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May Issue vs. Shall Issue:

Explaining the Pattern of Concealed Carry Gun Laws, 1960-2000

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ABSTRACT: This paper analyzes the timing and pattern of the switch from "may issue" to "shall issue" concealed handgun carry laws across US states during the past 40 years. "Shall issue" laws require that require that states issue permits to qualified applicants; "may issue" laws allow permit far more latitude to the authorities to reject permit applications. Briefly, we find several factors influence the decision to switch from "may issue" to "shall issue." We find strong evidence that the decision to switch is influenced by the decisions taken by neighboring states. We also find that less urban states are more likely to shift to "shall issue." States with Republican political leadership (governor and legislature) are more likely to switch than those controlled by Democrats or those with divided government, as are states with high NRA membership. Surprisingly, we find little evidence to suggest that changes in state concealed carry laws are related to violent or total crime rates.

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1. Introduction

Gun control has long been a contentious issue for policy-makers. Increasingly, academics have weighed in on the consequences of various types of gun control laws. The growth of more extensive datasets and the development of sophisticated econometric tools with which to analyze them has led to an explosion in the growth of the academic literature on gun control. In important—and controversial—work, Bronars and Lott (1998), Lott and Mustard (1997), and Lott (1998, 2000, 2003) analyzed an unprecedented volume of statistical data on gun control and crime statistics. They found that more liberal gun control laws (i.e., the ability of law abiding citizens to more easily obtain firearms), in fact, led to a reduction in the incidence of violent crime. Black and Nagin (1998), Ludwig (1998), and Ayres and Donahue (2003), among others, have critiqued both the methodology and conclusions of Lott et al's findings.

The goal of this paper is not to reassess the debate over the consequences of various gun control regimes, but instead to explain the timing and pattern of the adoption of different gun control laws across US states during the past 40 years. There are a wide variety of such laws. These include restrictions on categories of people who are allowed to buy firearms (e.g., felons, misdemeanor offenders, juvenile offenders, aliens, minors, those subject to a restraining order, the mentally ill), limitations on types of firearms allowed (e.g., handguns, assault weapons, machine guns), and regulations on sales (e.g., purchases per month, permits, licensing of dealers, restrictions on gun show and private sales, waiting periods, background checks).[1]

[1] See U.S. Bureau of Justice Statistics, 2002.

Rather than examine these restrictions, we instead focus on concealed handgun-carrying laws. States' concealed handgun-carrying laws typically fall into one of two categories. "Shall issue" states require that the issuing authority (such as a police chief or other public safety official) in a jurisdiction (typically a municipality or county) "shall issue" gun permits to qualified applicants. In other words, the authorities do not have discretion to decide whether or not an applicant has good reason for needing a permit, and will normally be required to issue a permit unless there is some disqualifying factor (e.g., the applicant is a convicted felon). In contrast, "may issue" states allow the issuing authority to require applicants to state a reason for needing to carry a concealed weapon (e.g., having a dangerous profession, having been stalked in the past), and to issue a gun permit at its discretion. "May issue," then, is a far more restrictive gun control regime that allows the issuing authority some—and in many cases, considerable—latitude to deny an application.[2]

We focus on concealed carry laws for several reasons. First, concealed carry laws are at the very center of the current handgun debate. Those in favor of less restrictive carry laws tout the deterrent effect of concealed handguns, including encouraging crime and criminals to migrate to neighboring jurisdictions with more restrictive concealed carry rules (Lott et al, especially Bronars and Lott 1998). Opponents argue that greater gun ownership leads to an increase in the homicide rate (Duggan 2000), and claim that an overabundance of concealed handguns leads to spontaneous violence (Ayres and Donohue 2003). Second, the shift from "may issue" to "shall issue" has been dramatic of late: in 1960, there were just two "shall issue" states; by 1990, the number had risen to 14; by 2003, the number stood at 34. Finally, relative to other gun control laws, the "shall issue" versus "may issue" distinction is

[2] The distinction between "shall issue" and "may issue" states is not quite as clear as the above may suggest. We

fairly easy to categorize. Although 49 states have laws against felons owning handguns, there are substantial differences across states as to what constitutes a felony, and what category of felon is to be denied a handgun permit, making a simple categorization difficult (Bureau of Justice Statistics 2002). In contrast, analyzing the "shall issue" versus "may issue" decisions on the part of states is, for the most part, straightforward.

Understanding the forces underlying the "shall issue" versus "may issue" decision is important for several reasons. First, gun control is still an important and hotly debated issue. By better understanding the motivations for the timing and adoption of gun control laws, we can explain the geographic and temporal pattern of the spread of gun control legislation across the country. If our analysis of the adoption of "shall issue" laws is successful, we may extend the analysis to other forms of gun control. Second, as noted above, although much ink has been spilled trying to determine the consequences of various gun laws, virtually none has been spent on trying to explain whence the laws come. Thus, this project fills a gap in the literature. Finally, since there is no generally accepted explanation for the peculiar patchwork pattern of gun laws in the United States, explaining the pattern and timing of the adoption of this relatively straightforward measure may pave the way for studies of the adoption of other enactments, including those unrelated to gun control, that are of interest to economists, political scientists, and policy makers alike.

Briefly, we find several factors influence the decision to switch from "may issue" to "shall issue." First, we find strong evidence that the decision to switch is influenced by the decisions taken by neighboring states. Second, we find that less urban states are more likely to shift to "shall issue" than

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discuss the difficulties with this distinction in section 4.

their more urban counterparts. Third, we find that states with Republican political leadership (governor and legislature) are more likely to switch than those controlled by Democrats or those with divided government. States with high NRA membership also are more likely to switch to "shall issue." New England and West North central states are less likely to switch, while Mountain states are more likely. Surprisingly, we find little evidence to suggest that changes in state concealed carry laws are related to violent or total crime rates.

2. The History of Concealed Carry Laws

In most of the United States, laws regulating the concealed carry of a handgun are of a relatively recent vintage.[3] Although some states did address the issue of concealed carry prior to the Civil War, they typically did so by banning the practice altogether, including among on-duty law enforcement personnel. During the 1920s and 1930s, many states adopted laws that prohibited unlicensed concealed carry.[4] In time, most states adopted provisions allowing a local authority to issue concealed handgun permits. According to Cramer and Kopel (1995, 681), "…such statutes were broadly discretionary; while the law might specify certain minimum standards for obtaining a permit, the decision whether a permit should be issued was not regulated by express statutory standards."[5]

Discretionary—or "may issue"—laws predominated in the early post-World War II period: by 1960, only two states, Vermont and New Hampshire, had shall issue laws. (Figure 1) During the next

[3] This paragraph draws heavily on Cramer and Kopel (1995, 681).
[4] According to Cramer and Kopel, a model law adopted during this period by a number of states, "A Uniform Act to Regulate the Sale and Possession of Firearms," was adopted by the National Conference of Commissioners on Uniform State Laws and supported by the National Rifle Association, and prohibited unlicensed concealed carry.
[5] Cramer and Kopel argue that laws establishing a discretionary permitting regime were passed, in large part, to deny African Americans the right to carry arms.

24 years, just two states enacted "shall issue" laws: Washington (1961) and Connecticut (1969). By 1990, another ten states had enacted "shall issue" laws: Indiana (1980), Maine, North Dakota (1985), South Dakota (1986), Florida (1987), Georgia, Oregon, Pennsylvania, West Virginia (1989), and Idaho (1990). (Figure 2) Another 16 states followed suit in the 1990s (Figures 3 and 4), and five more during the period 2000-2003.[6] (Figure 5)

At first glance, there is no obvious explanation for the geographic pattern of adoption of "shall issue" laws. Early adopters include both rural (New Hampshire and Vermont) and less rural (Connecticut) New England states. By 1990, "shall issue" had spread to the midwest, plains, and southern states. After 1990, the adoption of "shall issue" laws spread rapidly to all sections of the country. By 2003, only 16 states, concentrated in the northeast, remained "may issue." And, although a number of the remaining "may issue" states are heavily urban (California, Hawaii, Illinois, Massachusetts, New Jersey, New York, and Rhode Island), a number of "may issue" states are much less so (Alabama, Kansas, Nebraska, Iowa, and New Mexico). We consider urbanization and other potential explanations in the following section.

3. Potential Explanations

Why would a "may issue" state enact a "shall issue" law? That is, why would states wish to make it easier for citizens to obtain a concealed carry permit? Through our reading of the academic literature, both in favor and opposed to concealed carry, as well as debates among policy makers and the public, we have discerned several motivating factors.

[6] Mississippi, Montana (1991), Alaska, Arizona, Wyoming (1994), Arkansas, Nevada, North Carolina, Oklahoma, Utah,

Crime. Crime ranks high on the list of motivations, both for those who argue for and those who argue against stricter gun control laws. Proponents of gun control argue that reducing the number of guns in circulation reduces the level of handgun violence; those who oppose strict control argue that guns in possession of law-abiding citizens reduce the level of crime by deterring potential criminals, and allow ordinary citizens to protect themselves. At a rally in Salt Lake City prior to the adoption of Utah's "shall issue" law, proponents argued that a rising crime rate made it important for law-abiding citizens to be able to purchase guns. According to Nancy Nell, of West Valley, Utah: "There are so many robberies going on, it just gets kind of scary." Another supporter of the law, Hope Bisbing, said: "There's too many of these darn criminals getting turned loose…I don't intend on being a victim. Good, honest citizens could shoot some of these wackos."[7]

Neighboring jurisdictions. Another factor cited in support of "shall issue" legislation is a desire to be in step with neighboring jurisdictions. Bronars and Lott (1998) argue that failure to adopt "shall issue" laws may lead to spillover effects, with crime spreading to jurisdictions with more restrictive gun control laws. Politicians have likewise argued that the adoption of "shall issue" laws in surrounding states should encourage passage at home. According to a sponsor of the Ohio "shall issue" law: "This bill is about putting Ohio in step with the 43 other states that have this law…. We are trying to stay in step with the states that are our neighbors."[8]

Rural/Urban Populations. As noted above, states remaining "may issue" appear to be concentrated among the more urbanized states. Might states with a higher proportion of urban dwellers

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Virginia (1995), Kentucky, Louisiana, South Carolina, Tennessee, Texas (1996), Michigan (2001), Colorado, Minnesota, Missouri, and Ohio (2003).

[7] Salt Lake Tribune, January 29, 1995, p. B3.

decide that guns ought to be restricted? Conversely, might states with a high proportion of rural dwellers, perhaps more accustomed to gun ownership and hunting, be more comfortable with widespread concealed carry? There has been some evidence of this both in the public debate and in policy. In Virginia, for example, debate over a "shall issue" law in 1995 illustrated the differences between rural and urban judges in issuing concealed carry permits. During the years 1993-94, judges in rural Henry County issued 655 permits, while those in Washington, DC-area Arlington County issued 23 and neighboring Fairfax County issued just one.[9]

Political Factors. Political factors may also influence the decision to adopt "shall issue" laws. Republicans are widely considered to be more favorable to gun ownership. Consequently, Republican control of state government (i.e., both legislature and governor) may influence the decision to adopt more liberal gun control laws.[10] Also, since many lobbying groups—most prominently, the National Rife Association (NRA)—have been highly visible supporters of liberalized gun control laws, it may also be useful to include data on membership in the NRA as an explanatory variable.[11]

4. Data

Our dependent variable, whether or not a state is "shall issue," comes from a Lexis-Nexis search of every state's concealed weapons law. On a case-by-base basis, we determined whether the state

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[8] Rep. William J. Seitz (R-Cincinnati) quoted in the Columbus Dispatch, March 13, 2003, P. 1A. The neighboring states he cited included Indiana, Kentucky, Michigan, Pennsylvania, and West Virginia.

[9] The Washington Times, February 21, 1995, p. C8. The same article notes that, "[r]ural Democrats who question the bill privately say that they cannot afford to vote against it with an election looming in November," again suggesting that rural voters favor more liberal gun laws.

[10] According to the Charleston (West Virginia) Gazette, March 6, 1995, p. 1A, the spread of "shall issue" legislation was in part the result of "the new Republican control of many state governments."

[11] See, for example, the NRA web site's fact sheet on "right to carry" law: http://www.nraila.org/Issues/FactSheets/Read.aspx?ID=18

was a "shall issue" state or not, and for states that were, when that language was adopted. Our categorization of state concealed carry laws is presented in Table 1.

There is some disagreement in the literature about what states are, and when they became, "shall issue." For example, the actual language in Connecticut's concealed carry law reads "may issue." However, Connecticut does not require that the applicant give a reason for needing a permit, it restricts local discretion in issuing permits, and it has a statewide board of appeals to ensure consistency in the issuance of permits. So, we have chosen to classify it "shall issue." The Pennsylvania "shall issue" law of 1989 exempts Philadelphia, granting its chief of police the authority to deny a permit. Nonetheless, because permits granted outside Philadelphia are legal in the city, we classify Pennsylvania as "shall issue" from 1989.[12] Similar issues exist with other jurisdictions.[13]

To measure crime rates, we used annual, state-level data from the FBI's Uniform Crime Report (UCR). The FBI publishes separate indices for violent crime, property crime, and total offenses (which include both violent and property crime). Although not all crimes are reported, and not every agency's reports are included in the UCR, there is no question that the UCR is the most comprehensive, accurate source for offense data available. These indices are routinely used in the literature on the consequences of gun control (e.g., Lott and Mustard 1997, Black and Nagin 1998, and Ayres and Donahue 2003). We present results using the total crime and violent crime indices.

For regional indicators, we used Census definitions, which divide the country into nine regions: New England, Middle Atlantic, South Atlantic, East North Central, East South Central, West North

[12] Cramer and Kopel (1995, 697).

[13] For example, in Virginia, despite a 1988 "shall issue" law, judges in Washington, DC-area counties issued permits at a much lower rate than elsewhere in the state. Subsequent legislation removed the discrepancy: we code Virginia as "shall issue" from 1995.

Central, West South Central, Mountain, and Pacific. To measure the effects of neighboring states' concealed carry laws, we included the percentage of states within a particular state's region that had already enacted "shall issue." To measure a state's urbanization, we used the percentage of a state's population that resided in Metropolitan Areas (MSAs) from the Census Bureau.

For political factors, we included the partisan composition of state legislatures and partisan affiliation of state governors.[14] We code states with both houses of the legislature (in states with two houses) and governor in the hands of one party, Republican or Democratic states; states with divided government constitute the omitted category. Data on National Rifle Association membership within a state, available during the period 1977-1995, is expressed as membership relative to state population.[15] Because we were not able to obtain data on NRA membership rates prior to 1977 and after 1995, we included this measure in a separate set of statistical tests. Correlations among the data are presented in Table 2.

5. Estimation Strategy and Results

How should we empirically assess the factors that cause states to change from "may issue" to "shall issue"? Despite several court-imposed delays, none of the 37 states that have become "shall issue" have ever switched back to "may issue."[16] This type of behavior is best assessed with "duration models" (see Kalbfleisch and Prentice 1980, Kiefer 1988, and Lancaster 1990).[17] Duration models

[14] These data were provided by Jim Alt of Harvard University.
[15] The data on NRA membership are from John Lott's web site: http://www.JohnLott.org.
[16] The next two paragraphs draws extensively on Broz and Grossman (2004).
[17] This question can also be addressed with a binomial dependent variable model, in which the dependent variable is whether or not a state enacts "shall issue" in any given year. See Beck, Katz, and Tucker (1998) for how to deal with

have a dependent variable that measures how long it takes for some event of interest to occur. Analysts model the elapsed time until such an event (termed a "failure" by convention), or equivalently, the length of a non-eventful "spell." In our example, the event of interest is the adoption of a "shall issue" law—the pre-existing "may issue" law either "survives" or is "at risk" until it fails and is replaced with a "shall issue" law.

In order to estimate duration models, a distribution of the data must be selected. The specification of the distribution determines the shape of the hazard function. There are a number of duration distributions from which one might choose—e.g., the Weibull, the gamma, and the exponential to name a few. Given the lack of a strong pattern in duration dependence, we estimate the survival model with a Cox proportional hazards model.[18] The Cox model is the most general—and commonly used—duration model because it does not make any assumptions about the nature or shape of the underlying survival distribution. The model assumes that the underlying hazard rate (rather than survival time) is a function of the covariates (i.e., independent variables); no assumptions are made about the nature or shape of the hazard function. However, the Cox model does assume that the hazard ratio is proportional over time; in other words, that the ratio is the same at any point in the time scale. That is, given two observations with particular values for the covariates, the ratio of the estimated hazards will be constant over time; hence the name of the method: the *proportional hazard* model.

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temporal dependence in logit/probit models of grouped duration data. We also ran probit models on our data and obtained results that are qualitatively similar to the hazard model results presented below.

[18] We have also run survival analysis assuming a Weibull distribution (which would be the appropriate distribution in the case of positive or negative duration dependence). The results are qualitatively similar to those yielded by the Cox model.

Tables 3 and 4 present results for our Cox model results with robust standard errors (i.e., errors adjusted for clustering on each state). Note that positive coefficients indicate that an increase in the covariate should increase the likelihood of a state becoming "shall issue." Conversely, a negative coefficient indicates that an increase in the covariate should reduce the likelihood of a state becoming "shall issue."

Table 3 presents results for the 1960-2000 period, omitting NRA membership data; Table 4 presents results for the 1977-1995 period, including NRA membership data. In both tables, models 1-6 use the total crime rate, while models 7-12 use the violent crime rate. Additionally, models 1, 2, 7, and 8 use the contemporaneous value of the crime index; models 3, 4, 9, and 10 use a trailing three-year moving average of the crime index; and models 5, 6, 11, and 12 use a trailing five-year moving average of the crime index.

The results in Table 3 are remarkably consistent across models. In each model, the percentage of a state's population living in urban areas is negative and strongly significant. Given the predominance of such heavily urban states as California, Hawaii, Illinois, Massachusetts, New Jersey, New York, and Rhode Island among the remaining "may issue" states, this result is not surprising. The percentage of states within a region that are "shall issue" is positive and strongly significant, suggesting that states do take into account the policies of their neighbors in deciding whether to enact "shall issue" laws. Whether or not they do this to keep in step with their neighbors, or to prevent the spillover effects posited by Bronars and Lott (1998), is unclear. In both cases, the results are robust to the inclusion of region dummy variables. Republican control of the legislature and governor's office has a positive coefficient and is marginally significant, while Democratic control has an opposite, although not statistically

significant, effect. In terms of regional influences, New England and West North Central states are less likely to enact "shall issue," while Mountain states are more likely. Although the coefficient on the crime rate is universally negative, and the coefficient on the square of the crime rate is universally positive (suggesting that increasing crime rates lower the probability of the switch to "shall issue," although at a decreasing rate), in none of the specifications are crime variables (whether contemporary, or moving averages of current and previous years) significant.

Table 4 presents Cox models including data on NRA membership by state. Again, the coefficient on the percent of a region's states that are "shall issue" is positive and strongly significant. The percent of a state's population living in urban areas is still negative and significant at standard levels, although the significance is slightly reduced. Republican control of state government is positive and more consistently significant. Regional dummies for the New England and the Mountain states maintain their negative and positive signs and remain significant, while crime (negative) and crime squared (positive) are marginally significant. The NRA membership rate has positive coefficients and, in specifications without regional dummies, is significant at the 5 percent level. The NRA rate's positive correlation with the Mountain states and negative correlation in New England may explain this result.

6. Conclusion

Handgun control, particularly concealed carry regulation, is among the most hotly debated topics in academic and political circles. Proponents of less stringent gun control argue that guns in the hands of law abiding citizens can reduce the rate of violent crime; opponents argue that less stringent concealed

carry laws lead to increased levels of crime. In this paper, we take no position on the consequences of concealed carry laws; we merely attempt to explain the timing and pattern of their adoption.

Our evidence suggests several robust findings. First, we find strong evidence that the decision to enact "shall issue" is influenced by the decisions taken by neighboring states. It is not clear from our research whether this is done to "keep up with the neighbors" (i.e., not to be out of step with neighboring jurisdictions) or to prevent the spillover effects posited by Bronars and Lott (1998), although we have found more anecdotal evidence of the former, rather than the latter, rationale.

Second, we find that less urban states are more likely to shift to "shall issue" than their more urban counterparts. This result holds even if we control for regions of the country. We also find that, on average, New England and West North Central states are less likely to enact "shall issue," while Mountain states are more likely.

Third, we find support, although less strong, for the notion that states with Republican political leadership (governor and legislature) are more likely to switch than those controlled by Democrats or those where there is divided government, as are states with high NRA membership rates. The signs on Democratic control are opposite of those on Republican, although, the results are not statistically significant.

Finally, and perhaps most surprisingly, we find no evidence that the crime rate has led to changes in concealed carry laws. The coefficients on the crime rate, both total crime rate and the violent crime rate, as well as on contemporary as well as trailing three- and five-year moving averages, are not statistically significant from zero. Despite arguments that changes in gun laws have been--or should be—made in response to rising crime rates, we find states' demography (i.e., urbanization) and political

leanings, as well as the preferences of their neighboring states, to have been far more powerful at motivating changes in concealed carry laws.

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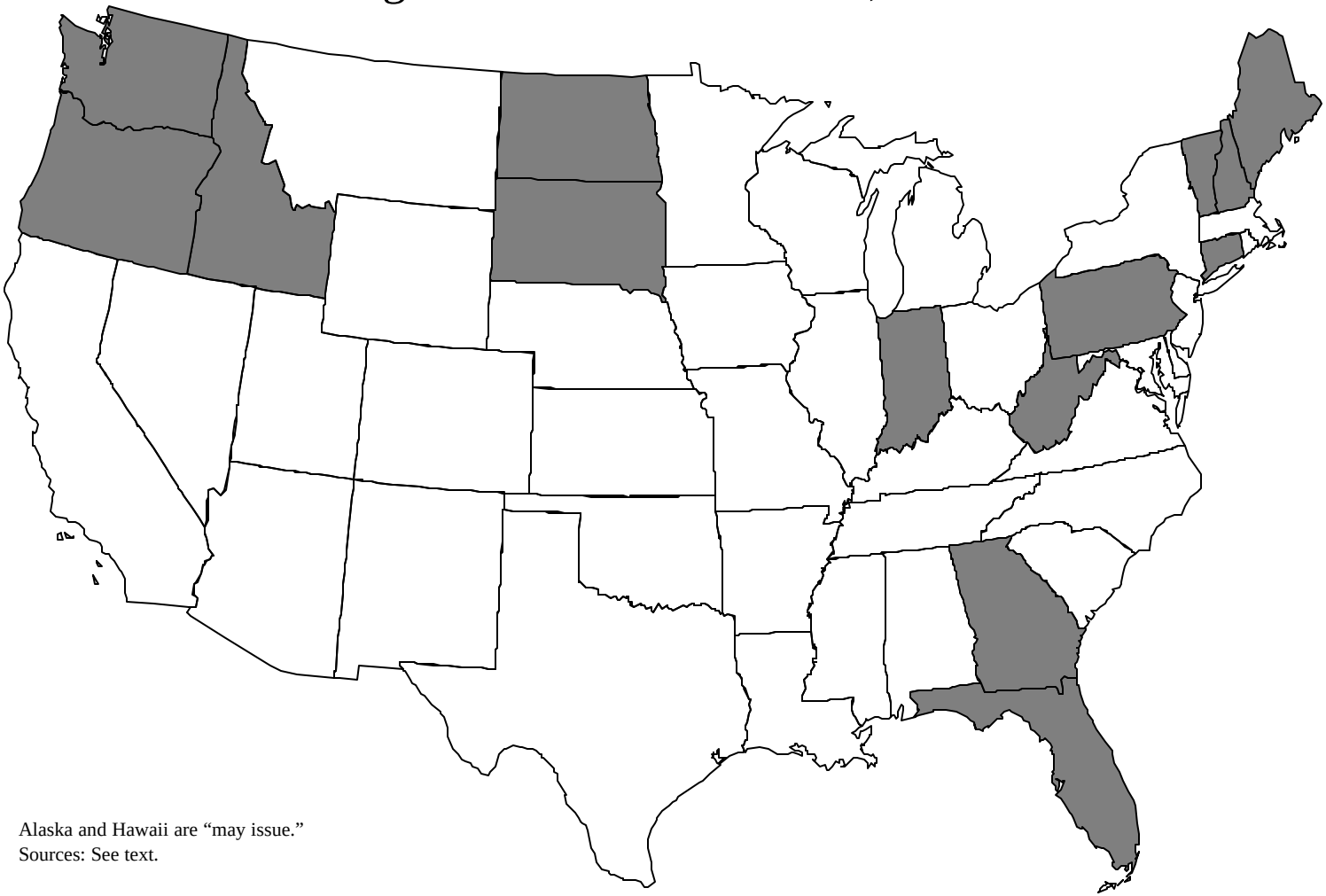
Figure 1: Shall Issue States, 1960

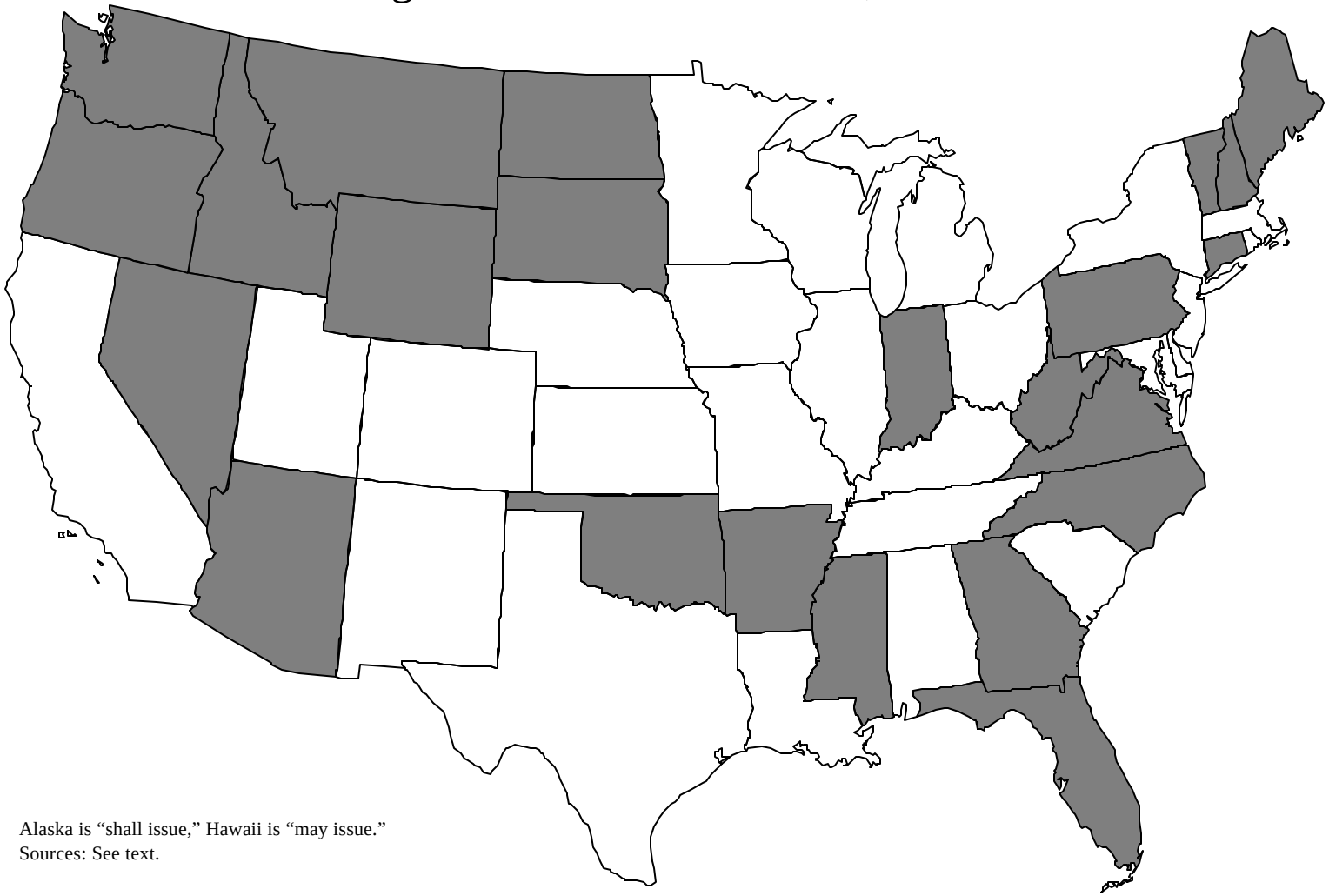
Alaska and Hawaii are “may issue.”
Sources: See text.

Figure 2: Shall Issue States, 1990



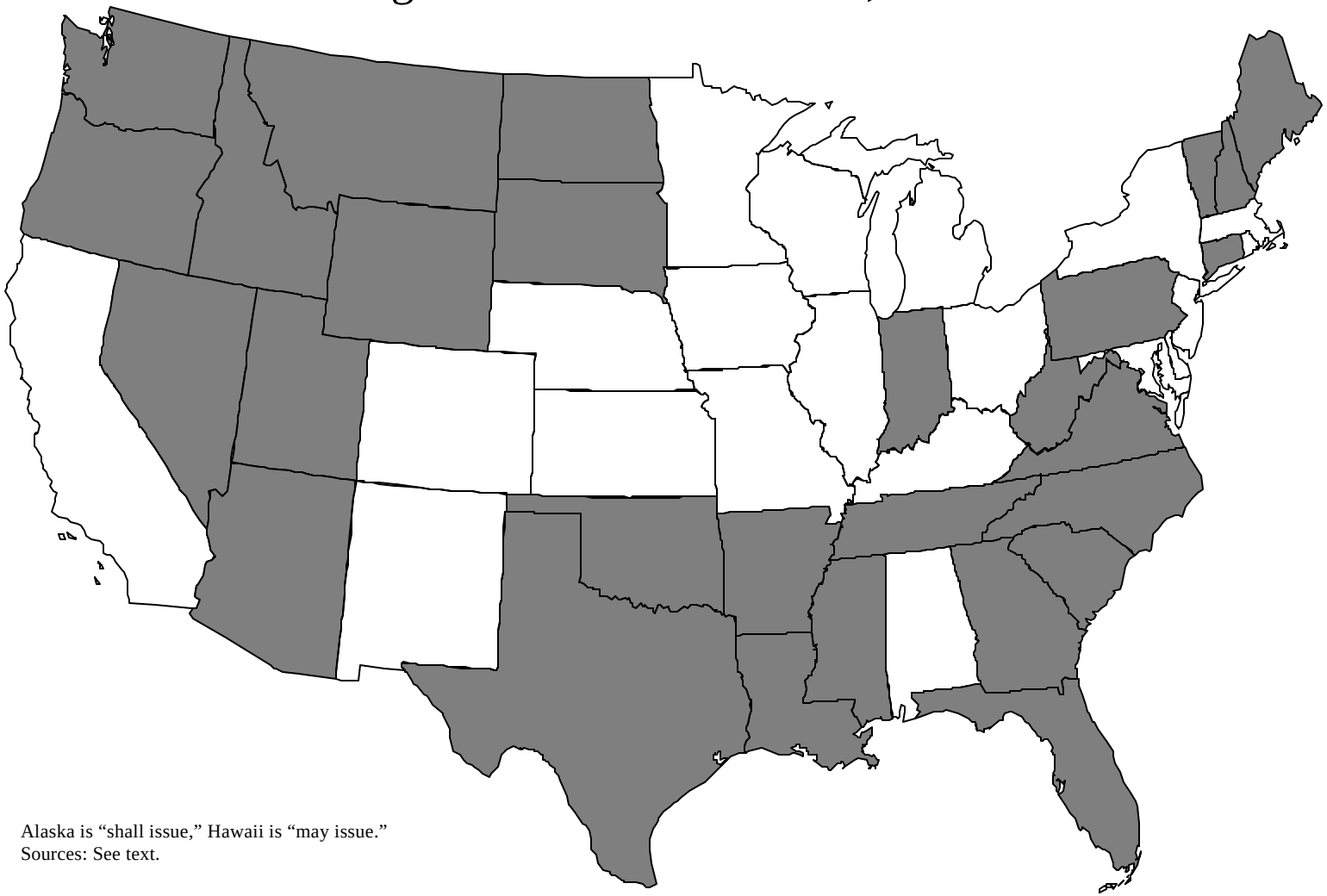
Alaska and Hawaii are “may issue.”
Sources: See text.

Figure 3: Shall Issue States, 1995



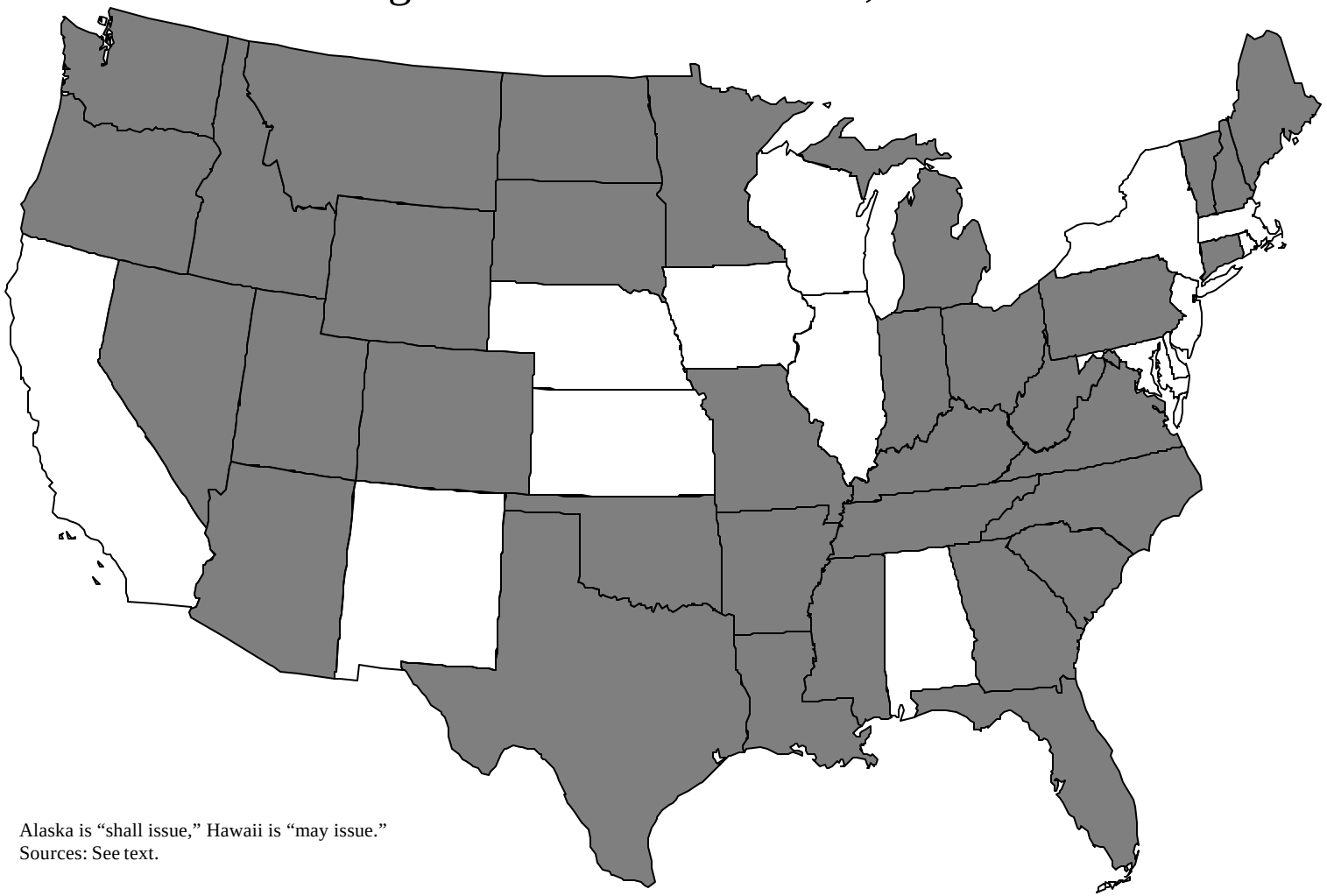
Alaska is “shall issue,” Hawaii is “may issue.”
Sources: See text.

Figure 4: Shall Issue States, 2000



Alaska is “shall issue,” Hawaii is “may issue.”
Sources: See text.

Figure 5: Shall Issue States, 2003



Alaska is “shall issue,” Hawaii is “may issue.”
Sources: See text.

State	Classification	Year SI Enacted	State	Classification	Year SI Enacted
Alabama	May Issue		Montana	Shall Issue	1991
Alaska	Shall Issue	1994	Nebraska	No CCW	
Arizona	Shall Issue	1994	Nevada	Shall Issue	1995
Arkansas	Shall Issue	1995	New Hampshire	Shall Issue	1959
California	May Issue		New Jersey	May Issue	
Colorado	Shall Issue	2003	New Mexico*	Shall Issue	2004
Connecticut	Shall Issue	1969	New York	May Issue	
Delaware	May Issue		North Carolina	Shall Issue	1995
District of Columbia	May Issue		North Dakota	Shall Issue	1985
Florida	Shall Issue	1987	Ohio	Shall Issue	2003
Georgia	Shall Issue	1989	Oklahoma	Shall Issue	1995
Hawaii	May Issue		Oregon	Shall Issue	1989
Idaho	Shall Issue	1990	Pennsylvania	Shall Issue	1989
Illinois	No CCW		Rhode Island	May Issue	
Iowa	May Issue		South Carolina	Shall Issue	1996
Indiana	Shall Issue	1980	South Dakota	Shall Issue	1986
Kansas	No CCW		Tennessee	Shall Issue	1996
Kentucky	Shall Issue	1996	Texas	Shall Issue	1996
Louisiana	Shall Issue	1996	Utah	Shall Issue	1995
Maine	Shall Issue	1985	Vermont	No Permit Needed	
Massachusetts	May Issue		Virginia	Shall Issue	1995
Michigan	Shall Issue	2001	Washington	Shall Issue	1961
Minnesota	Shall Issue	1991	West Virginia	Shall Issue	1989
Minnesota	Shall Issue	2003	Wisconsin	No CCW	
Mississippi	Shall Issue	1991	Wyoming	Shall Issue	1994
Missouri	Shall Issue	2003			

* New Mexico had no lawful concealed carry until 2004. At the time of this writing, New Mexico had started granting permits on under a new “shall issue” law.

Table 2: Correlations

	SI	TCI	VCI	Pop	Urb	RegSI	NRA	Dem	Rep	NE	MidA	SA	ENC	ESC	WNC	WSC	Mount	Pac
Shall Issue (SI)	1.00																	
Total Crime Index (TCI)	0.01	1.00																
Violent Crime Index (VCI)	-0.07	0.80	1.00															
Population (Pop)	-0.09	0.22	0.31	1.00														
Percentage Urban (Urb)	-0.08	0.56	0.55	0.50	1.00													
Pct. of Region SI (RegSI)	0.58	0.10	0.09	-0.04	0.08	1.00												
NRA Rate (NRA)	0.25	-0.26	-0.30	-0.27	-0.50	0.09	1.00											
Democratic Control (Dem)	-0.20	0.02	0.12	-0.05	0.06	-0.16	-0.32	1.00										
Republican Control (Rep)	0.19	-0.14	-0.19	-0.06	-0.13	0.07	0.10	-0.34	1.00									
New England (NE)	0.30	-0.15	-0.20	-0.18	-0.02	0.51	-0.01	-0.08	0.06	1.00								
Middle Atlantic (MidA)	-0.06	-0.03	0.08	0.39	0.26	-0.13	-0.06	-0.11	0.07	-0.09	1.00							
South Atlantic (SA)	-0.04	0.13	0.32	-0.02	0.14	-0.09	-0.23	0.27	-0.18	-0.17	-0.12	1.00						
East North Central (ENC)	-0.07	0.00	0.02	0.26	0.17	-0.18	-0.09	-0.21	0.08	-0.12	-0.08	-0.15	1.00					
East South Central (ESC)	-0.05	-0.16	-0.03	-0.05	-0.16	-0.10	-0.14	0.21	-0.12	-0.11	-0.07	-0.14	-0.10	1.00				
West North Central (WNC)	-0.09	-0.20	-0.21	-0.16	-0.25	0.10	0.04	-0.10	0.17	-0.15	-0.10	-0.18	-0.13	-0.12	1.00			
West South central (WSC)	-0.03	0.02	0.04	0.09	-0.02	0.03	-0.07	0.19	-0.12	-0.11	-0.07	-0.14	-0.10	-0.09	-0.12	1.00		
Mountain (Mount)	-0.04	0.15	-0.06	-0.27	-0.13	-0.21	0.35	-0.19	0.13	-0.16	-0.11	-0.20	-0.14	-0.13	-0.17	-0.13	1.00	
Pacific (Pac)	0.08	0.20	0.02	0.14	0.08	0.04	0.16	0.03	-0.11	-0.12	-0.08	-0.15	-0.11	-0.10	-0.13	-0.10	-0.14	1.00

Table 3: Cox Proportional Hazard Models, 1960-2000

Crime Index Moving Average	Model 1 Total 1YR	Model 2 Total 1YR	Model 3 Total 3YRMA	Model 4 Total 3YRMA	Model 5 Total 5YRMA	Model 6 Total 5YRMA
Crime	-0.000528 0.000582	0.000052 0.000517	-0.000555 0.000616	-0.000157 0.000551	-0.000717 0.000685	-0.000237 0.000566
Crime Squared	2.85E-08 3.83E-08	4.38E-10 3.64E-08	3.25E-08 4.09E-08	1.53E-08 3.79E-08	4.14E-08 4.47E-08	1.97E-08 3.89E-08
Urban	-0.267 ** 0.0134	-0.0372 **** 0.0120	-0.0333 *** 0.0141	-0.0402 **** 0.013	-0.306 ** 0.0149	-0.0391 **** 0.0133
Percent of Region Shall Issue	9.67 **** 2.17	5.078 **** 0.800	9.46 **** 2.20	5.37 **** 0.821	9.44 **** 2.19	5.34 **** 0.824
Republicans Control	1.12 * 0.649	0.719 0.592	1.26 * 0.707	0.865 0.584	1.22 * 0.711	0.845 0.587
Democrats Control	-0.0382 0.422	-0.133 0.395	-0.206 0.438	-0.294 0.402	-0.237 0.434	-0.299 0.404
New England	-3.21 ** 1.46		-2.53 * 1.38		-2.65 *** 1.35	
MidAtlantic	0.103 1.23		0.608 1.18		0.453 1.16	
South Atlantic	-0.704 0.894		-0.264 0.915		-0.393 0.951	
East North Central	-0.224 1.26		0.181 1.23		0.0611 1.23	
East South Central	-1.47 1.47		-1.07 1.46		-1.24 1.49	
West North Central	-2.34 ** 0.994		-1.95 ** 0.921		-2.09 0.911 ***	
West South Central	-1.67 * 0.996		-1.20 1.05		-1.25 1.00	
Mountain	0.968 0.622		1.21 ** 0.613		1.16 * 0.604	
Log liklihood N Wald Chi-squared (probability> chi-squared)	-78.6 1717 83.03 ****	-85.8 1717 43.16 ****	-74.3 1621 89.89 ****	-80.7 1621 47.55 ****	-74.0 1537 92.7 ****	-80.7 1527 46.98 ****

Notes:
Standard errors in parentheses.
* significant at the 10% level; ** significant at the 5% level; *** significant at the 2.5% level; **** significant at the 1% level.
Crime indices: Total (Total Offenses Index); Violent (Violent Crime Index).
Crime index timing: one year (1YR); 3-year moving average (3YRMA); 5-year moving average (5YRMA).

Census regions: New England (CT, ME, MA, NH, RI, VT); Middle Atalantic (NJ, NY, PA); East North Central (IN, IL, MI, OH, WI); West North Central (IA, KS, MN, MO, NE, ND, SD); South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV); East South Central (AL, KY, MS, TN); West South Central (AR, LA, OK, TX); and Mountain (AZ, CO, ID, NM, MT, UT,NV, WY). The Pacific region (AK, CA, HI, OR, WA) omitted.
Data sources: See text.

Table 3, con't: Cox Proportional Hazard Models, 1960-2000

Crime Index Moving Average	Model 7 Violent 1YR	Model 8 Violent 1YR	Model 9 Voilent 3YRMA	Model 10 Violent 3YRMA	Model 11 Violent 5YRMA	Model 12 Violent 5YRMA
Crime	-0.00138 0.00167	-0.000755 0.00166	-0.001 0.00166	-0.000617 0.000169	-0.00167 0.00171	-985 0.00174
Crime Squared	1.05E-07 6.24E-07	5.83E-08 5.88E-07	2.49E-08 5.90E-07	3.45E-08 5.76E-07	1.70E-07 6.06E-07	1.14E-07 5.93E-07
Urban	-0.0287 **** 0.0111	-0.0315 *** 0.0123	-0.0357 **** 0.0114	-0.0365 **** 0.0124	-0.0340 **** 0.0113	-0.0353 **** 0.0124
Percent of Region Shall Issue	9.64 **** 2.23	5.019 **** 0.822	9.45 **** 2.31	5.33 **** 0.845	9.47 **** 2.31	5.34 **** 0.862
Republicans Control	0.980 0.694	0.617 0.574	1.16 0.738	0.805 0.557	1.08 0.740	0.773 0.555
Democrats Control	0.00364 0.376	-0.0984 0.369	-0.104 0.389	-0.229 0.373	-0.132 0.386	-0.232 0.374
New England	-2.99 ** 1.35		-2.38 * 1.34		-2.45 * 1.34	
MidAtlantic	0.666 1.19		1.12 1.21		1.14 1.21	
South Atlantic	-0.270 0.698		0.130 0.729		0.119 0.731	
East North Central	0.0823 1.24		0.453 1.23		0.418 1.24	
East South Central	-1.22 1.28		-0.869 1.30		-0.885 1.30	
West North Central	-2.01 ** 0.909		-1.62 * 0.889		-1.67 * 0.875	
West South Central	-1.45 0.900		-1.06 0.969		-1.03 0.968	
Mountain	0.995 0.677		1.25 * 0.672		1.22 * 0.678	
Log liklihood N Wald Chi-squared (probability> chi-squared)	-78.0 1717 83.6 ****	-85.6 1717 42.3 ****	-73.9 1621 84.4 ****	-80.6 1621 47.3 ****	-73.6 1527 87.7 ****	-80.4 1527 46.5 ****

Table 4: Cox Proportional Hazard Models, 1977-1995

Crime Index Moving Average	Model 1 Total 1YR	Model 2 Total 1YR	Model 3 Total 3YRMA	Model 4 Total 3YRMA	Model 5 Total 5YRMA	Model 6 Total 5YRMA
NRA Membership Rate	0.000305 0.000487	0.000686 ** 0.000350	0.000302 0.0000473	0.000670 ** 0.000343	0.000271 0.000455	0.000726 ** 0.0000341
Crime	-0.000623 0.000789	-0.000810 0.000576	-0.000607 0.00081	-0.000883 0.000577	-0.000735 0.00089	-0.000992 * 0.000588
Crime Squared	4.83E-08 4.81E-08	6.48E-08 * 3.64E-08	4.78E-08 5.21E-08	7.01E-08 * 3.83E-08	5.45E-08 5.76E-08	7.69E-08 * 3.95E-08
Urban	-0.043 ** 0.0201	-0.0258 0.0179	-0.0432 ** 0.0198	-0.0244 0.0176	-0.0412 ** 0.0200	-0.0224 0.0177
Percent of Region Shall Issue	13.8 **** 3.74	4.81 **** 0.982	13.7 **** 3.68	4.77 **** 0.979	13.5 **** 3.59	4.74 **** 0.987
Republicans Control	1.75 * 0.929	1.25 ** 0.599	1.73 * 0.951	1.23 ** 0.602	1.67 * 0.951	1.20 ** 0.606
Democrats Control	-0.319 0.566	-0.213 0.498	-0.293 0.575	-0.210 0.497	-0.297 0.567	-0.210 0.492
New England	-4.20 * 2.37		-4.16 * 2.24		-4.25 ** 2.15	
MidAtlantic	1.73 1.59		1.75 1.42		1.57 1.36	
South Atlantic	-0.0402 1.79		-0.0246 1.69		-0.167 1.66	
East North Central	1.44 1.59		1.44 1.48		1.28 1.44	
East South Central	1.55 1.97		1.50 1.85		1.26 1.80	
West North Central	-1.94 1.55		-1.92 1.45		-2.07 1.42	
West South Central	-2.66 2.17		-2.65 2.06		-2.73 1.99	
Mountain	2.06 *** 0.907		2.04 0.871		1.94 *** 0.831	
Log liklihood N Wald Chi-squared (probability> chi-squared)	-54.8 802 85.6 ****	-61.8 802 53.7 ****	-54.9 802 86.1 ****	-619 802 54.1 ****	-54.9 802 87.8 ****	-61.8 802 52.9 ****

Notes:
Standard errors in parentheses.
* significant at the 10% level; ** significant at the 5% level; *** significant at the 2.5% level; **** significant at the 1% level.
Crime indices: Total (Total Offenses Index); Violent (Violent Crime Index).
Crime index timing: one year (1YR); 3-year moving average (3YRMA); 5-year moving average (5YRMA).

Census regions: New England (CT, ME, MA, NH, RI, VT); Middle Atalantic (NJ, NY, PA); East North Central (IN, IL, MI, OH, WI); West North Central (IA, KS, MN, MO, NE, ND, SD); South Atlantic (DE, DC, FL, GA, MD, NC, SC, VA, WV); East South Central (AL, KY, MS, TN); West South Central (AR, LA, OK, TX); and Mountain (AZ, CO, ID, NM, MT, UT,NV, WY). The Pacific region (AK, CA, HI, OR, WA) omitted.
Data sources: See text.

Table 4, con't: Cox Proportional Hazard Models, 1977-1995

Crime Index Moving Average	Model 7 Violent 1YR	Model 8 Violent 1YR	Model 9 Violent 3YRMA	Model 10 Violent 3YRMA	Model 11 Violent 5YRMA	Model 12 Violent 5YRMA
NRA Membership Rate	0.000323 0.000411	0.000704 ** 0.000337	0.00031 0.0004	0.00072 ** 0.000335	0.000303 0.000391	0.000751 *** 0.000334
Crime	-0.000785 0.00210	-0.00193 0.00193	-0.00100 0.00207	-0.00216 0.00191	-0.00141 0.00222	-0.00265 0.00199
Crime Squared	-5.37E+09 7.56-e07	5.59E-07 6.46E-07	3.83E-08 7.45E-07	6.02E-07 6.15E-07	5.15E-08 9.43E-07	7.15E-07 6.65E-07
Urban	-0.0417 *** 0.0186	-0.0212 0.0163	-0.0413 *** 0.0183	0.0203 0.0160	-0.0397 ** 0.0184	-0.0181 0.0160
Percent of Region Shall Issue	13.7 **** 3.89	4.84 **** 1.05	13.6 **** 3.88	4.85 **** 1.06	13.5 **** 3.84	4.87 **** 1.07
Republicans Control	1.610 * 0.918	1.19 ** 0.555	1.55 * 0.919	1.17 ** 0.551	1.46 0.911	1.13 ** 0.554
Democrats Control	-0.112 0.492	-0.0583 0.459	-0.116 0.486	-0.0503 0.456	-0.137 0.482	-0.0400 0.451
New England	-4.26 ** 2.11		-4.30 ** 2.08		-4.35 ** 1.20	
MidAtlantic	1.95 1.27		1.95 1.26		1.93 1.23	
South Atlantic	0.205 1.31		0.162 1.28		0.117 1.21	
East North Central	1.48 1.40		0.143 1.37		1.34 1.36	
East South Central	1.59 1.47		1.54 1.44		1.47 1.39	
West North Central	-1.63 1.27		-1.66 1.24		-1.72 1.18	
West South Central	-2.70 1.890		-2.72 1.88		-2.70 1.83	
Mountain	1.99 ** 0.894		1.94 ** 0.873		1.86 ** 0.844	
Log liklihood N Wald Chi-squared (probability> chi-squared)	-55.0 802 84.6 ****	-62.3 802 46.3 ****	-54.9 802 87.3 ****	-62.2 802 44.84 ****	-54.7 802 92.3 ****	-61.9 802 42.8 ****