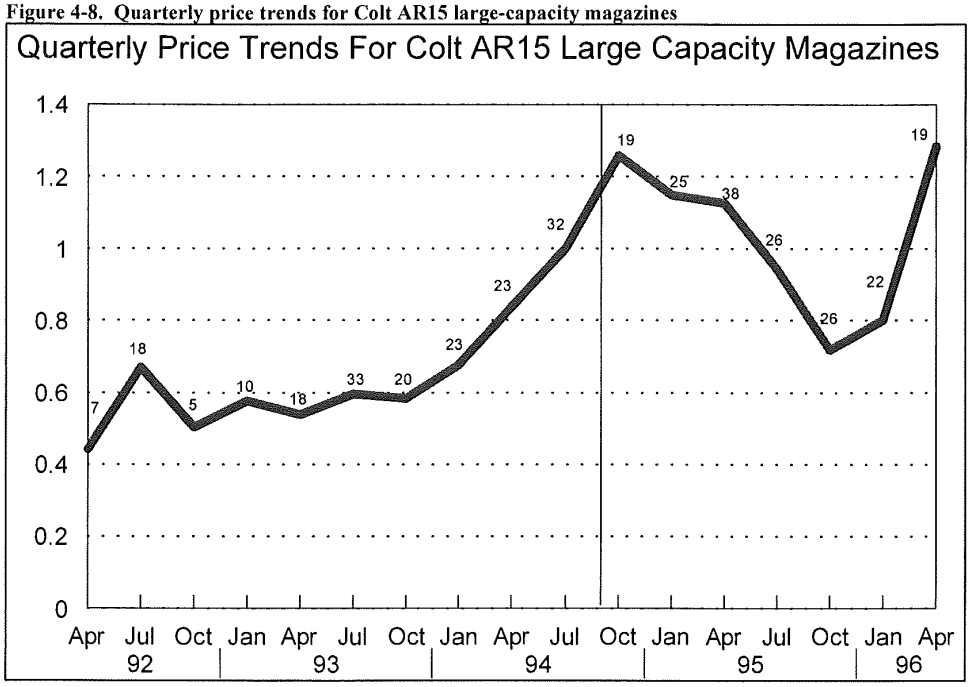
Source	*DF*	*Sum of squares*	*Mean square*	*F value*	*Prob>F*
Model	26	122.28012	4.70308	33.836	0.0001
Error	337	46.84153	0.13900		
C Total	363	169.12165			

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			

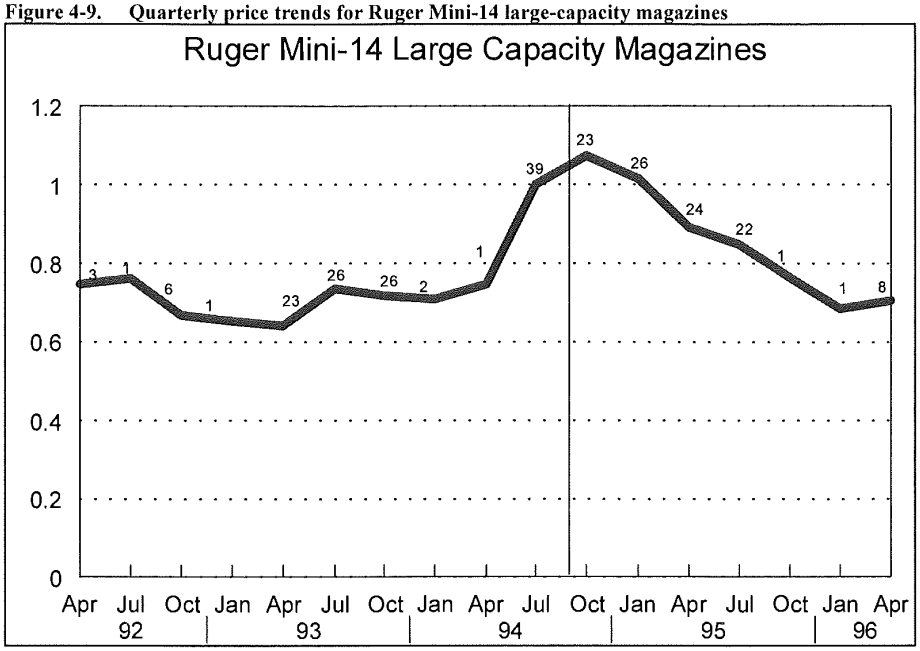
Root MSE	0.26978	R–square	0.7449
Dep Mean	-1.72827	Adj R–square	0.7230
C.V.	-15.61009		

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

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.

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[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)

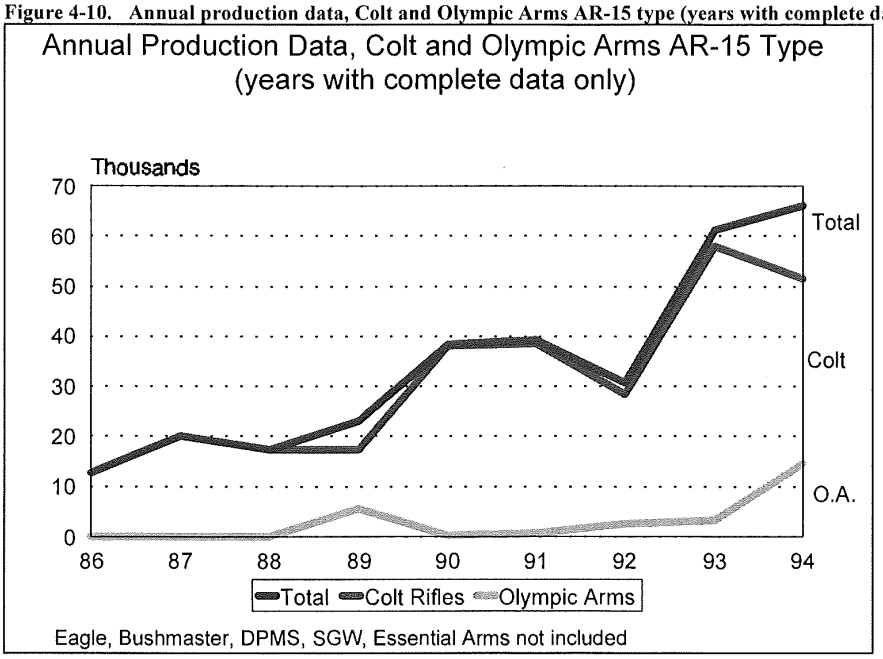


Figure 4-11. Annual production data, SWD group (missing data in some early years)

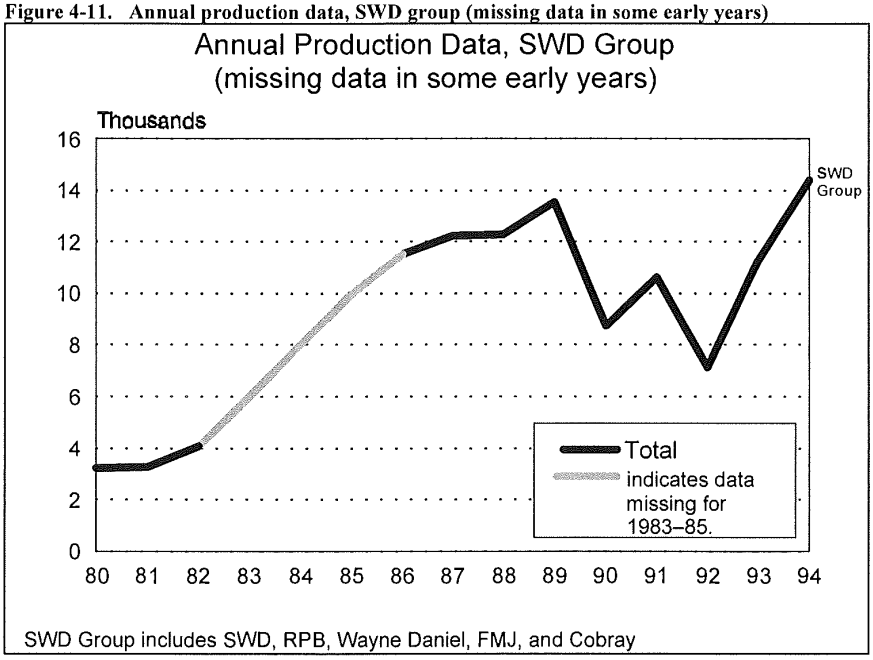
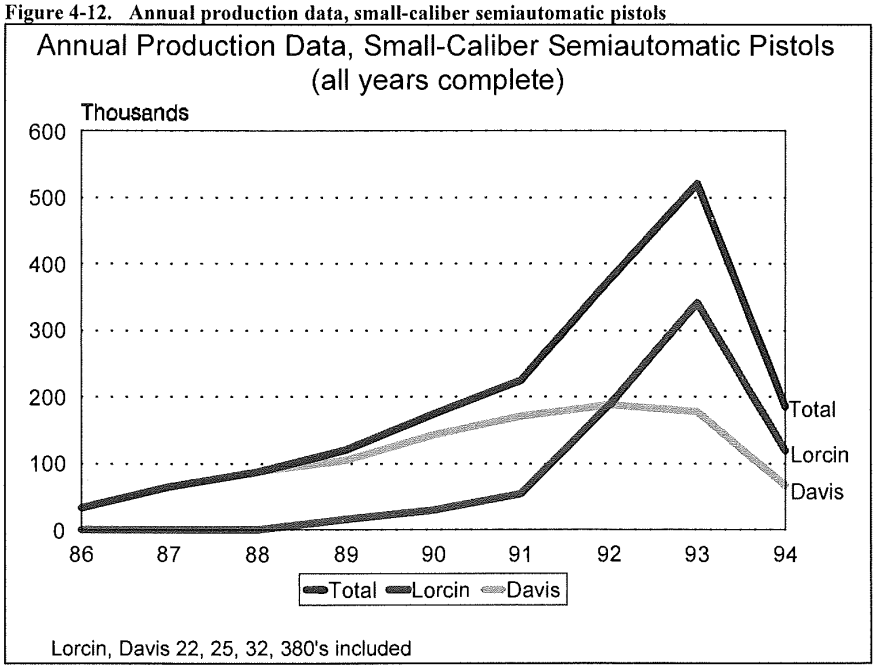


Figure 4-12. Annual production data, small-caliber semiautomatic pistols



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

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

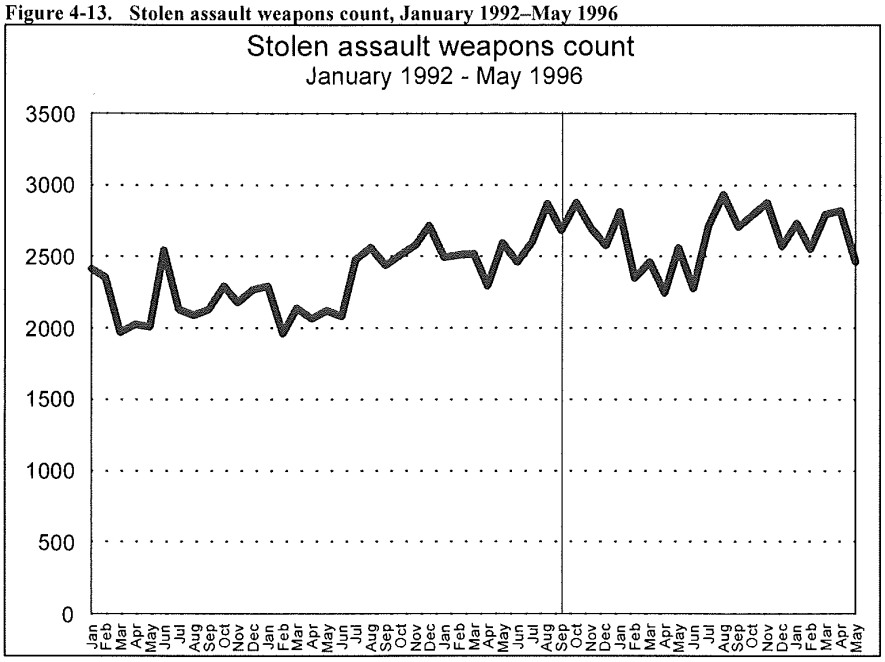
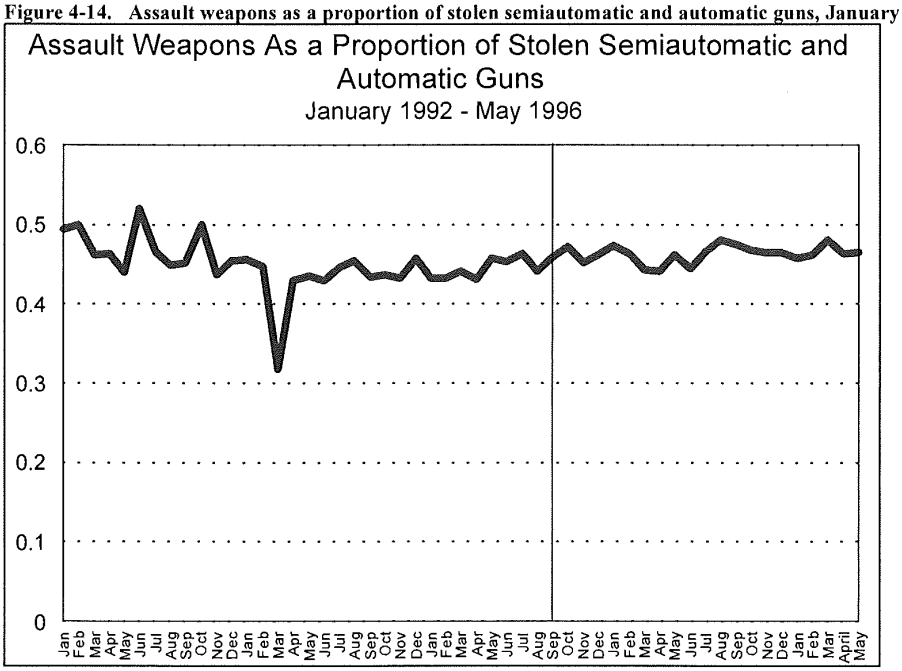


Figure 4-14. Assault weapons as a proportion of stolen semiautomatic and automatic guns, January 1992–June 1996



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

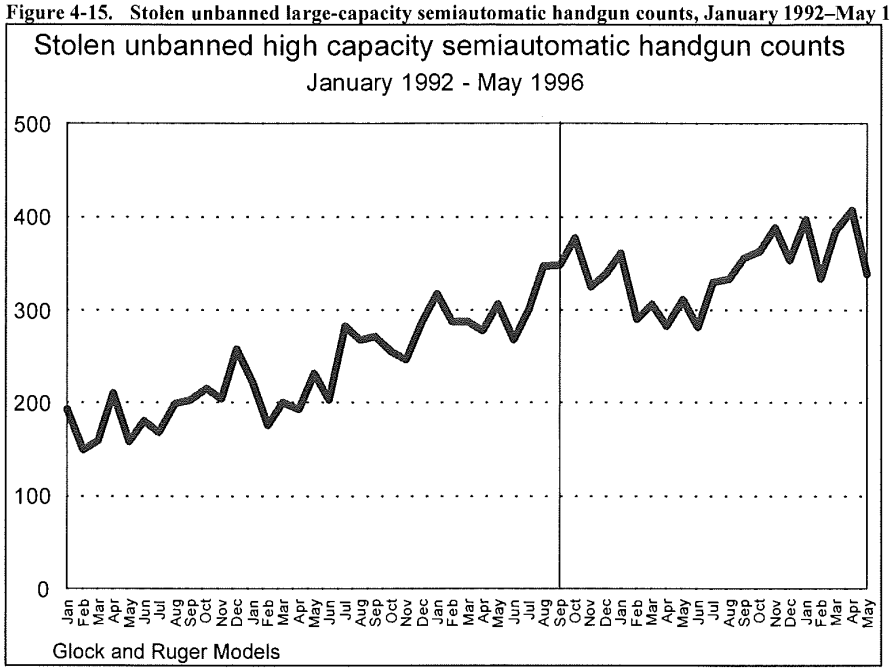
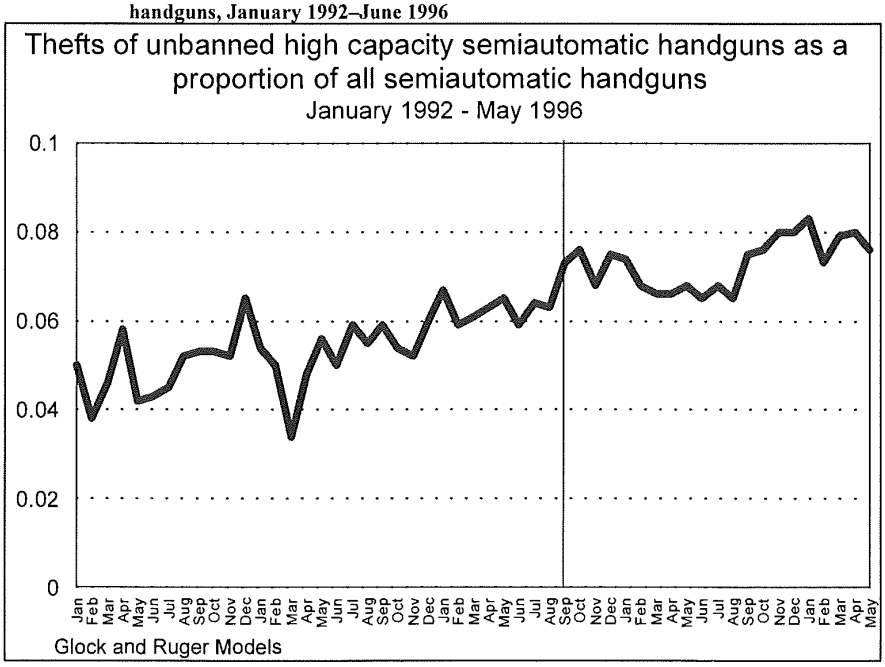


Figure 4-16. Thefts of unbanned large-capacity semiautomatic handguns as a proportion of all semiautomatic handguns, January 1992–June 1996



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.

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[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 HK91, 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

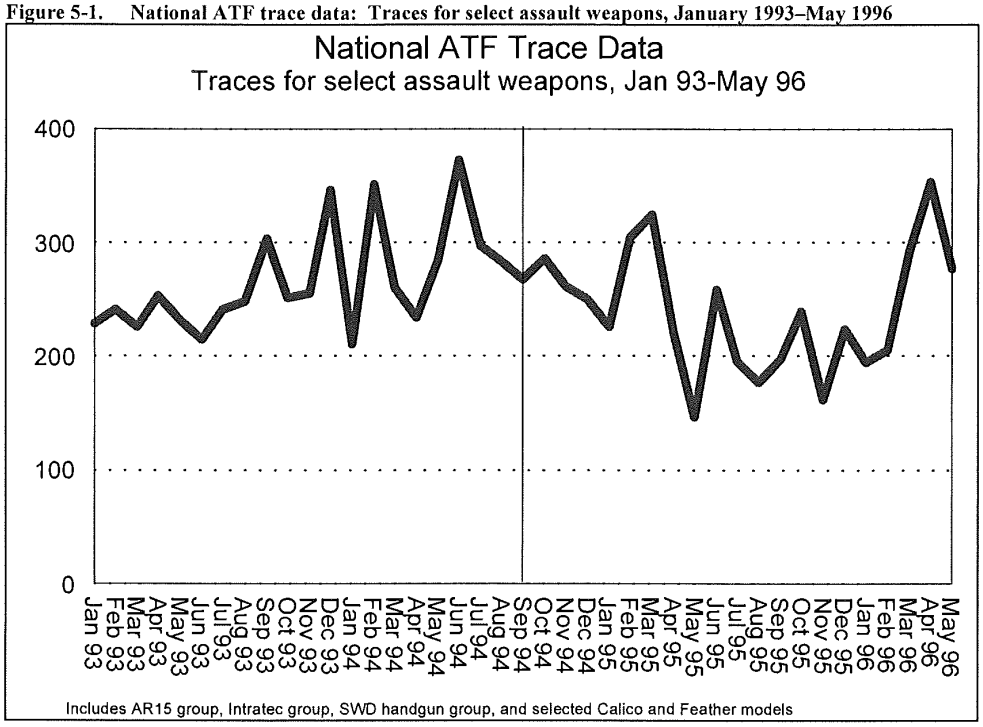


Table 5-5. Traces for select assault weapons,† January 1993–May 1996

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)

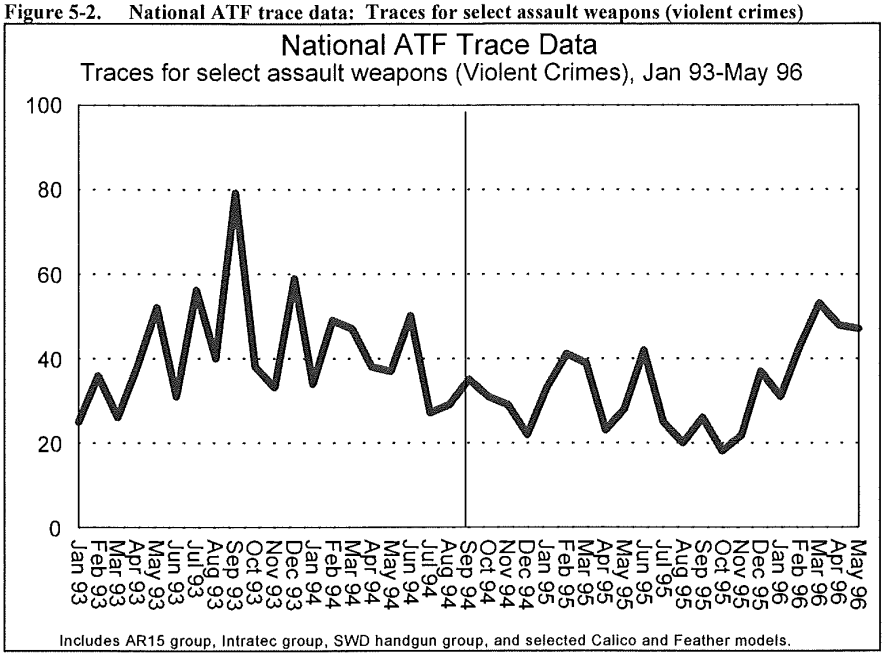


Figure 5-3. National ATF trace data: traces for select assault weapons (drug crimes)

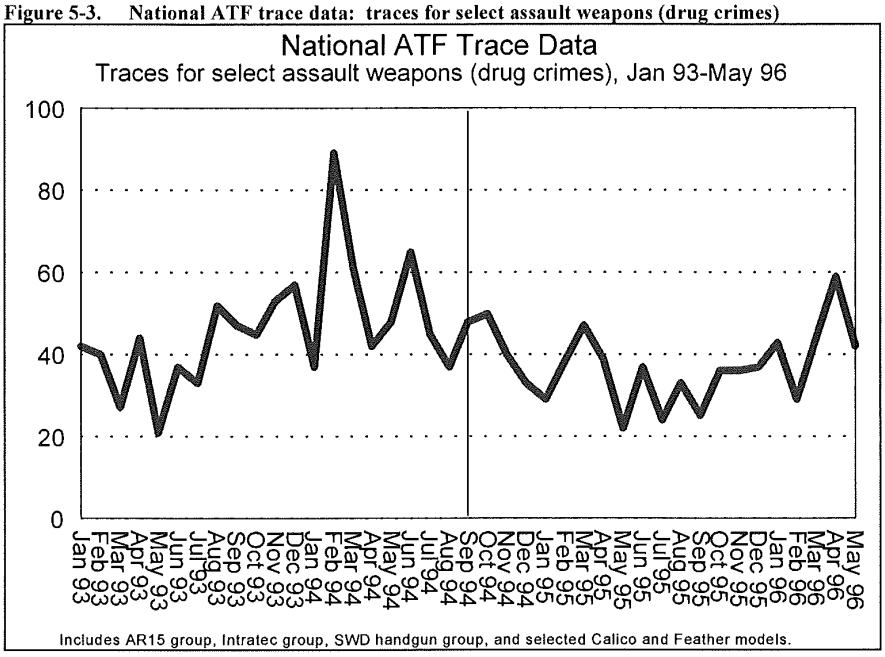


Table 5-6. Traces for select assault weapons,† January 1993–May 1996 (violent and drug-related crimes)

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.

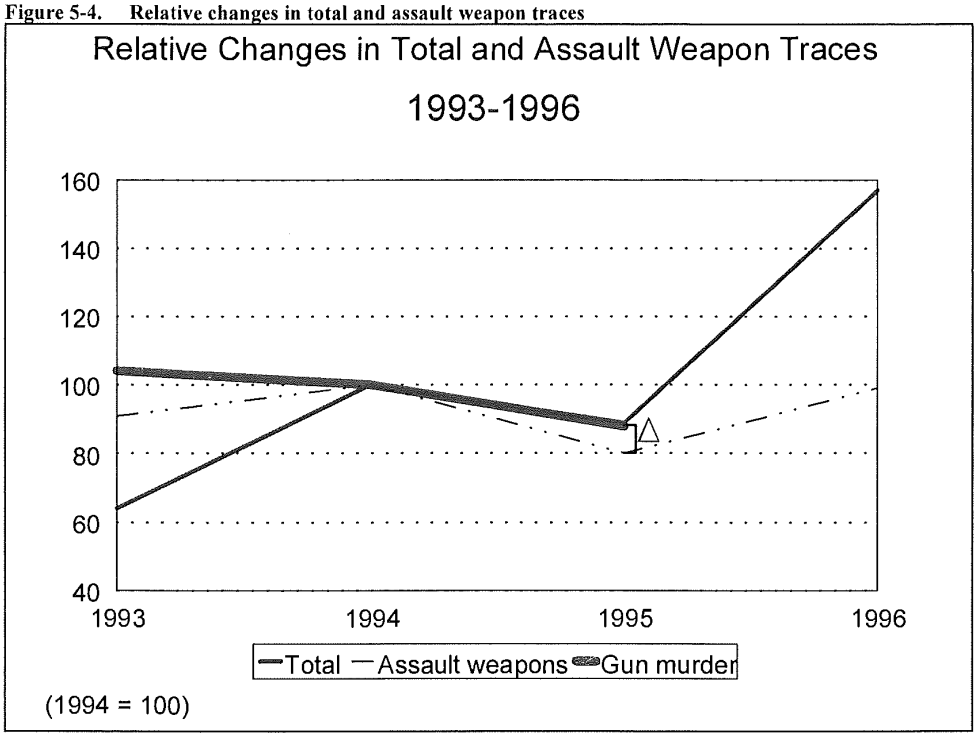
Assault weapon traces for drug crimes followed patterns similar to those for all assault weapons. Assault weapon traces increased 19 percent from 1993 to 1994, decreased 32 percent from 1994 to 1995, and then increased 24 percent from 1995 to 1996. The yearly fluctuations of these traces were greater 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]

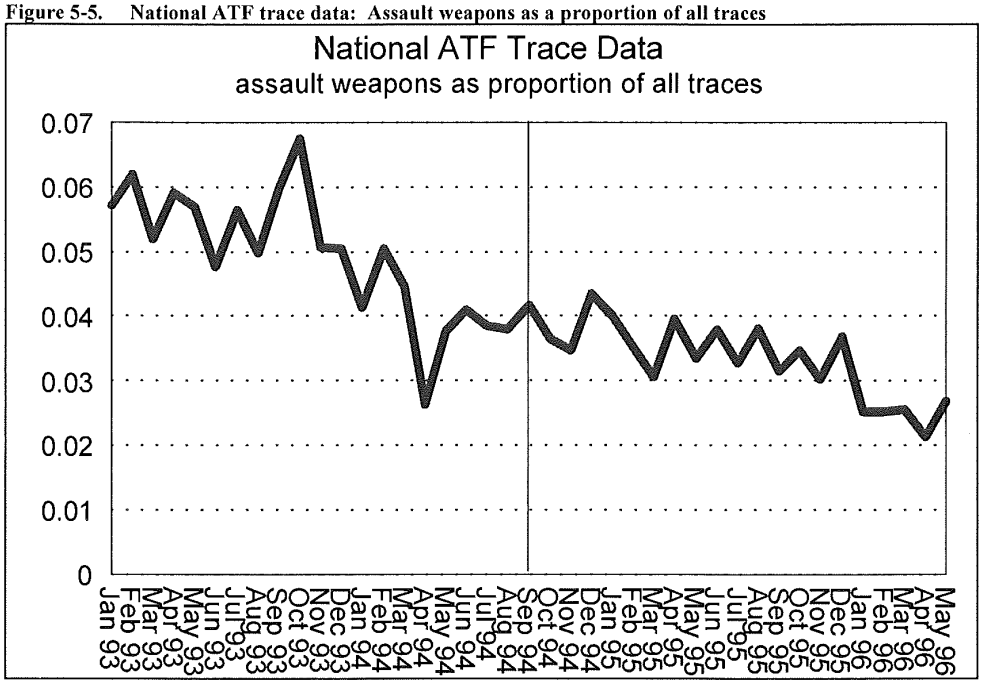
5.1.7. The Prevalence of Assault Weapons Among Crime Guns

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

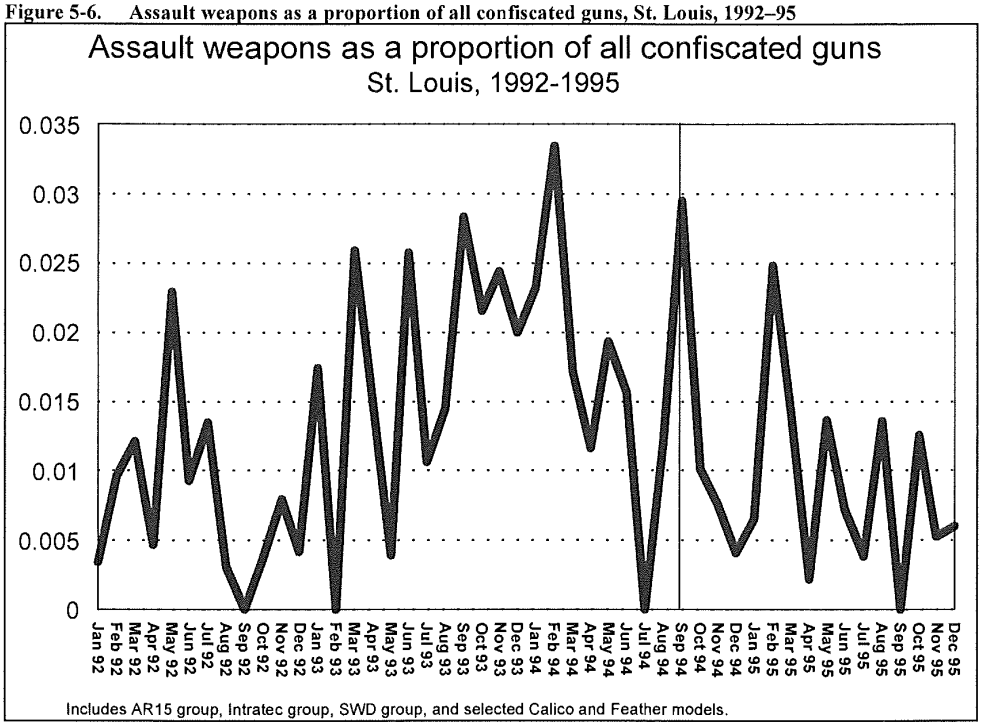
	Pre-ban (Jan. '92–Aug. '94)	*Post-ban (Sept. '94–Dec. '95)*	*Change*
Total guns confiscated			
Total	9,372	4,491	
Monthly mean	293	281	-4%
Assault guns			
Total	134	46	
Monthly mean	4	3	-25%
Proportion of confiscated guns	.014	.010	-29%
Large-capacity handguns (Ruger and Glock)			
Total	118	93	
Monthly 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]

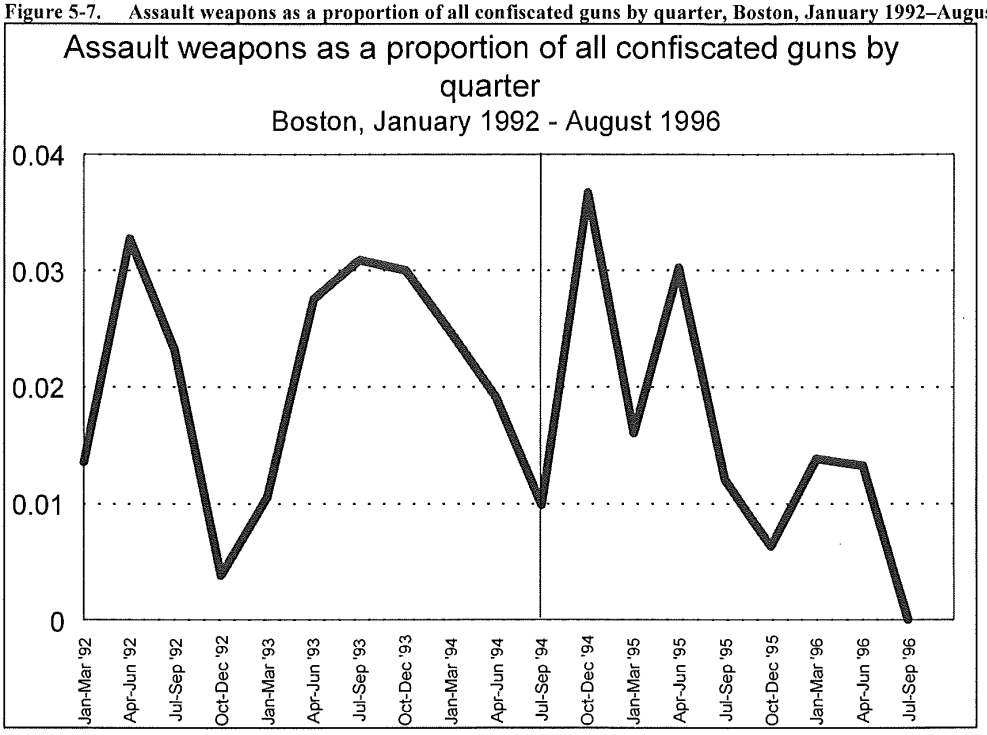
Table 5-10. Summary data on guns confiscated in Boston, January 1992 – August 1996

	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

[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

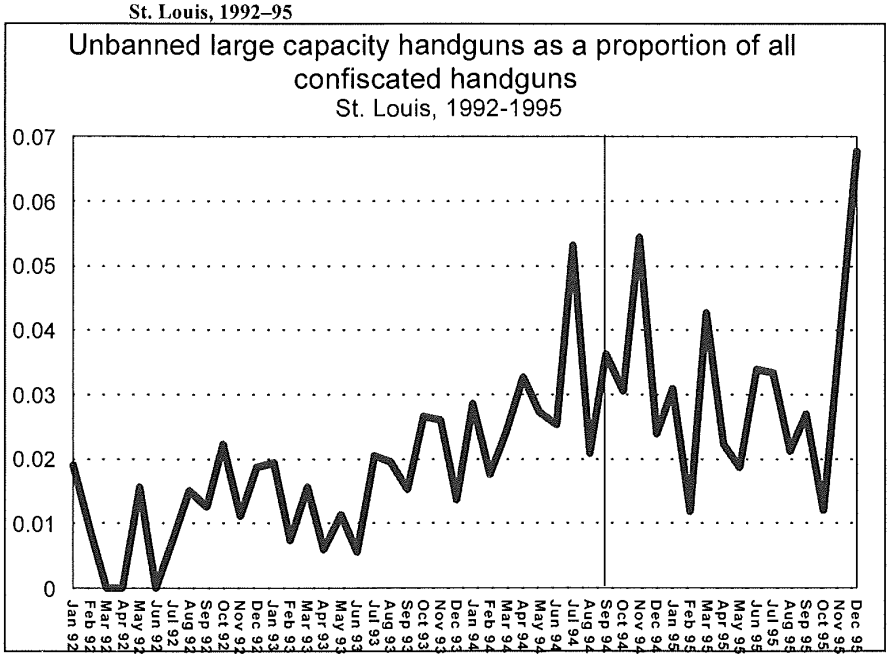
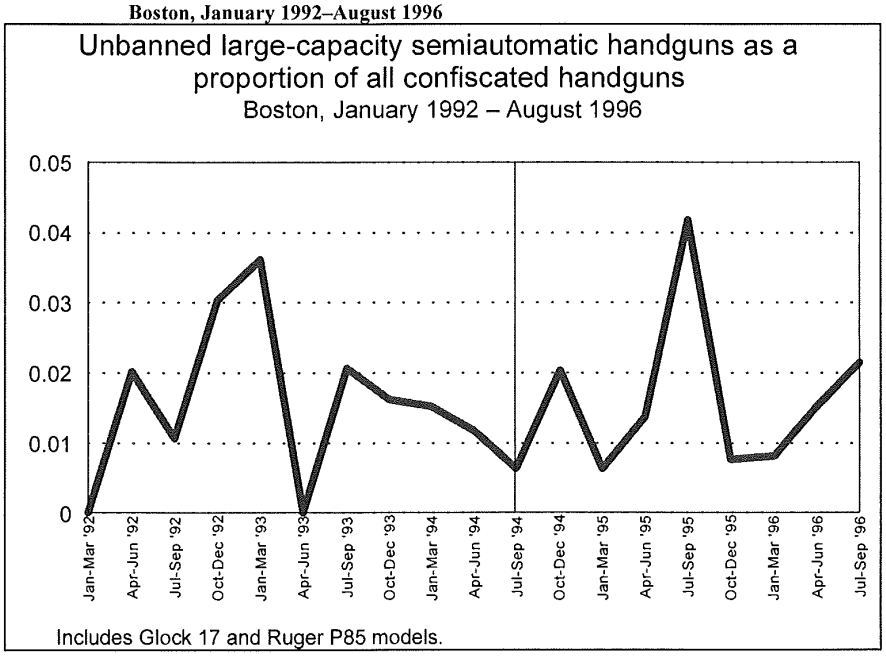


Figure 5-9. Unbanned large-capacity semiautomatic handguns as a proportion of all confiscated handguns, Boston, January 1992–August 1996



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.

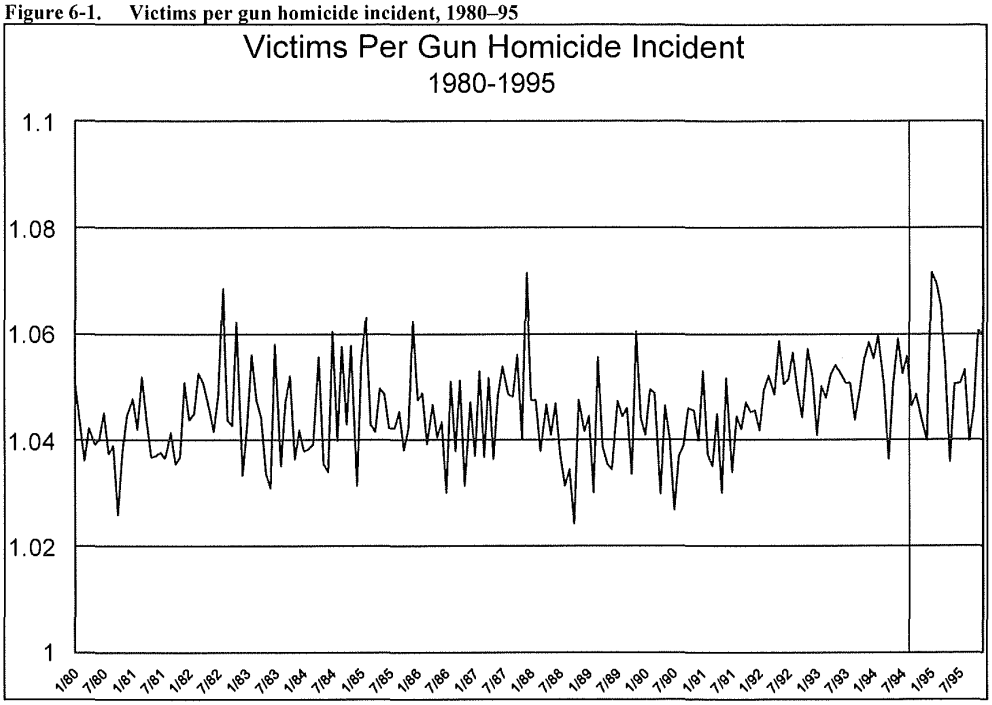
We investigated this hypothesis using data from the Federal Bureau of Investigation's Supplemental Homicide Reports (SHR) for the years 1980 through 1995. We constructed a monthly database containing the number of gun homicide incidents and victims throughout the nation.[76] The SHR does not contain 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

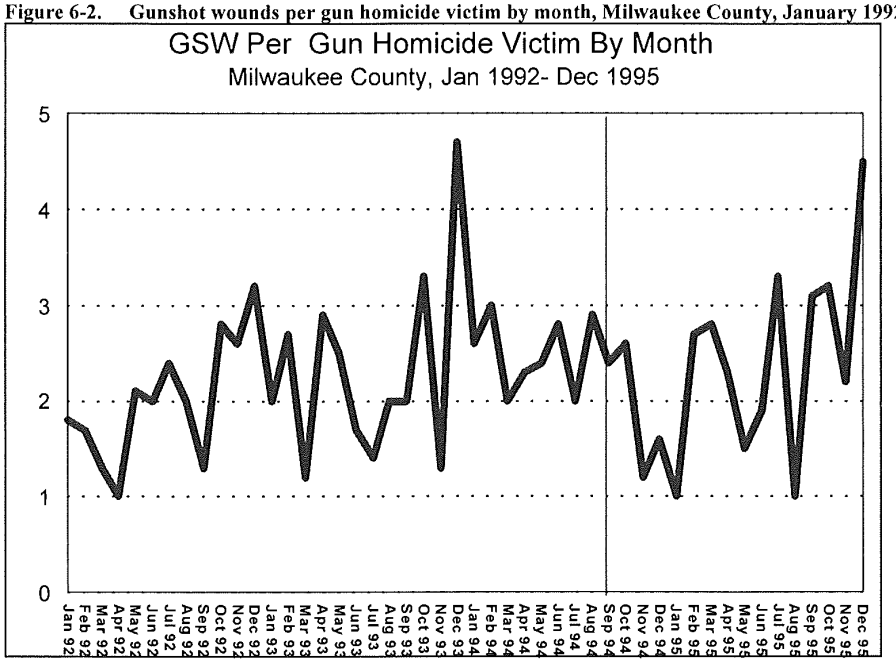
* T values were computed using formula for populations having unequal variances

[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

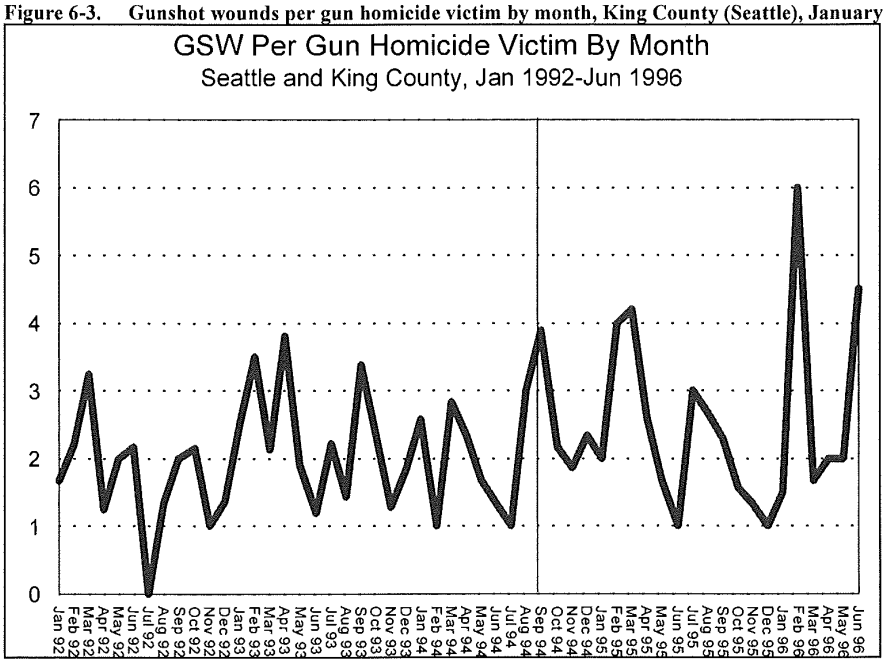
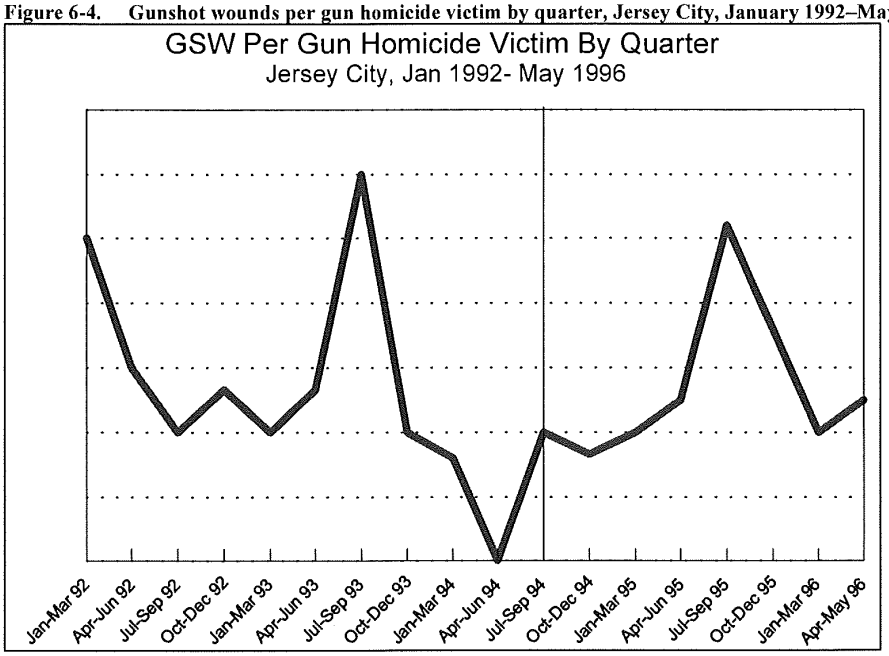


Figure 6-4. Gunshot wounds per gun homicide victim by quarter, Jersey City, January 1992–May 1996

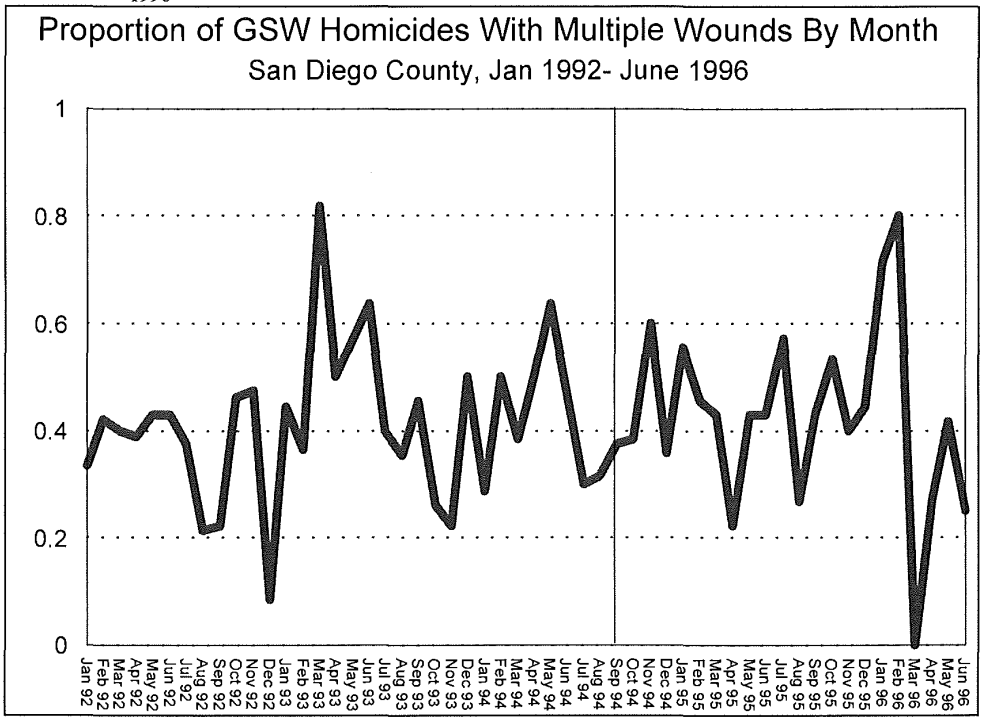


6.3.2. Proportion of Cases With Multiple Wounds: San Diego and Boston

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.

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.

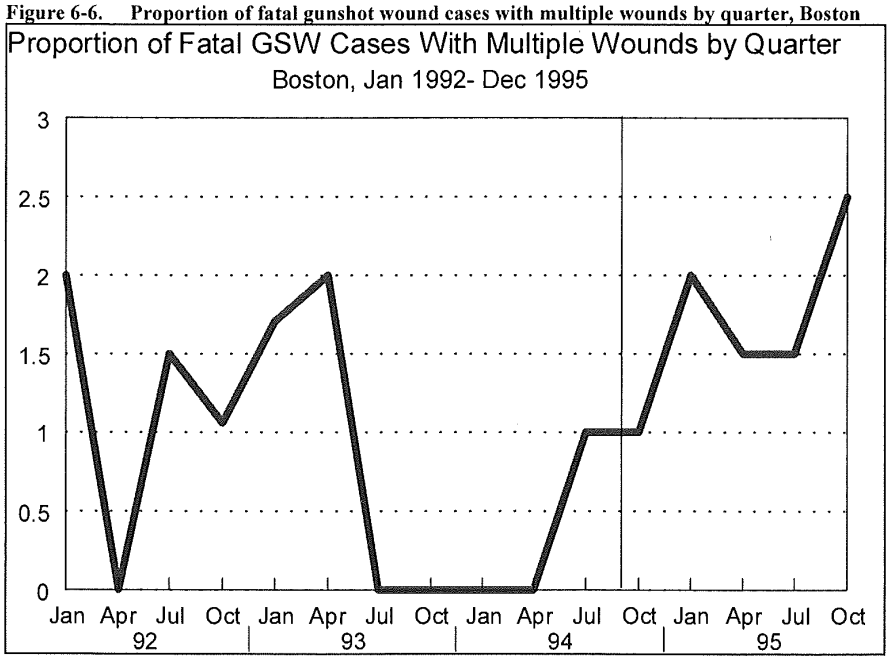
Table 6-4. Proportion of gunshot victims receiving multiple wounds, San Diego and Boston

	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

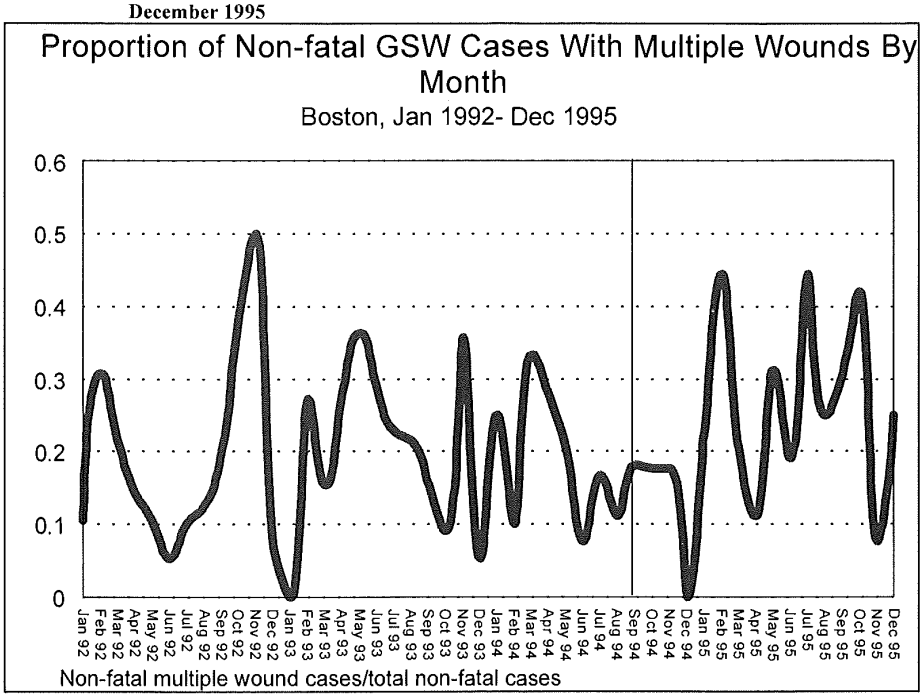
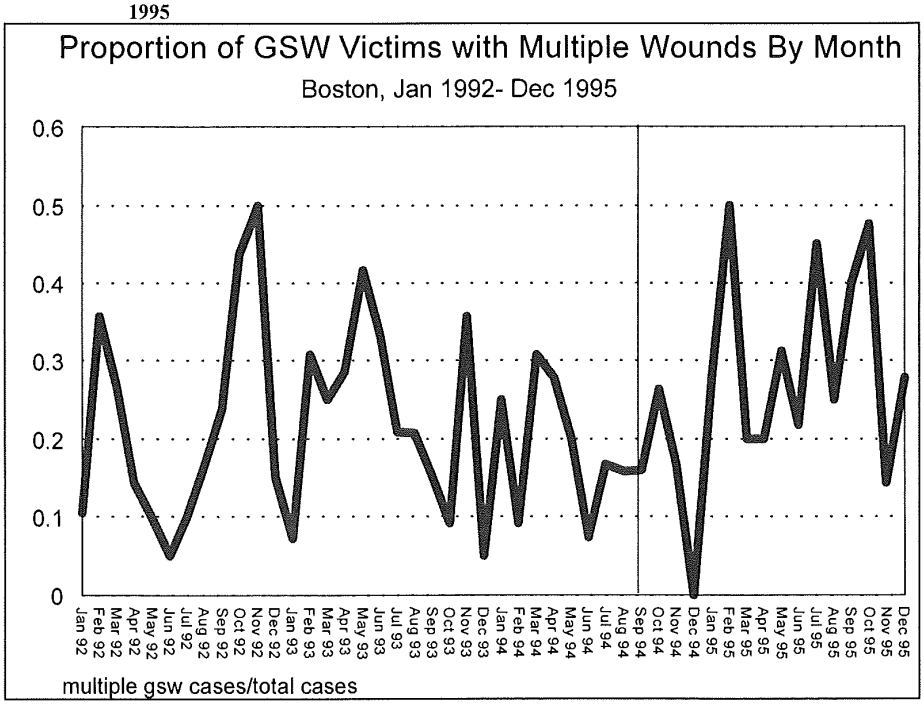


Figure 6-8. Proportion of gunshot wound victims with multiple wounds by month, Boston, January 1992–December 1995



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.

combination of both is unclear. However, there have been no recorded murders of police with assault weapons since the early part of 1995.[99]

These findings have important ramifications for future research on the impact of the assault weapons ban. The relatively high use of assault weapons in murders of police suggests that police gun murders should be more sensitive to the effects of the ban than gun murders of civilians. That is, if the disproportionate representation of assault weapons among gun homicides of police is attributable to the objective properties of these firearms (i.e., the greater lethality of these firearms), then a decrease in the availability of these guns should cause a notable reduction of police gun murders because other weapons will not be effective substitutes in gun battles with police. At this point, however, it is not clear whether the high representation of assault weapons among police murder cases is due to the greater stopping power of assault weapons (most assault weapons are high velocity rifles or high velocity handguns and thus inflict more serious wounds), their rate of fire and ability to accept large-capacity magazines, some combination of these weapon characteristics, or simply the traits of offenders who prefer assault weapons. A variety of non-banned weapons may serve as adequate substitutes for offenders who engage in armed confrontations with police.

As more data become available, we encourage the study of trends in police gun murders before and after the Crime Act. Furthermore, we believe that research on these issues would be strengthened by the systematic recording of the magazines with which police murder weapons were equipped and the numbers of shots fired and wounds inflicted in these incidents.

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[99] We did not examine police murders committed with firearms capable of accepting large-capacity magazines because the available data do not enable us to determine whether any guns used after the ban were actually equipped with pre-ban large-capacity magazines, nor do the data indicate the number of shots fired in these incidents. Moreover, in recent years many police departments have adopted large-capacity semiautomatic handguns as their standard firearm. Since about 14% of police officers murdered with guns are killed with their own firearms (FBI 1994, p.4), this could create an apparent increase in police murders with large-capacity firearms. (We did not acquire data on whether the officers were killed with their own firearms.) For a discussion of large-capacity firearms used in killings of police from January 1994 through September 30, 1995, see Adler et al. (1995).

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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.

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[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
		NUMBER OF
NEXIS ONLY		***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
FBI ONLY		***VICTIMS***
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
NEXIS & FBI		***VICTIMS***
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.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF CONNECTICUT

JUNE SHEW, et al, Plaintiffs,	:	
-against-	:	Civil No. 3:13-cv-739-AVC
DANNEL P. MALLOY, et al,	:	**DECLARATION**
Defendants.	:	

STATE OF CONNECTICUT)
)
COUNTY OF NEW LONDON)

SCOTT WILSON, under the penalties of perjury, hereby declares the following:

1. I am presently an officer of plaintiff THE CONNECTICUT CITIZENS DEFENSE LEAGUE ("CCDL", "association plaintiff"),

2. I am personally acquainted with the facts herein stated.

3. The CCDL is a domestic non-stock business entity with a principal place of business in Stratford, CT. The CCDL is a non-partisan, grassroots organization with approximately seven thousand six hundred (8,700) members. The CCDL is devoted to advocating rights affirmed by the Constitutions of the United States of America and the State of Connecticut. The CCDL is especially dedicated to protecting the unalienable right of all citizens to keep and bear arms, for the defense of both self and State, through public education and legislative action. The CCDL welcomes anyone who believes that the defense of constitutional rights is critical to the longevity of freedom and to the success of this nation, and in particular that the rights to self-defense and to keep and bear the arms to actualize that defense are fundamental and undeniable. The CCDL brings this suit on its own behalf and on behalf of its members.

4. Given my role as an officer of the CCDL, I have direct, first-hand knowledge that members of CCDL ("members," "member plaintiffs") possess and wish to acquire rifles, handguns, shotguns, ammunition feeding devices, and ammunition, but are prevented from doing so by the Act's restrictions on "assault weapons," "large capacity ammunition feeding devices," and ammunition sales.

5. Some members possess magazines with a capacity of more than ten rounds that are now criminalized by the Act. Other members do not possess magazines with a capacity of more than ten rounds, but would acquire them forthwith but for the Act. Many members would load more than ten rounds in their magazines for use in firearms kept in the home for self-protection but cannot do so because of the Act. Members are unaware how to modify magazines so they cannot "readily be restored or converted to accept" more than ten rounds.

6. Some members possess firearms now prohibited by the Act as "assault weapons." But for the Act, still other members, individual plaintiffs, and business plaintiffs would forthwith obtain and possess "assault weapons" under each and every one of the Act's new definitions.

7. As examples, some members possess, and other members would possess but for the Act, semiautomatic rifles that have an ability to accept a detachable magazine with a folding or telescoping stock, or any other stock which would allow an individual to grip the weapon, resulting in any finger on the trigger hand in addition to the trigger finger being directly below any portion of the action of the weapon when firing; or a forward pistol grip. Other members possess or would possess such rifles with muzzle

brakes, muzzle compensators, or threaded barrels designed to accommodate such attachments.

8. Further, some members possess semiautomatic rifles with detachable magazines and with a thumbhole stock. Such rifles are commonly used for hunting game and for target shooting. A thumbhole stock allows the rifle to be held more comfortably and fired more accurately, but it causes the rifle to be defined as an "assault weapon".

9. But for the Act, other members would forthwith obtain and possess identical or similar rifles but may not do so in that they are now considered illegal "assault weapons".

10. Being in possession of, or wishing to acquire, "assault weapons," "large capacity ammunition feeding devices," members are subject to the Act's requirements regarding registration, and converting magazines, and to the Act's serious criminal penalties, including incarceration, fines, forfeitures, and cancellation of licenses.

11. Members are unaware of how to convert "large capacity ammunition feeding devices" so that they will hold only ten rounds. Other members might possess the technical ability to attempt such conversions, but are unaware of the definition of "readily converted or restored" or "permanent" that the State of Connecticut would apply to such conversions. The State of Connecticut has provided no guidance in this regard, nor does it refer gun or magazine owners to other resources that can provide adequate guidance.

12. Members have sought guidance from the State of Connecticut as to the scope of, application of, and exceptions to the Act, and have either received no response from the State or responses that are inaccurate and confusing.

13. Members purchase ammunition at competitive prices from out-of-state businesses. The Act's ban on out-of-state ammunition sales has caused financial harm to these members and makes it more difficult for them to obtain ammunition for lawful self protection, hunting, target shooting, and trap shooting.

14. I have direct, first-hand knowledge that the firearms now classified as "assault weapons" by the Act have been used for self-defense, hunting and shooting competitions throughout the State of Connecticut for decades. I personally know many individuals who have hunted with these firearms for years. In this sense, the argument that assault weapons are not used for hunting is simply untrue.

15. In addition, there are numerous shooting competitions for non-military personnel that have taken place throughout the State of Connecticut for years that regularly used the firearms now classified as "assault weapons" to compete. For example, timed competitions known as "3 Gun Shoots" and "2 Gun Shoots" were regularly regularly held at such places as the Metacon Gun Club in Weatogue, CT, and the Rockville Fish & Game Club in Vernon, CT. These matches regularly used the rifles and pistols now classified by the Act as "assault weapons" in timed competitions that test accuracy and proficiency. These matches are extremely popular, have been taking place throughout Connecticut for years, and have been attended throughout the years by hundreds (and likely thousands) of members. In this sense, the argument that the firearms now classified as "assault weapons" are not used by private citizens for sporting competitions is simply untrue.

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16. I have reviewed the foregoing statements and pursuant to 28 U.S.C. 1746(1) hereby declare under the penalties of perjury that they are true, correct, complete and accurate according to the best of my knowledge, information and belief.

/s/ SCOTT WILSON

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF CONNECTICUT

JUNE SHEW, et al, Plaintiffs,	:	
-against-	:	Civil No. 3:13-cv-739-AVC
DANNEL P. MALLOY, et al,	:	**DECLARATION**
Defendants.	:	

STATE OF CONNECTICUT)
)
COUNTY OF FAIRFIELD)

PAUL HILLER, under the penalties of perjury, hereby states the following:

1. I am over the age of 18 and believe in the nature of an oath.

2. I am personally acquainted with the facts herein stated.

3. I am a resident of the State of Connecticut, and a citizen of the United States. I have never been arrested or convicted of any crime. I currently possess a pistol permit issued by the State of Connecticut. This permit has never been suspended or revoked.

4. I am also a Range Safety Officer pursuant to the National Rifle Association's Range Safety Officer program.

5. I am also qualified as an instructor through the NRA's program to teach personal protection in the home.

6. I am also a bail enforcement agent and hold a Gold Card in that capacity.

7. I am the owner with my partner of Hiller Sports LLC located at 4 New Canaan Avenue in Norwalk, CT. ("the Store"). The Store is the holder of a Federal Firearms License ("FFL") that permits it to buy and sell firearms both within and without the State of Connecticut.

Pursuant to this license, the Store buys, sells, and re-purchases firearms within and without the State of Connecticut. The Store sells ammunition, as well as magazines that hold ammunition.

8. The firearms sold by the Store include rifles, pistols and shotguns. Several models of these firearms are semi-automatic, and are capable of accepting detachable magazines. Several models are AR-15 type modern sporting rifles. Several of these same models also have characteristics such as pistol grips, forward grips, telescoping stocks, thumbhole stocks, and threaded barrels. Threaded barrels permit the firearm to accept popular accessories such as shrouds and flash hiders.

9. On April 4, 2013, the Governor of Connecticut signed into law An Act Concerning Gun Violence Prevention and Children's Safety ("the Act"). With certain exceptions, the Act bans "large capacity magazines" (magazines that can accept more than 10 rounds of ammunition). I understand that, starting January 1, 2014, possession of a "large capacity magazine" is a Class D felony. If the "large capacity magazine" was obtained before the Act's passage, a first offense for possessing it is an infraction subject to a fine, but any subsequent offense is a Class D felony.

10. The Act bans "assault weapons," the definition of which includes a semiautomatic rifle that has an ability to accept a detachable magazine, and which also has: a folding or telescoping stock; or a thumbhole stock; or any other stock which would allow an individual to grip the weapon, resulting in any finger on the trigger hand in addition to the trigger finger being directly below any portion of the action of the weapon when firing; or a forward pistol grip.

11. The Act's definition of "assault weapon" also includes a semiautomatic pistol that has the ability to accept a detachable magazine, and which also has at least one of the following: an ability to accept a detachable magazine that attaches at some location outside the pistol grip; a

threaded barrel capable of accepting a flash suppressor, forward pistol grip or silencer; a shroud that is attached to, or partially or completely encircles, the barrel and that permits the shooter to fire the firearm without being burned, except a slide that encloses the barrel; or a second hand grip.

12. Since the passage of the Act, the Store's business has been directly and adversely impacted.

13. As mentioned above, the Act outlaws semi-automatic rifles that can accept detachable magazines, and also have a thumbhole stock, a telescoping stock, a forward grip, or any grip that permits the fingers of the trigger hand to rest below the firearm's action when firing. These features are commonly found (either individually or in combination) on AR-15 type modern sporting rifles.

14. One segment of the Store's business involves the purchase of "AR"-type firearms from out-of-state distributors and the sale of these "AR"-type firearms to customers. Since the passage of the Act, several of the Store's out-of-state distributors have stopped altogether the shipment of "AR"-type firearms to the Store due to concern and confusion over whether these types of arms can legally be shipped to, received by and/or sold by the holder of an FFL. In fact, the Store had to hold orders worth approximately $50,000 of back orders on AR-15s to its customers because the wholesaler would not ship the AR-15s to fill them. The sale of those types of firearms was a vast majority of the Store's sales before the passage of the Act. These stoppages have caused actual harm to Store's sales and overall business.

15. One segment of the Store's business involves the sale of accessories for "AR"-type firearms. These include, among other things, slings, rails, optics/scopes, grips, and cases.

Since the passage of the Act, I have only sold an extremely small number of accessories, whereas before the passage of the Act the sale of accessories kept pace with the sale of AR-type firearms.

16. One segment of the Store's business involves the sale of ammunition. Since the passage of the Act, several of the Store's out-of-state ammunition suppliers have not been able to ship ammunition to Hiller Sports LLC because the manufacturers are so backlogged. This has led to a decline in ammunition supply, which in turn has led to a decline in ammunition sales. This decline has caused actual harm to the Store's sales and overall business. Moreover, the lack of ammunition has caused actual harm to another segment of the Store's business. The Store recently installed a shooting range at significant expense in its building, designed and built for use by shooters of AR-15 types rifles chambered for .223 and .308 caliber ammunition. This is precisely the firearm that was outlawed by the Act. Thus, the inability to sell ammunition to customer to use at the range, and also rent range time at this facility, has caused an actual harm to the Store.

17. One segment of the Store's business involves the sale of ammunition magazines. Since the passage of the Act, the Store has returned all large capacity ammunition magazines and has asked, in turn, for the manufacturers to send it magazines that hold ten rounds. We are still waiting to receive those magazines from the manufacturers. This scenario has caused actual harm to the Store's sales and overall business.

18. One segment of the Store's business involves the receipt and transfer of large capacity magazines pursuant to the FFL the Store holds. Since the passage of the Act, we no longer transfer large capacity magazines out-of-state because the Store cannot profit from those transactions. The supply to the out-of-state dealers is high and thus these transactions are not profitable. This decline has caused actual harm to the Store's sales and overall business. Some of

customers who wanted to trade in their large capacity magazines have expressed dissatisfaction with the Store's refusal to receive and transfer the magazines out-of-state.

19. Since the passage of the Act, the Store's overall sales of rifles, pistols, and shotguns have declined significantly. I have observed that this decline in sales involves firearms that contain some of the individual features that are banned by the Act (e.g., pistol grips, telescoping stocks, etc.), but also firearms that are not characterized by the Act as "assault weapons." This decline is due, in large part, to customer confusion over which kinds of firearms are banned and which is not, as well as customer concern that purchasing a firearm will subject the customer to criminal prosecution.

20. I have reviewed the foregoing statements and pursuant to 28 U.S.C. 1746(1) hereby declare under the penalties of perjury that they are true, correct, complete and accurate according to the best of my knowledge, information and belief.

/s/ Paul Hiller
PAUL HILLER

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF CONNECTICUT

JUNE SHEW, et al, Plaintiffs,	:	
-against-	:	Civil No. 3:13-cv-739-AVC
DANNEL P. MALLOY, et al,	:	**SUPPLEMENTAL DECLARATION**
Defendants.	:	

STATE OF CONNECTICUT)
)
COUNTY OF FAIRFIELD)

JUNE SHEW hereby states the following under penalties of perjury.

1. I am over the age of 18 and believe in the nature of an oath.

2. I am personally acquainted with the facts herein stated.

3. I am a resident of the State of Connecticut, and a citizen of the United States. I have never been arrested or convicted of any crime. I currently possess a Permit To Carry Pistols and Revolvers issued by the State of Connecticut. This permit has never been suspended or revoked.

4. I am a member of the Metacon Gun Club. The Metacon Club sponsors and hosts different kinds of shooting competitions, and its members also compete as teams in shooting competitions at other locations. In addition, for the past ten years I have been Clinic Director of Metacon's "Women on Target." Women on Target is a comprehensive clinic that educates women on the safe and responsible use of firearms. Over the years, I have personally coached or instructed over one thousand (1,000) women on how to safely use firearms.

5. As a result of this experience, I have developed direct, first-hand knowledge of the different ways the Metacon and Women on Target members use the firearms now classified

as "assault weapons" under the Act, the kinds of shooting competitions held in the State of Connecticut, and the kinds of firearms that are regularly used at these events.

6. I have direct, first-hand knowledge that the firearms now classified as "assault weapons" by the Act have been used for self-defense, hunting and shooting competitions throughout the State of Connecticut for decades. I personally know many individuals who have hunted with these firearms for years. In this sense, the argument that assault weapons are not used for hunting is simply untrue.

7. In addition, there are numerous shooting competitions for non-military personnel that have taken place throughout the State of Connecticut for years that regularly used the firearms now classified as "assault weapons" to compete. For example, timed competitions known as "3 Gun Shoots" and "2 Gun Shoots" were regularly regularly held at the Metacon Gun Club, and also at the Rockville Fish & Game Club in Vernon, CT. These matches regularly used the rifles and pistols now classified by the Act as "assault weapons" in timed competitions that test accuracy and proficiency. These matches are extremely popular, have been taking place throughout Connecticut for years, and have been attended throughout the years by hundreds (and likely thousands) of Metacon members and other gun law-abiding owners and shooting enthusiasts. In this sense, the argument that the firearms now classified as "assault weapons" are not used by private citizens for sporting competitions is simply untrue.

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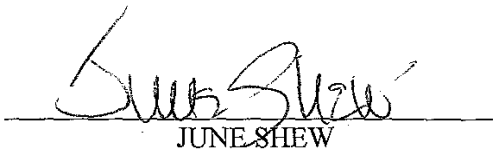
8. I have reviewed the foregoing statements and pursuant to 28 U.S.C. 1746(1) hereby declare under the penalties of perjury that they are true, correct, complete and accurate according to the best of my knowledge, information and belief.



JUNE SHEW

Dr. Gary K. Roberts, DDS
750 Welch Road #118
Palo Alto, California 94304

August 23, 2013

Goldberg Segalla, LLP
100 Pearl Street – 11th Floor
Hartford, CT 06103
Attention: Brian Stapleton, Esq.

In Re: NYSRPA v Cuomo, *et al.*
Case No.: 1:13-cv-00291-WMS
Motion for Preliminary Injunction

Mr. Stapleton:

I offer this declaration in support of a motion made by plaintiffs in the above-referenced action that seeks a permanent injunction enjoining the enforcement of Connecticut's Act Concerning Gun Violence Prevention and Children's Safety ("the Act"). This declaration is based upon my review of the Act, and also my years of study, training, research and consulting in wound ballistics; my education; and my experience.

I offer the following opinions under the penalties of perjury, and to a reasonable degree of certainty found in the fields of weapon ballistics and wound ballistics.

I. EXPERIENCE & TRAINING

I am currently on staff at Stanford University Medical Center; this is a large teaching hospital and Level I Trauma center where I perform hospital dentistry and surgery. After completing my residency at Navy Hospital Oakland in 1989 while on active military duty, I studied at the Army Wound Ballistic Research Laboratory at the Letterman Army Institute of Research and became one of the first members of the International Wound Ballistic Association.

Since then, I have been tasked with performing military, law enforcement, and privately funded independent wound ballistic testing and analysis. As a Navy Reserve officer from 1986 to 2008, I served on the Joint Service Wound Ballistic IPT, as well as being a consultant to the Joint FBI-USMC munitions testing program and the TSWG MURG program.

I am frequently asked to provide wound ballistic technical assistance to numerous U.S. and allied SOF units and organizations, such as the Canadian Armed Forces Weapons Effect and Protection SIPES TDP. In addition, I am a technical advisor to the Association of Firearms and Toolmark Examiners, as well as to a variety of Federal, State, and municipal law enforcement agencies.

I have been a sworn Reserve Police Officer in the San Francisco Bay Area and have recently served in a Law Enforcement (LE) training role.

II. THE SEMI-AUTOMATIC AR15 CARBINE IS LIKELY THE MOST ERGONOMIC, SAFE, AND EFFECTIVE FIREARM FOR CIVILIAN SELF-DEFENSE

A. INTRODUCTION to TERMINAL BALLISTICS

Internal ballistics is the study of projectile behavior from the time the cartridge is fired and propellant ignited, until the bullet exits the barrel of the firearm. External ballistics is the study of projectile flight through air after exiting the barrel of the firearm, until a target or object is hit. Terminal ballistics is the study of projectile behavior from the time the first target, intermediate barrier, or object is hit, until the projectile stops moving. Wound ballistics is the branch of terminal ballistics that studies the interaction between penetrating projectiles and tissue; essentially the pathophysiology of gunshot wounds. This is of crucial importance to the healthcare provider who must treat gunshot wounds, as a poor understanding of the types of injuries produced by penetrating projectiles may result in improper or inadequate clinical treatment being provided to a shooting victim. Terminal ballistics and wound ballistics are also of interest to military and law enforcement personnel as well as private citizens who depend on firearms to protect themselves since misconceptions regarding bullet effectiveness and body armor can jeopardize their lives and those of innocent individuals they are protecting.

B. BASIC WOUND BALLISTIC FACTS

The last 25 years of modern wound ballistic research has demonstrated yet again what historical reports have always indicated--that there are only two valid methods of incapacitation: one based on psychological factors and the other physiological damage.

People are often rapidly psychologically incapacitated by minor wounds that are not immediately physiologically incapacitating. Preconceived notions of how people should react when shot; intimidation from the weapon or act of being shot; fear of pain, injury, or death; anxiety about the appearance of their wound and the sight of their own blood; or a lack of will to continue and a desire to quit can all influence an individual's response to being shot. Up to fifty percent of those individuals rapidly incapacitated by bullet wounds are probably incapacitated for psychological rather than physiological reasons. Psychological factors are also the reason people can receive severe, even non-survivable wounds and continue functioning for short periods of time. Since pain is often initially absent following injury, an individual may not be aware of their wound and therefore will not react to it. Strong emotions such as anger, rage, hate, and basic survival instincts that release adrenalin, can stimulate the body. Chemicals can strongly influence an individual's psychological state. People under the influence of analgesics, stimulants, tranquilizers, or dissociative agents may not be aware of their injury, may have decreased pain perception, or may show no concern about their wound. Psychological incapacitation is an extremely erratic, highly variable, and completely unpredictable human response, independent of any inherent characteristics of a particular projectile.

On the other hand, the degree and rapidity of any physiological incapacitation is determined by the anatomic structures the projectile disrupts and the severity the tissue

damage caused by the bullet. Physiologically, immediate incapacitation or death can only occur when the brain or upper spinal cord is damaged or destroyed. The tactical reality is that in OIS (*officer involved shooting*) incidents, opportunities for LE (*law enforcement*) personnel to take precisely aimed shots at the CNS (*central nervous system*) of threatening opponents is rare due to high stress unexpected contact marked by rapid fleeting movements, along with frequent poor visibility of the target caused by darkness, innocent bystanders, and the use of cover and concealment. Battlefield conditions for military personnel can be even more chaotic. Likewise, civilian self-defense encounters can be highly stressful and confusing. Thus there is a reduced likelihood of routine CNS targeting in defensive encounters requiring lethal force. Absent CNS damage, circulatory system collapse from severe disruption of the vital organs and blood vessels in the torso is the only other reliable method of physiological incapacitation from small arms. If the CNS is uninjured, physiological incapacitation is delayed until blood loss is sufficient to deprive the brain of oxygen. Multiple hits may be needed before an individual is physiologically incapacitated. An individual wounded in any area of the body other than the CNS may physiologically be able to continue their actions for a short period of time, even with non-survivable injuries. In a 1992 IWBA Journal paper, Dr. Ken Newgard wrote the following about how blood loss effects incapacitation:

> *A 70 kg male has a cardiac output of around 5.5 liters per minute. His blood volume is about 4200 cc. Assuming that his cardiac output can double under stress, his aortic blood flow can reach 11 Liters per minute. If this male had his thoracic aorta totally severed, it would take him 4.6 seconds to lose 20% of his total blood volume. This is the minimum amount of time in which a person could lose 20% of his blood volume from one point of injury. A marginally trained person can fire at a rate of two shots per second. In 4.6 seconds there could easily be 9 shots of return fire before the assailant's activity is neutralized. Note this analysis does not account for oxygen contained in the blood already perusing the brain that will keep the brain functioning for an even longer period of time.*

LE personnel are generally trained to shoot at the center of mass, usually the torso, of an aggressive opponent who must be stopped through the use of lethal force. While the human body can appear incredibly complex and frail, it is also remarkably robust and durable, with the capacity to withstand severe stress and damage before being incapacitated. Physiological incapacitation with wounds to the torso is usually the result of circulatory system collapse. More rapid incapacitation may occur with greater tissue disruption. Tissue is damaged through two wounding mechanisms: the tissue in the projectile's path is permanently crushed and the tissue surrounding the projectile's path is temporarily stretched. A penetrating projectile physically crushes and destroys tissue as it cuts its path through the body. The space occupied by this pulped and disintegrated tissue is referred to as the permanent cavity. The permanent cavity, or wound track, can quite simply be considered as the hole bored by the projectile's passage. Obviously, bullets of greater diameter crush more tissue, forming a larger permanent cavity. The formation of this permanent cavity is consistent and reliable.

The tissue surrounding the permanent cavity is briefly pushed laterally aside as it is centrifugally driven radially outward by the projectile's passage. The empty space normally occupied by the momentarily displaced tissue surrounding the wound track is called the temporary cavity. The temporary cavity quickly subsides as the elastic recoil of the stretched tissue returns it towards the wound track. The tissue that was stretched by the temporary cavity may be injured and is analogous to an area of blunt trauma surrounding the permanent crush cavity. The degree of injury produced by temporary cavitation is quite variable, erratic, and highly dependent on anatomic and physiologic considerations. Many flexible, elastic soft tissues such as muscle, bowel wall, skin, blood vessels, and empty hollow organs (*stomach, intestines, bladder, etc.*…) are good energy absorbers and are highly resistant to the blunt trauma and contusion caused by the stretch of temporary cavitation. Inelastic tissues such as the liver, kidney, spleen, pancreas, brain, and completely full fluid or gas filled hollow organs are highly susceptible to severe permanent splitting, tearing, and rupture due to temporary cavitation insults. Projectiles are traveling at their maximum velocity when they initially strike and then slow as they travel through tissue. In spite of this, the maximum temporary cavity is not always found at the surface where the projectile is at its highest velocity, but often deeper in the tissue after it has slowed considerably. The maximum temporary cavitation is usually coincidental with that of maximum bullet yaw, deformation, or hyper-expansion and fragmentation, but not necessarily maximum projectile velocity.

All projectiles that penetrate the body can only disrupt tissue by these two wounding mechanisms: the localized crushing of tissue in the bullet's path and the transient stretching of tissue adjacent to the wound track. Projectile wounds differ in the amount and location of crushed and stretched tissue. The relative contribution by each of these mechanisms to any wound depends on the physical characteristics of the projectile, its size, weight, shape, construction, and velocity, penetration depth and the type of tissue with which the projectile interacts. Unlike rifle bullets, handgun bullets, regardless of whether they are fired from pistols or SMG's (*sub-machine gun),* generally only disrupt tissue by the crush mechanism. In addition, temporary cavitation from most handgun bullets does not reliably damage tissue and is not usually a significant mechanism of wounding.

Vital anatomic structures are located deep within the body, protected by various layers of tissue. The average thickness of an adult human torso is 9.4" and the major blood vessels in the torso of even a slender adult are located approximately 6" from the ventral skin surface. Bullets that may be required to incapacitate aggressors must reliably penetrate a minimum of approximately 10 to 12 inches of tissue in order to ensure disruption of the major organs and blood vessels in the torso from any angle and through excessive adipose tissue, hypertrophied muscle, or intervening anatomic structures, such as a raised arm. The FBI has defined the ideal penetration range for projectiles intended for LE use to be 12-18", thus ensuring adequate penetration, while limiting the chance of projectiles exiting a violent aggressor and going downrange to hit an innocent bystander. Bullet penetration depth varies depending on the density and resistance of the tissue encountered. Bullets striking dense structures such as bone have reduced penetration while those traveling through less resistant tissue, such as lung, exhibit increased penetration. The tough, resilient, flexible skin on the exit side of the body can have the same resistance to bullet passage as four

inches of muscle and often causes bullets to end their path just under the skin at the anticipated exit point.

All other factors being equal, heavier bullets penetrate to a deeper depth in tissue than lighter bullets and non-deforming bullets generally penetrate deeper than deforming bullets. Non-deforming projectiles exhibit greater penetration as velocity is increased. Higher velocity also increases the penetration depth of deforming bullets, but only until the bullet begins to upset. The higher velocity then increases the amount and rate of bullet deformation, with the enlarged frontal area of the expanded bullet causing increased resistance to further penetration and a decreased total penetration depth. Projectiles that become destabilized after leaving the muzzle have greater yaw angles in flight and therefore greater AOA (*angle-of-attack*) on impact. AOA at impact refers to the angle between the flight axis of the projectile and the geometric axis of the projectile at the moment of impact. This results in decreased tissue penetration compared to the same bullet when properly stabilized. Decreased projectile penetration can also result if the bullet is deformed or fragmented after passing through intermediate obstacles, for example automobile windshields or sheet metal, before striking tissue. Penetration depth can be increased if an expanding bullet fails to deform, either through poor bullet design or external influences. For example, if the hollow nose cavity of a JHP (*jacketed hollow point*) bullet collapses in on itself after passing through intermediate obstacles such as automobile steel or if the hollow point becomes clogged with material from intermediate obstacles like wood or heavy clothing, it may be prevented from expanding and will behave like a deeper penetrating, non-deforming bullet.

Aerodynamic projectiles, such as bullets, cause minimal tissue disturbance when passing point forward through tissue. Tissue is a denser medium than air; as the bullets strikes tissue, the increased drag on the projectile overcomes its rotational stabilization and the bullet can upset and yaw. If the bullet yaws, more surface area is in contact with tissue, so it crushes more tissue, creating a larger permanent cavity. When a bullet yaws, it also displaces more of the surrounding tissue, increasing the temporary cavity size. Both the largest permanent and temporary cavities are produced by a non-deforming projectile when it is traveling sideways at 90 degrees of yaw, allowing the maximum lateral cross sectional area of the bullet to strike tissue and displace the greatest amount of tissue. Longer and wider bullets have a greater lateral cross sectional area and thus create a larger permanent cavity when they yaw. The depth in tissue at which a given bullet upsets is independent of bullet mass and velocity, and is strongly influenced by the AOA at which the bullet strikes tissue, as well as the projectile shape, construction, and center of gravity. All non-deforming, pointed tip Spitzer type projectiles, such as the FMJ (*full metal jacketed*) rifle bullets commonly used by militaries, yaw past 90 degrees in tissue, finally ending their path pointed backwards, their bases facing the direction of travel, as this is the most stable position for these projectiles when traveling through tissue since this places the bullet's center of gravity forward.

Projectile deformation destroys the aerodynamic shape of the bullet, shortening its length and increasing its diameter by expanding and flattening the bullet tip in the classic "mushroom" pattern exhibited by deforming JHP and JSP (*jacketed soft point bullets*). The larger frontal area of deformed bullets can crush more tissue, thus increasing permanent

cavity size; more tissue is also displaced by a bullet with increased frontal area, causing an enlarged temporary cavity. The larger permanent and temporary cavities occur at a shallower penetration depth than that caused by non-deforming projectiles. The increased frontal area of a deformed bullet provides greater resistance to the projectile's passage, resulting in decreased penetration depth.

Projectile hyper-expansion and fragmentation in tissue can also greatly increase the permanent cavity size. When a rifle bullet hyper-expands and fragments in tissue, each of the multiple fragments spreads out radially from the main wound track, cutting its own path through tissue. This fragmentation acts synergistically with the stretch of temporary cavitation. The multiply perforated tissue loses its elasticity and is unable to absorb stretching that would ordinarily be tolerated by intact tissue. The temporary cavitation displacement of tissue, which occurs following the passage of the projectile, stretches this weakened tissue and can grossly disrupt its integrity, tearing and detaching pieces of tissue. Note that handgun bullets, regardless of whether they are fired from pistols or SMG's, do not generally exhibit the hyper-expansion and fragmentation effects produced by some rifle bullets. If handgun bullets do fragment, the bullet fragments are usually found within 1 cm of the permanent cavity and wound severity is usually decreased by the fragmentation since the bullet mass is reduced, causing a smaller permanent crush cavity. Depending on bullet design, as the velocity of a projectile is increased, the potential for fragmentation is often magnified. Tissue disruption can also be increased if bullets strike bone, since fractured bone fragments can act as secondary missiles, cutting through tissue surrounding the wound track. Furthermore, bullet deformation and fragmentation is more likely to occur if a projectile strikes bone. This same fragmentation effect can occur if a bullet strikes an intermediate object, such as a belt buckle, prior to penetrating tissue.

The approximately 40% to 60% of gunshot victims who fall down immediately upon wounding are not knocked over by the kinetic energy or momentum of the bullet impact, but rather are incapacitated by physiological and psychological effects. Bullets cannot physically knock down a person by the force of their impact. The U.S. M1911 .45 ACP 230 gr FMJ bullet has developed a legendary reputation for having "knock-down power", yet the impact or momentum of that bullet hitting the body is equivalent to being hit by a 10 pound weight dropped from a height of only 1.37 inches. Obviously, this impact could not knock a person over. Newton's Second Law of motion shows that every action has an equal and opposite reaction. If a bullet had the energy to knock a person down on impact, the recoil of the gun would also knock the shooter down as the bullet was fired. This basic law of physics is dramatically illustrated by a well known demonstration in which an adult male, protected by body armor, is shot from less than five feet by a 7.62 x 51mm NATO bullet fired from an FN FAL type rifle; the approximately 2667 ft/lbs of energy which the bullet "deposits" or "transfers" to the man does not knock him down or push him violently backwards. Kinetic energy or momentum transfer from a projectile to tissue is not a wounding mechanism. The amount of energy "deposited" in the body by a bullet is approximately equal to the amount transferred to the body when a person is hit by a baseball. The amount of kinetic energy "deposited" or momentum transferred to a body by a projectile is not directly proportional to the amount of tissue damaged and is not a measure of wounding power. Wounds of vastly differing severity can be inflicted by bullets of identical kinetic energy and momentum. What the bullet does in the body--whether it

yaws, deforms, or fragments, how deeply it penetrates, and what tissue it passes through is what determines wound severity, not kinetic energy, momentum, or velocity.

Projectiles which travel at supersonic velocity form a sonic wave which trails in the air behind the projectile. Because the speed of sound in tissue is four times faster than the speed of sound in air, the Sonic Wave jumps ahead of the projectile as the skin surface is penetrated, and then precedes the projectile through tissue. This sonic wave is often erroneously referred to as a "shock wave". There are no shock waves or hydrostatic shock effects in tissue. The sonic wave produces no tissue movement or tissue damage; it is not a wounding mechanism and should not be confused with temporary cavitation. The benign nature of a sonic wave is illustrated by lithotripter treatment of kidney stones, where similar sonic pressure waves cause no gross injury to the soft tissue surrounding the kidney stones.

A basic knowledge of external ballistics is necessary in order to understand the principles of wound ballistics. Because projectiles must overcome air resistance during their flight to the target, they have an elongated, pointed, aerodynamic shape that reduces drag in the air. However, this position places the bullet's center of gravity at the rear of the projectile, an inherently unstable position that would cause the bullet to deviate from a nose forward position during flight and tumble end over end through the air if not rotationally stabilized by the spin imparted by the barrel's rifling. Yaw in flight is the angle of deviation of the projectile's longitudinal axis from its forward trajectory; in other words, the bullet turns sideways in relation to its direction of forward movement. Properly stabilized bullets have a negligible yaw angle in flight, usually less than three degrees, and do not tumble while in the air. Projectiles such as arrows and flechettes resist this tendency to yaw in the air because of the stabilization provided by their rear fins. Intermediate obstacles, including foliage, can disrupt bullet stabilization and induce tumbling while in flight, drastically compromising bullet accuracy and range. Bullets that are destabilized in flight can exhibit a large AOA on impact, causing increased tissue disruption at a shallower penetration depth than properly stabilized bullets.

A variety of equally important methodologies are used for terminal performance testing, including actual shooting incident reconstruction, forensic evidence analysis, and post-mortem data and/or surgical findings; properly conducted ethical animal test results; and laboratory testing—this includes the use of tissue simulants proven to have correlation with living tissue. The last several years of OCONUS military operations have provided a tremendous amount of combat derived terminal performance information. The U.S. government gathered numerous experts from a variety of disciplines, including military and law enforcement end-users, trauma surgeons, aero ballisticians, weapon and munitions engineers, and other scientific specialists to form the Joint Service Wound Ballistic Integrated Product Team to conduct a 4 year, 6 million dollar study to determine what terminal performance assessment best reflected the actual findings noted in combat the past few years. The test protocol that was found to be correct, valid, and became the agreed upon JSWB-IPT "standard" evolved from the one first developed by Dr. Fackler at LAIR in the 1980's, promoted by the IWBA in the 1990's, and used by most reputable wound ballistic researchers. The JSWB-IPT, FBI BRF, AFTE, and other organizations get to assess an extensive amount of post-shooting forensic data. The whole raison d'être of these independent, non-profit organizations is to interpret and disseminate information that will

help LE and military personnel more safely and effectively perform their duties and missions. Physiological damage potential is the only metric that has been shown to have any correlation with field results in actual shooting incidents, based on law enforcement autopsy findings, as well as historical and ongoing combat trauma results.

C. DEFENSIVE MUNITION REQUIREMENTS

All projectiles discharged by firearms have the capacity to kill. None are more "lethal" than others. If person is shot with a projectile that can penetrate into the body, it has the capacity to kill and deadly force has been applied. When law enforcement agencies select munitions intended for potential lethal force use, the primary requirement is to choose ammunition that can reliably rapidly incapacitate and stop hostile individuals who pose an immediate life threatening danger to public safety and prevent them from continuing their violent actions. In addition, the munitions are carefully selected to try and minimize danger to innocent bystanders, as well as officers. By design, hunting bullets are designed to kill efficiently and humanely. In contrast, LE munitions are engineered to incapacitate and stop violent action as quickly as possible—an important distinction. This differentiation between death and incapacitation is not just one of semantics. If a hunter shoots and incapacitates a deer and the animal is still alive when the hunter reaches it, the hunter quickly kills the deer. The hunter is shooting to kill. If a LE officer uses a firearm to incapacitate a suspect and the suspect is still alive as the officer approaches, the officer captures the suspect and initiates medical care. This is shooting to stop a threat. There is a major difference in intent and action.

There is in fact a significant difference between many of the most common civilian hunting munitions and those used by law enforcement—the civilian ammunition is generally substantially more powerful and destructive than almost all small arms munitions in common police use. The most commonly used LE handguns in service calibers like 9 mm, .40 S&W, and .45 Auto are far less powerful than typical hunting handguns firing deep penetrating magnum calibers like the .357 Mag, .41 Mag, .44 Mag, .460 S&W Mag, and .500 S&W Mag. Likewise, police AR15's firing relatively weak .223/5.56 mm ammunition are quite anemic in penetration capability and pale in destructive capacity when compared to common civilian hunting rifles firing calibers like .260 Rem, .270 Win, 7 mm Mag, .30-06, .300 Mag, .338 Mag, .375 H&H, 416 Rigby, .458 Lott, and .500 Nitro. Even hunting rifles in older calibers from the 1800's like .30-30 and .45-70, penetrate much deeper and are far more damaging than the .223/5.56 mm ammunition fired by the AR15 carbines generally used by police. The only common LE weapon that approaches the destructive capability of civilian hunting firearms are 12 gauge shotguns, however police shotgun ammunition almost always uses the weaker 2 ¾" shells, while many civilian hunting shotguns use the more powerful 3" and 3 ½" magnum shotgun loads. Any of the civilian handgun, rifle, or shotgun calibers that are commonly used to hunt feral hogs, deer, elk, moose, bear, etc… will prove far more penetrative and destructive than most of the typical police handgun or carbine loads.

Almost all modern law enforcement ammunition is engineered to meet FBI guidelines of penetrating no less than 12" and no more than 18". In addition, LE ammunition is designed to be blind to barriers--in other words to consistently perform the

same, whether a shot is unobstructed or first has to go through an intermediate barrier like an automobile windshield, vehicle door, or structural materials (*ex. a wall or door in a building, as well as window glass*). If a member of the public is sadly forced to use lethal force to defend themselves, their family, or other innocent citizens, the requirements for lethal force munitions are exactly the same as needed by the Police in such a horrible eventuality--to quickly stop the violent criminal without endangering other innocent people. In fact, it would likely be prudent and wise for a legally armed citizen to seek out the same tested and proven arms and munitions that are used by police in order to have the greatest chance of safely and successfully surviving a lethal force encounter. As the progenitor of modern law enforcement, Sir Robert Peel, noted:

> *The police are the public and the public are the police; the police being only members of the public who are paid to give full time attention to duties which are incumbent on every citizen in the interests of community welfare and existence.*

In short, civilian citizens should use the same munitions chosen by police in their community, as the lethal force requirements are identical and the anatomy, physiology, and incapacitation potential of a violent felon does not suddenly change whether confronted by law enforcement officers or private citizens.

D. MAGAZINE CAPACITY

A standard capacity magazine is one containing the number of cartridges the firearm was designed to operate with: typically 15-17 rounds in 9 mm, 15 rounds in .40 S&W, 7-13 rounds in .45 ACP, 20-30 rounds in 5.56 mm, and 20 rounds in .308; high capacity magazines and feeding devices are those holding more cartridges than the weapon was originally designed to use; neutered, low capacity magazines are those whose capacity is artificially reduced from that which the firearm was originally designed to use. Numerous tests by LE and military entities have documented that the most reliable magazines are those the weapon was originally designed to use; both high capacity and reduced capacity magazines have frequently demonstrated more malfunctions in various types of firearms.

According to data from the BATF, the majority (approx. 62%) of pistols currently manufactured each year in the U.S. are designed to use magazines with a standard capacity greater than 10 rounds. The U.S. military has not adopted a handgun with a standard magazine capacity less than 10 rounds since 1911. Likewise, all U.S. military rifles that have been adopted since 1937 have a magazine capacity of 15 or more rounds. By capriciously limiting magazine capacity to 10 rounds or less, citizens are denied the benefits of modern technology and forced to use defensive tools from a bygone era.

The most recently released NYPD SOP-9 "Annual Firearms Discharge Report" data show from 2011 document that 7 rounds or less were fired in 65% of NYPD OIS incidents, while in 35% of cases officers needed to fire more than 7 shots to stop the threat. Interestingly in 29% of the incidents, more than 10 shots were required to end the violent encounter. For 2010, in 67% of the NYPD OIS incidents 7 rounds or less were fired;

however in 33% of the incidents more than 7 shots were required to subdue the threat. In 21% of lethal force encounters more than 10 shots were required.

So if NYPD officers need more than 7 shots to stop violent attackers greater than 1/3 of the time, why would innocent civilians who likely have no body armor, no radio, no partner, no cover units, no less lethal options, no duty belt with extra magazines, yet who are being confronted by the same violent felons as the police need less ammunition than the NYPD officers? What about citizens with disabilities that may prevent their escape or avoidance of a threat and severely limit their ability to rapidly and effectively reload a firearm? By arbitrarily restricting magazine capacity for civilians to 7 or 10 rounds, the most current NYPD SOP-9 data strongly suggests that in 1/4 to 1/3 of incidents that civilians will likely run out of ammunition before the violent attacker has been stopped.

The public should never be limited to magazines of less capacity than that authorized for police in their community. To do so flies in the face of basic science, as well as logic, fact, and justice.

E. FIREARMS FOR SELF-DEFENSE

There are multiple factors that will play a role in determining which weapon might be the best choice for self-defense. Handguns are compact and easily carried, but generally offer poor incapacitation potential and are harder to shoot accurately compared to shoulder fired weapons. In contrast to handgun caliber weapons, virtually any shoulder fired firearm chambered in a center fire rifle caliber or using 12 ga. shotgun ammunition will prove superior from a both a wound ballistic and practical accuracy standpoint. SA Urey Patrick of the FBI Firearms Training Unit wrote the following to emphasize this point:

> *[N]o law enforcement officer should ever plan to meet an expected attack armed only with a handgun. Experienced officers implicitly recognize...when potential violence is reasonably anticipated their preparations are characterized by obtaining as many shoulder (fired) weapons as possible.*

If at all possible, civilians forced to defend themselves with a firearm should heed this advice and select a shoulder-fired weapon in an effective caliber whenever circumstances allow this option.

The question then becomes which shoulder fired weapon is optimum for self-defense. In America's past, common shoulder fired weapons for home defense included muskets like the ubiquitous "Brown Bess" from the time of our Nation's founding, the Winchester lever action repeating rifle from the days of the Western Frontier, and a variety of shotguns. Until recently, the 12 gauge shotgun has remained the universally accepted shoulder fired weapon for United States law enforcement use. A close range hit from a 12 ga. shotgun using buckshot will create more tissue damage than most other commonly used LE firearms. Unfortunately, shotguns are not an ideal weapon due to their short effective range, imprecise accuracy, potential downrange hazard to innocent bystanders from stray pellets, possible excessive penetration, small ammunition capacity, slow reloading, difficult

manual of arms, poor ergonomics, and harsh recoil. Recognition of the shotgun's significant limitations have prompted many American law enforcement agencies to adopt the more versatile semi-automatic magazine fed carbine. Semi-automatic carbines offer superior accuracy, less recoil, greater effective range, faster reloading, potentially reduced downrange a hazard, better ergonomics, and a larger ammunition capacity than the traditional shotgun. Currently, the most common carbine in LE use is the .223/5.56 mm AR15.

Recently many in the media and politics have unfairly criticized the AR15 as an "assault weapon" only good for killing people. This is inaccurate. The AR15 is the semi-automatic civilian sporting version of the select-fire M16 rifle and M4 carbine used by the U.S. military and many LE agencies. If the civilian legal, semi-automatic AR15 is only a dangerous and unusual offensive weapon of war, with no legitimate hunting, sporting, or self-defense purpose, good only for producing mass mayhem, and not in common use by law abiding citizens for lawful purposes as some uninformed individuals have claimed, why is it that AR15 rifles have consistently been used by winning competitors for the past quarter of a century at the U.S. Civilian Marksmanship National Match target shooting championships held each year at Camp Perry, Ohio? Why have AR15's become one of the most popular hunting rifles for harvesting a wide variety of game, including varmints, feral hog, deer, and even elk? Why are AR15's the most commonly used and recommended rifles for defensive use by LE personnel? Aren't target shooters, hunters, and police officers law abiding citizens engaged in lawful pursuits?

According to experts such as the U.S. military, the Association of Firearms and Toolmark Examiners (AFTE), and the Smithsonian Museum, for a weapon to be labeled an "Assault Rifle", it must have the following specific physical and performance characteristics:

- Shoulder Fired Carbine
- Uses an Intermediate Cartridge
- Fires from a Closed Bolt
- Magazine with Capacity of at least 20 rounds
- Offers Select Fire Capability (*ie. can fire multiple shots per each trigger pull*)

The civilian legal, semi-automatic AR15 does NOT meet these criteria, as it is NOT select-fire and cannot easily be modified to be so. As a result of their select fire capability, true assault rifles like the M16 and M4 are severely restricted and effectively banned for routine civilian ownership by the NFA of 1934, the GCA of 1968, and the FOPA of 1986. Some glib persons have stated that semi-automatic weapons like the AR15 can be shot at rates of fire making them virtually indistinguishable from machine guns; clearly this is ludicrous, as the U.S. military has documented that the average rate of accurate semi-automatic fire from an AR15 type rifle is approximately 45-90 RPM, while select-fire M16 rifles or M4 carbines shoot at 700-970 RPM—a quite profound and obvious difference.

In the past 2 decades, a new term has joined the popular lexicon: "Assault Weapon". The term "assault weapon" is a vague, inaccurate misnomer, and is not synonymous with "assault rifle". The term "assault weapon" appears to arbitrarily be based

on the appearance of a firearm and not specific functional or performance parameters. Features like adjustable stocks, muzzle devices, and free float rails are commonly in use on precision target firearms used for competition, as well as on LE rifles intended for self-defense use, as they increase accuracy and improve ergonomics. Some areas also have laws codifying various firearms as so-called "assault weapons". This is illogical and confusing, as two firearms can exhibit identical performance parameters: the same caliber, same magazine capacity, and same rate of fire, but one is classified as an "assault weapon" and the other is not.

If assault weapons are, "*the weapons of choice among drug dealers, criminal gangs, hate groups, and mentally deranged persons bent on mass murder*" as stated by some individuals, why do almost all major U.S. law enforcement agencies, including the FBI, recommend "assault weapons" like the AR15 for lawful defensive purposes? True military assault rifles, as well as civilian firearms disingenuously labeled as "assault weapons" based on physical appearance rather than functional characteristics, do not inflict wounds of any greater severity than those produced by traditional military rifles. In addition, wounds caused by common civilian hunting rifles and shotguns like those in use for the past 150 years or so are typically far more severe and destructive to tissue than many so-called "assault weapons."

The roots of the .223/5.56 mm cartridge commonly used in the AR15 come from a caliber designed for small game varmint hunting and used to eliminate small fury rodents and animals up to coyote size. Many hunters avoid it for medium size, 100 + pound game; in fact in numerous states it is prohibited to hunt deer size game with the .223/5.56 mm. 5.56 mm 55 gr M193 FMJ fired from 20" barrel M16A1 rifles was the standard U.S. military 5.56 mm ammunition in the 1960's and 1970's. Dr. Martin Fackler, the man who has done more research on the 5.56 mm 55 gr M193 FMJ than anyone else on this planet, has written the following (Fackler, ML*: "Literature Review"*. **Wound Ballistics Review**; 5(2):40, Fall 2001) about 55 gr FMJ:

> *In 1980, I treated a soldier shot accidentally with an M16 M193 bullet from a distance of about ten feet. The bullet entered his left thigh and traveled obliquely upward. It exited after passing through about 11 inches of muscle. The man walked in to my clinic with no limp whatsoever: the entrance and exit holes were about 4 mm across, and punctate. X-ray films showed intact bones, no bullet fragments, and no evidence of significant tissue disruption caused by the bullet's temporary cavity. The bullet path passed well lateral to the femoral vessels. He was back on duty in a few days. Devastating? Hardly. The wound profile of the M193 bullet (page 29 of the Emergency War Surgery—NATO Handbook, GPO, Washington, D.C., 1988) shows that most often the bullet travels about five inches through flesh before beginning significant yaw. But about 15% of the time, it travels much farther than that before yawing—in which case it causes even milder wounds, if it missed bones, guts, lung, and major blood vessels. In my experience and research, at least as many M16 users in Vietnam concluded that it produced unacceptably minimal, rather than "massive", wounds. After viewing the wound profile, recall that the*

> *Vietnamese were small people, and generally very slim. Many M16 bullets passed through their torsos traveling mostly point forward, and caused minimal damage. Most shots piercing an extremity, even in the heavier-built Americans, unless they hit bone, caused no more damage than a 22 caliber rimfire bullet.*

During defensive shooting encounters, shots that inadvertently miss the intended target in CQB and urban environments can place innocent citizens in danger. In general, .223/5.56 mm bullets demonstrate LESS penetration after passing through building structural materials than other common LE and civilian calibers. All of the .223/5.56mm bullets recommended for law enforcement use offer reduced downrange penetration hazards, resulting in less potential risk of injuring innocent citizens and reduced risk of civil litigation in situations where bullets miss their intended target and enter or exit structures compared with common handgun bullets, traditional hunting rifle ammunition, and defensive shotgun projectiles (*buckshot and slugs*). When comparing issued handgun, shotgun, and rifle ammunition, the FBI has explicitly stated that the .223/5.56 mm ammunition used in the AR15 was the only caliber that offered ideal penetration of 12-18" in all test events, that the issued .223/5.56 mm loading had no overpenetration issues compared with the other service caliber handgun, shotgun, and rifle ammunition tested, and that .223/5.56 mm was more consistent in performance than all the other calibers. This is in sharp contrast and completely refutes the people who have falsely claimed that the .223/5.56 mm ammunition used in AR15's increases the threat of stray bullets harming innocent family members, neighbors, and passerby.

The AR15 is extremely common in America. The AR15 is extremely common in America. According to data from the BATF, FBI, and NSSF (National Shooting Sports Foundation) approximately 4.5 million AR15's have been sold in the U.S. since 1986; historical data indicates that an additional 350,000 AR15's were produced from 1963-1986. AR15 commercial sales continue to increase, currently accounting for approximately 20% of all rifles sold in the U.S. Within the next year, the total number of AR15's sold in American will likely have reached 5 million rifles. In addition, approximately 6 million Ruger Mini-14 rifles have been sold in the U.S.; these fire the same .223 cartridge as the AR15, have the same rate of fire, an identical magazine capacity, and have also been used by some LE agencies, including NYPD and CHP. However, the Mini-14 has not proven as accurate, durable, ergonomic, reliable, or as easy to maintain in LE service as the AR15 and has generally fallen out of LE use. In addition, quite a few of the 3 million or so AK type rifles imported to the U.S. use the .223 cartridge, as do many rifles that have been sold in the U.S. by foreign companies such as Beretta, Daewoo, FN, HK, IMI, Sig, Steyer, Valmet, and other vendors.

As a result of the M16 FOW (Family of Weapons) being used by the U.S. military for nearly 50 years, perhaps more Americans have been trained to safely operate the AR15 than any other firearm, as there are approximately 25 million American veterans who have been taught how to properly use an AR15 type rifle through their military training, not to mention in excess of 1 million American LE officers who have qualified on the AR15 over the last several decades, as well as numerous civilian target shooters and hunters who routinely use AR15's. Since so few military service members, particularly those not on

active duty, get enough training and practice with their M16 or M4 service rifle, many military Reservists and National Guard personnel, as well as some active duty service members, have purchased civilian AR15's in order to train and practice on their own time with a rifle offering similar ergonomics and operating controls as the service weapon they are issued in the military. In many ways, the AR15 is the ubiquitous "Brown Bess" musket or Winchester repeating rifle of the modern era—a true firearm for the people. The AR15 is a highly versatile design that can be adapted for military, law enforcement, civilian self-defense, hunting, target shooting, and other sporting purposes. AR15's come in numerous configurations and are not all the same!

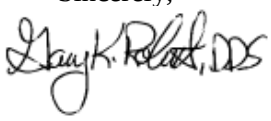
The semi-automatic AR15 carbine is likely the most ergonomic, safe, and effective firearm for law enforcement general purpose use and for civilian self-defense.

III. CONCLUSION

The Act's broadening of the definition of banned "assault weapons" encompasses semi-automatic carbines that offer superior accuracy, less recoil, greater effective range, faster reloading, potentially reduced downrange a hazard, better ergonomics, and a larger ammunition capacity than the traditional shotgun. For this very reason, the most common carbine in law enforcement use is the .223/5.56 mm AR15. Likewise, the AR15 carbine is likely the most ergonomic, safe, and effective firearm for civilian self-defense.

I have reviewed the foregoing statement, and pursuant to 28 U.S.C. § 1746(1), I hereby declare under the penalties of perjury that they are true, correct, complete and accurate according to the best of my knowledge, information and belief.

Sincerely,



Dr. Gary Roberts

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UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

JUNE SHEW, et al.	:	
Plaintiffs	:	**CIVIL ACTION NO.**
	:	**3:13-CV-00739-AVC**
	:	
v.	:	
	:	
DANNEL P. MALLOY, et al.	:	
Defendants	:	**October 11, 2013**

DEFENDANTS' MOTION FOR SUMMARY JUDGMENT

The Defendants, Dannel P. Malloy, Kevin T. Kane, Reuben F. Bradford, David I. Cohen, John C. Smriga, Stephen J. Sedensky III, Maureen Platt, Kevin D. Lawlor, Michael Dearington, Peter A. McShane, Michael L. Regan, Patricia M. Froehlich, Gail P. Hardy, Brian Preleski, David Shepack, and Matthew C. Gedansky, (collectively "Defendants"), hereby move for summary judgment for the reasons set forth in their accompanying memorandum of law, Local Rule 56a(1) Statement, Exhibits and Affidavits.

Respectfully Submitted,

DEFENDANTS
DANNEL P. MALLOY, et al.

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ATTORNEY GENERAL

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CERTIFICATION

I hereby certify that on October 11, 2013, a copy of the foregoing Defendants' Motion for Summary Judgment was filed electronically. Notice of this filing will be sent by electronic mail to all parties by operation of the Court's electronic filing system. Parties may access this filing through the Court's system.

/s/ Maura Murphy Osborne
Maura Murphy Osborne

UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

JUNE SHEW, et al.	:	No. 3:13-CV-00739-AVC
Plaintiffs	:	
	:	
v.	:	
	:	
DANNEL P. MALLOY, et al.	:	
Defendants	:	October 11, 2013

DEFENDANTS' LOCAL RULE 56(a)(1) STATEMENT

Pursuant to D.Conn.L.Civ.R. 56(a)(1), Defendants Dannel P. Malloy, Kevin T. Kane, Reuben F. Bradford, David I. Cohen, John C. Smriga, Stephen J. Sedensky III, Maureen Platt, Kevin D. Lawlor, Michael Dearington, Peter A. McShane, Michael L. Regan, Patricia M. Froehlich, Gail P. Hardy, Brian Preleski, David Shepack, and Matthew C. Gedansky (collectively, "Defendants"), respectfully submit their Statement of Undisputed Material Facts.

Relevant Provisions of the Act

1. In 1993, the Connecticut General Assembly adopted Connecticut's first assault weapon ban, in which it prohibited: (1) "Any selective-fire firearm capable of fully automatic, semiautomatic or burst fire at the option of the user"; (2) any one of a list of 67 specifically enumerated military-style semiautomatic rifles; and (3) "[a] part or combination of parts designed or intended to convert a firearm into an assault weapon, or any combination of parts from which an assault weapon may be rapidly assembled if those parts are in the possession or under the control of the same person." *See generally* P.A. 93-306, §1(a) (Exh. 3).

2. The 1993 ban did not have a "features test" and only prohibited firearms specifically enumerated in the statute. (Sweeney Aff. at ¶¶12-13). In 2001, the General Assembly added a "features" test that closely paralleled the assault weapon definition used in the 1994 federal assault weapon ban. *See* P.A. 01-130, § 1 (Exh. 4).

3. Like the federal ban and Connecticut's 1993 ban, the 2001 features test did not prohibit all semiautomatic firearms, or even a significant percentage of them. Rather, it prohibited a subset of semiautomatic rifles and pistols that had detachable magazines and two or more military-style features. P.A. 01-130, § 1(a)(3) and (4); *see* Koper Aff. at ¶¶11, 41, 72; Exh. 21 at 17-20.

4. On April 4, 2013, the General Assembly adopted and the Governor signed Public Act 13-3, An Act Concerning Gun Violence Prevention And Children's Safety ("the Act"). The Act broadened the existing definition of assault weapon in part by augmenting the list of enumerated semiautomatic centerfire rifles, semiautomatic pistols, and semiautomatic shotguns. *See* Exhs. 1 and 2; Conn. Gen. Stat. § 53-202a(1)(B)-(D).

5. As a result of the Act, there are now 183 assault weapons that are prohibited by make and model in Connecticut. Conn. Gen. Stat. § 53-202a(A)-(D).

6. The Act also prohibits any semiautomatic centerfire rifle or semiautomatic pistol that has a fixed magazine with the ability to accept more than ten rounds, *i.e.* an LCM. *Id.*, § 53-202a(1)(E)(ii), (v).

7. The Act strengthened the "features" test adopted in 2001 by making it a one-feature test. The Act provides that any semiautomatic centerfire rifle or semiautomatic pistol that has an ability to accept a detachable magazine need only have one of the statutorily enumerated features to qualify as an assault weapon (instead of the two feature requirement that existed previously), and amended the number and type of those prohibited features. *Id.*, § 53-202a(1)(E)(i), (iv).

8. Rimfire semiautomatic rifles continue to be regulated under the 2001 Act's two-feature test. *See* P.A. 13-220, § 3.

9. The Act contains a "grandfathering" provision that permits a gun owner to retain possession of an assault weapon banned under the Act if he or she lawfully possessed it prior to April 4, 2013, applies for a certificate of possession to the Department of Emergency Services and Public Protection ("DESPP") by January 1, 2014, and possesses the firearm in compliance with other statutory restrictions. Conn. Gen. Stat. § 53-202d(a), (f).

10. The Act prohibits the possession, sale, or transfer of large capacity magazines ("LCMs"). P.A. 13-3, § 23.

11. A large capacity magazine is defined under the Act as any "firearm magazine, belt, drum, feed strip or similar device that has the capacity of, or can be readily restored or converted to accept, more than ten rounds of ammunition, but does not include: (A) A feeding device that has been permanently altered so that it cannot accommodate more than ten rounds of ammunition, (B) a .22 caliber tube ammunition feeding device, (C) a tubular magazine that is contained in a lever-action firearm, or (D) a magazine that is permanently inoperable." P.A. 13-3, § 23; P.A. 13-220, § 1(a)(1).

12. The Act contains a "grandfathering" provision that permits a gun owner to retain possession of LCMs banned under the Act if he or she lawfully possessed them prior to April 5, 2013, declares possession of the LCM to DESPP by January 1, 2014, and possesses them in compliance with other statutory restrictions. *Id.*, § 23(e)(3), § 24(a), (f).

Military Origins of Assault Weapons, Including the AR-15 Assault Rifle

13. A semiautomatic weapon fires one round for each squeeze of the trigger. After each shot, the firearm automatically loads the next round in the chamber and arms the firing mechanism for the next shot, thereby permitting a faster rate of fire as compared to manually operated guns. (Delehanty Aff. at ¶18).

14. A majority of the 183 enumerated weapons banned in Connecticut are based on, and are simply semiautomatic variations of, the original fully automatic AR-15/M-16 and AK-47 military designs. (Delehanty Aff. at ¶¶22-23, 26-27).

15. The other enumerated weapons are variations of a small number of unique military designs that are not of a general "type" like the AR-15 and AK-47. (Delehanty Aff. at ¶¶24, 26).

16. The banned assault weapons are based on military designs and have the same features as their military counterparts. Those features are designed for combat purposes and for enhancing a soldier's ability to kill the enemy. (Delehanty Aff. at ¶¶20, 22-24, 26-28; Exh. 21 at 18-20 (H.R. Rep. 103-489); *see* Sweeney Aff. at ¶¶14-15, 19-20; Rovella Aff. at ¶¶17-18, 34-38; Mello Aff. at ¶¶12, 18)).

17. The AR-15 assault rifle banned under the Act is a semiautomatic version of the M-16, which the United States military adopted as the primary combat weapon for American soldiers during the Vietnam War and continues to use today. (Delehanty Aff. at ¶¶20-21).

18. The only functional difference between an M-16 and AR-15 is that the AR-15 fires on semiautomatic only, and cannot fire on full automatic. (Delehanty Aff. at ¶¶20-21; *see* Pl. SJ Br. at 11; Sweeney Aff. at ¶14).

19. While it takes just under two seconds to empty a 30-round magazine on full automatic, it takes just five seconds to empty the same magazine on semiautomatic. *Heller v. Dist. of Columbia*, 670 F.3d 1244, 1263 (D.C. Cir. 2011), quoting Testimony of Brian J. Siebel, Brady Center to Prevent Gun Violence, at 1 (Oct. 1, 2008) (Exh. 53 (Siebel Testimony)

20. The United States Army considers the M-16 to be more effective as an instrument of war when it is fired on semiautomatic than when it is fired on full automatic, and trains its soldiers to fire their M-16s on semiautomatic whenever it is feasible to do so. (Exh. 54 at 7.8—7.13, 7.47 (Army Training Manual)).

21. Many gun manufacturers emphasize the military origins and uses of many assault weapons in their marketing campaigns. (Exh. 42 at 4 (Brady Report "On Target") (noting Bushmaster, which manufactures the Bushmaster XM-15, marketing of the XM-15 by stating it "fires . . . the same round used in the Colt M-16 (the standard military rifle)" and "is the semiautomatic version of the M-16. This round has an effective range of 300 meters and can pierce most body armor."); *see also generally* Exh. 52 (VPC "Militarization") (discussing militarization of the civilian gun market since the 1980s)).

22. With the exception of the Remington 7615, all of the specifically enumerated weapons have the requisite military features that qualify them as an assault weapon under the applicable features test. (Delehanty Aff. at ¶28; Cooke Aff. at ¶11).

23. A pistol grip, forward pistol grip and thumbhole stock allow shooters to steady the weapon during rapid firing, easily shift from target to target, and make it easier to spray bullets from the hip or fire the weapon with only one hand. (Sweeney Aff. at ¶18; Rovella Aff. at ¶35).

24. A folding or telescoping stock allows a shooter to make a long gun much more compact, and therefore more concealable. (Sweeney Aff. at ¶18; Rovella Aff. at ¶34).

25. A shroud promotes prolonged rapid firing by dispersing the heat generated when the weapon is fired, allowing the shooter to hold the weapon without being burned. (Sweeney Aff. at ¶18; Rovella Aff. at ¶36).

26. A flash suppressor suppresses the flash caused by the firing of the weapon, and thereby helps a shooter avoid detection in a dark environment. (Sweeney Aff. at ¶18; Rovella Aff. at ¶37).

27. A grenade or flare launcher allows a shooter to launch grenades or flares. (Sweeney Aff. at ¶14, 18; Rovella Aff. at ¶38).

History of Prohibitions of Military-Style Assault Weapons and LCMs

28. Civilian ownership of military-style assault weapons has been banned or strictly regulated by many jurisdictions, including the federal government, since the 1980s. (Exh. 17 at 1, 6-9, 12 (1989 ATF Study); Exh. 22 at 20-27 (Comparative Evaluation)).

29. The Gun Control Act of 1968 generally bars the importation of firearms that are not "particularly suitable for or readily adaptable to sporting purposes." 18 U.S.C. § 925(d)(3); *id.* 922(l) (Exh. 9); Koper Aff. at ¶46 n.19.

30. In 1989, the federal Bureau of Alcohol, Tobacco and Firearms ("ATF") used its authority under the Gun Control Act of 1968 to block the importation of various foreign-made semiautomatic rifles with military features based on its determination that such weapons are not suitable for sporting purposes, and are instead "designed and intended to be particularly suitable for combat" and "military applications," and "for killing or disabling the enemy." (Exh. 17 at 1, 6-8, 12; *see* Exh. 19 at 2-3, 9-11, 36-37 (1998 ATF study)).

31. In 1994, Congress enacted a ban on assault weapons, which were defined as any semiautomatic weapon having two or more of a list of military features. 18 U.S.C. 921(a)(30)(B)-(D) (repealed); *id.* § 922(v)(1) (repealed) (Exh. 9); *see* Exh. 21 at 17-20 (H.R. Rep. 103-489 (1994)).

32. The federal ban enacted in 1994 also prohibited the possession of LCMs. 18 U.S.C. § 921(a)(31)(A) (repealed); *id.* 18 U.S.C. § 922(w)(1) (repealed).

33. In 1998, ATF added the ability to accept a large-capacity magazine made for a military rifle to the list of disqualifying features for imported semiautomatic rifles because it determined that LCMs "are attractive to certain criminals" and rifles that have them "cannot fairly be characterized as sporting rifles." (Exh. 19 at 36-38; Koper Aff. at ¶46 n.19).

34. ATF has determined that "assault weapons were designed for rapid fire, close quarter shooting at human beings. That is why they were put together the way they were. You will not find these guns in a duck blind or at the Olympics. They are mass produced mayhem." (Exh. 18 at 19 (ATF 1994 Report)).

35. While the federal ban expired by its own terms in 2004, ATF still views the previously banned assault weapons as "nonsporting", and the restrictions on importing such weapons into the United States remain in effect. *See* http://www.atf.gov/firearms/faq/saws-and-lcafds.html#expiration-importation (last visited September 10, 2013).

36. In addition to the federal ban, many other jurisdictions have enacted bans on assault weapons and LCMs. (Exh. 22 at 20-27).

Many Alternative Firearms Remain Legal in Connecticut

37. While the Act bans 183 enumerated firearms and others that have the prohibited features, it does not prohibit more than one thousand handguns, rifles and shotguns, including many semiautomatic pistols or rifles with detachable magazines that have no banned features. (Mello Aff. at ¶37; Delehanty Aff. at ¶¶29-32).

38. There are more than one thousand different firearms that remain available to Connecticut citizens for lawful purposes such as sport shooting, hunting, and self defense. (Delehanty Aff. at ¶¶29-32; *see* Sweeney Aff. at ¶21).

39. A recent issue of "Gun Digest" lists numerous rifles that can lawfully be purchased in Connecticut after the Act: 7 semi-automatics; 62 lever actions; 4 pump actions; 115 bolt actions; and 73 single shot. (*See* Delehanty Aff. at ¶31).

40. Gun Digest also lists over four hundred lawful handguns: over 300 semi-automatic pistols; 86 revolvers; 59 single action revolvers; and 21 derringers and single shot handguns. It similarly lists numerous lawful shotguns: 58 semi-automatics; 33 pump actions; 59 over unders; 30 side by sides; 31 bolt and single shots; 1 lever; and 14 double rifles and drillings. (*Id.*).

41. Gun Digest also lists 25 lawful rimfire semi-automatic rifles; 12 lever and pump or slide rifles; and 37 bolt action and single shot rifles. (*Id.*).

42. The firearms in Paragraphs 39-41 above are not an exhaustive list of firearms that remain lawful in Connecticut. (*Id.*).

43. Plaintiffs' expert points out that there remain in Connecticut many legal firearms that "function in essentially identical ways as the banned firearms—*i.e.*, they can accept detachable magazines . . . , can be fired just as fast, and can fire rounds that are, shot-for-shot, just as lethal as rounds fired from banned firearms." (Kleck Aff. at 6-7).

Assault Weapons Are A Small Percentage of the Civilian Gun Market

44. The number of firearms and gun ownership rates are somewhat imprecise, but the accepted range of civilian firearms in the United States is somewhere between 270-310 million. http://www.pewresearch.org/fact-tank/2013/06/04/a-minority-of-americans-own-guns-but-just-how-many-is-unclear/ (last visited October 1, 2013).

45. There were approximately 1.5 million privately owned assault weapons in circulation in 1994, which represented less than 1% of the total civilian gun stock at that time. (Koper Aff. at ¶¶17, 47).

46. The NRA estimates that assault weapons more broadly account for roughly 2% of the current gun stock. (*See* Exh. 61 at 24-25 (Tribe Testimony)).

47. Plaintiffs estimate that there are approximately 3.97 million AR-15 type rifles presently in the United States. (*See* Pl. Exh. A, Overstreet Decl. at ¶¶5, 11). That represents just over 1% of the current gun stock.

48. Sixty percent of assault rifle owners own several of them, and nearly 44% of the owners are current or former military/law enforcement. (*See* Pl. Prel. Inj. Exhibit B).

49. Since a majority of individual AR-15 rifle owners possess several of them, the number of actual individual owners is far less than the number of rifles produced. (*See* Pl. Prel. Inj. Exhibit B).

50. Household gun ownership rates have declined over the past four decades. (*See* Exhs. 64-65).

51. The national household gun ownership rate has fallen from an average of 50 percent in the 1970s to 49 percent in the 1980s, 43 percent in the 1990s, 35 percent in the 2000s, and 34 percent in 2012. (*See* Exh. 64, p. 1).

52. The household gun ownership rate in Connecticut is below 50% of the national average, at 16% of households in Connecticut reporting a person in the household as a gun owner. (*See* Exhs 38, p. 3).

Gun Death and Injury and Public Safety

53. In 2010, there were 11,070 gun homicides in the United States, 73,505 non-fatal firearm injuries, (Exh. 37), and another 53,738 non-fatal assault-related shootings. (*See* Exh. 30, p.167).

54. A 2013 study found a correlation between rates of gun ownership and gun death, particularly firearms related homicide. (Exh. 67).

55. Reducing gun homicides or shootings by just 1% would amount to preventing about 650 shootings nationwide annually. (*See* Koper Aff. ¶61).

56. The lifetime medical costs of assault-related gunshot injuries (fatal and non-fatal) were estimated to be about $18,600 per injury in 1994. Adjusting for inflation, this amounts to $28,894 in today's dollars. (*Id.* at ¶62).

57. These figures do not measure the full societal costs of gun violence—including medical, criminal justice, and other government and private costs (both tangible and intangible).

When those costs are added in, the true societal cost of gunshot injuries (fatal and non-fatal) have been estimated to be as high as $1 million per shooting. (*Id.* at ¶63).

58. Therefore, even a 1% decrease in shootings could result in roughly $650 million in cost savings to society from shootings prevented each year. (*Id.*).

The Disproportionate Use of Assault Weapons and LCMs in Crime

59. Assault weapons and LCMs are used disproportionately in gun crime—and especially the most serious types of gun crime like murder, mass shootings and killing of law enforcement—relative to their market presence. (Koper Aff. at ¶¶7, 14, 17-18, 24, 30, 47, 87-88).

60. Although assault weapons represented less than 1% of the civilian gun stock in 1994, they were used in between 2% and 8% of all gun crimes at that time. (Koper Aff. at ¶¶17, 47).

61. That is at least twice as frequently—and perhaps more than eight times as frequently—as one would expect based on the presence of assault weapons in the civilian gun market. (*See* Koper Aff. at ¶¶17, 47).

62. The disproportionate numbers are higher for the most serious types of crime; assault weapons account for up to 6% of murders, up to 16% of killings of law enforcement officers, and up to 42% of mass public shootings. (Koper Aff. at ¶¶19, 22; *see also* Exh. 48 (Mayors Study) (discussing disproportionate use of assault weapons and LCMs in all mass shootings, both public and non-public)).

63. Some studies place the percentage of assault weapons used in killings of law enforcement at as high as 20%. (Mello Aff. at ¶25; Rovella Aff. at ¶23; Exh. 40 at 5 (VPC "Officer Down")).

64. Although large capacity magazines represented only about 21% of the civilian magazine stock in 1994, (Exh. 29 at 18 (Koper 2004)), they were used in between 31% and 41% of gun murders of police and more than 50% of all mass public shootings. (Koper Aff. at ¶¶30-31; *see also generally* Exh. 40 (VPC "Officer Down"); Exhs. 44-46 (Mother Jones Studies).

65. Individuals with criminal histories—and especially those with long and violent criminal histories—purchase assault weapons more frequently than law-abiding citizens. (Koper Aff. at ¶25).

66. Assault pistols are at higher risk of being used in crime than other types of handguns. (*Id.* at ¶¶7, 17).

67. When used in crime, assault weapons and LCMs result in more shots fired, more victims wounded, and more wounds per victim than do gun crimes committed with conventional firearms. (*Id.* at ¶¶8, 13, 23, 33, 35-38, 75, 81, 88; *see* Exh. 7 at 6-7).

68. A person is 63% more likely to die if he or she receives two or more gunshot wounds than if he or she receives just one. (*Id.* at ¶38).

69. Any reduction in the number and lethality of gun crimes is meaningful in terms of lives saved, families preserved, and public resources that will be freed up to be used in better ways. (Rovella Aff. at ¶53; Mello Aff. at ¶49).

70. Assault weapons have been used by gangs of criminals to intimidate and terrorize entire neighborhoods in cities in Connecticut. (Sweeney Aff. at ¶¶7, 9-10).

71. The federal government has determined that LCMs are a crime problem. (Exh. 20 at 10-11; Exh. 19 at 3, 38).

72. LCMs facilitate the rapid firing of large numbers of rounds without having to reload. (Sweeney Aff. at ¶¶14-15, 20; Rovella Aff. at ¶¶17-18, 27-29; Mello Aff. at ¶¶18, 29-32; *see* Exh. 21 at 19; Exh. 7 at 6-7).

73. LCMs allow a shooter to inflict more casualties in a shorter period of time, and allow a shooter to lay down suppressing fire and more effectively hold-off an initial response by law enforcement or bystanders. (Mello Aff. at ¶18; Sweeney Aff. at ¶¶15, 20; Rovella Aff. at ¶17; see Exh. 7 at 6-7).

74. Depriving a criminal of an LCM and thereby forcing him or her to stop firing to change out magazines can be critical to intervention efforts by law enforcement and bystanders in the vicinity, and has been an important factor in the disruption of some mass shootings. (Mello Aff. at ¶¶30-32; Sweeney Aff. at ¶¶14-15, 20; Rovella Aff. at ¶¶29-30; Exh. 49; Exh. 59 at ¶¶18-19; *see also* Rossi Decl. at 6-10 (Doc. No. 15-5) (discussing impacts of delays in firing caused by magazine changes)).

75. Sometimes seconds is all a police officer needs to respond and stop an attack. (Mello Aff. at ¶30). The short period of time of a magazine change can be of value to victims too, because those fleeting seconds can provide an opportunity for him or her to either flee or attempt to thwart the ongoing gun attack. (*Id.* at ¶31).

The Use of Assault Weapons and LCMs in Mass Public Shootings and Mass Killings

76. Assault weapons and LCM's are used disproportionately in two destructive aspects of crime and violence: mass shootings and murders of police. (*See* Koper Affidavit, ¶20).

77. The FBI defines a mass shooting as a shooting in which 4 or more people are killed. http://www.fbi.gov/stats-services/publications/serial-murder/serial-murder-1#two (last viewed October 1, 2013).

78. Connecticut has experienced the horrific effects of assault weapons and LCMs in mass killings on several occasions. (Exhs. 47 and 50). The Act was passed in direct response to the latest of these tragedies, in which a shooter murdered 26 individuals—including 20 school children—at the Sandy Hook Elementary School in Newtown, Connecticut. (Exh. 5).

79. Recent experience indicates that mass shootings are becoming more frequent and are intensifying in their level of violence and gunshot victimizations. (Exhs. 44-46, 68). One group examined all mass shootings (public and non-public) that occurred between 2009 and 2013. In that short four year period there have been 52 mass shootings in which there were 460 victims, and 323 people killed. (Exh. 48 at 1). That equates to over 1 mass killing per month somewhere in the United States.

80. Since 1982, there have been at least 62 mass shootings across the country. Twenty-five of these mass shootings have occurred since 2006, and seven of them took place in 2012. (Exhibit 44 at 1).

81. More than half of all mass public shooters between 1982 and 2012 possessed high-capacity magazines, assault weapons, or both. (Exhibit 46 at 1).

82. In the 62 mass public shootings in the United States since 1982, more than three quarters of those guns used were obtained legally. (Exhibit 44 at 1).

83. Since 2007, there have been at least fifteen incidents in which offenders used assault-type weapons and other semiautomatics with LCMs to wound and/or kill eight or more people. (Koper Aff. at ¶16).

84. Since 1982, mass public killings in which assault weapons were used resulted in more gunshot victimizations than mass public killings that were committed with conventional firearms. An average of 11.04 people were shot in public mass shootings involving assault weapons, compared to 5.75 people shot in non-assault weapon cases. As a result, the total average number of people killed and injured in assault weapon cases was 19.27, compared to 14.06 in non-assault weapon cases. (Koper Aff. at ¶23).

85. The gunshot victimization rate in mass public shootings in which the perpetrator used an assault weapon was more than 33% higher than the rate in non-assault weapon cases. (*Id.* at ¶23).

86. The fatality rate in mass public shootings with a LCM was roughly 33% higher than in non-LCM cases, and the number of individuals shot but not killed was almost four times higher. (*Id.* at ¶33).

87. A study of all mass shootings, not just mass public shootings, between 2009 and 2013 found that shootings that involved assault weapon and/or LCMs resulted in 135% more people shot, and 57% more deaths, compared to incidents in which the perpetrator used more conventional weaponry. (Exh. 48 at 1).

The Use of Assault Weapons and LCMs in Killing of Law Enforcement

88. Although assault weapons make up a small percentage of overall gun market, they were used in up to 20% of law enforcement killings from 1998 through 2001. (Exh. 40 at 5; *see* Koper Aff. at ¶19). Similarly, although large capacity magazines represented only about 21% of the civilian magazine stock in 1994, (Exh. 29 at 18 (Koper 2004)), they were used in between 31% and 41% of gun murders of police. (Koper Aff. at ¶¶30-31; *see also generally* Exh. 40 (VPC "Officer Down").

89. There have been incidents in which criminals were able to use these weapons and magazines to fire more than a thousand rounds on responding officers. (Rovella Aff. at ¶18; Mello Aff. at ¶21; Exh. 69).

90. Law enforcement officers, and especially law enforcement executives such as chiefs of police, consider assault weapons and LCMs to be particularly dangerous because of their ability to shoot through police body armor, terrorize neighborhoods, and suppress or thwart a police response. (*See* Sweeney Aff. at ¶¶6, 14-15, 19-20; Rovella Aff. at ¶¶17-18, 34-40, 44; Mello Aff. at ¶¶10, 13-16, 26, 33-36, 44-47).

91. Law enforcement officers frequently must confront organized groups of criminals with the most dangerous weaponry, including assault weapons and, in some instances, body armor that can stop many types of ammunition. (Rovella Aff. at ¶¶13, 16, 18-21, 23; Mello Aff. at ¶21; Sweeney Aff. at ¶¶7-10).

92. Law enforcement officers need an advantage over the criminals they seek to apprehend, and should not be required or expected to neutralize dangerous criminals without superior, or at the very least comparable, firepower. (Mello Aff. at ¶¶26, 39-40; Rovella Aff. at ¶¶14, 24, 46-48).

93. Even when assault weapons and LCMs are not actively being used in crime, they are a drain on valuable police resources because departments must equip and train officers to deal with these firearms. (Mello Aff. at ¶15; Rovella Aff. at ¶44).

The Act's Likely Impacts On the Rate and Lethality of Gun Crime

94. While the Act may not substantially reduce the number of gun crimes committed, it will reduce the lethality of gun crime incidents when they do occur, particularly when the assault weapon ban is coupled with the LCM ban. (Koper Aff. at ¶¶8, 10, 13, 23, 32-38, 75, 81, 88). The assault weapon ban will also likely make a difference in some of the most traumatic and serious types of gun crime – killing of law enforcement officers and mass public shootings and mass killings. (*Id.* at ¶¶7, 14, 18-19, 22, 24, 30-31, 87-88).

95. Studies indicate that the federal ban on assault weapons substantially reduced the use of such weapons in gun crime. (*Id.* at ¶¶49-51, 53, 59).

96. Studies also indicate that the federal ban on LCMs substantially reduced the use of such magazines in gun crime, perhaps by as much as 31% to 44%. (Exhs. 31 and 32; *see* Koper Aff. at ¶¶56-57).

97. There is evidence that a ban on LCMs will result in a decline in the criminal use of LCMs over the long-run. (Koper Aff. at ¶¶56-59, 74; Exhs. 31 and 32).

98. The federal ban on LCMs expired in 2004, but had it been allowed to operate long enough to meaningfully reduce the number of LCMs in circulation, it could have reduced the number and lethality of gunshot victimizations by up to 5%. (Koper Aff. at ¶61).

99. Although 5% may be a small percentage of gunshot victimizations overall, applied on a national scale it correlates to 3,241 fewer people being wounded or killed as a result of gun crime every year. (*Id.* at ¶61).

100. Even if the effect of an LCM ban will not be that substantial a percentage, even a small reduction in the number and lethality of gunshot victimizations would yield significant societal benefits, especially for the victims and their friends and families. (*Id.* at ¶61).

101. The Act is more robust than the federal ban in several significant ways and therefore is likely to be more effective in reducing the availability of assault weapons and LCMs. (*Id.* at ¶¶72-73; *see* Sweeney Aff. at ¶¶16-17). In doing so, the Act will have a meaningful impact on public health and safety by: (1) reducing the number of crimes in which assault weapons and LCMs are used; and (2) thereby reducing the lethality and injuriousness of gun crime when it does occur. (Koper Aff. at ¶¶10, 60-61, 76-77). Such impacts will represent lives saved and injuries prevented, and will result in substantial benefits and cost savings to society more broadly. (*Id.*; Rovella Aff. at ¶53).

102. By reducing the number of crimes in which assault weapons and LCMs are used and forcing criminals to use less lethal weapons and magazines, the Act could potentially prevent a substantial number of gunshot victimizations in Connecticut on an annual basis. It also could reduce the lethality and injuriousness of those gunshot victimizations that do occur by reducing the number of wounds per victim. (Koper Aff. at ¶¶8, 13, 23, 33, 35-38, 60-61, 75-77, 81, 88).

103. Apart from the inherent benefits of reducing the number and lethality of gunshot victimizations, such reductions also could have a substantial impact on reducing a variety of societal costs associated with gun violence—including the costs for medical care, criminal justice, and other government and private costs (both tangible and intangible)—which have been estimated to reach as much as $1 million per shooting. (Koper Aff. at ¶¶62-63).

Self Defense

104. Citizens who use a firearm defensively actually fire the weapon in less than 50% of the incidents, and when they do fire the weapon they usually only fire around 2 shots. (Exh. 57; Exh. 58 at ¶¶12-15). They almost never fire more than 7 rounds defensively. (*Id.*).

105. The vast majority of defensive-use-of-gun incidents do not involve the use of assault pistols, rifles or shotguns. (Exh. 55 at 19).

106. The typical homeowner has little training with assault weapons; in many instances just the National Rifle Association course that is taken to qualify for a gun permit in Connecticut. (Rovella Aff. at ¶40).

107. Assault weapons and LCMs are not necessary for reasonable home and self defense by citizens. (*See* Sweeney Aff. at ¶¶6, 20; Rovella Aff. at ¶¶39-40, 44; Mello Aff. at ¶10).

108. Conventional handguns, the vast majority of which remain legal in Connecticut, are adequate for lawful self defense. *See Dist. of Columbia v. Heller*, 554 U.S. 570, 629 (2008) (noting that ordinary handguns are the "quintessential" weapon for self defense).

109. In many instances, assault weapons and LCMs are not suitable for home defense because LCMs and high velocity assault rifle rounds pose too many risks of over penetration, down range injuries and disproportionate response by civilians, especially in densely populated areas or buildings. (Mello Aff. at ¶¶10, 33-36; Rovella Aff. at ¶¶39-41; Sweeney Aff. at ¶¶6, 21-22

110. There are more than one thousand different firearms that remain available to Connecticut citizens for lawful self defense. (Delehanty Aff. at ¶¶29-32; *see* Sweeney Aff. at ¶21).

111. Home owners like Plaintiffs still can use their "grandfathered" LCMs for self defense. Alternatively, they can use multiple smaller magazines and simply replace the magazines when they are emptied, a process that takes only seconds for most people. (Kleck Aff. at 4-5; *see also, e.g.*, Eugene Volokh, *Implementing the Right to Keep and Bear Arms for Self-Defense: An Analytical Framework and a Research Agenda*, 56 UCLA L. Rev. 1443, 1489 (2009) (Exh. 63). Lastly, they can simply use a second or third loaded weapon. (Kleck Aff. at 4-5)

The Act's Exemptions

112. The Act provides for certain exemptions from the prohibitions on sale, transfer or possession of assault weapons and LCMs for law enforcement, military and others with a professional need to use, train with and possess assault weapons and LCMs. P.A. 13-220, § 1(d)(2)-(4), § 2(a)(2); § 5(b)(1)-(4), § 6(b), § 7(a)(1)(B).

113. The exemptions permit "off-duty" use of assault weapons and LCMs by law enforcement officers who purchase them for official duties, and also allow such individuals to register assault weapons or LCMs that they have purchased for official duties within thirty days of their retirement or separation from service from service. (*Id.*)

114. Many law enforcement officers purchase assault rifles for official duty use with their own money because their agency cannot afford to buy one for each officer. (Mello Aff. at ¶¶38-41; Rovella Aff. at ¶¶14, 45, 48; Delehanty Aff. at ¶15).

115. Even when an officer purchases an assault weapon with his or her own money, the officer is required to "qualify" with such firearms before being able to use them in the field, and receives professional training on when and how to safely use the firearm while at the same time minimizing unintended casualties and other collateral damage. (Mello Aff. at ¶¶16, 41-42, 45; Rovella Aff. at ¶¶14, 44, 49; Delehanty Aff. at ¶¶4, 6-7, 12, 15-16).

116. Law enforcement officers are never truly "off-duty", and have a professional obligation to respond to emergencies or criminal activity whenever and wherever they arise. (Rovella Aff. at ¶¶45-47, 50; Mello Aff. at ¶¶39, 43; Delehanty Aff. at ¶¶16-17).

117. In some jurisdictions in Connecticut, officers are given portable radios to keep with them off-duty so that they can respond to radio calls for assistance on the police frequency even after work hours, (Rovella Aff. at ¶45), or in the case of specialized officers are required to respond to an incident from any location. (Delehanty Aff. at ¶¶16-17).

118. Law enforcement officers face enhanced threats to their personal safety, both on duty and off-duty, because they actively engage with and apprehend dangerous criminals every day. (Rovella Aff. at ¶¶13, 16, 18-21, 23; Mello Aff. at ¶¶21; Sweeney Aff. at ¶¶7-10).

119. On the rare occasion when an ordinary citizen is victimized by a criminal using a gun, the criminal rarely fires the gun and instead only use it to threaten the victim. (Kleck Aff. at 3).

Plaintiffs' Vagueness Claims

120. Information about the make and model of a firearm is engraved on most firearms. (Exh. 11, Delehanty Aff. at ¶34; Cooke Aff. at ¶7; Mattson Aff. at ¶19).

121. Information about the make and model of a firearm can also be obtained based on the firearm's serial number and all firearms manufactured for retail sale after 1968 are required to have a serial number. *See* 18 U.S.C.A. § 923(i).

122. With the serial number, a person can contact the manufacturer, a federally licensed firearms dealer ("FFL"), or the Special Licensing and Firearms Unit at DESPP to obtain the make, model, and other information about the firearm. (Delehanty Aff. at ¶35; Cooke Aff. at ¶8; Mattson Aff. at ¶¶20-21).

123. The Act does not require anyone who lawfully possessed an LCM when the Act was passed to convert it into a magazine that can accept 10 rounds or less. Such individuals can declare possession of their LCM and leave it as is, or can simply buy a new magazine that is lawful under the Act. P.A. 13-3, §§ 23-24; P.A. 13-220, § 1(a)(1); § 2(a)(1).

124. Plaintiffs concede that many rifles and handguns that can accept detachable LCMs also can accept magazines that have a capacity of 10 rounds or less. (*See* Pl. 56(a)(1) Statement at ¶85; *see also, e.g.* Exh. 13, p. 427 (Ruger 1911 pistol sold with an 8 round magazine and a 7 round magazine; and Sig Sauer 1911 sold with an 8-10 round magazine)).

Respectfully Submitted,

DEFENDANTS
DANNEL P. MALLOY, et al.

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CERTIFICATION

I hereby certify that on October 11, 2013, a copy of the foregoing Defendants' Local Rule 56(a)(1) Statement was filed electronically. Notice of this filing will be sent by e-mail to all parties by operation of the Court's electronic filing system. Parties may access this filing through the Court's system.

/s/ *Maura Murphy Osborne*
Maura Murphy Osborne

UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

JUNE SHEW, et al.	:	No. 3:13-CV-00739-AVC
Plaintiffs	:	
	:	
v.	:	
	:	
DANNEL P. MALLOY, et al.	:	
Defendants	:	October 11, 2013

DEFENDANTS' LOCAL RULE 56(a)(2) STATEMENT

Pursuant to D.Conn.L.Civ.R. 56(a)(2), Defendants Dannel P. Malloy, Kevin T. Kane, Reuben F. Bradford, David I. Cohen, John C. Smriga, Stephen J. Sedensky III, Maureen Platt, Kevin D. Lawlor, Michael Dearington, Peter A. McShane, Michael L. Regan, Patricia M. Froehlich, Gail P. Hardy, Brian Preleski, David Shepack, and Matthew C. Gedansky (collectively, "Defendants"), respectfully submit their responses to the Plaintiff's Statement of Undisputed Material Facts.

RESPONSES TO PLAINTIFF'S RULE 56(a)(1) STATEMENT

Gun Deaths In The United States

1. The leading cause of death by firearm in the U.S. is suicide. *See* Pew Research Center, *Gun Homicide Rate Down 49% Since 1993 Peak; Public Unaware* (May 2013) ("Pew Report"), at 2. [Pl. 56(a)(1) Statement "Exhibit A"].

Response: Defendants admit that this statement accurately reflects the cited source. Criminals who use guns to commit mass killings are also included in this statistic because many mass killers commit suicide during the mass killing incident. For example, between January 2009 and January 2013, 26 out of 56 incidents of mass shootings resulted in the shooter committing suicide. (Exh. 48 at 2).

2. Gun suicides now account for six out of every ten firearm deaths in this country. *Id*.

Response: Same as Response paragraph 1 above.

3. The gun suicide rate has been higher than the gun homicide rate since at least 1981. *Id*. at 4.

Response: Same as Response paragraph 1 above.

4. There were 31,672 firearm deaths in the U.S. in 2010; 61% of these were caused by suicide, versus 35% being caused by homicide. Pew Report at 4. In 2010, firearm suicide was the fourth leading cause of violent-injury death in the U.S., behind motor vehicle accidents, unintentional poisoning, and falls. *Id*. at 16.

Response: Same as Response paragraph 1 above.

Gun Homicides In The United States

5. National rates of gun homicide and other violent gun crimes are "strikingly lower" now than during their peak in the mid-1990s. Pew Report at 1. *See also* Pl. Exhibit B, U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, *Special Report – Firearm Violence, 1993-2011* (May 2013) ("BJS Report") at 1.

Response: Defendants admit that this statement accurately reflects the cited source. However, the percentage of all violence that involved a firearm is not "strikingly lower" but has remained between 6% and 9% of all violent crime since the mid-1990s. (*See* Pl. 56(a)(1) Statement Exhibit B, at 1).

6. The firearm homicide rate in the late 2000s has not been this low since the early 1960s. Pew Report at 2.

Response: Defendants admit that this statement accurately reflects the cited source. Defendants note that this statistic indicates that Plaintiffs appear to be even less likely to face a life threatening situation involving an armed assailant. Furthermore, the majority of the decline of firearm related homicides occurred between 1993 and 1998, during which time the Federal Assault Weapons Ban was in effect. (*See* Pl. 56(a)(1) Statement Exhibit B). Also, gun ownership is a significant predictor of firearm homicide rates. (Exh. 67).

7. The firearm homicide rate in 2010 was 49% lower than it was in 1993. *Id*. *See also* BJS Report at 1.

Response: Same as Response to paragraph 6 above. The number of firearm homicides in the United States remains high. In 2010, there were 11,070 gun homicides

in the United States, 73,505 non-fatal firearm injuries, (Exh. 37), and 53,738 non-fatal assault-related shootings. (See Exh. 30, p.167). These statistics represent lives lost or damages. Reducing firearm homicides or shootings by just 1% would amount to preventing about 650 shootings annually. The lifetime medical costs of assault-related gunshot injuries (fatal and non-fatal) were estimated to be about $18,600 per injury in 1994. Adjusting for inflation, this amounts to $28,894 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. (*See* Koper Aff. at ¶¶61-63). Based on those estimates, even a 1% decrease in shootings could result in roughly $650 million in cost savings to society from shootings prevented each year. (*Id.*).

Non-Fatal Gun Crimes In The United States

8. The victimization rate for other violent crimes committed with a firearm (i.e., assaults, robberies and sex crimes) was 75% lower in 2011 than in 1993. Pew Report at 1. *See also* BJS Report at 1.

Response: Defendants admit that this statement accurately reflects the cited source. Defendants note that this statistic indicates that Plaintiffs appear to be increasingly less likely to be involved in a gun crime incident.

9. In 1993, the rate of non-fatal violent gun crime amongst people aged 12 and over was 725.3 per 100,000 people. Pew Report at 17. By 2011, that rate had plunged 75% to 181.5 per 100,000 people. *Id*.

Response: Same as Response paragraphs 5, 6 and 8 above.

10. During this same period, the victimization rate for aggravated assault with firearms declined 75%, and the rate for robbery with firearms declined 70%. *Id*.

Response: Same as Response paragraphs 5, 6 and 8 above.

Public Knowledge Of The Dropping Gun Crime Rate

11. Despite the widespread media attention given to gun violence recently, most Americans are unaware that gun crime is markedly lower than it was two decades ago. Pew Report at 4.

Response: Defendants admit that this statement accurately reflects the cited source but it is clearly immaterial to the constitutionality of the Act.

12. A national survey taken between March 14-17 of 2013 found that 56% of Americans believe the number of gun crimes is higher than it was 20 years ago; 26% say it stayed the same, and only 12% say it is lower. *Id*.

Response: Same as Response paragraph 11 above.

Mass Shootings

13. Mass shootings, while a matter of great public interest and concern, account for only a very small share of shootings overall. Pew Report at 4. Homicides that claimed the lives of three or more people accounted for less than 1% of all homicide deaths between 1980 and 2008. *Id*.

Response: Defendants admit that this statement accurately reflects the cited source. Although mass shootings and mass killings are rare relative to other homicides, they nevertheless warrant governmental action to help prevent them and reduce the lethality of those mass killings. Recent events demonstrate that mass shootings are becoming more frequent and are intensifying in their level of violence, fatalities and gunshot victimization. (Exhs. 44-46, 48, 67). Since 1982, there have been at least 62 mass shootings across the country. Twenty-five of these mass shootings have occurred since 2006, and seven of them took place in 2012 alone. (Exh. 44 at 1). More than half of all mass public shooters between 1982 and 2012 possessed LCMs, assault weapons, or both. (Koper Aff. at ¶22). Since 2007 alone, 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. (*Id.* at ¶16).

14. Most scholarly and expert sources conclude that mass shootings are rare violent crimes. *See* Congressional Research Service, *Public Mass Shootings in the United States: Selected Implications for Federal Public Health and Safety Policy* (March 2013) ("CRS Report"). [Pl. 56(a)(1) Statement "Exhibit C"].

Response: Defendants do not dispute that mass shootings are rare relative to other types of homicides, but see Response paragraph 13 above.

15. One study has described mass shootings as "very low-frequency and high intensity events." *Id*. [citing J. Reid Meloy, *et al*, "A Comparative Analysis of North American Adolescent and Adult Mass Murders," BEHAVIORAL SCIENCES AND THE LAW, vol. 22, no. 3 (2004) at 307].

Response: Defendants do not dispute that mass shootings are rare relative to other types of homicides, but see Response paragraph 13 above.

The Prevalence Of Handgun Use In Gun Crimes

16. Approximately 90% of all non-fatal firearm crimes in the U.S. between 1993 and 2011 were committed with a handgun. BJS Report at 1, 3.

Response: Defendants admit that this statement accurately reflects the cited source. This statistic indicates that Plaintiffs are unlikely to face a gun crime incident involving an assault rifle or assault shotgun. Moreover, some of the "handguns" contained in the above statistic may be "assault pistols" under the Act. Assault pistols are at higher risk of being used in crime than other types of handguns. (Koper Aff. at ¶¶7, 17).

17. Approximately 80% of all gun homicides in the U.S. between 1991 and 2011 were committed with a handgun. *See* U.S. Department of Justice, Federal Bureau of Investigation, *Crime in the United States – Uniform Crime Report* ("FBI UCRs"), 1995 to 2011. [Complete copies of the FBI UCRs for the years 1995 through 2012 can be accessed at: www.fbi.gov/about-us/cjis/usc/usc-publications. True, complete and accurate summaries of the gun homicide data provided by the FBI UCRs are attached to Pl. 56(a)(1) Statement "Exhibit D"]. *See also* BJS Report at 1, 3.

Response: Same as Response paragraph 16 above.

18. In contrast, only 6% of the gun homicides committed between 1991 and 2011 involved a shotgun, and even less (4.6%) involved a rifle. *See* Pl. Exhibit D.

Response: Defendants admit that this statement accurately reflects the cited source. This statistic indicates that Plaintiffs are unlikely to face a gun crime incident involving an assault rifle or assault shotgun. Further, between 1991 and 2011, 10,750 individuals were murdered by a rifle, and 13,165 individuals were murdered by a shotgun. (*See* Pl. 56(a)(1) Statement Exhibit D).

19. In Connecticut: 77% of the gun homicides between 1995 and 2010 were committed with a handgun. *Id*. Just 3% of these involved a shotgun, and 2% involved a rifle. *Id*.

Response: Defendants admit that this statement accurately reflects the cited source. These homicide statistics are significant and represent lives lost and families damaged. In 2012 alone, law enforcement in Connecticut recovered 859 handguns, (Exh. 35, p. 2), some of which may have been assault pistols. (*See* Koper Aff. at ¶¶7, 17).

The Prevalence of Illegal Guns Used In Crimes

20. Between 1997 and 2004, more state inmates who used guns during crimes (40%) obtained those guns illegally than from any other source. BJS Report at 13.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source. Most mass killers obtain their firearms and LCMs legally. (Exh. 44 at 1).

21. Almost as many (37%) obtained guns from family or friends. *Id*.

Response: Same as Response to paragraph 20 above.

22. A very small number of state inmates (10%) purchased their guns at retail stores or pawn shops, and even fewer (less than 2%) bought their guns at gun shows or flea markets. *Id*.

Response: Same as Response to paragraph 20 above.

The Prevalence of "Assault Weapons" Used In Crimes

23. Numerous studies have examined the use of firearms characterized as "assault weapons" ("AWs") both before and after the implementation of Title XI of the Violent Crime Control and Law Enforcement Act of 1994 (the federal assault weapons ban) ("the Ban"). *See e.g*., Christopher Koper, Daniel Woods and Jeffrey Roth, *An Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence*, 1994-2003 (June 2004) ("Koper 2004"); Christopher Koper and Jeffrey Roth, *Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994 – Final Report* (March 1997) ("Koper 1997"). [The Koper 2004 Report, Pl. 56(a)(1) Statement "Exhibit E." The Koper 1997 Report, Pl. 56(a)(1) Statement "Exhibit F."].

Response: Defendants do not dispute Dr. Koper extensively studied the use of assault weapons in crime. Dr. Koper's conclusions are most accurately and completely set forth in his 2004 report, 2013 book chapter and his attached affidavit. (Koper Aff. at ¶5; *see* Exhs. 29 and 30). Dr. Koper's 1997 report (Exh. 28) was based on limited data, especially with regard to the criminal use of large capacity magazines, and is not as complete as his later analysis. (Koper Aff. at ¶5). This Court should focus on Dr. Koper's 2004 study, his 2013 book chapter and his affidavit submitted in support Defendants' motion to best understand Dr. Koper's views on the federal assault weapon ban, the disproportionate use of assault weapons and LCMs in gun crime, and the likely effectiveness of the Act challenged in this case.

24. The "overwhelming weight" of evidence produced by these studies indicates that AWs are used in only a very small percentage of gun crimes overall. Koper 2004 at 17. According to most studies, AWs are used in approximately 2% of all gun crimes, Koper 2004 at 2, 14, 19.

Response: Defendants do not dispute assault weapons are used in a small percentage of gun crimes overall. However, assault weapon use in crime is substantially disproportionate to their presence in the civilian gun market. Assault weapons and other guns with LCMs are used disproportionately in mass killings and murders of law enforcement officers relative to more conventional weaponry. (Koper Aff. at ¶¶20, 87). Moreover, a 2% reduction in gun crime is meaningful. This percentage represents a substantial number of crimes each year. The impact of such reductions would be meaningful in terms of lives saved, families preserved, and public resources that will be freed up to be used in better ways. (*Id.* at ¶¶10, 60-61, 76-77; Rovella Aff. at ¶53; Mello Aff. at ¶49). Furthermore, in the years since the expiration of the federal ban in 2004, there have been numerous 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 and other semiautomatics with LCMs have wounded and/or killed eight or more people. (Koper Aff. at ¶16). Lastly, just because assault weapons and large capacity magazines are not "widely used by criminals" does not mean that prohibiting their new possession or transfer to new owners does not advance law enforcement goals. Removing these dangerous weapons from the streets will aid law enforcement because it will deescalate the level of concern about them and minimize the threat that they pose. (Mello Aff. at ¶46).

25. The inclusion of AWs among crime guns is "rare." Koper 1997 at 69.

Response: Same as Response to paragraph 23 above. Moreover, Plaintiffs cite to the incorrect page of Dr. Koper's 1997 Report, the correct citation is to page 70 of that report.

26. Even the highest estimates of AW use in gun crime, which correspond to "particularly rare" events such mass shootings and police murders, are no higher than 13%. Koper 2004 at 15-16.

Response: Defendants do not agree with this statement of fact which is based on mass shooting data that is a decade old. More current evidence demonstrates that assault weapons are used in 42% of mass public shootings, and up to 20% of law enforcement killings. (Koper Aff. at ¶¶22, 24; Exh. 40 at 5). Those percentages are drastically disproportionate to assault weapons' market presence. (*See* response to paragraph 24 above). Also, criminals anticipating confrontations with armed law enforcement agents often arm themselves with assault weapons. (Exhs. 43 at 21-22; 69). Mass public shooters also disproportionately prefer these weapons, and mass public shootings appear to be increasing in frequency and intensity with more people killed or shot in these mass killing incidents. (*See* Response to paragraph 13 above).

27. AWs (including so-called assault pistols ("APs") and assault rifles ("ARs")) and ammunition magazines that can accept more than ten rounds of ammunition (so-called

"Large Capacity Magazines" or "LCMs") are not used disproportionately in crimes. Koper 2004 at 17; Koper 1997 at 65, 70, 96.

Response: Same as Response to paragraph 23 above regarding Dr. Koper's views. See also Responses to paragraphs 24 and 26 above.

28. Prior to the Ban, AWs (as defined by the federal law) accounted for about 2.5% of guns produced from 1989 through 1993. Koper 2004 at 17. This figure is consistent with the fact that AWs are used in just 2% of all gun crimes. *Id*.

Response: Defendants do not dispute assault weapons make up a very small percentage of the gun market overall. Notwithstanding that small percentage, they are disproportionately used in gun crime (*see* Response to paragraph 24 above), and disproportionately used in the worst crimes such as mass killings, mass public shootings and killing of law enforcement is well documented. (*See* Response to paragraphs 13, 24 and 26 above).

29. Prior to the Ban, LCMs accounted for 14% to 26% of guns used in crime. Koper 2004 at 2, 18. This range is consistent with the national survey estimates indicating approximately 18% of all civilian-owned guns and 21% of civilian-owned handguns were equipped with LCMs as of 1994. Koper 2004 at 18.

Response: Defendants admit that this statement accurately reflects the cited source.

30. Post-Ban analysis of ATF trace requests for AWs involved in violent and drug-related crime between 1994 and 1996 show that, 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. Koper 1997 at 65. For drug crimes, the monthly averages ranged from 34 in 1995 to 50 in 1994. *Id*.

Response: Same as Response to paragraph 23 above.

31. These trace ranges represent a "strikingly small" magnitude. Koper 1997 at 65.

Response: Same as Response to paragraph 23 above.

32. ATF trace figures from 1996 show that assault weapons accounted for 3% of all trace requests. *Id*. Analysis of trace requests for AR15, Intratec and SWD types of domestic firearms (i.e., those not impacted by pre-Ban legislation (Koper 1997 at 63)), and also those arms characterized as "assault weapons" that were most frequently sold at the enactment of the Ban (Koper 1997 at 63), showed that AWs associated with violent and drug-related crimes represented only 2.5% of all traces. Koper 1997 at 70. Traces for this select AW

group accounted for 2.6% of traces for guns associated with violent crimes and 3.5% of traces for guns associated with drug crimes. *Id*.

Response: Same as Response to paragraph 23 above.

33. According to Koper, "these numbers reinforce the conclusion that assault weapons are rare among crime guns." *Id*.

Response: Same as Response to paragraph 23 above.

34. Koper also analyzed all guns confiscated by police in various jurisdictions to obtain "a more complete and less biased" picture of weapons used in crime that that presented by ATF trace requests. Koper 1997 at 71. Data collected from police departments in Boston and St. Louis confirmed that AWs are not overrepresented in violent crime relative to other guns. *Id*. at 72, 75.

Response: Same as Response to paragraph 23 above.

35. Overall, assault weapons accounted for about 1% of guns associated with homicides, aggravated assaults, and robberies. *Id*. at 75.

Response: Same as Response to paragraph 23 above.

The Prevalence of "Assault Weapons" Used in the Murder of Police Officers

36. Police officers are rarely murdered with assault weapons. Koper 1997 at 99.

Response: Same as Response to paragraph 23 above. Moreover, more current data indicate that police officers are murdered with assault weapons at rates disproportionate to their presence in the overall gun market. (*See* Response to paragraph 24 above.) From 1998 through 2001, 20% of law enforcement officers slain in the line of duty were killed with an assault weapon. (Exh. 43 at 3; Exh. 40 at 5). This is a high number, given that assault weapons made up only a small percent of the firearms owned at that time. (*See* Mello Aff. at ¶26; Rovella Aff. at ¶23).

37. The fraction of police gun murders perpetrated with AWs is only slightly higher than that for civilian gun murders. *Id*.

Response: Denied. Dr. Koper's 1997 Report does not state that the fraction of police gun murders perpetrated with AWs is only "slightly" higher than that for civilian gun murders. Moreover, this 1997 data is not material because it is superseded by later data that demonstrates that the percentage of law enforcement officers killed by assault weapons is more than double, and perhaps triple, the percentage of civilian murders with an assault weapon. (Koper Aff. at ¶¶19, 24; Exh. 40 at 5). Further, even

the percentage of civilian murders with assault weapons is six times higher than one would expect based on assault weapons' miniscule market presence. (Koper Aff. at ¶¶17, 19).

38. The argument that assault weapons pose a unique, disproportionate danger to police officers is contradicted by FBI data. See LAW ENFORCEMENT OFFICERS KILLED & ASSAULTED ("LEOKA") [www.fbi.gov/about-us/cjis/ucr/leoka/2010]. The LEOKA data show that, in 2010, a law enforcement officer was eight times more likely to be murdered with a revolver than with an AW or LCM, eight times more likely to be killed with his own service pistol, three times as likely to be killed by a "firearms mishap" during police training (whether by his own hand or that of a fellow officer), and 72 times as likely to be killed in the line of duty accidentally—usually by being run over by another motorist while the officer was standing on a roadside to issue somebody a traffic ticket. The LEOKA statistics for 2011 are similar. *See* www.fbi.gov/about-us/cjis/ucr/leoka/2011.

Response: The statistics recited in this paragraph are not material to the constitutionality of the Act. Further, the LEOKA data is from one year - 2010. Assault weapons and LCMs are disproportionately used in shootings of law enforcement. (*See* Response to paragraph 36 above). Moreover, unlawful attacks on law enforcement with assault weapons and large capacity magazine pose a greater threat to law enforcement because they often result in more rounds fired. The military style features of assault pistols and rifles that allow a shooter to hold multiple weapons with large magazines means that a single shooter can fire suppressing fire at law enforcement, and effectively hold-off and overwhelm an initial law enforcement response. (Mello Aff. at ¶19; Rovella Aff. at ¶17; Sweeney Aff. at ¶15).

The Impact of the Federal Assault Weapons Ban

The Impact of the Ban on "Assault Weapon" and "Large Capacity Magazine" Market

Scarcity

39. Repeated statistical analysis of the Ban's impact on primary market prices for AWs and LCMs showed that primary-market prices of the banned guns and magazines rose by upwards of 50% during 1993 and 1994, while the Ban was being debated and as gun distributors, dealers, and collectors speculated that the banned weapons would become expensive collectors' items. Koper 1997 at 1, 3. *Cf.*, Koper 2004 at 23-29. 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. *Id*. at 1. 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. *Id*. at 1-3. *Cf.*, Koper 2004 at 2.

Response: Same as Response to paragraph 23 above.

The Ban's Impact on the Consequences of "Assault Weapon" Use

Total Gun Murders

40. The percentage of violent gun crimes resulting in death has been very stable since 1990. Koper 2004 at 92. 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%). *Id*.

Response: Defendants admit that this statement accurately reflects the cited source. In 2010, guns took the lives of 31,076 Americans in homicides, suicides, and unintentional shootings. This is the equivalent of more than 85 deaths each day and more than three deaths each hour. Firearms were the third-leading cause of injury-related deaths nationwide in 2010, following poisoning and motor vehicle accidents. On average, 33 gun homicides were committed each day in the U.S. in 2010, comprising almost 35% of all gun deaths, and over 68% of all homicides. (Exh. 37). Regions and states with higher rates of gun ownership have disproportionately higher rates of firearm homicide than states with lower rates of gun ownership. (Exh. 67).

41. Similarly, neither medical nor criminological data have shown any post-Ban reduction in the percentage of crime-related gunshot victims who die. Koper 2004 at 92. If anything, this percentage has been higher since the Ban. *Id*.

Response: The most current information about Dr. Koper's views on the reduction of crime-related gunshot victimization related to bans on assault weapons and LCMs is contained in his affidavit filed in support of Defendants' motion, Exhibit 26, and his 2013 book chapter, Exhibit 30. (See Response 23 above). These sources indicate that gun crimes involving assault weapons and other gun crimes with LCMs do result in more shots fired, more victims shot, more gunshots per victim, and more lethal injuries. Although it is true that the federal ban cannot be credited with decreasing gunshot victimizations during the time it was in effect, that is due in large part to the delay in the ban's effectiveness caused by its grandfather provision and the large stock of pre-ban LCMs that remained in circulation. Had the federal ban not been allowed to expire in 2004 and remained in effect long enough to reduce the stock of those pre-ban LCMs—which the Washington Post study suggests it may have begun to do just as it expired in 2004—it is likely that we would have seen a corresponding drop in gun violence lethality. (*See* Koper Aff. at ¶¶80-81).

42. According to medical examiners' reports and hospitalization estimates, about 20% of gunshot victims died nationwide in 1993. *Id*. This figure rose to 23% in 1996, before declining to 21% in 1998. 92. *Id*. Estimates derived from the FBI UCRs and the Bureau of Justice Statistics' annual National Crime Victimization Survey ("NCVS") follow a similar

pattern from 1992 to 1999, and also show a considerable increase in the percentage of gunshot victims who died in 2000 and 2001. *Id*.

Response: Same as Response to paragraph 41 above.

43. Overall, the statistical evidence is not strong enough to conclude that the Ban had any meaningful effect on the rate of gun murders (i.e., that the effect was different from zero). Koper 1997 at 6.

Response: Same as Response to paragraphs 23 and 41 above.

Gun Homicides Associated With AWs
(multiple victims in a single incident, or multiple bullet wounds per victim)

44. The Ban failed to reduce both multiple-victims and multiple-bullet-wounds-per-victim murders. Koper 1997 at 2.

Response: Same as Response to paragraphs 23 and 41 above.

45. Using a variety of national and local data sources, Koper 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. Koper 1997 at 6. Nor did he find assault weapons to be overrepresented in a sample of mass murders involving guns *Id*.

Response: Same as Response to paragraphs 23 and 41 above.

Multiple-Victim Gun Homicides

46. Examination of the FBI's Supplemental Homicide Report ("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. Koper 1997 at 86.

Response: Same as Response to paragraphs 23 and 41 above.

47. The number of victims-per-incident gun murders increased very slightly (less than 1 percent) after the Ban. *Id*. 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. Koper 2004 at 93. If anything, then, gun attacks appear to have been more lethal and injurious since the Ban. *Id*. at 96.

Response: Same as Response to paragraphs 23 and 41 above. Although it is true that the federal ban cannot be credited with decreasing gunshot victimizations during the time it was in effect, that is due in large part to the delay in the ban's effectiveness

caused by its grandfather provision and the large stock of pre-ban LCMs that remained in circulation. Had the federal ban not been allowed to expire in 2004 and remained in effect long enough to reduce the stock of those pre-ban LCMs—which the Washington Post study suggests it may have begun to do just as it expired in 2004—it is likely that we would have seen a corresponding drop in gun violence lethality. (*See* Koper Aff. at ¶¶80-81).

48. An interrupted time series analysis failed to produce any evidence that the Ban reduced multiple-victims gun homicides. *Id*.

Response: Same as Response to paragraphs 23, 41 and 47 above. Also, Plaintiffs' citation to "Id" appears to be inaccurate because Koper 2004 at p. 96 does not contain this statement and instead it appears on p. 86 of Dr. Koper's superseded 1997 Report.

Multiple-Wound-Per-Victim Gun Homicides

49. Multiple wound shootings were elevated over pre-Ban levels during 1995 and 1996 in four of five localities examined during Koper's first AW study, though most of the differences were not statistically significant. Koper 2004 at 93.

Response: Admit, *see also* Response to paragraphs 41 and 47 regarding the delay in the effectiveness of the federal ban.

50. If attacks with AWs and LCMs result in more shots fired and victims hit than attacks with other guns and magazines, Koper expected a decline in crimes with AWs and LCMs to reduce the share of gunfire incidents resulting in victims wounded or killed. Koper 2004 at 93. Yet, when 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. *Id*.

Response: See Response to paragraphs 41 and 47 regarding the delay in the effectiveness of the federal ban. Moreover, incidents involving assault weapons and LCMs such as mass public shootings and mass killings generally appear to be increasing in frequency and intensity. (*See* response to paragraph 13 above).

51. Analysis of the number of wounds inflicted in both fatal and non-fatal gunshot cases in Milwaukee, Seattle, Jersey City, San Diego, and Boston failed to produce evidence of a post-Ban reduction in the average number of gunshot wounds per case, or the proportion of cases involving multiple wounds. Koper 1997 at 97.

Response: Same as Response to paragraphs 23, 41 and 47 above.

The Role of LCMs in Increased Gunshot Victimization

52. There is very little empirical evidence on the direct role of ammunition capacity in determining the outcomes of criminal gun attacks. Koper 1997 at 10. 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. Koper 2004 at 90. The limited data which do exist suggest that criminal gun attacks involve three or fewer shots on average. Koper 1997 at 10.

Response: Defendants admit that limited data suggests that criminal gun attacks involve three or fewer shots on average. Moreover, these data indicate that it is extremely unlikely that Plaintiffs will confront a situation in which they will require a 15, 20 or 30 round magazine of ammunition in which to adequately defend themselves. See also Response to paragraphs 23, 41 and 47 above.

53. Based on national data compiled by the FBI, there were only about 19 gun murder incidents a year involving four or more victims from 1976 through 1995 (for a total of 375), and only about one a year involving six or more victims from 1976 through 1992 (for a total of 17). Koper 2004 at 90.

Response: For more current data see Response to paragraph 13 above.

54. Similarly, gun murder victims are shot two to three times on average (according to a number of sources), 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. Koper 2004 at 90.

Response: A person is 63% more likely to die if he or she receives two or more gunshot wounds than if he or she receives just one. (Koper Aff. at ¶38).

55. The few available studies on shots fired show collectively that assailants fire less than four shots on average, a number well within the 10-round magazine limit imposed by the AW- LCM ban. Koper 2004 at 90.

Response: Same as Response to paragraph 52 above.

56. A study of mass shootings (defined therein as incidents in which six or more victims were killed with a gun, or twelve or more were wounded) from 1984 to 1993 found that "for those incidents where the number of rounds fired and the duration of the shooting were both reported, the rate of fire never was faster than about one round every two seconds, and was usually much slower than that." *See* Kleck, TARGETING GUNS at 124-25. Thus, "[n]one of the mass killers maintained a sustained rate of fire that could not also have been maintained—even taking reloading time into account—with either multiple guns or with an

ordinary six-shot revolver and the common loading devices known as 'speedloaders.'" *Id*. at 125.

Response: The FBI defines a mass shooting as a shooting in which 4 or more people are killed. http://www.fbi.gov/stats-services/publications/serial-murder/serial-murder-1#two (last viewed October 1, 2013). The evidence demonstrates that gun crimes involving assault weapons and other gun crimes with LCMs result in more shots fired, more victims shot, more gunshots per victim, and more lethal injuries. (Koper Aff. at ¶81).

57. 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. Koper 2004 at 90. Indeed, there is no evidence comparing the fatality rate of attacks with semiautomatics to those with other firearms. *Id*.

Response: A graduate student at George Mason University recently analyzed data about mass public killings for his Master's thesis, and compared the number of deaths and fatalities across cases that involved assault weapons and large capacity magazines, and those that did not. With regard to assault weapons, although he found no difference in the average number of fatalities, he did find an increase in gunshot victimization. Specifically, he found that an average of 11.04 people were shot in public mass shootings involving assault weapons, compared to 5.75 people shot in non-assault weapon cases. This is a statistically significant finding, meaning that it was not likely due to chance. As a result, the total average number of people killed and injured in assault weapon cases was 19.27, compared to 14.06 in non-assault weapon cases. (Koper Aff. at ¶¶23, 33). A person is 63% more likely to die if he or she receives two or more gunshot wounds than if he or she receives just one. (Koper Aff. at ¶38).

Summary of Past and Future Impacts of the Ban

58. The Ban cannot clearly be credited with any of the nation's recent drop in gun violence. Koper 2004 at 2, 96.

Response: Same as Response to paragraphs 23 and 41 above.

59. The Ban has produced 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. *Id*. at 96. *See also* NATIONAL RESEARCH COUNCIL, FIREARMS AND VIOLENCE: A CRITICAL REVIEW 97 (Charles F. Wellford *et al*. eds., 2005) ("[G]iven the nature of the [1994 assault weapons ban], the maximum potential effect of the ban on gun violence outcomes would be very small and, if there were any observable effects, very difficult to disentangle from chance yearly variation and other state and local gun violence initiatives that took place simultaneously"); Centers for Disease Control, *Recommendations To Reduce Violence Through Early Childhood Home Visitation,*

Therapeutic Foster Care, and Firearms Laws, 28 AM. J. PREV. MED. 6, 7 (2005) (With respect to "bans on specified firearms or ammunition," the CDC Task Force found that "[e]vidence was insufficient to determine the effectiveness of bans . . . for the prevention of violence."); *see also* Robert A. Hahn *et al*., *Firearms Laws and the Reduction of Violence: A Systematic Review*, 28 AM. J. PREV. MED. 40, 49 (2005) ("available evidence is insufficient to determine the effectiveness or ineffectiveness on violent outcomes of banning the acquisition and possession of [particular] firearms").

Response: Same as Response to paragraphs 13, 24 above and Defendants's Response to paragraphs 41 and 47 regarding the delay in the effectiveness of the federal ban.

60. If the AW ban were to be renewed, its effects on gun violence would likely to be small at best and perhaps too small for reliable measurement. Koper 2004 at 3. AWs were rarely used in gun crimes even before the ban. *Id*. at 3, 97. 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. Koper 2004 at 3, 19, 97.

Response: Same as Response to paragraphs 13, 23, 24, 36 and 41 above. In addition, Dr. Koper's more recent analysis indicates that while the federal ban did not appear to have a measurable effect on overall gun crime in terms of crimes committed (due to criminals' ability to substitute other guns in their crimes), the evidence does suggest a significant impact on the number of gun crimes involving assault weapons. Had the federal ban remained in effect over the long-term, moreover, it could have had a potentially significant impact on the number of crimes involving LCMs. (Koper Aff. at ¶59). By reducing the number of crimes in which assault weapons and LCMs are used and forcing criminals to use less lethal weapons and magazines, the federal ban could have potentially prevented hundreds of gunshot victimizations annually. It also could have reduced the lethality and injuriousness of those gunshot victimizations that do occur by reducing the number of wounds per victim. (*Id.* at ¶60).

The Impact of the Act

Plaintiffs

61. Members of Organization Plaintiffs Connecticut Citizens Defense League ("CCDL") and the Coalition of Connecticut Sportsmen ("CCS"), as well as the individual plaintiffs and business plaintiffs, possess and wish to acquire rifles, handguns, shotguns, and ammunition feeding devices, but are prevented from doing so by the Act's restrictions on "assault weapons," and "large capacity ammunition feeding devices." *See* Declaration of the CCDL's Scott Wilson ("Wilson Decl.") [Pl. 56(a)(1) Statement "Exhibit G"]; Affidavit of June Shew ("Shew Aff.") [Ms. Shew's affidavit was originally filed with the Court on 06/26/13 as "Exhibit D" (Doc. #15-6) in support of Plaintiffs' Motion for Preliminary Injunction];

Affidavit of Brian McClain ("McClain Aff.") [Mr. McClain's affidavit was originally filed with the Court on 06/26/13 as "Exhibit E" (Doc. #15-7) in support of Plaintiffs' Motion for Preliminary Injunction]; Affidavit of Stephanie Cypher ("Cypher Aff.") [Ms. Cypher's affidavit was originally filed with the Court on 06/26/13 as "Exhibit F" (Doc.#15-8) in support of Plaintiffs' Motion for Preliminary Injunction]; Affidavit of Mitchell Rocklin ("Rocklin Aff.") [Rabbi Rocklin's affidavit was originally filed with the Court on 06/26/13 as "Exhibit G" (Doc. #15-9) in support of Plaintiffs' Motion for Preliminary Injunction]; Affidavit of Peter Owens ("Owens Aff.") [Mr. Owens' affidavit was originally filed with the Court on 06/26/13 as "Exhibit H" (Doc. #15-10) in support of Plaintiffs' Motion for Preliminary Injunction]; Affidavit of Andrew Mueller ("Mueller Aff.") [Mr. Mueller's affidavit was originally filed with the Court on 06/26/13 as "Exhibit I" (Doc. #15-11) in support of Plaintiffs' Motion for Preliminary Injunction]; Affidavit of Michele DeLuca ("DeLuca Aff.") [Mr. DeLuca's affidavit was originally filed with the Court on 06/26/13 as "Exhibit L" (Doc. #15-14) in support of Plaintiffs' Motion for Preliminary Injunction]; and Declaration of Paul Hiller ("Hiller Decl.") [attached to Plaintiff's 56(a)(1) Statement as "Exhibit H"]. *See also*, Supplemental Decl. of June Shew ("Shew Supp'l Decl.") [attached to Plaintiff's 56(a)(1) Statement as "Exhibit I"].

Response: Defendants admit that this statement accurately reflects the cited source. However, Plaintiffs, many of whom possessed assault weapons and magazines with a capacity of more than ten rounds before the effective date of the ban in the Act, can continue to be in lawful possession of their assault weapons and LCMs provided they register them by January 1, 2014. *See* Public Act 13-3, § 24 and §§ 25-31.

62. Some members, individual plaintiffs, and business plaintiffs possess magazines with a capacity of more than ten rounds that are now criminalized by the Act. *See, e.g.*, Wilson Decl. at 2; Rocklin Aff. at 1; DeLuca Aff at 1. Other members and individual plaintiffs do not possess magazines with a capacity of more than ten rounds, but would possess those magazines forthwith but for the Act. Wilson Decl. at 2; Mueller Aff. at 1. Many members and individual plaintiffs would load more than ten rounds in their magazines for use in firearms kept in the home for self- protection, but cannot do so because of the Act. *See, e.g.*, Wilson Decl. at 2; Rocklin Aff. at 1; Mueller Aff. at 1; DeLuca Aff. at 1-3. Members, individual plaintiffs, and business plaintiffs are unaware how to modify magazines so they cannot "readily be restored or converted to accept" more than ten rounds. *See, e.g.*, Wilson Decl. at 2; Rocklin Aff. at 3.

Response: Same as Response to paragraph 61 above.

63. Some members, individual plaintiffs, and business plaintiffs possess arms now prohibited by the Act as "assault weapons" that were lawfully possessed prior to the passage of the Act. *See, e.g.*, Wilson Decl. at 2; Rocklin Aff. at 1; DeLuca Aff. at 1-3. But for the Act, still other members, individual plaintiffs, and business plaintiffs would forthwith obtain and possess "assault weapons" under the Act's new definitions. *See, e.g.*, Wilson Decl. at 2; Rocklin Aff. at 4-5; DeLuca Aff. at 1-3.

Response: Same as Response to paragraph 61 above. Moreover, there remain hundreds of alternative pistols, revolvers, rifles and shotguns that are both legal and adequate for Second Amendment purposes such as self defense in the home. (Delehanty Aff. at ¶¶29-32; Sweeney Aff. at ¶21).

64. As examples, some members, individual plaintiffs, and business plaintiffs possess, and other members, individual plaintiffs, and business plaintiffs would possess but for the Act, semiautomatic rifles that have an ability to accept a detachable magazine with a folding or telescoping stock, or a thumbhole stock; or any other stock which would allow an individual to grip the weapon, resulting in any finger on the trigger hand in addition to the trigger finger being directly below any portion of the action of the weapon when firing; or a forward pistol grip. *See, e.g.*, Wilson Decl. at 2-3; Owens Aff. at 4-5; DeLuca Aff. at 2.

Response: Same as Response to paragraph 61 above.

65. Further, some members, individual plaintiffs, and business plaintiffs possess semiautomatic rifles with detachable magazines and with a thumbhole stock. *See, e.g.*, Wilson Decl. at 3; DeLuca Aff. at 2. Such rifles are commonly used for hunting game and for target shooting. Wilson Decl. at 3; Shew Supp'l Decl. at 2. A thumbhole stock allows the rifle to be held more comfortably and fired more accurately, but it causes the rifle to be defined as an "assault weapon." Wilson Decl. at 3.

Response: Same as Response to paragraph 61 above.

66. But for the Act, other members, individual plaintiffs, and business plaintiffs would forthwith obtain and possess identical or similar rifles but may not do so in that they are now considered illegal "assault weapons." *See, e.g.*, Wilson Decl. at 3; Rocklin Aff. at 4; Mueller Aff. at 2-3.

Response: Defendants admit that this statement accurately reflects the cited source.

67. Being in possession of, or wishing to acquire, "assault weapons" and "large capacity ammunition feeding devices," members of the CCDL, the CCS, and other plaintiffs are subject to the Act's requirements regarding registration and converting magazines, and to the Act's serious criminal penalties, including incarceration, fines, forfeitures, and cancellation of licenses. *See, e.g.*, Wilson Decl. at 3; Rocklin Aff. at 1-2; Owens Aff. at 4-5; DeLuca Aff. at 3.

Response: Defendants admit that this statement accurately reflects the cited source.

68. Members, individual plaintiffs and business plaintiffs are unaware of how to convert "large capacity ammunition feeding devices" so that they will hold only ten rounds. *See, e.g.*,

Wilson Decl. at 3; Rocklin Aff. at 3; Owens Aff. at 4. Other members, individual plaintiffs and business plaintiffs might possess the technical ability to attempt such conversions, but are unaware of the definition of "readily converted or restored" or "permanent" that the State of Connecticut would apply to such conversions. *Id*. The Act contains no guidance in this regard, nor does it refer gun or magazine owners to other resources that can provide adequate guidance.

Response: The Act does not require anyone who lawfully possessed an LCM when the Act was passed to convert it into a magazine that can accept 10 rounds or less. Such individuals, like Plaintiffs, can declare possession of their LCM and leave it as is, or can simply buy a new magazine that is lawful under the Act. P.A. 13-3, §§ 23-24; P.A. 13-220, § 1(a)(1); § 2(a)(1). If a gun owner elects to convert a LCM to a lawful magazine instead of just purchasing a new magazine, he or she must ensure that the converted magazine cannot "be readily restored or converted" back to an LCM. For example, a magazine would be readily restorable if a gun owner were to insert a dowel plug into a 15-round magazine because the dowel plug would only temporarily prevent the loading of more than ten rounds into the magazine. That magazine could be "readily restored or converted" back to its 15-round capacity by the gun owner simply removing the dowel plug. (Cooke Aff. at ¶23). By contrast, for example, a magazine would be considered to be "permanently altered" from a 15-round magazine to a 10-round magazine if the gun owner or a gunsmith permanently affixed a plug into the base of the magazine that prevents the spring from being compressed to accept more than ten rounds of ammunition. (*Id.* at ¶24). A magazine cannot be readily restored or converted to accept more than ten rounds if it requires the services of a gunsmith to perform such a restoration or conversion or any attempts to restore it back would render it inoperable. (*Id.* at ¶22).

69. Plaintiff MD SHOOTING SPORTS ("MD") is in the business of gunsmithing, and buying and selling firearms and ammunition within and without the State of Connecticut. DeLuca Aff. at 1. MD's business has been harmed by the Act's restrictions on "assault weapons," and "large capacity ammunition feeding devices." *Id*. at 2.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source.

70. Prior to enactment of the Act, one segment of MD's business involved the purchase of "AR"-type firearms from out-of-state distributors and the sale of these "AR"-type firearms to customers. *Id*. at 1-2. Since the passage of the Act, MD's out-of-state distributors have stopped altogether the shipment of "AR"-type firearms to the Store due to concern and confusion over whether these types of arms can legally be shipped to, received by and/or sold by the holder of an FFL. *Id*. at 2. These reductions and stoppages have caused actual harm to MD's sales and overall business. *Id*.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source.

71. Another segment of MD's business involves the sale of ammunition magazines. Since the passage of the Act, MD's sales of magazines have declined significantly. *Id*. at 2.This decline involves magazines that hold more than ten rounds and those that hold less than ten rounds. This decline has caused actual harm to MD's sales and overall business. *Id*.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source.

72. One segment of the Store's business involves the receipt and transfer of firearms pursuant to the FFL the Store holds. *Id*. at 2. Since the passage of the Act, the volume of firearms that the Store received and transfers has declined significantly. *Id*. Before enactment of the Act, MD regularly received 5-7 used firearms per week that would be resold. *Id*. Now, however, MD only receives 1-2 used firearms per week. *Id*. This decline has caused actual harm to MD's sales and overall business. *Id*.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source.

73. Since the passage of the Act, MD's overall sales of rifles, pistols, and shotguns have declined significantly. *Id*. at 3. Mr. DeLuca has observed that this decline in sales involves firearms that contain some of the individual features that are banned by the Act (e.g., pistol grips, telescoping stocks, etc.), but also firearms that are not characterized by the Act as "assault weapons." *Id*. This decline is due, in large part, to customer confusion over which kinds of firearms are banned and which are not, as well as customer concern that purchasing a firearm will subject the customer to criminal prosecution. *Id*.

Response: Defendants admit that this statement accurately reflects the cited source. However, harm to Plaintiff's business is not material to the constitutionality of the Act.

74. Prior to enactment of the Act, MD typically did $2,000-$2,500 in business each weekday and $5,000 to $7,000 in business on Saturdays. After enactment of the Act, however, MD is only generally earning about $1,000 per weekday and $2,000 to $2,500 on Saturdays. *Id*. at 8.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source. However, harm to Plaintiff's business is not material to the constitutionality of the Act.

75. Plaintiff HILLER SPORTS LLC ("Hiller") is in the business of buying and selling firearms and ammunition within and without the State of Connecticut. Hiller Decl. at 1-2.

Hiller's business has been harmed by the Act's restrictions on "assault weapons," and "large capacity ammunition feeding devices." *Id*. at 2.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source. However, harm to Plaintiff's business is not material to the constitutionality of the Act.

76. The firearms sold by Hiller include rifles, pistols and shotguns. *Id*. at 2. Several models of these firearms are semi-automatic, and are capable of accepting detachable magazines. *Id*. Several models are AR-15 type modern sporting rifles. *Id*. Several of these same models also have characteristics such as pistol grips, forward grips, telescoping stocks, thumbhole stocks, and threaded barrels. *Id*. at 2. Threaded barrels permit the firearm to accept popular accessories such as shrouds and flash hiders. *Id*.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source.

77. The Act outlaws semi-automatic rifles that can accept detachable magazines, and also have a thumbhole stock, a telescoping stock, a forward grip, or any grip that permits the fingers of the trigger hand to rest below the firearm's action when firing. *Id*. at 2. These features are commonly found (either individually or in combination) on AR-15 type modern sporting rifles. *Id*.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source.

78. One segment of Hiller's business involves the purchase of "AR"-type firearms from out-of-state distributors and the sale of these "AR"-type firearms to customers. *Id*. at 3. Since the passage of the Act, several of Hiller's out-of-state distributors have stopped altogether the shipment of "AR"-type firearms to the Store due to concern and confusion over whether these types of arms can legally be shipped to, received by and/or sold by the holder of an FFL. *Id*. In fact, Hiller had to refund $100,000 of back orders on AR-15s to its customers because the wholesaler would not ship the AR-15s to fill them. *Id*. The sale of those types of firearms was a vast majority of Hiller's sales before the passage of the Act. These stoppages have caused actual harm to Hiller's sales and overall business. *Id*.

Response: This statement does not accurately reflect the cited source, which references a $50,000 refund amount. Moreover, harm to Plaintiff's business is not material to the constitutionality of the Act.

79. One segment of Hiller's business involves the sale of accessories for "AR"-type firearms. *Id*. at 3-4. These include, among other things, slings, rails, optics/scopes, grips, and cases. Since the passage of the Act, Hiller has not sold one accessory, whereas before the passage of the Act the sale of accessories kept pace with the sale of AR-type firearms. *Id*.

Response: This statement does not accurately reflect the cited source which references the sale of a small number of accessories. Moreover, harm to Plaintiff's business is not material to the constitutionality of the Act.

80. Another segment of Hiller's business involves the sale of ammunition magazines. *Id*. at 4. Since the passage of the Act, Hiller has returned all large capacity ammunition magazines and has asked, in turn, for the manufacturers to send it magazines that hold ten rounds. *Id*. Hiller is still waiting to receive those magazines from the manufacturers. *Id*. This scenario has caused actual harm to Hiller's sales and overall business. *Id*.

Response: Defendants admit that this statement of immaterial fact accurately reflects the cited source. Moreover, harm to Plaintiff's business is not material to the constitutionality of the Act.

81. Another segment of Hiller's business involves the receipt and transfer of large capacity magazines pursuant to the FFL Hiller holds. *Id*. at 4. Since the passage of the Act, Hiller no longer transfers large capacity magazines out-of-state because Hiller cannot profit from those transactions. *Id*. The supply to the out-of-state dealers is high and thus these transactions are not profitable. *Id*. This decline has caused actual harm to Hiller's sales and overall business. *Id*. Some customers who wanted to trade in their large capacity magazines have expressed dissatisfaction with Hiller's refusal to receive and transfer the magazines out-of-state. *Id*.

Response: Same as Response to paragraph 80 above.

82. Since the passage of the Act, Hiller's overall sales of rifles, pistols, and shotguns have declined significantly. *Id*. at 5. Mr. Hiller has observed that this decline in sales involves firearms that contain some of the individual features that are banned by the Act (e.g., pistol grips, telescoping stocks, etc.), but also firearms that are not characterized by the Act as "assault weapons." *Id*. This decline is due, in large part, to customer confusion over which kinds of firearms are banned and which is not, as well as customer concern that purchasing a firearm will subject the customer to criminal prosecution. *Id*.

Response: Same as Response to paragraph 80 above.

Ammunition Magazines

83. Magazines with a capacity of more than ten cartridges, and rifles and shotguns with telescoping stocks, pistol grips, and thumbhole stocks, are commonly possessed for lawful purposes in the millions by law-abiding citizens throughout the United States. *See* Declaration of Mark Overstreet ("Overstreet Decl.") [Pl. Prel. Inj. Exhibit A; Doc. #15-15] at 4-7; the National Shooting Sports Foundation *2010 Modern Sporting Rifle Comprehensive Consumer Report*) ("NSSF 2010 MSR Report") [Pl. Prel. Inj. Exhibit B; Doc. ## 15-2, 15-3,

and 15-4] at 27; Declaration of Guy Rossi ("Rossi Decl.") [Pl. Prel. Inj. Exhibit C; Doc. #15-5] at 2.

Response: Magazines with a capacity of more than ten cartridges are not commonly used for lawful purposes protected by the Second Amendment, which is the material issue relevant to the disposition of this case. Data from the NRA Institute for Legislative Action ("NRA-ILA") indicates that it is extremely rare for a person, when using a firearm in self-defense, to fire more than seven rounds. (Allen Decl. at ¶12). Indeed, a study of defensive firearm uses over a 5-year period from 1997 through 2001 found that, on average, 2.2 shots were fired by defenders and that 28% of incidents of armed citizens defending themselves the individuals fired no shots at all. (*Id*. at ¶13). A similar analysis of NRA-ILA accounts was performed for the 3-year period June 2010 – May 2013. According to this analysis, defenders fired on average 2.1 bullets. In only 1 out of 298 incidents, or less than 1% of incidents, was the defender reported to have fired more than 7 bullets. In 14% of incidents, the defender did not fire any shots, and simply threatened the offender with a gun. For incidents occurring in the home (57% total), defenders fired an average of 2.1 bullets, and fired no bullets in 13% of incidents in the home, or 7% of all incidents. (*Id*. at ¶15). Civilians do not need to have a 20, 30, or 40 round magazine in their home. (Mello Aff. at ¶35). The only situations where firing more than ten rounds may be necessary are in war, by law enforcement attempting to end a confrontation with a criminal, or in a controlled environment at a shooting range or a shooting competition. (*Id*. at ¶ 33; Rovella Aff. at ¶31). The only reason that a citizen would be disadvantaged by having to change out a magazine would be if she was engaged in rapid fire of her weapon. This is simply not an appropriate thing to do in a residential setting under almost any circumstance. (*Id*. at ¶36; *see* Sweeney Aff. at ¶¶6, 21; Rovella Aff. at ¶¶8, 39-41).

84. Magazines that hold more than more than ten rounds are commonplace to the point of being a standard for pistols and rifles: nationwide, most pistols are manufactured with magazines holding 10 to 17 rounds. Overstreet Decl. at 4-7; Rossi Decl. at 2. Many commonly possessed popular rifles are manufactured with magazines holding 15, 20, or 30 rounds. *Id*.

Response: Same as Response to paragraph 83 above.

85. A review of the current edition of GUN DIGEST, a standard reference work that includes specifications of currently available firearms, reveals that about two-thirds of the distinct models of semiautomatic centerfire rifles listed are normally sold with standard magazines that hold more than ten rounds of ammunition. GUN DIGEST 2013 455-64, 497-99 (Jerry Lee ed., 67th ed. 2012). And many rifles sold with magazines of smaller capacity nonetheless accept standard magazines of twenty, thirty, or more rounds without modification. *Id*. Similarly, about one-third of distinct models of semiautomatic handguns listed—even allowing for versions sold in different calibers, which often have different ammunition capacities—are normally sold with magazines that hold more than ten rounds.

Id. at 407-39. In both cases, but especially for handguns, these figures underestimate the ubiquity of magazines capable of holding more than ten rounds of ammunition, because they include many minor variations of lower-capacity firearms offered by low-volume manufacturers, such as those devoted to producing custom versions of the century- old Colt .45 ACP Government Model 1911.

Response: Defendants do not dispute that firearms including many pistols and rifles sold with LCMs (15, 20, 30 or more round magazines) can nonetheless accept standard magazines of smaller capacity without modification. Therefore, Plaintiffs can continue to use their lawful firearms with magazines that hold a maximum of ten rounds.

86. LCMs have been a familiar feature of firearms for more than 150 years. Indeed, many firearms with "large" magazines date from the era of ratification of the 14th Amendment: the Jennings rifle of 1849 had a twenty-round magazine, the Volcanic rifle of the 1850s had a thirty- round magazine, both the 1866 Winchester carbine and the 1860 Henry rifle had fifteen-round magazines, the 1892 Winchester could hold seventeen rounds, the Schmidt-Rubin Model 1889 used a detachable twelve-round magazine, the 1898 Mauser Gewehr could accept a detachable box magazine of twenty rounds, and the 1903 Springfield rifle could accept a detachable box magazine of twenty-five rounds. *See* GUN: A VISUAL HISTORY 170-71, 174-75, 180-81, 196-97 (Chris Stone ed., 2012); Military Small Arms 146-47, 149 (Graham Smith ed., 1994); WILL FOWLER AND PATRICK SWEENEY, WORLD ENCYCLOPEDIA OF RIFLES AND MACHINE GUNS 135 (2012); K.D. KIRKLAND, AMERICA'S PREMIER GUNMAKERS: BROWNING 39 (2013).

Response: Defendants have no basis to determine whether these immaterial facts cited above are even reflected in these sources, as Plaintiffs have not provided these sources to Defendants or the Court and they are not cited or relied upon by Plaintiffs' witnesses.

87. Annual ATF manufacturing and export statistics indicate that semiautomatic pistols rose as a percentage of total handguns made in the United States and not exported, from 50% of 1.3 million handguns in 1986, to 82% of three million handguns in 2011. Overstreet Decl. at 4-6. Standard magazines for very commonly owned semiautomatic pistols hold up to 17 rounds of ammunition. *Id*. In 2011, about 61.5% of the 2.6 million pistols made in the U.S. were in calibers typically using magazines that hold over ten rounds. *Id*.

Response: As semiautomatic pistol sold with a standard magazine of up to 17 rounds can nonetheless accept standard magazines of smaller capacity without modification. (See Paragraph 85 above).

88. In recent decades, the trend in semiautomatic pistols has been away from those designed to hold 10 rounds or fewer, to those designed to hold more than ten rounds.

Overstreet Decl. at 4-6. This tracks with trends among law enforcement and military personnel. *Id*.

Response: Same as Response to paragraphs 85 and 87 above.

89. Today, police departments typically issue pistols the standard magazines for which hold more than ten rounds. Overstreet Decl. at 4-6. One such pistol is the Glock 17, the standard magazines for which hold 17 rounds. *Id*. The standard magazine for our military's Beretta M9 9mm service pistol holds 15 rounds. *Id*. The M9 replaced the M1911 .45 caliber pistol, the standard magazine for which holds seven rounds. *Id*.

Response: Same as Response to paragraphs 85 and 87 above.

90. Magazines holding more than ten rounds are ubiquitous in the law enforcement community: currently, the nation's nearly one million law enforcement agents at the federal, state and local levels are virtually all armed with semiautomatic handguns with magazines holding more than ten, and as many as twenty, rounds of ammunition. *See* MASSAD AYOOB, THE COMPLETE BOOK OF HANDGUNS 50 (2013) (discussing police transition from revolvers to semiautomatics with large magazines); *id*. ("For a time in the 1980s, this Sig Sauer P226 was probably the most popular police service pistol") (fifteen-round magazines); *id*. at 87 ("Known as the Glock 22, this pistol is believed to be in use by more American police departments than any other. Its standard magazine capacity is 15 rounds."); *id*. at 89 ("On the NYPD, where officers have a choice of three different 16-shot 9mm pistols for uniform carry, an estimated 20,000 of the city's estimated 35,000 sworn personnel carry the Glock 19."); *id*. at 90 ("The most popular police handgun in America, the Glock is also hugely popular for action pistol competition and home and personal defense.").

Response: Same as Response to paragraphs 85 and 87 above.

91. Beginning with the M1 Carbine, introduced in the 1940s, rifles equipped with detachable magazines holding more than ten rounds have been increasingly common: there are about two million privately owned M1 Carbines currently in existence, the standard magazines for which hold 15 or 30 rounds. Overstreet Decl. at 6-7.

Response: The number of M1 Carbines currently in existence is immaterial to the constitutionality of the Act, and Defendants have no basis upon which to admit or dispute whether the M1 Carbine is 2 million of the approximately 300 million guns in civilian hands in the United States, or 2%. Moreover, if an M1 Carbine with a large capacity magazine was possessed in Connecticut prior to the passage of the Act, it can continue to be lawfully possessed if the owner registers it by January 1, 2014. *See* Public Act 13-3, § 24. A gun owner can also use a non-LCM in their M1 Carbine. (See Response to paragraphs 85 and 87 above).

92. There are approximately 4 million AR-15 type rifles currently in existence, and these are typically sold with between one and three 30-round magazines. Overstreet Decl. at 6-7. Ruger Mini-14 series rifles, which may outnumber M1 Carbines and AR-15s combined, have the capacity to accept magazines that hold more than ten rounds, and many are equipped with such magazines. *Id*. Numerous other rifle designs use magazines holding more than 10 rounds. *Id*. An unknown number in the millions of such rifles exist in private ownership. *Id*.

Response: Same as Response to paragraphs 85 and 87 above.

93. The actual number of magazines made or imported each year is not known, since the ATF does not require manufacturers to report magazine production. Overstreet Decl. at 6. However, estimates are set forth in the Koper 2004 report. Overstreet Decl. at 6. Koper reported that, as of 1994, 18% of civilian-owned firearms, including 21% of civilian-owned handguns, were equipped with magazines holding over ten rounds, and that 25 million guns were equipped with such magazines. *Id*. Some 4.7 million such magazines were imported during 1995-2000. *Id*.

Response: Same as Response to paragraphs 85 and 87 above. Moreover, these facts are immaterial to the relevant issue of whether LCMs are necessary or commonly used for self defense. The data indicate they are not. An analysis of the NRA's own reports of firearm use in self defense, both within the home and elsewhere, "demonstrated that in 50% of all cases, two or fewer shots were fired, and the average number of shots fired across the entire data sample was about two." (Exh. 61 at 16-17; *see* http://gunssavelives.net/self-defense/analysis-of-five-years-of-armed-encounters-with-data-tables/ (last visited September 23, 2013) (Exh. 57)).

94. Koper further reported that, as of 1994, 40% of the semiautomatic handgun models and a majority of the semiautomatic rifle models manufactured and advertised before the Ban were sold with, or had a variation that was sold with, a magazine holding over ten rounds. Overstreet Decl. at 7.

Response: Same as Response to paragraph 92 above.

Remanufacturing of Ammunition Magazines

95. Connecticut residents who wish retain "large capacity" magazines criminalized by the Act must remanufacture them so that they cannot be "readily restored or converted" to hold more than ten rounds.

Response: The Act does not require anyone who lawfully possessed an LCM when the Act was passed to convert it into a magazine that can accept 10 rounds or less. Such individuals can declare possession of their LCM and leave it as is, or can simply buy a new magazine that is lawful under the Act. P.A. 13-3, §§ 23-24; P.A. 13-220, § 1(a)(1); § 2(a)(1). Connecticut citizens who lawfully possessed LCMs as of April 5, 2013

may continue to do so as long as they register them by January 1, 2014. *See* Public Act 13-3, § 24. If an individual does not wish to register an LCM, he or she can simply purchase a new magazine that holds less than 10 rounds instead of remanufacturing their existing LCM.

96. Remanufacturing or conversion of magazines so that they cannot be readily restored or converted to hold more than ten rounds of ammunition would require engineering know-how, parts, and equipment that are beyond the capacity of most law-abiding gun owners. Rossi Decl. at 2. *See also, e.g.*, McClain Aff. at 3; Rocklin Aff. at 3; Cypher Aff. at 3.

Response: Same as Response to paragraph 95 above.

97. No such products or services that would permit the plaintiffs to restore or convert grandfathered magazines by themselves are currently available on the market. Rossi Decl. at 2. Magazine model and design types number in the hundreds or the thousands. *Id*.

Response: Denied. (*See* Cooke Aff. at ¶24). Further, Plaintiffs need not undertake a conversion of their magazines. They can simply declare the LCMs they own by January 4, 2014 or purchase new lawful non-LCM magazines.

Tubular Ammunition Magazines

98. The "capacity" of tubular magazines for rifles and shotguns varies with the length of the cartridges or shells inserted therein. *Peoples Rights Org., Inc. v. City of Columbus*, 152 F.3d 522, 536 n.15 (6th Cir. 1998). They may hold no more than ten of one length, but more than ten of another length.

Response: Admitted. However, firearms with fixed tubular magazines are manufactured to accept standard lengths and caliber of round. A gun owner can consult the specifications associated with his or her firearm to determine the type, length and number of standard rounds that the magazine can accept. The specifications should be provided with the firearm when it is purchased, and are available online, in gun publications or from the manufacturer. (Delehanty Aff. at ¶46). If a firearm owner is concerned that a tubular magazine can fit more than ten of any nonstandard rounds, then he or she can simply have the magazine permanently altered by a gunsmith so that it cannot fit more than ten of any round. *Id.* at ¶ 47.

Further, although tubular magazines often can accept different rounds of the same caliber that have varying lengths, the variance in the number of cartridges that may fit in a ten round tubular magazine usually is no more than 1-2 rounds depending upon the caliber used. (*Id.* at ¶43). Further, the definition of large capacity magazines under the Act specifically exempts .22 caliber tube ammunition feeding devices and tubular magazines that are contained in a lever action firearm. Most rifles with tubular magazines are either .22 caliber or lever action. (*See id.* at ¶44). Shotguns can also have

tubular magazines, but most shotguns cannot fit more than ten shotgun shells of any length in the tubular magazine unless the gun owner has made a special effort to alter and extend the magazine. (*Id.* at ¶45).

Common Features Banned by the Act

99. The Act defines the term "assault weapon" so as to criminalize features that are commonly found on rifles, pistols and shotguns. CONN. GEN. STAT. § 53-202a. These features include telescoping stocks, pistol grips, and thumbhole stocks. *Id*. Telescoping stocks, pistol grips, and thumbhole stocks promote the safe and comfortable use of a firearm, and also promote firing accuracy. Rossi Decl. at 2-5.

Response: The banned features are not commonly found on rifles, pistols and shotguns. (*See* Koper Aff. at 17 (noting that assault weapons were only 1% of the gun stock in 1994). Further, these features are appropriately banned because they either help criminals conceal themselves from law enforcement, conceal their weapons, enhance the firepower available to shooters, and prolong any shooting incident where law enforcement and innocent civilians may be indiscriminately murdered. (Sweeney Aff. at ¶19). After the enactment of Connecticut's original ban, and an adoption of a military features test in 2001, gun manufacturers made minor modifications to their firearms to evade the features test. (*See* Sweeney Aff. at ¶¶16-17; *see also* Koper Aff. at ¶¶46, 72; Exh. 43 at 2, 4-6 (VPC "On Target")).

Telescoping Stocks

100. A stock is that part of a firearm a person holds against the shoulder when shooting. *See* diagram attached to Pl. 56(a)(1) Statement "Exhibit J." It provides a means for the shooter to support the firearm and easily aim it. Rossi Decl. at 4.

Response: Admit. Defendants note, however, that a collapsing or telescoping stock may allow a criminal to more easily conceal an assault weapon in clothing or a pack therefore posing a risk to law enforcement and civilians. (Sweeney Aff. at ¶19). These features are appropriately banned because they either help criminals conceal themselves from law enforcement, conceal their weapons, enhance the firepower available to shooters, and prolong any shooting incident where law enforcement and innocent civilians may be indiscriminately murdered. *Id.*

101. A "telescoping stock" allows the length of the stock to be shortened or lengthened consistent with the length of the person's arms, so that the stock fits comfortably against the shoulder and the rear hand holds the grip and controls the trigger properly. Rossi Decl. at 4-5. It simply allows the gun to fit the person's physique correctly, in the same manner as one selects the right size of shoe to wear. *Id*. For example, a telescoping stock allows a hunter to change the length of the stock depending on the clothing appropriate for the weather encountered. *Id*. Shooting outdoors in fall and winter require heavy clothing and a shooting

vest, thus requiring shortening the stock so that the firearm can be fitted for proper access to the trigger. *Id*. The gun may be adjusted to fit the different sizes of several people in a family or home. *Id*. A gun that properly fits the shooter promotes greater shooting accuracy. *Id*.

Response: A shooter's personal comfort is not material to the constitutionality of the Act. Moreover, collapsing or telescoping stocks pose public safety threats. (*See* Response to paragraphs 99 and 100 above).

102. A telescoping stock does not make a firearm more powerful or more deadly. *Id*.

Response: Same as Response to paragraph 101 above.

Pistol Grips

103. A pistol grip is a grip of a shotgun or rifle shaped like a pistol stock. Exhibit J. A pistol grip allows a rifle to be held at the shoulder with more comfort and stability. Rossi Decl. at 5. Many rifles have pistol grips rather than straight grips. *Id*.

Response: Features like the pistol grip, forward pistol grip and thumbhole stocks allow shooters to steady the weapon during rapid firing, and also make it easier to spray bullets from the hip or fire the weapon with only one hand. (Sweeney Aff. at ¶18).

104. Pistol grips serve two basic functions. The first is assisting sight-aligned accurate fire. Rossi Decl. at 5. Positioning the rear of the stock into the pocket of the shoulder and maintaining it in that position is aided by the pistol grip, and is imperative for accurate sight alignment and thus accurate shooting with rifles of this design, due to the shoulder stock being in a straight line with the barrel. *Id*. With the forward hand holding the fore-end, the rearward hand holding the grip, and the butt securely against the shoulder, a rifle may be fired accurately. *Id*. The more consistent the shooter's eye is in relation to the line of the stock and barrel, the more accurate the shot placement. *Id*.

Response: Same as Response to paragraph 103 above.

105. The second function of the pistol grip is firearm retention, imperative, for example, during a home invasion when assailant(s) may attempt to disarm a citizen in close quarters. Rossi Decl. at 5.

Response: Same as Response to paragraph 103 above.

106. A pistol grip does *not* function to allow a rifle to be fired from the hip. Rossi Decl. at 5. . (emphasis added). Sight alignment between the eye and firearm is not conducive to spray or hip fire. Rossi Decl. at 5. Conversely, a rifle with a straight grip and no pistol grip would

be more conducive to firing from the hip. Rossi Decl. at 5. Firing from the hip would be highly inaccurate and is simply not a factor in crime. *Id.*

Response: Same as Response to paragraph 103 above.

107. A pistol grip ("conspicuous" or otherwise) does not make a firearm more powerful or deadly. Rossi Decl. at 5.

Response: Same as Response to paragraph 103 above.

Thumbhole Stocks

108. A thumbhole stock is simply a hole carved into the stock of a rifle through which a user inserts his or her thumb. Rossi Decl. at 5. Thumbhole stocks allow the rifle to be held with more comfort and stability and, thus, fired more accurately. *Id.*

Response: Same as Response to paragraph 103 above.

109. A thumbhole stock does not make a rifle more powerful or more lethal. *Id.*

Response: Same as Response to paragraph 103 above.

Firearms Affected By The Act's Restrictions

110. The Act's broadened definition of "assault weapon" impacts a wide range of firearms, all of which are regularly used for lawful and legitimate purposes like hunting, sporting competitions and self defense. Rossi Decl. at 2. The pistols, rifles and shotguns criminalized by these restrictions are immensely popular and have widespread use throughout the United States. *Id.*

Response: Denied. The only issue of material fact regarding the number of firearms prohibited by the Act is whether there remain adequate alternative firearms for citizens to keep and bear for protected Second Amendment purposes. There remain lawful in Connecticut many of the most popular pistols, revolver, rifles and shotguns that are alternative firearms to be lawfully purchased and used by gun owners for lawful and responsible Second Amendment purposes such as self defense and home defense. A recent issue of "Gun Digest" lists numerous rifles that can lawfully be purchased in Connecticut after the Act: 7 semi-automatics; 62 lever actions; 4 pump actions; 115 bolt actions; and 73 single shot. The same issue also lists numerous lawful handguns: over 300 semi-automatic pistols; 86 revolvers; 59 single action revolvers; and 21 derringers and single shot handguns. The same issue also lists numerous lawful handguns: over 300 semi-automatic pistols; 86 revolvers; 59 single action revolvers; and 21 derringers and single shot handguns. It similarly lists numerous lawful shotguns: 58 semi-automatics; 33 pump actions; 59 over unders; 30 side by sides; 31 bolt and single

shots; 1 lever; and 14 double rifles and drillings. There are also 25 rimfire semi-automatic rifles; 12 lever and pump or slide rifles; and 37 bolt action and single shot rifles listed. This is not an exhaustive list of firearms that remain lawful in Connecticut. (*See* Delehanty Aff. at ¶¶29-32).

Moreover, Plaintiffs exaggerate the "immense popularity" of their favored assault rifle, the AR-15, which is the primary focus in this litigation. AR-15 type rifles are not commonly owned in the United States. There are at least 3.97 million AR -15 type rifles that have been manufactured in the United States for the commercial market. Pl. Prel. Inj. Exhibit A, ¶ 5. It is estimated that there are about 300 million firearms in the nation. (*See* Exh. 65). Therefore, AR-15 type rifles make up around 1% of the gun market. Furthermore, according to the Modern Sporting Rifle Report, 60% of modern sporting rifle owners owned multiple rifles, and nearly 44% of the owners were current or former military/law enforcement. *See* Pl. Prel. Inj. Exhibit B. Since individual AR-15 rifle owners are possess multiple AR-15s the number of owners is far less than the number of rifles and likely less than 1% of gun owners.

Lastly, even assuming arguendo the "wide spread use" and "immense popularity" of these weapons for sporting, hunting, and recreational purposes, these are not purposes protected by the Second Amendment and are not a basis upon which to strike down the Act as unconstitutional.

111. One type of rifle that is directly impacted by the Act's restrictions is arguably the most popular: the AR-15 type of Modern Sporting Rifle ("MSR"). Overstreet Decl. at 2-4; NSSF 2010 MSR Report. Colt introduced the AR-15 SP-1 rifle in 1963. Overstreet Decl. at 2. Since that time, "AR-15" has become a generic term commonly used to describe the same or similar MSRs made by Colt and other manufacturers. *Id*.

Response: Same as Response to paragraph 110 above.

112. AR-15 model MSRs (and all other rifles called "assault weapons" under the Act) are semiautomatic, meaning that they are designed to fire only once when the trigger is pulled. Overstreet Decl. at 2. As a general matter, semiautomatic firearms are extremely common in the U.S. (Overstreet Decl. at 2-4), having flooded the handgun market for at least twenty (20) years. *See* Koper 2004 at 81 (80% of handguns produced in 1993 were semiautomatic). *See also* David B. Kopel, *Rational Basis Analysis of "Assault Weapon" Prohibition*, 20 J. CONTEMP. L. 381, 413 (1994) ("semiautomatics are more than a century old"). "Sixty percent of gun owners [own] some type of semiautomatic firearm." Nicholas J. Johnson, *Supply Restrictions at the Margins of Heller and the Abortion Analogue*, 60 HASTINGS L.J. 1285, 1293-95 (2009).

Response: The statement is not material because it fails to distinguish between semiautomatic weapons generally and assault weapons banned by the Act. The Act does not affect most semiautomatic firearms, just a small subset of semiautomatic

firearms that are not commonly used for lawful, Second Amendment purposes. *See* Conn. Gen. Stat. § 53-202a(A)-(D); *see also* Response to paragraph 110 above.

113. AR-15 MSRs are not fully automatic machine guns, which continue to fire so long as the trigger is pressed. Overstreet Decl. at 2. AR-15 model MSRs have the capacity to accept a detachable magazine. *Id*. Standard magazines for AR-15 MSRs hold 20 or 30 rounds of ammunition, but magazines of other capacities are also available. *Id*. AR-15 MSRs also have a pistol grip typically 3 ¾ to 4 inches in length that protrudes at a rearward angle beneath the action of the rifle. *Id*.

Response: The above statement appears to be accurate except for Plaintiffs' euphemistic reference to AR-15s as "Modern Sporting Rifles" or MSRs ,when they are in fact civilian versions of the military's M-16. (Delehanty Aff. at ¶¶20-21).

114. The AR-15 is the semi-automatic civilian sporting version of the select-fire M16 rifle and M4 carbine used by the United States military and many law enforcement agencies. See Declaration of Gary Roberts ("Roberts Decl.") [Pl. 56(a)(1) Statement "Exhibit K"].

Response: Same as Response to paragraph 113 above.

115. The AR15 is extremely common in America. Roberts Decl. at 14-16. As a result of being used by the military for nearly 50 years, perhaps more Americans have been trained to safely operate the AR15 than any other firearm, as there are approximately 25 million American veterans who have been taught how to properly use an AR15 type rifle through their military training, not to mention in excess of 1 million American law enforcement officers who have qualified on the AR15 over the last several decades, as well as numerous civilian target shooters and hunters who routinely use AR15s. *Id*. Since so few military service members, particularly those not on active duty, get enough training and practice with their M16 or M4 service rifle, many military Reservists and National Guard personnel, as well as some active duty service members, have purchased civilian AR15s in order to train and practice on their own time with a rifle offering similar ergonomics and operating controls as the service weapon they are issued in the military. *Id*.

Response: Defendants do not dispute that members of the military train and practice on the M16 or M4 and purchase AR15s to train on as M16 because the two rifles are virtually identical. That does not make the AR15 "extremely common in America." *See* Response to paragraph 110 above.

116. U.S. Government data sources (such as ATF manufacturing and export statistics) and nationwide market and consumer surveys (such as the National Shooting Sports Foundation ("NSSF") *Modern Sporting Rifle Comprehensive Consumer Report*) indicate that the AR-15 MSR is one of the most widely and commonly possessed rifle in the United States. Overstreet Decl. at 2-4.

Response: Same as Response to paragraph 110 above.

117. Between 1986-2011, over 3.3 million AR-15s were made and not exported by AR-15 manufacturers whose production can be identified from government data sources. Overstreet Decl. at 2-4.

Response: Same as Response to paragraph 110 above.

118. In 2011, there were 6,244,998 firearms (excluding fully-automatic firearms, i.e., machine guns) made in the U.S. and not exported. *Id*. Of these, 2,238,832 were rifles, including 408,139 AR-15s by manufacturers whose production figures could be discerned from the ATF reports. *Id*. Thus, AR-15s accounted for at least 7% of firearms, and 18% of rifles, made in the U.S. for the domestic market that year. *Id*.

Response: Same as Response to paragraph 110 above.

119. From 1986 through 2011, U.S.-made firearms accounted for 69% of all new firearms available on the commercial market in the United States. *Id*. Even with the inclusion of imported firearms into the above calculations, AR-15s would account for a significant percentage of new firearms available in the United States. *Id*.

Response: Same as Response to paragraph 110 above.

120. The FBI reports that background checks processed through the National Instant Criminal Background Check System (NICS), most of which are conducted for retail purchases of firearms by consumers, increased 14.2 % in 2011 as compared to 2010; 19.1 % in 2012 as compared to 2011; and 44.5 % during the first three months of 2013 as compared to the same period in 2012. Overstreet Decl. at 2-4.

Response: Defendants admit that these statistics are accurate. However, actual gun ownership in households has declined over the past four decades, even if the number of firearms purchased is increasing. (*See* Exhs. 64 and 65). The household gun ownership rate has fallen from an average of 50 percent in the 1970s to 49 percent in the 1980s, 43 percent in the 1990s, 35 percent in the 2000s, and 34 percent in 2012. (*Id.*). The household gun ownership rate is even less in Connecticut – at only 16.2% of Connecticut households reporting a gun owner in the home. (Exh. 38). So even assuming the accuracy of these facts, they are not material to the question of a Second Amendment individual right because even if more guns are being bought, they are being bought by fewer people.

121. If the 2011-2013 trend for AR-15 rifle production was identical to that for NICS checks, it would mean that nearly 660,000 AR-15s were made in the U.S. and not exported during 2012 and the first three months of 2013. *Id*. That figure, added to the over 3.3 million

noted earlier, implies a conservative estimate of 3.97 million AR-15s for the period 1986-March 2013, excluding production by Remington and Sturm, Ruger. Overstreet Decl. at 2-4.

Response: Same as Response to paragraph 110 above.

122. The NSSF 2010 MSR Report (Doc. ## 15-2, 15-3, 15-4) illustrates the lawful and legitimate reasons supporting the MSR's popularity and common use as of 2010. According to this report, 60% of MSR owners that responded to the study owned multiple MSRs. NSSF 2010 MSR Report at 7-8. Recreational target shooting and home defense were the top two reasons for owning an MSR. *Id*. Beyond this, MSR owners consider accuracy and reliability to be the two most important things to consider when buying a MSR. *Id*. Those who shoot often are much more likely to own multiple MSRs. *Id*. 3 out of 4 people who shoot twice a month or more own multiple MSRs. *Id*. 60% of MSR owners use a collapsible/folding stock. *Id*. One-third of all MSR owners use a 30- round magazine in their MSR. *Id*.

Response: Same as Response to paragraph 110 above.

123. The firearms characterized as "assault weapons" under the Act, have been widely and legally used for sporting purposes (as well as for self-defense and hunting) throughout Connecticut and the United States for decades. *See* Wilson Decl. at 4; Shew Supp'l Decl. at 2.

Response: Same as Response to paragraph 110 above.

124. There are numerous shooting competitions for non-military personnel that have taken place throughout the State of Connecticut for years that regularly and legally used the firearms now classified as "assault weapons" to compete. *See* Wilson Decl. at 4; Shew Supp'l Decl. at 2. For example, timed competitions known as "3 Gun Shoots" and "2 Gun Shoots" were regularly held at such places as the Metacon Gun Club in Weatogue, CT, and the Rockville Fish & Game Club in Vernon, CT. *Id*. These matches were and are extremely popular, have been taking place throughout Connecticut for years, and have been attended throughout the years by hundreds (and likely thousands) of individual and member plaintiffs. *Id*.

Response: This immaterial fact may or may not be true, Defendants lack sufficient information upon which to admit or deny immaterial facts about shooting competitions and need not do so for this Court to enter summary judgment for Defendants in this case.

125. In this sense, the argument that the firearms now classified as "assault weapons" are not used by private citizens for sporting competitions is simply untrue. *Id*.

Response: This immaterial fact may or may not be true, Defendants lack sufficient information upon which to admit or deny this fact and need not do so.

Moreover, recreational purposes or subjective preferences for a firearm are not a basis upon which to strike down a law as unconstitutional.

Suitability of the AR-15 MSR For Home Defense

126. It is widely accepted that the AR15 chambered in a .223/5.56 mm caliber is the firearm best suited for home defense use. Roberts Decl. at 14-16. *See also* J. Guthrie, *Versatile Defender: An Argument for Advanced AR Carbines in the Home*, in BOOK OF THE AR-15 134 (Eric R. Poole, ed. 2013) ("If a system is good enough for the U.S. Army's Delta and the U.S. Navy SEALs, surely it should be my weapon of choice, should I be a police officer or Mr. John Q. Public looking to defend my home"); Eric Poole, *Ready To Arm: It's Time to Rethink Home Security*, in GUNS & AMMO, BOOK OF THE AR-15 15-22 (Eric R. Poole, ed. 2013) (discussing virtues of the AR-15 platform as a home defense weapon); Mark Kayser, *AR-15 for Home & the Hunt*, In PERSONAL & HOME DEFENSE 28-29, 30-31(2013) (advising use of AR-15 for self-defense in the home and recommending customizing with accessories).

Response: Denied. AR-15 assault rifles may not be most suitable for home defense use in many situations, and certainly are not required for adequate self defense, which is the only issue of material fact relevant to the question of self defense. Assault weapons are not needed, or necessarily the best choice, for reasonable home and self defense by citizens. (*See* Sweeney Aff. at ¶6; Rovella Aff. at ¶8; Mello Aff. at ¶10). Assault style weapons particularly those using large capacity magazines and high velocity rifle rounds pose too many risks of over penetration, down range injuries and disproportionate response by civilians. (Sweeney Aff. at ¶21). Assault rifles in particular are not well suited for self defense in the home in an urban environment because they typically take a .223 caliber round, which could easily pass through the walls of many dwellings and result in shooting of unintended victims such as family members, passers-by or neighbors. (Rovella Aff. at ¶39).

Furthermore, the typical homeowner has little training in weapons; in many instances just the National Rifle Association course that is taken to qualify for a gun permit in Connecticut. This type of training does not prepare a homeowner for the stress of a gun confrontation. A homeowner could use the weapon recklessly in a stressful situation such as a home invasion and would respond disproportionately by firing off excessive rounds. This could result in serious personal injury to innocent bystanders and first responders. These are weapons for war zones, not the homes and streets of communities. (*Id*. at ¶40).

127. The AR15 .223/5.56 mm caliber carbine configuration is extremely common. Roberts Decl. at 14-16. In fact, it is the carbine configuration most commonly used by law enforcement officers today. *Id*. This configuration (i.e., 5.56 mm 55 grain cartridges fired from 20" barrel M16A1 rifles) was the U.S. military standard ammunition in the 1960s and 1970s. *Id*. The roots of the .223/5.56 mm cartridge commonly used in the AR15 come from a

caliber designed for small game varmint hunting and used to eliminate small furry rodents and animals up to coyote size. *Id*.

Response: Same as Response to paragraph 110 above.

128. During defensive shooting encounters, shots that inadvertently miss the intended target in close quarter battle and urban environments can place innocent citizens in danger. Roberts Decl. at 14-16. In general, .223/5.56 mm bullets demonstrate less penetration after passing through building structural materials than other common law enforcement and civilian calibers. *Id*. All of the .223/5.56 mm bullets recommended for law enforcement use offer reduced downrange penetration hazards, resulting in less potential risk of injuring innocent citizens and reduced risk of civil litigation in situations where bullets miss their intended target and enter or exit structures compared with common handgun bullets, traditional hunting rifle ammunition, and shotgun projectiles. *Id*.

Response: Same as Response to paragraph 126 above.

The Impact Of The Act On Crime

129. The Act's restriction on the number of rounds loaded in a magazine is unlikely to have any detectable effect on the number of homicides or violent acts committed with firearms. *See* Declaration of Gary Kleck ("Kleck Decl.") [Pl. Prel. Inj. Exhibit K; Doc. # 15-13)] at 2. Criminals will be even less likely to be affected by the LC magazine restriction than non-criminals. *Id*. It is the law-abiding citizens who will primarily be impacted by the restriction. *Id*.

Response: Plaintiff's assertions that "[c]riminals will be even less likely to be affected by the LC magazine restriction than non-criminals," and "[i]t is the law-abiding citizens who will primarily be impacted by the restriction" do not have any evidentiary support other than Dr. Kleck's references to his own self-serving and not well regarded studies. (Pl. Prel. Inj. Exhibit K; see Exhs. 56 and 60). Second, and more importantly, even accepting Plaintiffs' claim that the Act does not reduce the number of gun crimes overall, the Act will have the effect of reducing the lethality of gunshot victimizations. (*See* Responses to paragraphs 24, 41 and 60 above).

130. The Act's limitation of the number of rounds allowable for a firearm in the home impairs a homeowner's ability to successfully defend himself or herself during a criminal attack in the home because: (a) victims often face multiple criminal adversaries; and (b) people miss with most of the rounds they fire, even when trying to shoot their opponents. Kleck Decl. at 3. In 2008, the NCVS indicated that 17.4% of violent crimes involved two or more offenders, and that nearly 800,000 crimes occurred in which the victim faced multiple offenders. *Id*.

Response: Victims of gun crime almost never fire more than seven rounds in self defense, in any situation. (*See* Exhs. 57 and 58). Further, national rates of gun homicide and other violent gun crimes are strikingly lower now than during their peak in the mid-1990s, paralleling a general decline in violent crime, according to the Pew Report. Compared with 1993, the peak of U.S. gun homicides, the firearm homicide rate was 49% lower in 2010, and there were fewer deaths, even though the nation's population grew. The victimization rate for other violent crimes with a firearm—assaults, robberies and sex crimes—was 75% lower in 2011 than in 1993. Violent non-fatal crime victimization overall (with or without a firearm) also is down markedly (72%) over two decades. (*See* Pl. 56(a)(1) Statement, Exhibit A). Moreover, Dr. Kleck is not an expert in self defense so his unsubstantiated statement does not meet the Rule 56 requirement that evidence in support of summary judgment be admissible.

131. Like civilians, police officers frequently miss their targets: numerous studies have been done of shootings by police officers in which the officers were trying to shoot criminal adversaries. Kleck Decl. at 3. In many of these shootings, the officers fired large numbers of rounds. *Id*. Yet, in 63% of the incidents, the officers failed to hit even a single offender with even a single round. Kleck Decl. at 3. Police officers have the experience, training, and temperament to handle stressful, dangerous situations far better than the average civilian, so it is reasonable to assume marksmanship among civilians using guns for self-protection will be still lower than that of police. *Id*.

Response: This paragraph is not material because, even if they are inaccurate, victims of gun crime almost never fire more than seven rounds in self defense, in any situation. (*See* Exhs. 57 and 58). Further, a lack of accuracy on the part of civilians in self defense situations is a legitimate concern for law enforcement officials and policy makers, and not a basis upon which to permit or encourage the possession of assault weapons and LCMs by average citizens who Plaintiffs contend will miss their target with a large percentage of their shots.

In fact, this is a reason why assault weapons and LCMs are not appropriate for home defense. The typical homeowner has little training in weapons; in many instances just the National Rifle Association (NRA) course that is taken to qualify for a gun permit in Connecticut. This type of training does not prepare a homeowner for the stress of a gun confrontation. A homeowner could use the weapon recklessly in a stressful situation such as a home invasion, and would respond disproportionately by firing off excessive rounds. This could result in serious personal injury to innocent bystanders and first responders. Assault weapons are for war zones, not the homes and streets of our communities. (*See* Rovella Aff. at ¶40; Sweeney Aff. at ¶21).

In regard to LCMs, the only reason a citizen would be disadvantaged by having to change out a magazine would be if she was engaged in rapid fire of her weapon. This is simply not an appropriate thing to do in home defense, particularly in an urban area. (Rovella Aff. at ¶41). A shotgun would be an appropriate weapon for home defense

because it would spray a lot of pellets, and almost invariably hit the intruder while at the same time causing minimal collateral damage. (*Id.* at ¶43).

132. Some law-abiding citizens, along with many criminals, might invest in multiple ten-round magazines in the absence of larger capacity magazines – a development which obviously defeats the purpose of the magazine capacity limit. Kleck Decl. at 3. Beyond that, however, some people will not be able to make effective use of additional magazines. *Id*.

Response: Some law-abiding citizens might invest in multiple 10 round magazines, but deny that that defeats the purpose of the Act. Limiting the number of rounds in a magazine means that a shooter intent on firing bullets indiscriminately has to at least pause periodically to change out his magazine. While a trained shooter can change a magazine in seconds in a controlled environment, the stress of the situation may substantially increase the time it takes a criminal to change the magazine during a criminal attack. Sometimes seconds is all a police officer needs to respond and stop the attack. (Mello Aff. at ¶30). Furthermore, the short period of time of a magazine change can be of value to victims too, because those fleeting seconds can provide an opportunity for him or her to either flee or attempt to thwart the ongoing gun attack. (*Id*. at ¶ 31, Exh. 49). Moreover, if Plaintiffs can own multiple ten-round magazines, along with the "grandfathered" LCMs that should be more than enough ammunition with which to defend themselves, even in their hypothesized "multiple assailant" situations. Finally, for those individuals who cannot effectively use additional magazines, Plaintiffs admit that they can simply use a second or third loaded weapon. (Kleck Aff. at 4-5).

133. The restrictions on LC magazines will have an inconsequential impact on reducing homicides and violent crimes. Kleck Decl. at 3-4. Criminals rarely fire more than ten rounds in gun crimes. *Id*. Indeed, they usually do not fire any at all – the gun is used only to threaten the victim, not attack him or her. *Id*. For the vast majority of gun crimes, the unavailability of LC magazines would therefore be inconsequential to deterring the criminal behavior. *Id*.

Response: Evidence suggests that gun attacks with semiautomatics—especially assault weapons and other guns equipped with large capacity magazines—tend to result in more shots fired, more persons wounded, and more wounds per victim, than do gun attacks with other firearms. There is evidence that victims who receive more than one gunshot wound are substantially more likely to die than victims who receive only one wound. Thus, it appears that crimes committed with these weapons are likely to result in more injuries, and more lethal injuries, than crimes committed with other firearms. (Koper Aff. at ¶8). Bans on assault weapons and large-capacity magazines, and particularly a ban on LCMs, thus have the potential to prevent and limit gunshot victimizations over the long-run. (See *id*. at ¶77).

134. A ban on LC magazines will have an inconsequential effect on reducing the number of killed or injured victims in mass shootings. Kleck Decl. at 4-5. The presumption is false

that an offender lacking LC magazines would be forced to reload sooner or more often, thereby giving bystanders the opportunity to tackle him and stop his attacks. *Id*. Analysis of mass shootings in the United States shows it is exceedingly rare that victims and bystanders in mass shootings have tackled shooters while they are reloading. *Id*. This is particularly true because most mass shooters bring multiple guns to the crimes and, therefore, can continue firing without reloading even after any one gun's ammunition is expended. *Id*. at 4-5. A study of every large-scale mass shooting committed in the United States in the 10-year period from 1984 through 1993 found that the killers in 13 of these 15 incidents possessed multiple guns. Kleck Decl. at 4-5.

Response: Denied. There are several instances in which it has been documented that a shooting was interrupted during a magazine change. (Mello Aff. at ¶¶30-32; Sweeney Aff. at ¶¶14-15, 20; Rovella Aff. at ¶¶29-30; *see* (Exh. 49; Exh. 59 at ¶¶18-19; *see also* Rossi Decl. at 6-10 (Doc. No. 15-5) (discussing impacts of delays in firing caused by magazine changes).

Also, a graduate student at George Mason University recently analyzed data about mass public killings for his Master's thesis, and compared the number of deaths and fatalities across cases that involved assault weapons and large capacity magazines, and those that did not. With regard to assault weapons, although he found no difference in the average number of fatalities, he did find an increase in gunshot victimization. Specifically, he found that an average of 11.04 people were shot in public mass shootings involving assault weapons, compared to 5.75 people shot in non-assault weapon cases. This is a statistically significant finding, meaning that it was not likely due to chance. As a result, the total average number of people killed and injured in assault weapon cases was 19.27, compared to 14.06 in non-assault weapon cases. (Koper Aff. at ¶¶23, 33). A person is 63% more likely to die if he or she receives two or more gunshot wounds than if he or she receives just one. (Koper Aff. at ¶38).

135. The Act's restrictions on rifles and shotguns that contain so-called "Assault Weapon" characteristics will not further the goals of reducing homicides or violent crimes or improving public safety. Kleck Decl. at 6.

Response: Denied. The Act strengthens the assault weapons ban by moving it to a "one-feature" test rather than the "two-feature" test that existed under the federal ban and Connecticut's original ban. This change is likely to substantially limit—if not eliminate—the ability of gun manufacturers to quickly adopt minor cosmetic changes to their firearms that make them technically legal but that circumvent the purpose and effect of the law to remove military style assault weapons from civilian use. In doing so, the Act is likely to meaningfully limit the number of weapons with military-style characteristics considered conducive to criminal applications in Connecticut, and to further reduce the use of such weapons in crime. (Koper Aff. at ¶72; Sweeney Aff. at

¶¶16-17). Such reductions in turn will reduce the lethality of gun crime when it does occur. (Koper Aff. at ¶¶10, 60-61, 76-77).

136. Criminals are just as likely to use non-banned firearms that function the same as firearms falling within the so-called "assault weapon" ("AW") definition under the Act. Kleck Decl. at 6-7. Under the Act, though some semi-automatic firearms are banned, other semi-automatic firearms are left legally available, including (a) unbanned models; (b) currently banned models that are redesigned to remove the features that make them AWs; and (c) firearms that would otherwise be banned as AWs but are grandfathered into lawful status because they were manufactured before September 13, 1994, or were lawfully possessed before January 15, 2013. *Id*. Thus, firearms will continue to be available that function in essentially identical ways as the banned firearms – i.e., they can accept detachable magazines (including LC magazines), can be fired just as fast, and can fire rounds that are, shot-for-shot, just as lethal as rounds fired from the banned firearms. *Id*. Consequently, criminals can substitute mechanically identical firearms for banned AWs, commit the same crimes they otherwise would have committed with the banned firearms, with the same number of wounded or killed victims. *Id*.

Response: Defendants admit that thousands of lawful firearms remain available to citizens to use for protected Second Amendment purposes as well as other lawful purposes such as hunting, recreation and sport shooting. *See also* Response to paragraph 110 above. While those lawful firearms are perfectly adequate for self defense, they are less lethal than the banned weapons and pose less of a threat to the public safety. (Koper Aff. at ¶¶8, 77).

137. The Act's expanded definition and ban of "assault weapons" will make little difference on public safety by reducing crimes committed with firearms. Kleck Decl. at 6-7. Criminals who do not currently possess or use banned AWs have no need to acquire substitute weapons because they will presumably continue to use the firearms they currently possess. Kleck Decl. at 7.

Response: Denied. While the ban on assault weapons alone may not reduce the incidence of gun crime it will reduce the lethality of gun crime incidents when they do occur, particularly when the assault weapon ban is coupled with the LCM ban. The assault weapon ban will also likely make a difference in some of the most traumatic and serious types of gun crime – killing of law enforcement officers and mass public shootings and mass killings. *See e.g.* Responses to paragraph 13, 24, 41, and 60 above.

138. All attributes of AWs that *do* make them more useful for criminal purposes (i.e., accuracy, the ability to fire many rounds without reloading) are present in easily-substituted, unbanned, counterpart firearms. Kleck Decl. at 7. More importantly, these same attributes increase the utility of AWs for *lawful* self-defense or various sporting uses. *Id*.

Response: Defendants admit that thousands of lawful firearms remain available to citizens to use for protected Second Amendment purposes as well as other lawful purposes such as hunting, recreation and sport shooting. *See also* Response to paragraph 110 above.

139. In self-defense situations where it is necessary for the crime victim to shoot the criminal in order to prevent harm to the defender or others, accuracy is crucial for the victim. Kleck Decl. at 8. Where it is necessary for a crime victim to shoot the aggressor, and only lethal or incapacitating injury will stop him, the lethality of the defender's firearm is a precondition to her ability to end the criminal attack, and prevent harm to herself and other potential victims. *Id*.

Response: The Act leaves many other firearms, including many handguns, rifles and shotguns, available to the public to use for self-defense. Notably, it does not ban the sale or possession of the many semiautomatic pistols or rifles with detachable magazines that have no banned features. (Mello Aff. at ¶37; Delehanty Aff. at ¶31). Moreover, Plaintiffs have adduced no evidence, other than self-serving and dubious assertions by Dr. Kleck, who is not an admissible expert in self defense, that gun crime victims routinely, or ever, fire more than ten rounds during a gun crime incident. *See* Response to paragraph 83 above. Law enforcement officials who are witnesses for Defendants in this case could not recall one incident in Connecticut in their career in which a civilian appropriately fired more than ten rounds in a legitimate self defense, home defense or business defense situation.

140. Where a crime victim faces multiple adversaries, the ability and need to fire many rounds without reloading is obvious. Kleck Decl. at 8. The ability to fire rapidly may be essential to either deter offenders from attacking, or failing that, to shoot those aggressors who cannot be deterred. *Id*. at 8. This is because some of the defender's shots will miss, and because the offender(s) may not allow the victim much time to shoot before incapacitating the victim. *Id*. Regardless of how an AW is defined, restricting firearms with the attributes that make them useful for criminal purposes necessarily restricts firearms possessing attributes that make them more effective for lawful self-defense. *Id*.

Response: Denied. Victims of gun crime almost never fire more than seven rounds in self defense, in any situation. (*See* Exhs. 57 and 58). Further, Plaintiffs once again have adduced no actual evidence to support their assertion that ten rounds of ammunition is not adequate for self defense. There is no rational argument for why a civilian needs to have a 20, 30 or 40 round magazine in her or his home. (Mello Aff. at ¶35). The only reason that a citizen would be disadvantaged by having to change out a magazine would be if she was engaged in rapid fire of her weapon. This is simply not an appropriate thing to do in a residential setting under almost any circumstance. (*Id*. at ¶ 36; Rovella Aff. at ¶41). A shotgun would be an appropriate weapon for home defense because it would spray a lot of pellets, and almost invariably hit the intruder

while at the same time causing minimal collateral damage. (Rovella Aff. at ¶4; *See* Sweeney Aff. at ¶21).

141. The Act's ban on firearms defined as "assault weapons" will not deter criminals from using them to commit crimes or from finding substitute firearms with the same features, and will simultaneously deny law-abiding citizens access to those weapons to defend themselves. Kleck Decl. at 8.

Response: The Act is likely to meaningfully limit the number of weapons with military-style characteristics considered conducive to criminal applications in Connecticut, and to further reduce the use of such weapons in crime. (Koper Aff. at ¶72). Moreover, even if the ban on assault weapons alone does not reduce the incidence of gun crime because criminals use substitute firearms, the ban will still have an effect because it will reduce the lethality of gun crime incidents when they do occur, particularly when the assault weapon ban is coupled with the LCM ban. The assault weapon ban will also likely make a difference in some of the most traumatic and serious types of gun crime – killing of law enforcement officers and mass public shootings and mass killings. *See e.g.* Responses to paragraph 13, 24, 41, and 60 above.

142. While either criminals or prospective crime victims *could* substitute alternative weapons for banned "AWs," criminals are more likely to actually do so because they are more powerfully motivated to have deadly weapons. Kleck Decl. at 8. This would be especially true of the extremely rare mass shooters, who typically plan their crimes in advance and thus are in a position to take whatever time and effort is needed to acquire substitute weapons. *Id*. Further, even ordinary criminals are strongly motivated to acquire firearms both for purposes of committing crimes and for purposes of self-defense. *Id*. at 9. Because criminals are victimized at a rate higher than non-criminals, this means that they have even stronger self-defense motivations to acquire and retain guns than non-criminals. *Id*. In contrast, many prospective crime victims do not face an imminent threat at the time they consider acquiring a gun for self-protection, have a weaker motivation to do whatever it takes to acquire their preferred type of firearm, and are therefore less likely to do so. *Id*.

Response: *See* Response to paragraph 141 above. In addition, Plaintiffs' last sentence in this paragraph regarding "prospective crime victims" is immaterial because Plaintiffs have adduced no evidence that a "preferred type of firearm" is constitutionally required for self defense when ample alternative firearms remain legal and available.

143. It is virtually a tautology that criminals will disobey the AW ban at a higher rate than non-criminals. Kleck Decl. at 9.

Response: This statement of immaterial fact regarding the subjective mindset of all criminals may or may not be true, it simply does not matter to the disposition of this case. If assault weapons are banned their presence in the gun market will decrease

overtime and thereby become less available to criminals irrespective of a criminal's willingness to violate the prohibition. Moreover, many mass killers obtain their weapons lawfully. (Exh. 44 at 1).

The Impact Of The Act On Self-Defense

144. Limiting plaintiffs' ability to possess a magazine containing more than ten rounds of ammunition in one's home severely compromises their ability to defend themselves, their families, and their property. Rossi Decl. at 6-10.

Response: Denied. Victims of gun crime almost never fire more than seven rounds in self defense, in any situation. (*See* Exhs. 57 and 58). Further, Plaintiffs have not cited any evidence to support their assertion that ten rounds of ammunition is not adequate for self defense. There is no rational argument for why a civilian needs to have a 20, 30 or 40 round magazine in her or his home. (Mello Aff. at ¶35). The only reason that a citizen would be disadvantaged by having to change out a magazine would be if she was engaged in rapid fire of her weapon. This is simply not an appropriate thing to do in a residential setting under almost any circumstance. (*Id*. at ¶36; Rovella Aff. at ¶41). A shotgun would be an appropriate weapon for home defense because it would spray a lot of pellets, and almost invariably hit the intruder while at the same time causing minimal collateral damage. (Rovella Aff. at ¶4; *See* Sweeney Aff. at ¶21).

The Ability to Aim Under Stress

145. The Act's ten-round limitation assumes that all homeowners will never need to fire more than ten rounds to defend themselves, that they own multiple firearms, or that they will be able to switch out their firearms' magazines while under criminal attack. Rossi Decl. at 6. However, a homeowner under the extreme duress of an armed and advancing attacker is likely to fire at, but miss, his or her target. *Id*. Nervousness and anxiety, lighting conditions, the presence of physical obstacles that obscure a "clean" line of sight to the target, and the mechanics of retreat are all factors which contribute to this likelihood. Rossi Decl. at 6.

Response: Denied. Victims of gun crime almost never fire more than seven rounds in self defense, in any situation. (*See* Exhs. 57 and 58). Further, Plaintiffs have not cited any evidence to support their assertion that ten rounds of ammunition is not adequate for self defense. (*See* Response to paragraph 144 above). If a gun owner is concerned about accuracy of aim, a conventional shotgun would be an appropriate weapon for home defense because it would spray a lot of pellets, and almost invariably hit the intruder while at the same time causing minimal collateral damage. (Rovella Aff. at ¶4; *see* Sweeney Aff. at ¶21).

146. Highly trained police officers are not immune to the stressors affecting the ability to aim well under pressure: the 2010 New York City Police Department's *Annual Firearms*

Discharge Report ("NYPD AFDR") (available at http://www.nyc.gov/html/nypd/downloads/pdf/analysis_and_planning/afdr_20111116.pdf) provides detailed information on all incidents in which NYPD officers discharged their weapons in 2010. Rossi Decl. at 9. In that year there were thirty-three (33) incidents of the police intentionally discharging firearms in encounters of adversarial conflict. Rossi Decl. at 8; NYPD AFDR at p.8, Figure A.10. 65% of these incidents took place at a distance of less than ten (10) feet. *Id*. NYPD AFDR at p.9, Figure A.11. In 33% of these incidents, the NYPD officer(s) involved fired more than seven (7) rounds. *Id*. NYPD AFDR at p.8, Figure A.10. In 21% of these incidents, the NYPD officer(s) fired more than ten (10) rounds. *Id*.

Response: *See* Response to paragraphs 126 and 145 above.

147. If highly trained and experienced NYC police officers required the use of at least eight rounds in 1/3rd of their close-range encounters to subdue an aggressive assailant, it stands to reason that a "green" civilian gun owner under duress (and certainly far less experienced and trained than a NYC police officer) would need at least that many rounds to subdue an armed assailant with his or her home. *Id*. at 9.

Response: *See* Response to paragraphs 126 and 145 above. Moreover, once again, hypothetical or imagined scenarios, not supported by a reasonable basis in fact, are immaterial to the constitutionality of the Act.

148. Under such expected conditions and with such likely results, it is of paramount importance that a homeowner have quick and ready access to ammunition in quantities sufficient to provide a meaningful opportunity to defend herself and/or her loved ones. *Id*. at 6. It is equally important that the homeowner under attack have the capability to quickly and efficiently re-load a firearm after all of the rounds it holds are fired. *Id*. However, many homeowners cannot re-load quickly or efficiently due to such factors as age, physical limitations, and the stress/anxiety produced by a potentially life-threatening situation. *Id*.

Response: *See* Response to paragraphs 126 and 145 above. Moreover, once again, hypothetical or imagined scenarios, not supported by a reasonable basis in fact, are immaterial to the constitutionality of the Act.

Delayed Reaction Time Under Stress

149. Violent criminal attacks frequently occur suddenly and without warning, leaving the victim with very little time to fire the firearm to save herself. Rossi Decl. at 6. Reaction time under stress is complicated and can be attributed to many physiological, psychological and environmental factors. *Id*. The most basic premise breaks down into three factors: the ability for an individual to perceive a threat (Perceptual Processing), the ability to make a decision (Cognitive Processing), and lastly the ability of the brain to send messages to the muscles to react (Motor Processing). Rossi Decl. at 6-7.

Response: Same Response as paragraph 148 above.

150. This processing takes, minimally, several seconds without consideration to other factors such as distractions, noise, multiple assailants, lighting conditions, nervousness and fatigue. Rossi Decl. at 6-7.

Response: Same Response as paragraph 148 above.

Loading and Re-Loading Difficulties for the Physically Disabled

151. Loading a firearm requires two hands, and is a far more difficult task when someone is physically handicapped, or one hand is wounded during an attack. Rossi Decl. at 7-8. Having more rounds in a magazine allows the victim to better protect himself or herself without the need to reload especially if handicapped, disabled or injured. *Id*. at 8.

Response: Denied. Victims of gun crime almost never fire more than seven rounds in self defense, in any situation. (*See* Exhs. 57 and 58). Further, Plaintiffs have not cited any evidence to support their assertion that ten rounds of ammunition is not adequate for self defense for any victim. There is no rational argument for why a civilian needs to have a 20, 30 or 40 round magazine in her or his home. (Mello Aff. at ¶35). The only reason that a citizen would be disadvantaged by having to change out a magazine would be if she was engaged in rapid fire of her weapon. This is simply not an appropriate thing to do in a residential setting under almost any circumstance. (*Id*. at ¶36; Rovella Aff. at ¶41). A shotgun would be an appropriate weapon for home defense because it would spray a lot of pellets, and almost invariably hit the intruder while at the same time causing minimal collateral damage. (Rovella Aff. at ¶4; *see* Sweeney Aff. at ¶21).

152. Plaintiff Peter Owens and Plaintiff Stephanie Cypher are but two examples.

Response: No response is required because this statement is an incomplete sentence.

153. Mr. Owens is physically disabled. Owens Aff. at 2. When he was four years old he suffered a stroke and lost the functional use of the left side of his body. *Id*. As a result, he cannot use most of his left hand or arm. *Id*. He owns several pistols and rifles with magazines having capacities over ten rounds. *Id*.

Response: Defendants admit that this statement accurately reflects the cited source.

154. In order to change a magazine Mr. Owens must discard the spent magazine from his firearm, tuck the empty firearm under his left arm, pick up a new magazine with his right hand, insert the new magazine into the firearm and then continue firing. *Id*. Since he cannot

use his left hand, it takes him more time to exchange an empty magazine for a full one than it does an able- bodied shooter. *Id*. The ten-round limitation will require Mr. Owens to switch out the magazines of his pistols more frequently if confronted with a sudden home invasion, robbery, or other attack. *Id*. Therefore, Mr. Owens' ability to defend himself and property with these pistols is substantially compromised by the ten-round limitation. *Id*.

Response: Defendants admit that this statement accurately reflects the cited source. However, Mr. Owen's unique personal circumstances are not material to Plaintiff's facial constitutional challenge. Even in an as applied context, if Mr. Owens possessed magazines with a capacity of more than ten rounds on April 5, 2013, he can continue to lawfully possess them as long as he registers them by January 1, 2014. *See* Public Act 13-3, § 24.

155. Plaintiff Stephanie Cypher is similarly impacted by the limitation. *See* Cypher Aff. at 1, 2. Ms. Cypher is physically disabled, losing her right arm to cancer at 12 years old. *Id*. Ms. Cypher owns several firearms, all with magazine capacities of over ten rounds. *Id*. 164. In light of her physical limitations, the ten-round limitation increases her vulnerability during a home invasion. *Id*. at 2.

Response: Defendants admit that this statement accurately reflects the cited source. However, this is not material to Plaintiff's facial constitutional challenge. Even in an as applied context, if Ms. Cypher possesses magazines with a capacity of more than ten rounds, that are now prohibited by the Act, she can continue to be in lawful possession of them if they were lawfully possessed prior to April 5, 2013, provided they are registered by January 1, 2014. *See* Public Act 13-3, § 24.

156. Since Ms. Cypher can only use her left hand, it takes her more time to exchange an empty magazine for a full one than it does an able-bodied shooter. *Id*. at 2. In order to change a spent magazine, Ms. Cypher must place her firearm down on a bench or table, press the magazine eject button, wiggle the magazine free, exchange the spent magazine for a new one, and then pick up the firearm and continue shooting. *Id*. at 2.

Response: *See* Response to paragraph 155 above.

157. Like Mr. Owens, Ms. Cypher must switch out the magazines of her firearm more frequently under the Act if confronted with a sudden home invasion, robbery, or other attack. *Id*. Her ability to defend herself and her property is, likewise, substantially compromised by the ten- round limitation. *Id*.

Response: *See* Response to paragraph 155 above.

Loading and Re-Loading Difficulties for All Gun Owners

158. The physiological reaction to the "stress flood" produced by an armed attack, the time delay caused by loading/re-loading a firearm, the loss of defensive use of the non-dominant arm and hand during loading/re-loading, and the attention distraction caused by loading/re-loading a firearm are factors that effect able-bodied gun owners as well as those who are handicapped. Rossi Decl. at 8-10.

Response: Same Response as paragraph 151 above.

159. Under the "stress flood" of a life or death encounter the blood within one's body is re-routed to the larger muscles so as to allow a "flee or fight" response Rossi Decl. at 8-9. This physiological reaction to extreme stress causes significant reloading difficulty during an attack due to loss of fine motor control in the fingers. *Id*. Trying to push a magazine release or align a magazine with the magazine well with fingers that are shaking and weakened due to blood loss is very difficult for a seasoned veteran soldier or police officer who expects this phenomena. Rossi Decl. at 8.

Response: The stress experienced by a prospective victim is the same stress experienced by a mass shooter. Law enforcement could thwart an attack if a mass shooter is required to reload a firearm, thereby benefiting from the mass shooter's sympathetic nervous system reaction. (*See* Mello Aff. at ¶31, Rovella Aff. at ¶39). Unlike mass shooters, civilians do not typically fire more than ten rounds even in a legitimate self defense situation. *See e.g.* Response to paragraph 151.

160. It is far more difficult for a civilian who has never been trained that such changes will occur, or trained during realistic scenario-based training, or who is experiencing a life-threatening attack for the first time. *Id*. at 9.

Response: Assault weapons are not needed, or necessarily the best choice, for reasonable home and self defense by citizens. (*See* Sweeney Aff. at ¶6, Rovella Aff. at ¶8, Mello Aff. at ¶10). Assault style weapons particularly those using large capacity magazines and high velocity rifle rounds pose too many risks of over penetration, down range injuries and disproportionate response by civilians. (Sweeney Aff. at ¶21). Assault rifles in particular are not well suited for self defense in the home in an urban environment because they typically take a .223 caliber round, which could easily pass through the walls of many dwellings and result in shooting of unintended victims such as family members, passers-by or neighbors. (Rovella Aff. at ¶39).

Furthermore, the typical homeowner has little training in weapons; in many instances just the National Rifle Association course that is taken to qualify for a gun permit in Connecticut. This type of training does not prepare a homeowner for the stress of a gun confrontation. A homeowner could use the weapon recklessly in a stressful situation such as a home invasion and would respond disproportionately by

firing off excessive rounds. This could result in serious personal injury to innocent bystanders and first responders. These are weapons for war zones, not the homes and streets of communities. *Id*. at ¶ 40.

161. Police and civilians who train in defensive handgun use learn to draw a loaded handgun, quickly acquire a sight picture, and place two shots on the attacker's upper center of mass. Rossi Decl. at 9. Optimally, all this can be accomplished in a little over two seconds. *Id*. The process of loading the handgun will take at least a few extra seconds. *Id*. Extensive practice can reduce how long it takes a person to load a firearm under stress, but that time cannot be reduced to zero. *Id*. Accordingly, the simple time delay of loading a spent firearm may result in the success of a violent attacker who otherwise could have been thwarted. *Id*.

Response: Same Response as paragraph 151 above.

162. Carrying an unloaded firearm will often not provide a viable means of self-defense and would frequently result in a situation where the assailant has closed the distance on the victim so that the assailant is on the person of the victim. Rossi Decl. at 9. The victim is left with a firearm she needs to retain so that she is not shot with her own gun. *Id*. At best then, the firearm becomes a bludgeoning tool. *Id*.

Response: *See* Response to paragraphs 126 and 145 above. Moreover, once again, hypothetical or imagined scenarios, not supported by a reasonable basis in fact, are immaterial to the constitutionality of the Act.

163. The delay in loading a firearm has additional deadly implications. Rossi Decl. at 10. While the left arm and hand are being used to load the handgun, they cannot be used for anything else. *Id*. The victim is more vulnerable because both hands are occupied. *Id*. The non-gun hand becomes useless to fend off the attacker or to deflect the attacker's knife, stick, or other weapon. *Id*.

Response: *See* Response to paragraphs 126 and 145 above. Moreover, once again, hypothetical or imagined scenarios, not supported by a reasonable basis in fact, are immaterial to the constitutionality of the Act.

164. Further, if the victim were to be grabbed during the loading of the firearm, the sympathetic nervous system reaction of clenching one hand to retain the magazine, or simply tightening muscles under stress would further limit the victim's ability to complete the loading of the firearm. Rossi Decl. at 10.

Response: This statement is not material to the constitutionality of the Act. Furthermore, the stress experienced by a prospective victim is the same stress experienced by a mass shooter. Law enforcement could thwart an attack if a mass shooter is required to reload a firearm, thereby benefiting from the mass shooter's

sympathetic nervous system reaction. (*See* Mello Aff. at ¶31; Rovella Aff. at ¶39). Moreover, civilians almost never fire more than ten rounds even in a legitimate self defense situation. *See e.g.* Response to paragraph 151.

DISPUTED ISSUES OF MATERIAL FACT

Defendants have cross moved for summary judgment and have submitted their own Rule 56(a)(1) statement in support of their motion. Accordingly, it is Defendants position that the truly material and undisputed facts are contained in Defendants' Local Rule 56(a)(1) statement filed this day. Much of Plaintiffs' 164 paragraphs of "material" facts above contained extraneous and irrelevant information and inadmissible assertions that this Court need not resolve in order to enter judgment for Defendants' in this case. Because Defendants position is that summary judgment for Defendants is appropriate in this case, they do not separately list "disputed issues of material fact" here.

Respectfully Submitted,

DEFENDANTS
DANNEL P. MALLOY, et al.

GEORGE JEPSEN
ATTORNEY GENERAL

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CERTIFICATION

I hereby certify that on October 11, 2013, a copy of the foregoing Defendants' Rule 56(a)(2) Statement was filed electronically. Notice of this filing will be sent by e-mail to all parties by operation of the Court's electronic filing system. Parties may access this filing through the Court's system.

BY :*/s/ Maura Murphy Osborne*
Maura Murphy Osborne

UNITED STATES DISTRICT COURT
DISTRICT OF CONNECTICUT

JUNE SHEW, et al.	:	**No. 3:13-CV-0739 (AVC)**
Plaintiffs,	:	
	:	
v.	:	
	:	
DANNEL P. MALLOY, et al.	:	
Defendants.	:	**OCTOBER 11, 2013**

DEFENDANTS' EXHIBIT LIST

Exhibit 1 - Public Act 13-3

Exhibit 2 - Public Act 13-220

Exhibit 3 - Public Act 93-306

Exhibit 4 - Public Act 01-130

Exhibit 5 - Excerpts from Senate Debates on Public Act 13-3

Exhibit 6 - Excerpts from Senate Debates on Public Act 93-360

Exhibit 7 - Governor's Sandy Hook Advisory Commissioner Interim Report

Exhibit 8 - Governor's Legislative Proposals

Exhibit 9 - Federal ban (1994)

Exhibit 10 - Delehanty Affidavit

Exhibit 11 - Delehanty Affidavit – Photos of gun engravings

Exhibit 12 - Delehanty Affidavit – Picture of tubular magazine

Exhibit 13 - Delehanty Affidavit – Excerpts from Gun Digest

Exhibit 14 - Mattson Affidavit

Exhibit 15 – DESPP Form DPS-3-C

Exhibit 16 - Cooke Affidavit

Exhibit 17 - ATF Study (July 1989)

Exhibit 18 - ATF Profile (April 1994)

Exhibit 19 - ATF Study (April 1998)

Exhibit 20 - ATF Study (January 2011)

Exhibit 21 - H.R. Rep. 103-489 (1994)

Exhibit 22 - Excerpts from LCAV Comparative Evaluation

Exhibit 23 - Rovella Affidavit

Exhibit 24 - Hartford Gun Seizure Data

Exhibit 25 - Hartford 2012 End of Year Statistics

Exhibit 26 - Koper Affidavit

Exhibit 27 - Koper Curriculm Vitae

Exhibit 28 - *Impact Evaluation of the Public Safety and Recreational Firearms Use Protection Act of 1994: Final Report*. The Urban Institute, March 13, 1997 ("Koper 1997")

Exhibit 29 - *Updated Assessment of the Federal Assault Weapons Ban: Impacts on Gun Markets and Gun Violence, 1994-2003*, Christopher S. Koper, July 2004 ("Koper 2004")

Exhibit 30 - *America's Experience with the Federal Assault Weapons Ban, 1994-2004, Key Findings and Implications*, Christopher S. Koper (chapter in Reducing Gun Violence in America: Informing Policy with Evidence and Analysis) ("Koper 2013")

Exhibit 31 - Washington Post Study (January 13, 2011)

Exhibit 32 - Washington Post Study (January 23, 2011)

Exhibit 33 - Mello Affidavit

Exhibit 34 - Sweeney Affidavit

Exhibit 35 - Connecticut Gun Crime Tracing Data

Exhibit 36 - CDC 2005-2010 Homicide Firearm Deaths Rates per 100,000

Exhibit 37 - CDC 2010 Gun Violence and Death Statistics (LCPGV Summary) and CDC 2010 Homicide Firearm Deaths Rates per 100,000

Exhibit 38 - American Academy of Pediatrics Article with Household Gun Ownership data by State (Sept. 8 2005)

Exhibit 39 - Brady Center "Mass produced mayhem" (2008)

Exhibit 40 - VPC "Officer Down"

Exhibit 41 - VPC "Assault Pistols" (2013)

Exhibit 42 - Brady Center "On Target" (2004)

Exhibit 43 - VPC "On Target" (2004)

Exhibit 44 - Mother Jones Article (February 2013)

Exhibit 45 - Mother Jones Charts of Mass Shootings and Weapons Used

Exhibit 46 - Mother Jones Article (January 30, 2013)

Exhibit 47 - VPC Chart of Mass Shootings (as of July 2013)

Exhibit 48 - Mayors Against Illegal Guns Study (2013)

Exhibit 49 - Media reports about interrupted mass shootings

Exhibit 50 - Media reports about shooting of Newington Police Officer, and the mass shootings at the Hartford Beer Distributors & Connecticut Lottery

Exhibit 51 - Connecticut State Police Press Release (March 28, 2013)

Exhibit 52 - VPC "Militarization" (2011)

Exhibit 53 - Testimony of Brian J. Siebel, Brady Center to Prevent Gun Violence (Oct. 1, 2008)

Exhibit 54 - Excerpts from United States Army M16/M4 Training Manual

Exhibit 55 - VPC "Justifiable Homicide" Study (2013)

Exhibit 56 - *Benjamin v. Bailey*, Docket No. CV 93-0063723 (Conn. Super. 1994)

Exhibit 57 - NRA Story Corner Study

Exhibit 58 - Allen Declaration

Exhibit 59 - Zimring Declaration

Exhibit 60 - The Gun Debate's New Mythical Number: How Many Defensive Uses Per Year? Philip J. Cook; Jens Ludwig; David Hemenway, *Journal of Policy Analysis and Management*, Vol. 16, No. 3, Special Issue: The New Public Management in New Zealand and beyond. (Summer, 1997)

Exhibit 61 - Prepared Testimony by Laurence H. Tribe, Carl M. Loeb University Professor and Professor of Constitutional Law, Harvard Law School, *Proposals to Reduce Gun Violence: Protecting Our Communities While Respecting the Second Amendment*, Senate Judiciary Committee Subcommittee on the Constitution, Civil Rights and Human Rights. February 12, 2003

Exhibit 62 - Excerpts from *Extreme Killing: Understanding Serial and Mass Murder*, James Alan Fox, Jack Levin (2d ed. 2012)

Exhibit 63 - Eugene Volokh, *Implementing the Right to Keep and Bear Arms for Self-Defense: An Analytical Framework and a Research Agenda*, 56 UCLA L. Rev. 1443 (2009)

Exhibit 64 - Gun Ownership Article (NY Times Mar 2013)

Exhibit 65 - Gun Ownership data (GSS 2010)

Exhibit 66 – Excerpts from TRO Bench Ruling in *Tardy v. O'Malley*, Docket No. CCB-13-2841 (D.Md. Oct. 1, 2013)

Exhibit 67 - Siegel Study (2013)

Exhibit 68 - Mother Jones "More Mass Shootings" (Sept. 26, 2012)

Exhibit 69 - Media Reports Re: High Profile Incidents of Criminal Use of Assault Weapons and LCMs

Respectfully Submitted,

DEFENDANTS
DANNEL P. MALLOY, et al.

GEORGE JEPSEN
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CERTIFICATION

I hereby certify that on October 11, 2013, a copy of the foregoing Defendants' Exhibit List was filed electronically. Notice of this filing will be sent by electronic mail to all parties by operation of the Court's electronic filing system. Parties may access this filing through the Court's system.

/s/ Maura Murphy Osborne
Maura Murphy Osborne

EXHIBIT 1

2013 Conn. Legis. Serv. P.A. 13-3 (S.B. 1160) (WEST)

CONNECTICUT 2013 LEGISLATIVE SERVICE

2013 January Regular Session of the General Assembly

Additions are indicated by Text; deletions by
~~Text~~ .
Vetoes are indicated by ~~Text~~ ;
stricken material by Text .

P.A. No. 13–3
S.B. No. 1160
FIREARMS—OMNIBUS AMENDMENT

AN ACT CONCERNING GUN VIOLENCE PREVENTION AND CHILDREN'S SAFETY.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. Section 29–37a of the general statutes is repealed and the following is substituted in lieu thereof (Effective from passage):

<< CT ST § 29–37a >>

(a) For the purposes of this section, "long gun" means a firearm, as defined in section 53a–3, other than a pistol or revolver.

(b) (1) Except as provided in subdivision (2) of this subsection, no person, firm or corporation may sell, deliver or otherwise transfer, at retail, any long gun to any person under eighteen years of age.

(2) No person, firm or corporation may sell, deliver or otherwise transfer, at retail, any semi-automatic centerfire rifle that has or accepts a magazine with a capacity exceeding five rounds to any person under twenty-one years of age. The provisions of this subdivision shall not apply to the sale, delivery or transfer of such a rifle to any person who is a member or employee of an organized local police department, the Department of Emergency Services and Public Protection or the Department of Correction or a member of the military or naval forces of this state or of the United States for use in the discharge of their duties.

(c) On and after April 1, 2014, no person may purchase or receive any long gun unless such person holds a valid long gun eligibility certificate issued pursuant to section 2 of this act, a valid permit to carry a pistol or revolver issued pursuant to subsection (b) of section 29–28, as amended by this act, a valid permit to sell at retail a pistol or revolver issued pursuant to subsection (a) of section 29–28 or a valid eligibility certificate for a pistol or revolver issued pursuant to section 29–36f, as amended by this act, or is a federal marshal, parole officer or peace officer.

~~(a)~~ (d) No person, firm or corporation may ~~deliver, at retail,~~ sell, deliver or otherwise transfer, at retail, any ~~firearm, as defined in section 53a–3, other than a pistol or revolver,~~ long gun to any person unless such person makes application on a form prescribed and furnished by the Commissioner of Emergency Services and Public Protection, which shall be filed and retained by the transferor for at least twenty years or, if the transferor is a federally licensed firearm dealer, attached by the ~~vendor~~ transferor to the federal sale or transfer document and filed and retained by the ~~vendor~~ transferor for at least twenty years or until such ~~vendor~~ transferor goes out of business. Such application shall be available for inspection during normal business hours by law enforcement officials. ~~No sale or delivery of any firearm shall be made until the expiration of two weeks from the date of the application, and~~ No such sale, delivery or other transfer of any long gun shall be made until the person, firm or corporation

making such sale, delivery or transfer has ~~insured~~ ensured that such application has been completed properly and has obtained an authorization number from the Commissioner of Emergency Services and Public Protection for such sale, delivery or transfer. The Department of Emergency Services and Public Protection shall make every effort, including performing the national instant criminal background check, to determine if the applicant is eligible to receive such ~~firearm~~ long gun. If it is determined that the applicant is ineligible to receive such ~~firearm~~ long gun, the Commissioner of Emergency Services and Public Protection shall immediately notify the person, firm or corporation to whom such application was made and no such ~~firearm~~ long gun shall be sold,~~or~~ delivered or otherwise transferred to such applicant by such person, firm or corporation. When any ~~firearm~~ long gun is delivered in connection with ~~the~~ any sale or purchase, such ~~firearm~~ long gun shall be enclosed in a package, the paper or wrapping of which shall be securely fastened, and no such ~~firearm~~ long gun when delivered on any sale or purchase shall be loaded or contain any gunpowder or other explosive or any bullet, ball or shell.

~~(b)~~ Upon the sale, delivery or other transfer of the ~~firearm~~ long gun, the ~~purchaser~~ transferee shall sign in triplicate a receipt for such ~~firearm~~ long gun, which shall contain the name,~~and~~ address and date and place of birth of such ~~purchaser~~ transferee, the date of such sale, delivery or transfer and the caliber, make, model and manufacturer's number and a general description thereof. Not later than twenty-four hours after such sale, delivery or transfer, the ~~vendor~~ transferor shall send by first class mail or electronically transfer one receipt to the Commissioner of Emergency Services and Public Protection and one receipt to the chief of police or, where there is no chief of police, the warden of the borough or the first selectman, of the town in which the ~~purchaser~~ transferee resides, and shall retain one receipt, together with the original application, for at least five years. ~~The~~

(e) No sale, delivery or other transfer of any long gun shall be made by a person who is not a federally-licensed firearm manufacturer, importer or dealer to a person who is not a federally-licensed firearm manufacturer, importer or dealer unless:

(1) The prospective transferor and prospective transferee comply with the provisions of subsection (d) of this section and the prospective transferor has obtained an authorization number from the Commissioner of Emergency Services and Public Protection for such sale, delivery or transfer; or

(2) A national instant criminal background check has been initiated by a federally-licensed firearm dealer who has consented to initiate such check at the request of the prospective transferor or prospective transferee in accordance with subsection (f) of this section and the response received by the federally-licensed firearm dealer indicates the prospective transferee is eligible to receive such long gun.

(f) (1) On and after January 1, 2014, for purposes of a transfer pursuant to subdivision (2) of subsection (e) of this section, a prospective transferor or prospective transferee may request a federally-licensed firearm dealer to initiate a national instant criminal background check of the prospective transferee. If a federally-licensed firearm dealer consents to initiate a national instant criminal background check, the prospective transferor or prospective transferee shall provide to such dealer the name, sex, race, date of birth and state of residence of the prospective transferee and, if necessary to verify the identity of the prospective transferee, may provide a unique numeric identifier including, but not limited to, a Social Security number, and additional identifiers including, but not limited to, height, weight, eye and hair color, and place of birth. The prospective transferee shall present to the dealer such prospective transferee's valid long gun eligibility certificate issued pursuant to section 2 of this act, valid permit to carry a pistol or revolver issued pursuant to subsection (b) of section 29–28, as amended by this act, valid permit to sell at retail a pistol or revolver issued pursuant to subsection (a) of section 29–28 or valid eligibility certificate for a pistol or revolver issued pursuant to section 29–36f, as amended by this act. The dealer may charge a fee not to exceed twenty dollars for initiating such background check.

(2) Notwithstanding the provisions of subsections (d) and (f) of section 29–36*l*, the dealer shall initiate a background check of such prospective transferee by contacting the national instant criminal background check system operations center for purposes of conducting such background check. Upon receiving a response from the operations center of the results of such check, the dealer shall immediately notify the prospective transferor or prospective transferee of such response. If the response indicates the prospective transferee is ineligible to receive such long gun, no long gun shall be sold, delivered or otherwise transferred by the

prospective transferor to the prospective transferee. If the response indicates the prospective transferee is eligible to receive such long gun, the prospective transferor may proceed to sell, deliver or otherwise transfer the long gun to the prospective transferee.

(3) Upon the sale, delivery or other transfer of the long gun, the transferor or transferee shall complete a form, prescribed by the Commissioner of Emergency Services and Public Protection, that contains the name and address of the transferor, the name and address of the transferee, the date and place of birth of such transferee, the firearm permit or certificate number of the transferee, the firearm permit or certificate number of the transferor, if any, the date of such sale, delivery or transfer, the caliber, make, model and manufacturer's number and a general description of such long gun and the transaction number assigned by the national instant criminal background check system to the background check request. Not later than twenty-four hours after such sale, delivery or transfer, the transferor shall send by first class mail or electronically transfer one copy of such form to the Commissioner of Emergency Services and Public Protection and one copy to the chief of police or, where there is no chief of police, the warden of the borough or the first selectman, of the town in which the transferee resides, and shall retain one copy, for at least five years.

(g) Prior to April 1, 2014, no sale, delivery or other transfer of any long gun shall be made until the expiration of two weeks from the date of the application, except that such waiting period ~~specified in subsection (a) of this section during which delivery may not be made and the provisions of this subsection~~ shall not apply to any federal marshal, parole officer or peace officer, or to the ~~delivery at retail~~ sale, delivery or other transfer of (1) any ~~firearm~~ long gun to a holder of a valid state permit to carry a pistol or revolver issued under the provisions of section 29–28, as amended by this act, ~~or~~ a valid eligibility certificate issued under the provisions of section 29–36f, as amended by this act, or a valid long gun eligibility certificate issued under the provisions of section 2 of this act, (2) any ~~firearm~~ long gun to an active member of the armed forces of the United States or of any reserve component thereof, (3) any ~~firearm~~ long gun to a holder of a valid hunting license issued pursuant to chapter 490, [1] or (4) antique firearms. For the purposes of this ~~section~~ subsection, "antique firearm" means any firearm which was manufactured in or before 1898 and any replica of such firearm, provided such replica is not designed or redesigned for using rimfire or conventional centerfire fixed ammunition except rimfire or conventional centerfire fixed ammunition which is no longer manufactured in the United States and not readily available in the ordinary channel of commercial trade.

(h) The provisions of this section shall not apply to the sale, delivery or transfer of long guns between (1) a federally-licensed firearm manufacturer and a federally-licensed firearm dealer, (2) a federally-licensed firearm importer and a federally-licensed firearm dealer, or (3) federally-licensed firearm dealers.

(i) If the court finds that a violation of this section is not of a sericus nature and that the person charged with such violation (1) will probably not offend in the future, (2) has not previously been convicted of a violation of this section, and (3) has not previously had a prosecution under this section suspended pursuant to this subsection, it may order suspension of prosecution. The court shall not order suspension of prosecution unless the accused person has acknowledged that he understands the consequences of the suspension of prosecution. Any person for whom prosecution is suspended shall agree to the tolling of any statute of limitations with respect to such violation and to a waiver of his right to a speedy trial. Such person shall appear in court and shall be released to the custody of the Court Support Services Division for such period, not exceeding two years, and under such conditions as the court shall order. If the person refuses to accept, or, having accepted, violates such conditions, the court shall terminate the suspension of prosecution and the case shall be brought to trial. If such person satisfactorily completes his period of probation, he may apply for dismissal of the charges against him and the court, on finding such satisfactory completion, shall dismiss such charges. If the person does not apply for dismissal of the charges against him after satisfactorily completing his period of probation, the court, upon receipt of a report submitted by the Court Support Services Division that the person satisfactorily completed his period of probation, may on its own motion make a finding of such satisfactory completion and dismiss such charges. Upon dismissal, all records of such charges shall be erased pursuant to section 54–142a. An order of the court denying a motion to dismiss the charges against a person who has completed his period of probation or terminating the participation of a defendant in such program shall be a final judgment for purposes of appeal.

(j) Any person who violates any provision of this section shall be guilty of a class D felony, except that any person who sells, delivers or otherwise transfers a long gun in violation of the provisions of this section, knowing that such long gun is stolen or that the manufacturer's number or other mark of identification on such long gun has been altered, removed or obliterated, shall be guilty of a class B felony, and any long gun found in the possession of any person in violation of any provision of this section shall be forfeited.

1 C.G.S.A. § 26–1 et seq.

Sec. 2. (NEW) (Effective July 1, 2013)

(a) Any person who is eighteen years of age or older may apply to the Commissioner of Emergency Services and Public Protection for a long gun eligibility certificate.

(b) The Commissioner of Emergency Services and Public Protection shall issue a long gun eligibility certificate unless said commissioner finds that the applicant: (1) Has failed to successfully complete a course approved by the Commissioner of Emergency Services and Public Protection in the safety and use of firearms including, but not limited to, a safety or training course in the use of firearms available to the public offered by a law enforcement agency, a private or public educational institution or a firearms training school, utilizing instructors certified by the National Rifle Association or the Department of Energy and Environmental Protection and a safety or training course in the use of firearms conducted by an instructor certified by the state or the National Rifle Association; (2) has been convicted of (A) a felony, or (B) a violation of subsection (c) of section 21a–279 of the general statutes or section 53a–58, 53a–61, 53a–61a, 53a–62, 53a–63, 53a–96, 53a–175, 53a–176, 53a–178 or 53a–181d of the general statutes; (3) has been convicted as delinquent for the commission of a serious juvenile offense, as defined in section 46b–120 of the general statutes; (4) has been discharged from custody within the preceding twenty years after having been found not guilty of a crime by reason of mental disease or defect pursuant to section 53a–13 of the general statutes; (5) has been confined in a hospital for persons with psychiatric disabilities, as defined in section 17a–495 of the general statutes, within the preceding sixty months by order of a probate court; (6) has been voluntarily admitted to a hospital for persons with psychiatric disabilities, as defined in section 17a–495 of the general statutes, within the preceding six months for care and treatment of a psychiatric disability and not solely for being an alcohol-dependent person or a drug-dependent person as those terms are defined in section 17a–680 of the general statutes; (7) is subject to a restraining or protective order issued by a court in a case involving the use, attempted use or threatened use of physical force against another person; (8) is subject to a firearms seizure order issued pursuant to subsection (d) of section 29–38c of the general statutes, as amended by this act, after notice and hearing; (9) is prohibited from shipping, transporting, possessing or receiving a firearm pursuant to 18 USC 922(g)(4); or (10) is an alien illegally or unlawfully in the United States.

Sec. 3. (NEW) (Effective July 1, 2013)

(a) Requests for long gun eligibility certificates under section 2 of this act shall be submitted to the Commissioner of Emergency Services and Public Protection on application forms prescribed by the commissioner. No long gun eligibility certificate shall be issued under the provisions of section 2 of this act unless the applicant for such certificate gives to the Commissioner of Emergency Services and Public Protection, upon the commissioner's request, full information concerning the applicant's criminal record and relevant information concerning the applicant's mental health history. The commissioner shall require each applicant to submit to state and national criminal history records checks in accordance with section 29–17a of the general statutes. The commissioner shall take a full description of such applicant. The commissioner shall take the fingerprints of such applicant or conduct any other method of positive identification required by the State Police Bureau of Identification or the Federal Bureau of Investigation. The commissioner shall record the date the fingerprints were taken in the applicant's file and shall conduct criminal history records checks in accordance with section 29–17a of the general statutes. The commissioner shall, not later than sixty days after receipt of the national criminal history records check from the Federal Bureau of Investigation,

either approve the application and issue the long gun eligibility certificate or deny the application and notify the applicant of the reason for such denial in writing.

(b) A long gun eligibility certificate shall be of such form and content as the commissioner may prescribe, shall be signed by the certificate holder and shall contain an identification number, the name, address, place and date of birth, height, weight and eye color of the certificate holder and a full-face photograph of the certificate holder.

(c) A person holding a long gun eligibility certificate issued by the commissioner shall notify the commissioner not later than two business days after any change of such person's address. The notification shall include both the old address and the new address of such person.

(d) Notwithstanding the provisions of sections 1–210 and 1–211 of the general statutes, the name and address of a person issued a long gun eligibility certificate under the provisions of section 2 of this act shall be confidential and shall not be disclosed, except (1) such information may be disclosed to law enforcement officials acting in the performance of their duties, including, but not limited to, employees of the United States Probation Office acting in the performance of their duties, (2) the Commissioner of Emergency Services and Public Protection may disclose such information to the extent necessary to comply with a request made pursuant to section 29–37a of the general statutes, as amended by this act, or section 14 of this act for verification that such certificate is still valid and has not been suspended or revoked, and (3) such information may be disclosed to the Commissioner of Mental Health and Addiction Services to carry out the provisions of subsection (c) of section 17a–500 of the general statutes, as amended by this act.

Sec. 4. (NEW) (Effective July 1, 2013)

(a) The fee for each long gun eligibility certificate originally issued under the provisions of section 2 of this act shall be thirty-five dollars and for each renewal thereof thirty-five dollars, which fees shall be paid to the Commissioner of Emergency Services and Public Protection. Upon deposit of such fees in the General Fund, the fees shall be credited to the appropriation to the Department of Emergency Services and Public Protection to a separate nonlapsing account for the purposes of the issuance of long gun eligibility certificates under said section.

(b) A long gun eligibility certificate originally issued under the provisions of section 2 of this act shall expire five years after the date it becomes effective and each renewal thereof shall expire five years after the expiration date of the certificate being renewed.

(c) The renewal fee shall apply for each renewal that is requested not earlier than thirty-one days before, and not later than thirty-one days after, the expiration date of the certificate being renewed.

(d) No fee or portion thereof paid under the provisions of this section for issuance or renewal of a long gun eligibility certificate shall be refundable except if the certificate for which the fee or portion thereof was paid was not issued or renewed.

(e) The Commissioner of Emergency Services and Public Protection shall send a notice of the expiration of a long gun eligibility certificate issued pursuant to section 2 of this act to the holder of such certificate, by first class mail, at the address of such person as shown by the records of the commissioner, not less than ninety days before such expiration, and shall enclose therein a form for the renewal of such certificate. A long gun eligibility certificate issued pursuant to said section shall be valid for a period of ninety days from the expiration date, except this provision shall not apply to any certificate which has been revoked or for which revocation is pending, pursuant to section 5 of this act.

Sec. 5. (NEW) (Effective July 1, 2013)

(a) A long gun eligibility certificate shall be revoked by the Commissioner of Emergency Services and Public Protection upon the occurrence of any event which would have disqualified the holder from being issued the certificate pursuant to section 2 of this act.

(b) Upon the revocation of any long gun eligibility certificate, the person whose certificate is revoked shall be notified, in writing, and such certificate shall be forthwith delivered to the Commissioner of Emergency Services and Public Protection. Any person who fails to surrender such certificate within five days of notification, in writing, of revocation thereof shall be guilty of a class A misdemeanor.

Sec. 6. Subsection (b) of section 29–32b of the general statutes is repealed and the following is substituted in lieu thereof (Effective July 1, 2013):

<< CT ST § 29–32b >>

(b) Any person aggrieved by any refusal to issue or renew a permit or certificate under the provisions of section 29–28, as amended by this act, or 29–36f, as amended by this act, or section 2 of this act, or by any limitation or revocation of a permit or certificate issued under any of said sections, or by a refusal or failure of any issuing authority to furnish an application as provided in section 29–28a, may, within ninety days after receipt of notice of such refusal, limitation or revocation, or refusal or failure to supply an application as provided in section 29–28a, and without prejudice to any other course of action open to such person in law or in equity, appeal to the board. On such appeal the board shall inquire into and determine the facts, de novo, and unless it finds that such a refusal, limitation or revocation, or such refusal or failure to supply an application, as the case may be, would be for just and proper cause, it shall order such permit or certificate to be issued, renewed or restored, or the limitation removed or modified, as the case may be. If the refusal was for failure to document compliance with local zoning requirements, under subsection (a) of section 29–28, the board shall not issue a permit.

Sec. 7. Subsection (a) of section 29–36*l* of the general statutes is repealed and the following is substituted in lieu thereof (Effective July 1, 2013):

<< CT ST § 29–36l >>

(a) The Commissioner of Emergency Services and Public Protection shall establish a state database that any person, firm or corporation who sells or otherwise transfers ~~pistols or revolvers~~ firearms may access, by telephone or other electronic means in addition to the telephone, for information to be supplied immediately, on whether a permit to carry a pistol or revolver, issued pursuant to subsection (b) of section 29–28, as amended by this act, a permit to sell at retail a pistol or revolver, issued pursuant to subsection (a) of section 29–28, ~~or~~ an eligibility certificate for a pistol or revolver, issued pursuant to section 29–36f, as amended by this act, or a long gun eligibility certificate, issued pursuant to section 2 of this act, is valid and has not been revoked or suspended.

Sec. 8. Section 29–38b of the general statutes is repealed and the following is substituted in lieu thereof (Effective July 1, 2013):

<< CT ST § 29–38b >>

(a) The Commissioner of Emergency Services and Public Protection, in fulfilling his obligations under sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act, shall verify that any person who, on or after October 1, 1998, applies for or seeks renewal of a permit to sell at retail a pistol or revolver, a permit to carry a pistol or revolver, an eligibility certificate for a pistol or revolver or a certificate of possession for an assault weapon, or who, on or after July 1, 2013, applies for or seeks renewal of a long gun eligibility certificate, has not been confined in a hospital for persons with psychiatric disabilities, as defined in section 17a–495, within the preceding ~~twelve~~ sixty months by order of a probate court or has not been voluntarily admitted to a hospital for persons with psychiatric disabilities,

as defined in section 17a–495, within the preceding six months for care and treatment of a psychiatric disability and not solely for being an alcohol-dependent person or a drug-dependent person as those terms are defined in section 17a–680, by making an inquiry to the Department of Mental Health and Addiction Services in such a manner so as to only receive a report on the commitment or admission status of the person with respect to whom the inquiry is made including identifying information in accordance with the provisions of subsection (b) of section 17a–500, as amended by this act.

(b) If the Commissioner of Emergency Services and Public Protection determines pursuant to subsection (a) of this section that a person has been confined in a hospital for persons with psychiatric disabilities, as defined in section 17a–495, within the preceding ~~twelve~~ sixty months by order of a probate court or has been voluntarily admitted to a hospital for persons with psychiatric disabilities, as defined in section 17a–495, within the preceding six months for care and treatment of a psychiatric disability and not solely for being an alcohol-dependent person or a drug-dependent person as those terms are defined in section 17a–680, said commissioner shall report the status of such person's application for or renewal of a permit to sell at retail a pistol or revolver, a permit to carry a pistol or revolver, an eligibility certificate for a pistol or revolver, ~~or~~ a certificate of possession for an assault weapon or a long gun eligibility certificate to the Commissioner of Mental Health and Addiction Services for the purpose of fulfilling his responsibilities under subsection (c) of section 17a–500, as amended by this act.

Sec. 9. Subsection (b) of section 54–36e of the general statutes is repealed and the following is substituted in lieu thereof (Effective July 1, 2013):

<< CT ST § 54–36e >>

(b) Firearms turned over to the state police pursuant to subsection (a) of this section which are not destroyed or retained for appropriate use shall be sold at public auctions, conducted by the Commissioner of Administrative Services or ~~such~~ said commissioner's designee. Pistols and revolvers, as defined in section 53a–3, which are antiques, as defined in section 29–33, as amended by this act, or curios or relics, as defined in the Code of Federal Regulations, Title 27, Chapter 1, Part 178, or modern pistols and revolvers which have a current retail value of one hundred dollars or more may be sold at such public auctions, provided such pistols and revolvers shall be sold only to persons who have a valid permit to sell a pistol or revolver, or a valid permit to carry a pistol or revolver, issued pursuant to section 29–28, as amended by this act. Rifles and shotguns, as defined in section 53a–3, shall be sold only to persons qualified under federal law to purchase such rifles and shotguns and who have a valid long gun eligibility certificate issued pursuant to section 2 of this act. The proceeds of any such sale shall be paid to the State Treasurer and deposited by the State Treasurer in the forfeit firearms account within the General Fund.

Sec. 10. (NEW) (Effective October 1, 2013)

Whenever a person is voluntarily admitted to a hospital for persons with psychiatric disabilities, as defined in section 17a–495 of the general statutes, for care and treatment of a psychiatric disability and not solely for being an alcohol-dependent person or a drug-dependent person as those terms are defined in section 17a–680 of the general statutes, the hospital shall forthwith notify the Commissioner of Mental Health and Addiction Services of such admission and provide identifying information including, but not limited to, name, address, sex, date of birth and the date of admission. The commissioner shall maintain such identifying information on all such admissions occurring on and after the effective date of this section.

Sec. 11. Section 17a–500 of the general statutes is repealed and the following is substituted in lieu thereof (Effective July 1, 2013):

<< CT ST § 17a–500 >>

(a) Each court of probate shall keep a record of the cases relating to persons with psychiatric disabilities coming before it under sections 17a–75 to 17a–83, inclusive, 17a–450 to 17a–484, inclusive, 17a–495 to 17a–528, inclusive, 17a–540 to 17a–550,

inclusive, 17a–560 to 17a–576, inclusive, and 17a–615 to 17a–618, inclusive, and the disposition of them. It shall also keep on file the original application and certificate of physicians required by said sections, or a microfilm duplicate of such records in accordance with regulations issued by the Probate Court Administrator. All records maintained in the courts of probate under the provisions of said sections shall be sealed and available only to the respondent or his or her counsel unless the Court of Probate, after hearing held with notice to the respondent, determines such records should be disclosed for cause shown.

(b) ~~Notwithstanding the provisions of subsection (a) of this section, the~~ The Commissioner of Mental Health and Addiction Services shall, notwithstanding the provisions of subsection (a) of this section, maintain information, in accordance with section 17a–499, ~~shall maintain information~~ on commitment orders by a probate court, and shall maintain information, in accordance with section 10 of this act, on voluntary admissions, and shall provide such information to the Commissioner of Emergency Services and Public Protection in fulfillment of his obligations under sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act, in such a manner as to report identifying information on the commitment or voluntary admission status, including, but not limited to, name, address, sex, date of birth and date of commitment or admission, for a person who applies for or holds a permit or certificate under said sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act. The Commissioner of Emergency Services and Public Protection shall maintain as confidential any such information provided to him and shall use such information only for purposes of fulfilling his obligations under sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act, except that nothing in this section shall prohibit said commissioner from entering such information into evidence at a hearing held in accordance with section 29–32b, as amended by this act.

(c) (1) The Commissioner of Mental Health and Addiction Services shall obtain from the Commissioner of Emergency Services and Public Protection the status of any firearm application, permit or certificate under sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act, of each person who is the subject of an order of commitment ~~pursuant to~~ as provided in section 17a–499 or is the subject of a voluntary admission as provided in section 10 of this act, in such a manner so as to only receive a report on the firearm application, permit or certificate status of the person with respect to whom the inquiry is made.

(2) The Commissioner of Mental Health and Addiction Services shall report to the Commissioner of Emergency Services and Public Protection any commitment or voluntary admission status and identifying information for any person who is an applicant for or holder of any permit or certificate under said sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act.

(3) The Commissioner of Mental Health and Addiction Services shall advise the hospital for psychiatric disabilities to which a person has been committed or voluntarily admitted of the status of a firearm application, permit or certificate of such person under sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act, as reported by the Commissioner of Emergency Services and Public Protection for consideration by such hospital in any psychiatric treatment procedures.

(4) The Commissioner of Mental Health and Addiction Services and a hospital for psychiatric disabilities shall maintain as confidential any information provided to said commissioner or such hospital concerning the status of a firearm application, permit or certificate under sections 29–28 to 29–38, inclusive, as amended by this act, sections 2 to 5, inclusive, of this act and section 53–202d, as amended by this act, of any person.

Sec. 12. Subsection (a) of section 53–202g of the general statutes is repealed and the following is substituted in lieu thereof (Effective from passage):

<< CT ST § 53–202g >>

(a) Any person who lawfully possesses an assault weapon under sections ~~29–37j and~~ 53–202a to 53–202k, inclusive, as amended by this act,~~and subsection (h) of section 53a–46a~~ or a firearm, as defined in section 53a–3, that is lost or stolen from such person shall report the loss or theft to the organized local police department for the town in which the loss or theft occurred or, if such town does not have an organized local police department, to the state police troop having jurisdiction for such town within seventy-two hours of when such person discovered or should have discovered the loss or theft. Such department or troop shall forthwith forward a copy of such report to the Commissioner of Emergency Services and Public Protection. The provisions of this subsection shall not apply to the loss or theft of an antique firearm as defined in ~~subsection (b) of~~ section 29–37a, as amended by this act.

Sec. 13. Subsection (c) of section 53–202aa of the general statutes is repealed and the following is substituted in lieu thereof (Effective from passage):

<< CT ST § 53–202aa >>

(c) For the purposes of this section, "firearm" means "firearm" as defined in section 53a–3, but does not include a rifle or shotgun or an antique firearm as defined in ~~subsection (b) of~~ section 29–37a, as amended by this act.

Sec. 14. (NEW) (Effective from passage)

(a) For the purposes of this section and sections 15 to 17, inclusive, of this act, "ammunition" means a loaded cartridge, consisting of a primed case, propellant or projectile, designed for use in any firearm, "firearm" has the meaning provided in section 53a–3 of the general statutes, and "magazine" means any firearm magazine, belt, drum, feed strip or similar device that accepts ammunition.

(b) No person, firm or corporation shall sell ammunition or an ammunition magazine to any person under eighteen years of age.

(c) On and after October 1, 2013, no person, firm or corporation shall sell ammunition or an ammunition magazine to any person unless such person holds a valid permit to carry a pistol or revolver issued pursuant to subsection (b) of section 29–28 of the general statutes, as amended by this act, a valid permit to sell at retail a pistol or revolver issued pursuant to subsection (a) of section 29–28 of the general statutes, a valid eligibility certificate for a pistol or revolver issued pursuant to section 29–36f of the general statutes, as amended by this act, or a valid long gun eligibility certificate issued pursuant to section 2 of this act and presents to the transferor such permit or certificate, or unless such person holds a valid ammunition certificate issued pursuant to section 15 of this act and presents to the transferor such certificate and such person's motor vehicle operator's license, passport or other valid form of identification issued by the federal government or a state or municipal government that contains such person's date of birth and photograph.

(d) The provisions of this section shall not apply to the sale, delivery or transfer of ammunition between (1) a federally-licensed firearm manufacturer and a federally-licensed firearm dealer, (2) a federally-licensed firearm importer and a federally-licensed firearm dealer, or (3) federally-licensed firearm dealers.

(e) Any person who violates any provision of this section shall be guilty of a class D felony.

Sec. 15. (NEW) (Effective July 1, 2013)

(a) Any person who is eighteen years of age or older may request the Commissioner of Emergency Services and Public Protection to (1) conduct a national criminal history records check of such person, in accordance with the provisions of section 29–17a of the general statutes, using such person's name and date of birth only, and (2) issue an ammunition certificate to such person in accordance with the provisions of this section.

(b) After conducting the national criminal history records check of such person, the commissioner shall issue an ammunition certificate to such person unless the commissioner determines, based on a review of the results of such criminal history records check, that such person would be ineligible to be issued a long gun eligibility certificate under section 2 of this act, except that a conviction of a violation specified in subparagraph (B) of subdivision (2) of subsection (b) of section 2 of this act shall cause such person to be ineligible for an ammunition certificate only if such conviction was for a violation committed on or after the effective date of this section.

(c) Such ammunition certificate shall be of such form as the commissioner may prescribe, contain an identification number and the name, address and date of birth of the certificate holder and be signed by the certificate holder.

(d) A person holding an ammunition certificate issued by the commissioner shall notify the commissioner not later than two business days after any change of such person's address. The notification shall include both the old address and the new address of such person.

(e) Notwithstanding the provisions of sections 1–210 and 1–211 of the general statutes, the name and address of a person issued an ammunition certificate under this section shall be confidential and shall not be disclosed, except (1) such information may be disclosed to law enforcement officials acting in the performance of their duties, including, but not limited to, employees of the United States Probation Office acting in the performance of their duties, (2) the Commissioner of Emergency Services and Public Protection may disclose such information to the extent necessary to comply with a request made pursuant to section 14 of this act for verification that such certificate is still valid and has not been suspended or revoked, and (3) such information may be disclosed to the Commissioner of Mental Health and Addiction Services to carry out the provisions of subsection (c) of section 17a–500 of the general statutes, as amended by this act.

Sec. 16. (NEW) (Effective July 1, 2013)

(a) The fee for each ammunition certificate originally issued under the provisions of this section shall be thirty-five dollars and for each renewal thereof thirty-five dollars, which fees shall be paid to the Commissioner of Emergency Services and Public Protection and shall be in addition to the fee paid pursuant to subsection (b) of section 29–17a of the general statutes for conducting the national criminal history records check. Upon deposit of such fees in the General Fund, the fees shall be credited to the appropriation to the Department of Emergency Services and Public Protection to a separate nonlapsing account for the purposes of the issuance of ammunition certificates under section 15 of this act.

(b) An ammunition certificate originally issued under the provisions of section 15 of this act shall expire five years after the date it becomes effective and each renewal thereof shall expire five years after the expiration date of the certificate being renewed.

(c) The renewal fee shall apply for each renewal that is requested not earlier than thirty-one days before, and not later than thirty-one days after, the expiration date of the certificate being renewed.

(d) No fee or portion thereof paid under the provisions of this section for issuance or renewal of an ammunition certificate shall be refundable except if the certificate for which the fee or portion thereof was paid was not issued or renewed.

(e) An ammunition certificate issued pursuant to section 15 of this act shall be valid for a period of ninety days from the expiration date, except this provision shall not apply to any certificate which has been revoked or for which revocation is pending, pursuant to section 17 of this act.

Sec. 17. (NEW) (Effective July 1, 2013)

(a) An ammunition certificate shall be revoked by the Commissioner of Emergency Services and Public Protection upon the occurrence of any event which would have disqualified the holder from being issued the certificate pursuant to section 15 of this act.

(b) Upon the revocation of any ammunition certificate, the person whose certificate is revoked shall be notified, in writing, and such certificate shall be forthwith delivered to the Commissioner of Emergency Services and Public Protection. Any person who fails to surrender such certificate within five days of notification, in writing, of revocation thereof shall be guilty of a class A misdemeanor.

Sec. 18. (NEW) (Effective January 1, 2014)

(a) For the purposes of this section and sections 19 and 20 of this act, and sections 45a–99 and 52–11 of the general statutes, as amended by this act:

(1) "Commissioner" means the Commissioner of Emergency Services and Public Protection;

(2) "Convicted" means that a person has a judgment entered in this state against such person by a court upon a plea of guilty, a plea of nolo contendere or a finding of guilty by a jury or the court notwithstanding any pending appeal or habeas corpus proceeding arising from such judgment;

(3) "Deadly weapon" means a deadly weapon, as defined in section 53a–3 of the general statutes;

(4) "Department" means the Department of Emergency Services and Public Protection;

(5) "Identifying factors" means fingerprints, a photographic image, and a description of any other identifying characteristics as may be required by the Commissioner of Emergency Services and Public Protection;

(6) "Not guilty by reason of mental disease or defect" means a finding by a court or jury of not guilty by reason of mental disease or defect pursuant to section 53a–13 of the general statutes notwithstanding any pending appeal or habeas corpus proceeding arising from such finding;

(7) "Offender convicted of committing a crime with a deadly weapon" or "offender" means a person who has been convicted of an offense committed with a deadly weapon;

(8) "Offense committed with a deadly weapon" or "offense" means: (A) A violation of subsection (c) of section 2–1e, subsection (e) of section 29–28, subsections (a) to (e), inclusive, or (i) of section 29–33, as amended by this act, section 29–34, as amended by this act, subsection (a) of section 29–35, section 29–36, as amended by this act, 29–36k, as amended by this act, 29–37a, as amended by this act, or 29–37e, subsection (c) of section 29–37g, section 29–37j, as amended by this act, subsection (b), (c) or (g) of section 53–202, section 53–202b, as amended by this act, 53–202c, as amended by this act, 53–202j, 53–202k, 53–202*l*, as amended by this act, 53–202aa, as amended by this act, or 53–206b, subsection (b) of section 53a–8, section 53a–55a, 53a–56a, 53a–60a, 53a–60c, 53a–72b, 53a–92a, 53a–94a, 53a–102a, 53a–103a, 53a–211, 53a–212, as amended by this act, 53a–216, 53a–217, as amended by this act, 53a–217a, as amended by this act, 53a–217b or 53a–217c, as amended by this act, or a second or subsequent violation of section 53–202g of the general statutes, as amended by this act; or (B) a violation of any section of the general statutes which constitutes a felony, as defined in section 53a–25 of the general statutes, provided the court makes a finding that, at the time of the offense, the offender used a deadly weapon, or was armed with and threatened the use of or displayed or represented by words or conduct that the offender possessed a deadly weapon;

(9) "Registrant" means a person required to register under section 19 of this act;

(10) "Registry" means a central record system in this state that is established pursuant to this section and receives, maintains and disseminates to law enforcement agencies information on persons convicted or found not guilty by reason of mental disease or defect of an offense committed with a deadly weapon; and

(11) "Release into the community" means, with respect to a conviction or a finding of not guilty by reason of mental disease or defect of an offense committed with a deadly weapon, (A) any release by a court after such conviction or finding of not guilty by reason of mental disease or defect, a sentence of probation or any other sentence under section 53a–28 of the general statutes that does not result in the offender's immediate placement in the custody of the Commissioner of Correction; (B) release from a correctional facility at the discretion of the Board of Pardons and Paroles, by the Department of Correction to a program authorized by section 18–100c of the general statutes or upon completion of the maximum term or terms of the offender's sentence or sentences, or to the supervision of the Court Support Services Division in accordance with the terms of the offender's sentence; or (C) temporary leave to an approved residence by the Psychiatric Security Review Board pursuant to section 17a–587 of the general statutes, conditional release from a hospital for mental illness or a facility for persons with intellectual disability by the Psychiatric Security Review Board pursuant to section 17a–588 of the general statutes, or release upon termination of commitment to the Psychiatric Security Review Board.

(b) The Department of Emergency Services and Public Protection shall, not later than January 1, 2014, establish and maintain a registry of all persons required to register under section 19 of this act as offenders convicted of an offense committed with a deadly weapon. The department shall, in cooperation with the Office of the Chief Court Administrator, the Department of Correction and the Psychiatric Security Review Board, develop appropriate forms for use by agencies and individuals to report registration information, including changes of address. Upon receipt of registration information, the department shall enter the information into the registry and notify the local police department or state police troop having jurisdiction where the registrant resides or plans to reside. Upon receiving notification pursuant to section 19 of this act that a registrant has changed his or her address, the department shall enter the information into the registry and notify the local police departments or state police troops having jurisdiction where the registrant previously resided and the jurisdiction where the registrant has relocated. The Commissioner of Emergency Services and Public Protection shall also ensure that the name and residence address of each registrant is available through the Connecticut on-line law enforcement communication teleprocessing system maintained by the department. If a registrant reports a residence in another state, the department may notify the state police agency of that state or such other agency in that state that maintains registry information, if known.

(c) The Department of Emergency Services and Public Protection may suspend the registration of any person registered under section 19 of this act while such person is incarcerated, under civil commitment or residing outside this state. During the period that such registration is under suspension, the department may withdraw the registration information from access to law enforcement agencies. Upon the release of the registrant from incarceration or civil commitment or resumption of residency in this state by the registrant, the department shall reinstate the registration and redistribute the registration information in accordance with subsection (b) of this section. Suspension of registration shall not affect the date of expiration of the registration obligation of the registrant under section 19 of this act.

(d) The Department of Emergency Services and Public Protection shall include in the registry the most recent photographic image of each registrant taken by the department, the Department of Correction, a law enforcement agency or the Court Support Services Division of the Judicial Department.

(e) Whenever the Commissioner of Emergency Services and Public Protection receives notice from a superior court pursuant to section 52–11 of the general statutes, as amended by this act, or a probate court pursuant to section 45a–99 of the general statutes, as amended by this act, that such court has ordered the change of name of a person, and the department determines that such person is listed in the registry, the department shall revise such person's registration information accordingly.

(f) The Commissioner of Emergency Services and Public Protection shall develop a protocol for the notification of other state agencies, the Judicial Department and local police departments whenever a person listed in the registry changes such person's

name and notifies the commissioner of the new name pursuant to section 19 of this act or whenever the commissioner determines pursuant to subsection (e) of this section that a person listed in the registry has changed such person's name.

(g) The information in the registry shall not be a public record or file for the purposes of section 1–200 of the general statutes. Any information disclosed pursuant to this section or section 19 or 20 of this act, shall not be further disclosed unless such disclosure is permitted under this section or section 19 or 20 of this act.

Sec. 19. (NEW) (Effective January 1, 2014)

(a) (1) Any person who has been convicted or found not guilty by reason of mental disease or defect of an offense committed with a deadly weapon and is released into the community on or after January 1, 2014, shall, within fourteen calendar days following such release or, if such person is in the custody of the Commissioner of Correction, at such time prior to release as the Commissioner of Correction shall direct, and whether or not such person's place of residence is in this state, register such person's name, identifying factors, criminal history record, residence address and electronic mail address with the Commissioner of Emergency Services and Public Protection, on such forms and in such locations as the Commissioner of Emergency Services and Public Protection shall direct, and shall maintain such registration for five years.

(2) Prior to accepting a plea of guilty or nolo contendere from a person with respect to an offense committed with a deadly weapon, the court shall (A) inform the person that the entry of a finding of guilty after acceptance of the plea will subject the person to the registration requirements of this section, and (B) determine that the person fully understands the consequences of the plea.

(3) If any person who is subject to registration under this section changes such person's name, such person shall, without undue delay, notify the Commissioner of Emergency Services and Public Protection in writing of the new name. If any person who is subject to registration under this section changes such person's address, such person shall, without undue delay, notify the Commissioner of Emergency Services and Public Protection in writing of the new address. During such period of registration, each registrant shall complete and return any forms mailed to such registrant to verify such registrant's residence address and shall submit to the retaking of a photographic image upon request of the Commissioner of Emergency Services and Public Protection.

(b) Any offender convicted of committing a crime with a deadly weapon who is required to register under this section shall, not later than twenty calendar days after each anniversary date of such initial registration, until the date such registration requirement expires under subdivision (1) of subsection (a) of this section, personally appear at the local police department or state police troop having jurisdiction where the registrant resides to verify and update, as appropriate, the contents of his or her registration. The local police department or state police troop, as the case may be, may defer such requirement to personally appear to a later date for good cause shown. Not later than thirty calendar days prior to such anniversary date, the Department of Emergency Services and Public Protection shall mail written notice of the personal appearance requirement of this subsection to the registrant and the local police department or state police troop having jurisdiction where the registrant resides. Not later than thirty calendar days after the anniversary date of each registrant, the local police department or state police troop having jurisdiction where the registrant resides shall notify the Commissioner of Emergency Services and Public Protection, on such form as the commissioner may prescribe, (1) whether the registrant complied with the personal appearance requirement of this subsection or whether such personal appearance requirement was deferred to a later date for good cause shown, and (2) if the personal appearance requirement was deferred to a later date for good cause shown, the local police department or state police troop shall indicate the later date established for such personal appearance and describe the good cause shown.

(c) Any person who is subject to registration under this section who violates any provisions of subsection (a) or (b) of this section, except a violation consisting of failure to notify the Commissioner of Emergency Services and Public Protection of a change of name or address, shall be guilty of a class D felony. Any person who is subject to registration under this section who

fails to notify the Commissioner of Emergency Services and Public Protection of a change of name or address not later than five business days after such change of name or address shall be guilty of a class D felony.

Sec. 20. (NEW) (Effective January 1, 2014)

(a) The registration information for each registrant shall include:

(1) The offender's name, including any other name by which the offender has been legally known, and any aliases used by the offender;

(2) Identifying information, including a physical description of the offender;

(3) The current residence address of the offender;

(4) The date of conviction of the offense;

(5) A description of the offense; and

(6) If the offender was sentenced to a term of incarceration for such offense, a portion of which was not suspended, the date the offender was released from such incarceration.

(b) The offender shall sign and date the registration.

(c) At the time that the offender appears for the purpose of registering, the Department of Emergency Services and Public Protection shall photograph the offender and arrange for the fingerprinting of the offender and include such photograph and a complete set of fingerprints in the registry. If the offender is required to submit to the taking of a blood or other biological sample of sufficient quality for DNA (deoxyribonucleic acid) analysis pursuant to section 54–102g of the general statutes, and has not submitted to the taking of such sample, the commissioner shall also require such sample to be taken for analysis pursuant to section 54–102g of the general statutes.

(d) The Department of Emergency Services and Public Protection may require the offender to provide documentation to verify the contents of his or her registration.

Sec. 21. Section 45a–99 of the general statutes is repealed and the following is substituted in lieu thereof (Effective January 1, 2014):

<< CT ST § 45a–99 >>

(a) The courts of probate shall have concurrent jurisdiction with the Superior Court, as provided in section 52–11, as amended by this act, to grant a change of name, except a change of name granted in accordance with subsection (a) of section 46b–63, except that no court of probate may issue an order or otherwise allow for the change of name of a person who is required to register with the Commissioner of Emergency Services and Public Protection as a sexual offender or as an offender convicted of committing a crime with a deadly weapon unless such person complies with the requirements of subdivision (1) of subsection (b) of this section.

(b) (1) Any person who is required to register with the Commissioner of Emergency Services and Public Protection as a sexual offender or as an offender convicted of committing a crime with a deadly weapon who files an application with the Court of Probate for a change of name shall (A) prior to filing such application, notify the Commissioner of Emergency Services and Public Protection, on such form as the commissioner may prescribe, that the person intends to file an application for a change

of name, indicating the change of name sought, and (B) include with such application a sworn statement that such change of name is not being sought for the purpose of avoiding the legal consequences of a criminal conviction, including, but not limited to, a criminal conviction that requires such person to register as a sexual offender or as an offender convicted of committing a crime with a deadly weapon.

(2) The Commissioner of Emergency Services and Public Protection shall have standing to challenge such person's application for a change of name in the court of probate where such change of name is sought. The commissioner shall challenge the change of name through the Attorney General. The court of probate may deny such person's application for a change of name if the court finds, by a preponderance of the evidence, that the person is applying for such change of name for the purpose of avoiding the legal consequences of a criminal conviction.

(c) Whenever the court, pursuant to this section, orders a change of name of a person, the court shall notify the Commissioner of Emergency Services and Public Protection of the issuance of such order if the court finds that such person is listed in the registry established and maintained pursuant to section 54–257 or in the registry established and maintained pursuant to section 18 of this act.

Sec. 22. Section 52–11 of the general statutes is repealed and the following is substituted in lieu thereof (Effective January 1, 2014):

<< CT ST § 52–11 >>

(a) The superior court in each judicial district shall have jurisdiction of complaints praying for a change of name, brought by any person residing in the judicial district, and may change the name of the complainant, who shall thereafter be known by the name prescribed by said court in its decree, except that no superior court may issue an order or otherwise allow for the change of name of a person who is required to register with the Commissioner of Emergency Services and Public Protection as a sexual offender or as an offender convicted of committing a crime with a deadly weapon unless such person complies with the requirements of subdivision (1) of subsection (b) of this section.

(b) (1) Any person who is required to register with the Commissioner of Emergency Services and Public Protection as a sexual offender or as an offender convicted of committing a crime with a deadly weapon who files an application with the Superior Court for a change of name shall (A) prior to filing such application, notify the Commissioner of Emergency Services and Public Protection, on such form as the commissioner may prescribe, that the person intends to file an application for a change of name, indicating the change of name sought, and (B) include with such application a sworn statement that such change of name is not being sought for the purpose of avoiding the legal consequences of a criminal conviction, including, but not limited to, a criminal conviction that requires such person to register as a sexual offender or as an offender convicted of committing a crime with a deadly weapon.

(2) The Commissioner of Emergency Services and Public Protection shall have standing to challenge such person's application for a change of name in the superior court where such change of name is sought. The commissioner shall challenge the change of name through the Attorney General. The superior court may deny such person's application for a change of name if the court finds, by a preponderance of the evidence, that the person is applying for such change of name for the purpose of avoiding the legal consequences of a criminal conviction.

(c) Whenever the court, pursuant to this section, orders a change of name of a person, the clerk of the court shall notify the Commissioner of Emergency Services and Public Protection of the issuance of such order if the clerk finds that such person is listed in the registry established and maintained pursuant to section 54–257 or in the registry established and maintained pursuant to section 18 of this act.

Sec. 23. (NEW) (Effective from passage)

(a) As used in this section and section 24 of this act:

(1) "Large capacity magazine" means any firearm magazine, belt, drum, feed strip or similar device that has the capacity of, or can be readily restored or converted to accept, more than ten rounds of ammunition, but does not include: (A) A feeding device that has been permanently altered so that it cannot accommodate more than ten rounds of ammunition, (B) a .22 caliber tube ammunition feeding device, (C) a tubular magazine that is contained in a lever-action firearm, or (D) a magazine that is permanently inoperable;

(2) "Lawfully possesses", with respect to a large capacity magazine, means that a person has (A) actual and lawful possession of the large capacity magazine, or (B) constructive possession of the large capacity magazine pursuant to a lawful purchase of a firearm that contains a large capacity magazine that was transacted prior to the effective date of this section, regardless of whether the firearm was delivered to the purchaser prior to the effective date of this section; and

(3) "Licensed gun dealer" means a person who has a federal firearms license and a permit to sell firearms pursuant to section 29–28 of the general statutes.

(b) Except as provided in this section, on and after the effective date of this section, any person who, within this state, distributes, imports into this state, keeps for sale, offers or exposes for sale, or purchases a large capacity magazine shall be guilty of a class D felony. On and after the effective date of this section, any person who, within this state, transfers a large capacity magazine, except as provided in subsection (f) of this section, shall be guilty of a class D felony.

(c) Except as provided in this section and section 24 of this act: (1) Any person who possesses a large capacity magazine on or after January 1, 2014, that was obtained prior to the effective date of this section shall commit an infraction and be fined not more than ninety dollars for a first offense and shall be guilty of a class D felony for any subsequent offense, and (2) any person who possesses a large capacity magazine on or after January 1, 2014, that was obtained on or after the effective date of this section shall be guilty of a class D felony.

(d) A large capacity magazine may be possessed, purchased or imported by:

(1) Members or employees of the Department of Emergency Services and Public Protection, police departments, the Department of Correction or the military or naval forces of this state or of the United States for use in the discharge of their official duties or when off duty;

(2) Employees of a Nuclear Regulatory Commission licensee operating a nuclear power generating facility in this state for the purpose of providing security services at such facility, or any person, firm, corporation, contractor or subcontractor providing security services at such facility; or

(3) Any person, firm or corporation engaged in the business of manufacturing large capacity magazines in this state that manufactures or transports large capacity magazines in this state for sale within this state to persons specified in subdivision (1) or (2) of this subsection or for sale outside this state.

(e) A large capacity magazine may be possessed by:

(1) A licensed gun dealer;

(2) A gunsmith who is in a licensed gun dealer's employ, who possesses such large capacity magazine for the purpose of servicing or repairing a lawfully possessed large capacity magazine;

(3) Any person who has declared possession of the magazine pursuant to section 24 of this act; or

(4) Any person who is the executor or administrator of an estate that includes a large capacity magazine, the possession of which has been declared to the Department of Emergency Services and Public Protection pursuant to section 24 of this act, which is disposed of as authorized by the Probate Court, if the disposition is otherwise permitted by this section and section 24 of this act.

(f) Subsection (b) of this section shall not prohibit:

(1) The transfer by bequest or intestate succession of a large capacity magazine, the possession of which has been declared to the Department of Emergency Services and Public Protection pursuant to section 24 of this act;

(2) The transfer of a large capacity magazine to a police department or the Department of Emergency Services and Public Protection; or

(3) The transfer of a large capacity magazine to a licensed gun dealer in accordance with section 24 of this act.

(g) If the court finds that a violation of this section is not of a serious nature and that the person charged with such violation (1) will probably not offend in the future, (2) has not previously been convicted of a violation of this section, and (3) has not previously had a prosecution under this section suspended pursuant to this subsection, it may order suspension of prosecution in accordance with the provisions of subsection (h) of section 29–33 of the general statutes, as amended by this act.

Sec. 24. (NEW) (Effective from passage)

(a) Any person who lawfully possesses a large capacity magazine prior to January 1, 2014, shall apply by January 1, 2014, or, if such person is a member of the military or naval forces of this state or of the United States and is unable to apply by January 1, 2014, because such member is or was on official duty outside of this state, shall apply within ninety days of returning to the state to the Department of Emergency Services and Public Protection to declare possession of such magazine. Such application shall be made on such form or in such manner as the Commissioner of Emergency Services and Public Protection prescribes.

(b) In addition to the application form prescribed under subsection (a) of this section, the department shall design or amend the application forms for a certificate of possession for an assault weapon under section 53–202d of the general statutes, as amended by this act, or for a permit to carry a pistol or revolver under section 29–28a of the general statutes, a long gun eligibility certificate under section 2 of this act, an eligibility certificate for a pistol or revolver under section 29–36f of the general statutes, as amended by this act, or any renewal of such permit or certificate to permit an applicant to declare possession of a large capacity magazine pursuant to this section upon the same application.

(c) The department may adopt regulations, in accordance with the provisions of chapter 54 [1] of the general statutes, to establish procedures with respect to applications under this section. Notwithstanding the provisions of sections 1–210 and 1–211 of the general statutes, the name and address of a person who has declared possession of a large capacity magazine shall be confidential and shall not be disclosed, except such records may be disclosed to (1) law enforcement agencies and employees of the United States Probation Office acting in the performance of their duties, and (2) the Commissioner of Mental Health and Addiction Services to carry out the provisions of subsection (c) of section 17a–500 of the general statutes, as amended by this act.

(d) Any person who moves into the state in lawful possession of a large capacity magazine shall, within ninety days, either render the large capacity magazine permanently inoperable, sell the large capacity magazine to a licensed gun dealer or remove the large capacity magazine from this state, except that any person who is a member of the military or naval forces of this state or of the United States, is in lawful possession of a large capacity magazine and has been transferred into the state after January

1, 2014, may, within ninety days of arriving in the state, apply to the Department of Emergency Services and Public Protection to declare possession of such large capacity magazine.

(e) (1) If an owner of a large capacity magazine transfers the large capacity magazine to a licensed gun dealer, such dealer shall, at the time of delivery of the large capacity magazine, execute a certificate of transfer. For any transfer prior to January 1, 2014, the dealer shall provide to the Commissioner of Emergency Services and Public Protection monthly reports, on such form as the commissioner prescribes, regarding the number of transfers that the dealer has accepted. For any transfer on or after January 1, 2014, the dealer shall cause the certificate of transfer to be mailed or delivered to the Commissioner of Emergency Services and Public Protection. The certificate of transfer shall contain: (A) The date of sale or transfer; (B) the name and address of the seller or transferor and the licensed gun dealer, and their Social Security numbers or motor vehicle operator license numbers, if applicable; (C) the licensed gun dealer's federal firearms license number; and (D) a description of the large capacity magazine.

(2) The licensed gun dealer shall present such dealer's federal firearms license and seller's permit to the seller or transferor for inspection at the time of purchase or transfer.

(3) The Commissioner of Emergency Services and Public Protection shall maintain a file of all certificates of transfer at the commissioner's central office.

(f) Any person who declared possession of a large capacity magazine under this section may possess the large capacity magazine only under the following conditions:

(1) At that person's residence;

(2) At that person's place of business or other property owned by that person, provided such large capacity magazine contains not more than ten bullets;

(3) While on the premises of a target range of a public or private club or organization organized for the purpose of practicing shooting at targets;

(4) While on a target range which holds a regulatory or business license for the purpose of practicing shooting at that target range;

(5) While on the premises of a licensed shooting club;

(6) While transporting the large capacity magazine between any of the places set forth in this subsection, or to any licensed gun dealer, provided (A) such large capacity magazine contains not more than ten bullets, and (B) the large capacity magazine is transported in the manner required for an assault weapon under subdivision (2) of subsection (a) of section 53–202f of the general statutes, as amended by this act; or

(7) Pursuant to a valid permit to carry a pistol or revolver, provided such large capacity magazine (A) is within a pistol or revolver that was lawfully possessed by the person prior to the effective date of this section, (B) does not extend beyond the bottom of the pistol grip, and (C) contains not more than ten bullets.

(g) Any person who violates the provisions of subsection (f) of this section shall be guilty of a class C misdemeanor.

1 C.G.S.A. § 4–166 et seq.