The Changing Ideological Politics of U.S. State Firearms Regulation

Dylan S. McLean, University of West Georgia

Jason Sorens, Dartmouth College

Are the components of policy ideology in the American states fixed, or do they change over time? We document a change in the ideological loading and internal consistency of state firearms laws. While state policy liberalism has long correlated positively with restrictive gun regulation, this relationship strengthened over the 1986 to 2016 period. Moreover, states' gun policy regimes have become more internally consistent since 1986, and newly salient issues, such as concealed-carry laws and assault weapons bans, have been enfolded into the existing dimension of regulatory restrictiveness. These changes brought about a growing divergence in state gun laws with left skew in the distribution (many states at the low end of regulation). This process also corresponds to a shift in the geographic bases of the Republican and Democratic parties toward non-urban and urban areas, respectively. The changes in gun policy patterns across states reflect dynamic representation of voter ideology. The results suggest that certain modeling assumptions used to generate cardinal state policy ideology scores in prior research ought to be revised.

Keywords: gun control; state policy ideology; policy change; policy liberalism; gun policy

Introduction

How does policy change occur? A long line of research has answered this question using data on the American states, which provide ample cross-sectional and over-time variation in policy outputs. "State policy liberalism" is a construct of the overall orientation of state policy, and much recent work has focused on how to measure this construct, and, once measured, how it differs across states and over time (Sorens, Muedini, and Ruger 2008, Caughey and Warshaw 2016). A key debate in this literature has taken place over whether a state's policy orientation can be characterized by more than the standard left-right dimension. While no one disputes that the left-right dimension is comprehensive and powerful, there may be important state policies that vary systematically across states and over time, but not in a way that correlates with policy liberalism.

We examine one possible set of such policies: firearms regulations. Prior research has suggested that firearms policies correlate not just with state policy ideology, but with urbanization rate and racial composition (Sorens, Muedini, and Ruger 2008). These policies have also changed dramatically over time. In the mid-1980s, most states completely prohibited the concealed carry of handguns in public. Today, some federal courts recognize a constitutional right to carry firearms in public, subject to reasonable restrictions, and no state any longer outright prohibits the act for all private citizens.[1]

Voters' views about gun control are now strongly associated with Democratic and Republican partisanship, but as recently as the 1990s, the National Rifle Association (NRA) endorsed many congressional Democrats (Kenny, McBurnett, and Bordua 2004). Even today,

---

[1] *Moore v. Madigan* 7th Cir. 12-1269, 12-1788.

prominent left-of-center politicians from comparatively rural states such as Vermont's Bernie

Sanders and Montana's Brian Schweitzer have opposed substantial, new federal regulations on

guns.

In the 1980s, some conservative states, particularly in the Midwest and South, had strict

gun laws. Since then, those states have led the charge to ease regulations on concealed and

open carry. As a result, today gun laws are quite relaxed in both conservative states and rural,

white states that are not conservative, while they have become increasingly restrictive — so far

as federal court rulings have permitted — in states that are both Democratic and highly urban.

The left-right ideological spectrum now matters more for the gun issue than it once did.[2]

Therefore, this paper argues that the way individual policies "load" onto state policy

liberalism changes over time. State gun laws appear to be a "most likely" case for policies

whose ideological relevance changes. In the next section we explain the nature of the debate

on the dimensionality of state policy ideology, vindicating an approach that allows "loadings" or

"discrimination parameters" for individual issues to change over time, and discuss what we

know about the ideological politics of firearms regulation. Then we present a new, annual

dataset of state firearms regulations dating back to 1986 and show how the relationship of

states' policy orientation toward firearms with general policy liberalism has changed over time.

This change in the relationship between gun policy orientation and state *policy* liberalism

reflects a change in the relationship between gun policy orientation and state *opinion* liberalism

and Democratic partisanship, as a result of conservative Republicans' and liberal Democrats'

---

[2] Hurka (2015) finds a similar relationship in Europe: social democratic and green parties support tight regulation, while conservative and liberal parties oppose it. However, country-specific attitudes matter much more, with the British public generally opposed to private firearms ownership and Swiss gun culture quite strong, for instance.

position-taking on the issue. The final section concludes with implications for the study of state policy change.

State Policy Orientation and Firearms Regulation

States' policy outputs correlate across issue domains. This phenomenon is known as policy ideology. For instance, states with higher income tax rates and looser welfare program eligibility rules tend to have fewer restrictions on abortion and shorter prison sentences for criminal offenses. Liberal and conservative lawmakers take systematically different approaches to a wide range of policies. State policy ideology is typically modeled as a latent variable that we do not observe directly but can infer from states' policies in different domains (Wright, Erikson, and McIver 1987, Erikson, Wright, and McIver 1993, Caughey and Warshaw 2016, Sorens, Muedini, and Ruger 2008).

This is not to say that correlation across issue domains is perfect: an otherwise conservative state might, for instance, have higher-than-expected income tax rates or lower-than-expected abortion regulation, due to idiosyncratic or cross-cutting factors such as leadership priorities, legislative institutions, policy learning, or competitive constraints vis-à-vis other states. South Dakota is one of the most economically conservative states but has a relatively high minimum wage due to its ballot initiative process (minimum wages are popular among voters but not among conservative legislators).

Additionally, some policies seem altogether unrelated to this left-right policy ideology dimension. The U.S. Chamber of Commerce has put a great deal of effort into encouraging states to change their tort liability systems (Hinton and McKnight 2011). While conservative states have been more likely to enact certain tort reforms, Chamber of Commerce grades on

tort liability systems do not correlate with policy liberalism. Another example is occupational

licensing. Few states, conservative or liberal, have put up even token resistance to local

professionals' efforts to protect themselves from new competitors (Council of Economic

Advisers 2015).

Political scientists have been debating whether state policy ideology is uni- or multi-

dimensional. Early research found many dimensions (Sharkansky and Hofferbert 1969, Hopkins

and Weber 1976). Later work found that because even random data generate nonzero

correlations, all but two of these dimensions were spurious (Sorens, Muedini, and Ruger 2008).

The most recent work on this, by Caughey and Warshaw (2016), uses dynamic Bayesian latent

variable modeling (LVM) to discover only a single, left-right dimension underlying state policy

change from 1936 to 2014.

The remainder of this discussion will be simplified with formal notation. Let θ_{st}

represent latent policy liberalism for each state s and year t. We observe J state policies for

each state and year, which can be either continuous or ordinal (including dichotomous). For

ordinal variables, state policy variables y_{st} represent imperfect measures of latent policies y_{st}^*.

Assume that continuous variables directly measure the underlying policies: $y_{st} = y_{st}^*$. Then

Caughey and Warshaw's dynamic LVM is represented by

$$y_{st}^* \sim \mathrm{N}_J\big(\beta_j \theta_{st} - \alpha_{jt}, \mathbf{\Psi}\big),$$

where N_J indicates a J-dimensional multivariate normal distribution and $\mathbf{\Psi}$ is a $J \times J$ covariance

matrix, assumed to be diagonal. β_j represents the coefficient estimate on policy liberalism for

each policy j and can be considered the "discrimination parameter" in IRT terminology. α_{jt} is

the intercept estimate ("difficulty parameter" in IRT language) on the latent variable model,

which varies by policy and by year. Caughey and Warshaw use the data to estimate α_{jt} with a random-walk prior centered on the previous year's value in a Bayesian framework. They correctly say that this is a more general approach than estimating α_{jt} separately each year, but it is also a less *robust* approach because it imposes smoothing on the dynamic process (p. 6).

The main weakness of the Caughey and Warshaw approach is an identifying restriction: the discrimination parameter is assumed to be constant over time, while the difficulty parameter is allowed to evolve gradually. The discrimination parameter relates the underlying trait, such as policy orientation, to the observed response, i.e. policy choice. It is a slope. The difficulty parameter is an intercept and expresses the all-else-equal likelihood of a particular response or policy choice. For example, the *difficulty* of same-sex marriage declined over time as more states adopted the policy. Initially, only the most liberal states adopted it, then less and less liberal ones jumped on the bandwagon (or were forced to do so by court rulings). One could say something similar about medical and recreational marijuana laws and about initial state adoption of Medicaid programs. It therefore makes sense to allow the difficulty parameter to vary over time.

However, the true discrimination parameters may also vary over time for certain policies. The reason for this is that the content of conservative and liberal ideologies and of the state-level programs of the Republican and Democratic parties has changed over time. Abortion laws are today one of the strongest indicators of state policy liberalism, but prior to *Roe v. Wade* and the entry of the Christian Right into the Republican Party they would not have been. According to Caughey and Warshaw's data, as of 1967, three states had liberalized abortion laws: California, Colorado, and North Carolina. In subsequent years before *Roe*, conservative

states like Arkansas, Georgia, Kansas, South Carolina, and Virginia also liberalized, while liberal Illinois, Massachusetts, and Minnesota did not (though New York, Oregon, and Washington did).

Caughey and Warshaw assume a constant discrimination parameter for two reasons. First, a model with a varying discrimination parameter is unidentified unless mean state liberalism is constrained to zero. Still, Caughey and Warshaw's own results show that average state policy liberalism never differs much from zero, despite a slight liberal trend prior to 1980 (p. 8). Thus, constraining the discrimination parameter rather than the mean score of state policy liberalism might seem to offer little benefit at high cost.

This alternative model of state policy liberalism is more robust to diachronic heterogeneity:

$$y_{st}^* \sim N_J\big(\beta_{jt}\theta_{st}I_t - \alpha_{jt}I_t, \Psi\big),$$

where I_t is a vector of year dummies. This model estimates discrimination and difficulty parameters by year, independently of those estimated for other years. This model effectively constrains the average state's policy liberalism to zero in each year. A state's change in policy ideology from one year to the next can be interpreted in relative terms, that is, compared to other states in the same years. A state's policy ideology can change without any of a state's actual policies changing, because the *meaning* of ideology changes over time. Abortion liberalization was not a liberal policy goal in the 1960s; in the 1980s, it was.

However, year-by-year estimation on a large set of variables also presents its own identification and convergence problems. We discuss these issues further in the final section.

Certain firearms policies follow a similar trajectory to abortion laws, in that while initially not strongly related to the left-right axis of political conflict, they have since become highly ideologically charged. In 1986, only nine states allowed concealed carry of loaded handguns on any basis: Washington, the Dakotas, Indiana, Alabama, Connecticut, Vermont, New Hampshire, and Maine. A large swath of mostly conservative states completely prohibited any bearing of handguns in public, open or concealed, including Texas, Mississippi, Alaska, Arizona, Kansas, and Nebraska. Shall-issue and unrestricted concealed carry laws spread across the country from the late 1980s, indicating a change in the difficulty parameter as well. The first two states to enact assault weapons bans, California in 1989 and New Jersey in 1990, were not especially Democratic in presidential voting then, but were and are highly urbanized.

Since high-profile fights over the federal Brady Bill and assault weapons ban, the parties have clearly sorted themselves over gun control. Gun issues may have even contributed to the phenomenon of partisan sorting by population density: rural states have moved toward the Republicans, and urban states to the Democrats. Nall (2015), and Rodden (2010), find that this relationship between partisanship and population density extends all the way to the precinct level. It is not surprising therefore that today, firearms laws load strongly onto the left-right dimension of state policy orientation.

Theories of policy representation in the states suggest that policy ideology follows partisanship and opinion ideology (Erikson, Wright, and McIver 1993). Caughey and Warshaw (2018) find that partisanship mediates some but far from all of the "dynamic policy responsiveness" in the states. In other words, electing Democratic legislators and governors

does increase policy liberalism, but opinion liberalism predicts future shifts in policy liberalism even in the absence of shifts in party control of state institutions. Thus, the growing left-right ideological loading of gun policy hypothesized in this paper might have something to do with changes in public opinion ideology and partisanship. First, Democrats and Republicans have increasingly staked out different positions on gun policy. Second, opinion-liberal and opinion-conservative voters may have diverged in attitudes toward gun policy, encouraging legislators to change policy to fit voters' changing attitudes.

Historically, racial politics has influenced gun policy, particularly regarding laws governing carrying concealed handguns. Until the early twentieth century these laws were primarily a Southern phenomenon while most Northern states had no laws regulating carrying concealed weapons (Cramer 1999, 4). Antebellum and Reconstruction-era gun control laws in the South were overtly racial. This overtness changed rather quickly in the wake of the Fourteenth Amendment but the racial nature of gun control proved to be much more resilient (Cook and Goss 2014, 165-166, Winkler 2011, 141-142). For instance, the legislative histories of the laws that were rewritten to be race-neutral, as a response to the Fourteenth Amendment, often included explicit references to their nonetheless racial motivations (Cramer 1999, 15) and gun control was used to directly disarm blacks (Cobb Jr. 2016, 45). Gun laws were also enforced selectively in the South, and elsewhere, in a manner that privileged whites (Cramer 1999, 13, Cook and Goss 2014, 166). In fact, there is some evidence that race continues to influence the adoption of policies related to firearms, specifically 'Stand Your Ground Laws,' but this *only* seems to be the case in the South (Butz, Fix, and Mitchell 2015).

The racialized nature of gun control was not confined to the South and, in addition to Blacks, other "socially undesirable groups" were targeted (Cottrol and Diamond 1991, 320). New York's Sullivan Law of 1911 was arguably the country's first comprehensive gun control effort. This product of the infamous Tammany Hall is often criticized for having anti-immigrant and other discriminatory roots (Cottrol and Diamond 1995); however, it seems that these criticisms are only partially supported (Winkler 2011, 205-206). What does seem to be clear is that the Sullivan Law was often *applied* in a discriminatory manner (DeConde 2001, 107-108). Other discretionary "may issue" licensing systems have been applied likewise. The most infamous example occurred when, after his home was firebombed, Martin Luther King Jr. was denied such a permit by a Montgomery police chief (Cook and Goss 2014, 167-168, Winkler 2011, 235).

The racial story of gun control becomes more complicated in the modern era. A significant shift occurred in the 1960s when black civil rights groups began to embrace the cause of gun control. These groups became allies in the movement for gun control with its traditional supporters, women's groups, although gun control was not central to either group's mission (Cook and Goss 2014, Goss 2006). This is a significant shift. Earlier there existed a strong "Black Tradition of Arms" and resistance to oppressive and discriminatory gun laws. Nicholas Johnson explains this shift, in part, by considering the electoral success that black activists were suddenly finding in America's urban core, along with the high levels of handgun violence these areas were experiencing. He argues that successful black politicians strategically chose to align themselves with progressive politics generally. Thus, a reversal had taken place. The mainstream black civil rights movement, which had long embraced arms as an important

tool in their struggle, no longer considered itself principally the victims of a discriminatory gun control regime but rather became a leading voice in favor of gun control (Johnson 2014, 286, Cobb Jr. 2016).

Many scholars of gun control in the U.S. argue that it occurs, if at all, in response to significant focusing, also referred to as triggering, events (Fleming 2012, Goss 2006, Wilson 2007). For example, the assassinations of prominent political actors during the 1960s influenced the passage of the 1968 Gun Control Act and the attempt on Reagan, in part, led to the Brady Bill. However, in this latter case, policy change took much longer and a relaxation of federal gun laws occurred before a strengthening. This episode illustrates the difficulty, and thus rarity, of significant federal-level policy change on guns. Much of the story of gun control in the U.S. has to be told through the lens of federalism (Spitzer 2008). Godwin and Schroedel (2000) demonstrate that focusing events helped drive the spread of local gun control ordinances in California.

Significant state and local policy change began in the late 1980s with a Maryland law banning the sale of cheap handguns. A wave of liberal states and cities soon followed suit by tightening their gun laws (Spitzer 2008, 159). Conservative and centrist states countered this trend by loosening their gun control regimes. This is most noticeable with concealed carry laws. Prior to 1988 the vast majority of states either prohibited concealed carry all together or had restrictive may-issue regimes like New York's (Spitzer 2008, 62). Florida's 1987 "shall issue" law proved to be the catalyst for a concealed carry regulatory sea change. Under this model a license is still required in order to carry a concealed weapon but local authorities *must* issue such a license if an applicant meets certain objective criteria. At year-end 2016, all but nine

states allowed concealed carry on a shall-issue or no-license basis. Of particular interest, the

states that were originally the strictest for concealed carry are now the least restrictive.[3] The

liberalizing trend in the states differs from the pattern found in Europe (Hurka 2015) and

probably reflects changing public opinion in favor of personal self-defense rights.[4]

Writing in the late 1990s, Bruce and Wilcox found that state-level gun control policy was

primarily associated with citizen ideology, region, and NRA membership. Southern,

conservative states with many NRA members are most resistant to gun control. They show that

urbanization only predicts gun control if ideology and NRA membership (proxied by

subscriptions to *American Rifleman*) are not controlled for.[5] This pattern of correlations may

reflect the fact that rural Americans are more likely than urbanites to join the NRA.

Furthermore, they find no evidence that racial composition or violent crime influences gun

control when these other factors are controlled for. At least as late as 1998, gun control was an

ideological issue but not related to partisan legislative control at the state level (Bruce and

Wilcox 1998). Gun control has been part of the national party platforms since 1968 (Spitzer

2008), and the two major parties have increasingly been at odds over the issue as evidenced by

---

[3] The landmark U.S. Supreme Court case *Heller v. District of Columbi*a interpreted the Second Amendment as protecting an individual right to bear arms and prohibited – in combination with *McDonald v. Chicago,* which incorporated this interpretation – complete bans on handgun ownership. Its most significant legal contribution was to settle whether the amendment protected the right of states to have militias, i.e. the 'collective right' interpretation, or whether it protected an individual right. The U.S. Supreme Court has yet to rule on a number of other questions, such as whether or not gun carry outside of the home is protected. We argue that the changes that we document in the data and discuss were driven by factors that were independent of the U.S. Supreme Court. Significantly, in terms of concealed carry laws in particular, the sea change had largely culminated by the time these rulings were issued. In 2010 only residents of Illinois and Wisconsin had no legal means to carry a concealed handgun in their state.

[4] Support for banning handguns and making gun laws more strict has trended downward as long as Gallup has surveyed these issues ("Gallup Social Series: Crime" 2015).

[5] Unfortunately, like O'Brien and Haider-Markel (1998) and Bruce and Wilcox (1998) we were unable to obtain data on NRA membership. We were also unsuccessful in our attempt to obtain data on *American Rifleman* subscriptions to use as a proxy.

congressional voting patterns such that today the issue is essentially purely partisan (Karol

2009, Price, Dake, and Thompson 2002).

We investigate the changing political correlates of state firearms policies from the mid-

1980s to the present, expecting to find that rurality and race diminish in importance through

this period and that left-right ideology grows in importance.

Hypothesis 1 (policy ideology): State gun laws, especially related to carrying in public, correlate

increasingly with left-right policy ideology.

Hypothesis 2 (responsiveness): State gun laws, especially related to carrying in public, correlate

increasingly with left-right public opinion and decreasingly with rurality and racial composition

since the 1980s.

Data and Results

Data

To analyze the changing ideological politics of firearms regulation, we have constructed

an index of state laws from an original dataset of 36 different policies from 1986 to 2016 (year-

end date of enactment).[6] We chose 1986 because it is the last year before the modern

concealed-carry movement emerged. We collected these data from primary sources, including

statutes, court rulings, and administrative codes. Statutory excerpts from the periodic Bureau

of Alcohol, Tobacco, and Firearms *State Laws and Published Ordinances – Firearms* publication

were helpful in cases in which statutory histories from online legal databases were incomplete.

The data on 36 policies are then used to build 29 quantitative variables for analysis (some of the

---

[6] Unlike the Sorens, Muedini, and Ruger (2008) dataset, this dataset goes back to 1986, not just 2000. Unlike the Caughey and Warshaw (2016) dataset, ours includes far more variables and often with finer codings.

policies can be combined into continuous measures). Table 1 shows the 29 variables and the

years for which variation exists.

[Table 1 about here]

A generalized measurement model, in the language of structural equation modeling,

transforms the 29 policy variables into a single index of gun control policy orientation. The

measurement model, also known as nonlinear factor analysis, assumes a probit link between

latent gun policy orientation and dichotomous policy measures, an OLS link between the latent

variable and continuous policy measures, and a log-gamma link with the one highly skewed-left

durational variable, term of carry permit. The model is run year by year, allowing the

component loadings to vary across years, analogously to allowing difficulty and discrimination

parameters to vary by year in the LVM framework. In effect, we allow the meaning of what

constitutes a stronger gun control or liberalization orientation to change over time. The cost

paid for this robust approach to estimation is that we cannot estimate cardinal values for gun

restrictiveness: the mean value of restrictiveness orientation is constrained to zero in each year.

To get at the question of how much overall gun restrictiveness has changed in the U.S., it would

be necessary to estimate, measure, and aggregate the estimated consequences of each policy

for gun purchases, ownership, carrying, and so on, which is beyond the scope of this paper.

A box-and-whisker plot shows how states' gun control index scores vary over the 1986

to 2016 period (Figure 1). The boxes in Figure 1 display the 25th and 75th percentile values, the

lines indicate the medians, and the whiskers the adjacent values. In every year, gun control has

been left-skewed, with the median below the mean (which is constrained to be zero in each

year) and a small number of outlier states with high amounts of gun control.[7] Over time, variance has increased as states' gun control approaches have polarized. By any interpretation, states like Kansas, Wyoming, and Alaska are far less restrictive than they once were, while California, Hawaii, and Massachusetts are far more restrictive.

[Figure 1 about here]

It is noteworthy that despite tremendous policy change in this area, the relative orientation of most states toward gun control has not changed much over the last 30 years. The states that were most restrictive in 1986 are largely among the most restrictive today. The online appendix gives the gun control index scores for every state-year. In 1986 New Jersey, Rhode Island, California, New York, and Massachusetts, in that order, were the most restrictive states. In 2016, all these states were still among the seven most restrictive, but California was the most restrictive of all. As Figure 1 suggests, the other, least restrictive end of the spectrum consists of a large cluster of states with very few state-level gun regulations beyond the federal minimum.

As states have polarized on gun control, their policy regimes have also become more internally consistent. We can see this by comparing the "loadings" (Z-statistics on the latent variable) of the policy variables in 1986 and 2016 (Table 2). In 1986, more gun-restrictive states were more likely to recognize Castle Doctrine (no duty to retreat) in the home. California, Connecticut, Delaware, Hawaii, Iowa, Massachusetts, Minnesota, New Jersey, New York, and Rhode Island all had statutory provisions recognizing the right to challenge an aggressor in the

---

[7] Because the mean is constrained to be zero in each year, it is inappropriate to use this gun control index as an absolute measure of policy restrictiveness. For an attempt to come up with such a measure, weighting policies by their estimated impact on gun ownership and use, see Ruger & Sorens (2016).

home, while most other states did not. None of these states repealed their statutory

protections, but other states started enacting them, and even going further to recognize the

right to challenge an aggressor in public places. By 2016, the more restrictive a state was on

firearms in general, the less expansive were its no-duty-to-retreat protections. Other

inconsistencies are found in the cost of a concealed weapons permit (more restrictive states

were less costly in 1986, more costly in 2016), gun-a-month laws (only South Carolina had such

a law in 1986, now only California, Maryland, and New Jersey do), owner theft reporting

requirements (only Ohio in 1986), and the index of concealed-carry ease, which was essentially

unrelated to overall gun control in 1986 but was strongly related in 2016.

[Table 2 about here]

These inconsistencies in gun policy regimes in the 1980s may suggest that gun policy

was less ideologically driven in that era. They also foreshadow the concealed-carry movement,

which swept states whose public-carry laws were out of alignment with their general attitudes

toward guns.

To test Hypothesis 1, it will be necessary to investigate how policy ideology relates to

gun policies in the early and contemporary periods. Our measure of policy ideology is the

Caughey and Warshaw (2016) index of policy liberalism. All independent variables are

standardized to zero mean and unit variance. Hypothesis 1 suggests that the correlation

between our gun-control index and policy liberalism will strengthen between 1986 and 2014,

the last year the policy liberalism index is available.

In the next section, we test this expectation by examining the evolution of the Pearson's *r* coefficient over this period. We also test statistically whether the correlation between the two variables is stronger in 2014 than 1986.

Testing Hypothesis 2 requires an examination of the relationship between gun policy and state partisan and ideological lean. Figure 2 visualizes the relationship between Partisan Voting Index (PVI), which is interpolated between presidential years and standardized, and the gun control index in 1986, also displaying confidence intervals on states' estimated index values and a line of best fit.[8]

[Figure 2 about here]

Even in this early period, there seems to be a positive relationship between Democratic partisanship and gun restrictiveness, although there is a great deal of noise. New Jersey and West Virginia are extreme outliers. The confidence intervals on state gun control index values are also rather broad, reflecting the inconsistency in many states' gun policy orientations in this period.

Compare now Figure 3, which visualizes the same relationship for 2016. The confidence intervals are much smaller: state gun policy regimes are now much more internally consistent. The relationship between voting behavior and gun policy is just as steep and less noisy, as hypothesized. There is a suggestion of a nonlinear relationship, in which states do not start ramping up gun regulations until they are significantly more Democratic than average. While Kansas appears to be the least regulated state for guns at the end of 2016, its confidence interval encompasses at least a dozen other states' point estimates. This phenomenon may

---

[8] The PVI is state Democratic plus Green/Nader presidential vote share minus national vote shares for the same.

reflect the policy "floor" established by federal gun control laws. If there were no such floor, more policies could display variation and appear in the index, and some states would be even less regulated than they are now. Still, there are major outliers, like Vermont. While Vermont became more Democratic and liberal between 1986 and 2016, its gun policy regime did not tighten at all.[9] Contrast Iowa, which became much more Republican and dramatically loosened its gun regulations.

[Figure 3 about here]

Generalized structural equation modeling (GSEM) integrates generalized multiple regression models with measurement models to allow us to analyze empirical relationships between latent, endogenous gun policy and exogenous, observed variables like ideology, urbanization, and race. Two alternative measures of public opinion ideology and partisanship are employed here: PVI and citizen ideology, as updated to 2013, from Berry et al. (1998). The correlation between the two opinion measures is 0.76.

In 1986 we expect the latent stringency of state firearms regulation to be better explained by rurality and racial composition than in 2016, and we expect liberalism to be more powerful in 2016 than 1986. The urban and black percentages of state population, interpolated between Censuses, are used for these estimates. We also include a dummy for Southern states.

The system of equations to be estimated takes the following form:

$$\mathbf{Y}_{ij} = \mathrm{F}\big(\beta_j Gun\ Control_i\big)$$

$$Gun\ Control_i = \alpha + \beta_1 Liberalism_i + \beta_2 Liberalism_i^2 + \beta_2 Urbanization_i +$$
$$\beta_3 Black_i + \beta_4 South_i,$$

(1)

---

[9] Since 2016, Vermont has enacted a major gun control law.

where $i \in I = 1, \ldots, 50$ indexes the states and $j \in J = 1, \ldots, 29$ indexes each gun policy. **Y** is an $I \times J$ matrix of gun policies, and β_j is a two-column, 29-row matrix of intercept and coefficient estimates. The functional link between the latent gun control variable and the matrix of gun policies varies by policy variable depending on whether it is continuous, durational, or binary (see Table 1). The exogenous ideological and demographic variables are assumed to covary. We estimate the full model for every year between 1986 and 2016.

Results

Hypothesis 1 is easy to test informally with a visualization. Figure 4 shows how the correlation coefficients between single-year values of the gun control index and policy liberalism evolve between 1986 and 2016. In 1987 the correlation between the two variables stood at a mere r=0.5; by 2014 it had risen to over 0.7. The subsumption of gun policies more firmly into the left-right policy dimension proceeded quickly between 1987 and 2000 and has remained stable since. This evidence is consistent with Hypothesis 1.

[Figure 4 about here]

A hypothesis test that $r_{1986} = r_{2014}$ rejects the null at $p = 0.064$ in a two-tailed test. Thus, there is fairly strong evidence that policy liberalism correlates more strongly with the gun control index in 2014 than in 1986.

Figure 5 shows how the marginal effect of opinion liberalism at low (one standard deviation below the mean) and high (one standard deviation above the mean) values of liberalism evolves over time, along with 95 percent confidence intervals. At low values of liberalism, additional liberalism probably encourages more gun control, but the marginal effects are small, inconsistent, and not statistically significant at conventional levels. At high values of

liberalism, additional liberalism appears quite strongly to encourage more gun control, if we can provide a causal interpretation to the results. The importance of state opinion liberalism for predicting gun control policies rises over time. A two-tailed test that the marginal effect of liberalism at one standard deviation above the mean is equal in 1986 and 2016 rejects the null at p=0.078. When PVI is used instead of opinion liberalism, its coefficients also rise in absolute size over time, but at a less steep rate (not shown).

[Figure 5 about here]

Figure 6 does the same for percentage black and urban population. Expectedly, percentage black predicts tighter gun control from 1986 to 2001 but gradually loses significance by 2011, although a test of equality between 1986 and 2016 coefficients does not come close to rejecting the null. Unexpectedly, the urban percentage of the population significantly predicts tighter gun control throughout, and more than doubles in importance. A two-tailed test of coefficient equality between 1986 and 2016 rejects the null at p=0.042.

Depending on one's point of view, comparing coefficient estimates between periods may require adjusting for a doubling in the variance of the gun control index between 1986 and 2016. Perhaps growing ideological alignment helps explain the growing variance in gun control policies, in which case this adjustment is unnecessary and indeed misleading. But if we assume the growth in the variance of gun control is exogenous, then we will want to halve the coefficients in the late-period models to make them comparable to those in the early-period equations.

If we do this adjustment, the elasticity of gun control with respect to urbanization rate in standard deviations grows between about 50 percent and about 100 percent between 1986

20

and 2016, depending on the other variables included. When it comes to the ideology measures, the elasticity adjustment suggests that as measured by the Berry et al. indicator of liberalism, gun control is about 50 percent more elastic with respect to ideology in 2016 than in 1986.

[Figure 6 about here]

Meanwhile, Southern states were less regulated for guns, controlling for measured ideology, from the mid-1980s to the early 2000s but not thereafter (see Appendix Table A2, which gives full model results for selected years). These findings probably reflect that Berry et al. citizen liberalism understates Southern conservatism on gun issues in the 1980s, when regional partisan realignments had not yet completed, but not in the 2010s, when they had. The Bayesian Information Criterion, for which lower values indicate better model fit, suggests that gun policy was more predictable in 2016 than 1986, which supports our expectations.

Policy Innovation and State Polarization

The results support Hypotheses 1 and 2: state gun laws have become more closely linked to left-right policy ideology over time and respond more to citizen opinion ideology and, possibly, partisanship in recent years. But these changes have been modest in relation to the growing *consistency* and *polarization* of state gun laws, perhaps the most striking finding from the preceding section. Why have state gun laws become more predictable and polarized but only slightly more ideologically loaded?

In this section, we investigate the possibility that policy innovation in the field of firearms regulation has given states opportunities to adapt their regulatory regimes more closely to their underlying propensities for regulation. The first year of our time series is the year before the birth of the modern concealed-carry movement, a deregulatory policy

innovation. But our time series also begins before the first introduction of numerous regulatory innovations, such as bans on assault weapons and high-capacity magazines. In this section, we focus on concealed-carry deregulation. Do state gun-policy orientations in 1986 predict how they addressed the wave of concealed-carry activism over the next 30 years? If so, this form of policy innovation helps explain the growing consistency and polarization of state gun laws.

To address this question, we used GSEM to construct carry-law indices for 1986 and 2016 using our policy variables in this domain: permit term, permit cost, permit training requirement, and the continuous measures of ease of concealed and open carry. We want to see whether pre-existing gun regulation in areas other than concealed carry helps explain change in concealed carry regulation between 1986 and 2016. Therefore, we regress the 2016 concealed carry index on the 1986 concealed carry index and the 1986 index of general firearms regulation, expecting to find that, controlling for pre-existing concealed-carry regulation, pre-existing general firearms regulation is positively associated with present-day concealed-carry regulation. To create a harder test for the policy-innovation hypothesis, we then add 1986 and 2013 (most recent available) citizen opinion liberalism and 1986 and 2016 PVI variables. The results are shown in Table 3.

[Table 3 about here]

Ideology significantly predicts carry law change; so does pre-existing general gun-control orientation. The standard deviation of the gun control index in 1986 is a little less than half that of the ideology measures, and thus in terms of relative elasticities, the gun-control index is slightly more important for predicting future carry-law change than opinion liberalism in the first two models, a remarkable result we discuss in the next section. The saturated third model

is more difficult to interpret at first glance. States that have trended Democratic in presidential voting but conservative in opinion ideology have gone further than other states to liberalize concealed carry. Lagged gun orientation is not statistically significant at conventional levels in the third model, but its coefficient estimate is still larger than the net effect for either pair of ideology and partisanship variables.

Discussion and Conclusions

We hypothesized that gun policy has increasingly become politicized on left-right lines since 1986. This hypothesis is partially confirmed and partially disconfirmed. States have polarized on gun policies, and gun policy orientations have become more internally consistent. Moreover, a structural model of gun policy orientation better fits the data today than in 1986, states with larger black populations no longer have stricter gun laws, and opinion liberalism is more tightly related to gun laws today than in 1986. More surprisingly, urbanization rate is actually quite a bit more predictive of gun law variation today than in 1986. This finding suggests that even today, gun control is far from fully assimilated to left-right policy ideology.

With respect to carry laws, we find that states have changed their policies over the last 30 years in accord with their pre-existing orientations toward gun policies and their opinion liberalism. Therefore, the hypothesis that we proposed with respect to gun laws in general – that policy has become more aligned to left-right ideology over time – is clearly supported for carry laws specifically. In 1986, states did indeed vary significantly in ease of concealed and open carry, but these issues were not yet ideologically salient. They quickly became ideologically salient, but even so, states that have a historic orientation toward stricter gun laws require more regulations on the public carrying of firearms than one would predict from those

states' opinion liberalism or conservatism. In other words, states seem to retain distinctive orientations toward firearms, orthogonal to left-right ideology, that explain present-day policies.

The starting point of our period of analysis, 1986, was almost two decades after gun control first became a significant issue for liberally aligned interest groups. In 1986 we appear to be observing a set of state policies in the early stages of becoming ideologically aligned and internally coherent. It becomes progressively more difficult to find and analyze state statutes and especially administrative rules as one goes back in time, but if we did have state gun policies for, say, 1966, we would expect to find that state policy regimes were even less internally coherent and less ideologically predictable then.

The fact that under-the-radar but substantively important policies like firearms carry laws can suddenly become ideologically charged has important implications for how political scientists model policy ideology over time. One problem with the Bayesian LVM approach of Caughey and Warshaw (2016) is that it assumes that the slope vector of latent ideology on observed policies does not change over time; in other words, policies always have the same ideological salience. We can reject this hypothesis for state gun laws in general between 1986 and 2016: the relationship between policy liberalism and gun control strengthens significantly over time. The year-by-year GSEM approach used in this paper is more robust because it permits heterogeneity of coefficients across years. One price paid for this robustness is giving up on cardinal measures of ideology that retain some absolute interpretation in ideological space over time.

Political scientists are admittedly fascinated with cardinal measures of policy ideology. But liberalism and conservatism no longer mean the same thing that they once did. Permitless concealed carry did not use to be a conservative issue; only liberal Vermont had it until the late 2000s. Free trade was a liberal position in the 1930s, a conservative position in the 1980s, and perhaps it is becoming a liberal position again today. Due to a push from libertarian think-tanks, substantively significant but ideologically non-loading policies such as occupational licensing and civil asset forfeiture look set to become ideologically charged issues in the states, for better or for worse.

For social scientific purposes, such as predicting policy change, the policy ideology scores we need are *relative*. Relatively liberal states will take relatively liberal positions on the state policy issues of the future, but the liberal or conservative position on an issue is not somehow fixed in the stars.

If we modify the Bayesian LVM approach to be more truly Bayesian, and allow discrimination parameters to evolve over time, we may find that policy ideology is not always one-dimensional. If firearms and abortion laws do not strongly "load" onto the left-right dimension in the 1960s and 1970s, they may nevertheless correlate with other policies. The results of this paper give us reason to think that, thirty years ago and perhaps even today, certain state firearms policies could have emerged out of a secondary dimension of ideological conflict, not just the familiar left-right paradigm.

For future research on dynamic state policy ideology, it would be advisable to investigate the costs, in terms of identification and convergence, of relaxing the constraint on the discrimination parameters. Our own explorations reveal that once the number of policy

variables exceeds the number of states (50), convergence becomes difficult or impossible in a

nonlinear, frequentist approach with no constraints. Many new constraints (for instance, on

particular variable loadings or particular state ideal points) may be needed to allow

discrimination parameters to evolve, and some of these could be just as implausible. Our

findings suggest researchers should investigate using alternative measures of policy ideology

that rely on different assumptions: estimates with no constraints on discrimination and

difficulty parameters but comparatively few input variables, those provided by Caughey and

Warshaw (2016), and perhaps other, intermediate possibilities.

Dylan S. McLean is an Assistant Professor of Political Science at the University of West Georgia.

His research focuses on the politics of gun control, especially its connection to political culture,

in the U.S. and around the world. His work has appeared in, among others, *Social Science*

Quarterly and *Commonwealth and Comparative Politics*.

Jason Sorens is Lecturer of Government at Dartmouth College. He is author of *Secessionism*

(McGill-Queen's University Press, 2012) and *Freedom in the 50 States*, 5th ed. (Cato Institute,

2018), as well as more than 20 articles on the topics of ethnic politics, comparative federalism,

electoral geography, and U.S. state and local public policy.

References

Berry, William D., Evan J. Ringquist, Richard C. Fording, and Russell L. Hanson. 1998. "Measuring Citizen and Government Ideology in the American States." *American Journal of Political Science* 42 (1):327-348.

Bruce, John M., and Clyde Wilcox. 1998. "Gun Control Laws in the States: Political and Apolitical Influences." In *The Changing Politics of Gun Control*, edited by John M. Bruce and Clyde Wilcox. Lanham, MD: Rowman & Littlefield.

Butz, Adam M., Michael P. Fix, and Joshua L. Mitchell. 2015. "Policy Learning and the Diffusion of Stand-Your-Ground Laws." *Politics & Policy* 43 (3):347-377. doi: doi:10.1111/polp.12116.

Caughey, Devin, and Christopher Warshaw. 2016. "The Dynamics of State Policy Liberalism, 1936-2014." *American Journal of Political Science* 60 (4):899-913.

Caughey, Devin, and Christopher Warshaw. 2018. "Policy Preferences and Policy Change: Dynamic Responsiveness in the American States, 1936–2014." *American Political Science Review* 112 (2):249-266. doi: 10.1017/S0003055417000533.

Cobb Jr., Charles E. 2016. *This Nonviolent Stuff'll Get You Killed: How Guns Made the Civil Rights Movement Possible*. Durham, NC: Duke University Press.

Cook, Philip J., and Kristin A. Goss. 2014. *The Gun Debate: What Everyone Needs to Know*. New York, NY: Oxford University Press.

Cottrol, Robert J., and Raymond T. Diamond. 1991. "The Second Amendment: Toward an Afro-Americanist Reconsideration." *Georgetown Law Journal* 80:309-361.

Cottrol, Robert J., and Raymond T. Diamond. 1995. "Never Intended to Be Applied to the White Population: Firearms Regulation and Racial Disparity." *Chicago Kent Law Review* 70:1307.

Council of Economic Advisers. 2015. Occupational Licensing: A Framework for Policymakers. Department of the Treasury Office of Economic Policy, the Council of Economic Advisers, and the Department of Labor.

Cramer, Clayton E. 1999. *Concealed Carry Laws of the Early Republic: Dueling, Southern Violence and Moral Reform*. Westport, CT: Praeger.

DeConde, Alexander. 2001. *Gun Violence in America: The Struggle for Control*. Boston, MA: Northeastern University Press.

Erikson, Robert S., Gerald C. Wright, and John P. McIver. 1993. *Statehouse Democracy*. New York: Cambridge University Press.

Fleming, Anthony K. 2012. *Gun Policy in the United States and Canada: The Impact of Mass Murders and Assassinations on Gun Control*. New York, NY: Bloomsbury.

Godwin, Marcia L., and Jean Reith Schroedel. 2000. "Policy Diffusion and Strategies for Promoting Policy Change: Evidence From California Local Gun Control Ordinances." *Policy Studies Journal* 28:760.

Goss, Kristin A. 2006. *Disarmed: The Missing Movement for Gun Control in America*. Princeton, NJ: Princeton University Press.

Hinton, Paul J., and David L. McKnight. 2011. Creating Conditions for Economic Growth: The Role of Legal Environment. Washington, DC: U.S. Chamber Institute for Legal Reform.

Hopkins, Anne H., and Ronald E. Weber. 1976. "Dimensions of Public Policies in the American States." *Polity* 8 (3):475-489.

Hurka, Steffen. 2015. "Handguns: on target for authority?" In *On the Road to Permissiveness?: Change and Convergence of Moral Regulation in Europe*, edited by Christoph Knill, Christian Adam and Steffen Hurka, 183-205. Oxford, UK: Oxford University Press.

Johnson, Nicholas. 2014. *Negroes and the Gun: The Black Tradition of Arms*. Amherst, NY: Prometheus Books.

Karol, David. 2009. *Party Position Change in American Politics: Coalition Management*. New York, NY: Cambridge University Press.

Kenny, Christopher, Michael McBurnett, and David Bordua. 2004. "The Impact of Political Interests in the 1994 and 1996 Congressional Elections: The Role of the National Rifle Association." *British Journal of Political Science* 34:331-344.

Nall, Clayton. 2015. "The Political Consequences of Spatial Policies: How Interstate Highways Facilitated Geographic Polarization." *The Journal of Politics* 77 (2):394-406.

O'Brien, Sean P., and Donald P. Haider-Markel. 1998. "Fueling the Fire: Social and Political Correlates of Citizen Militia Activity." *Social Science Quarterly* 79 (2):456-465.

Price, James H., Joseph A. Dake, and Amy J. Thompson. 2002. "Congressional Voting Behavior on Firearm
        Control Legislation: 1993–2000." *Journal of Community Health* 27 (6):419-432.
Rodden, Jonathan. 2010. "The Geographic Distribution of Political Preferences." *Annual Review of
        Political Science* 13:321-340.
Sharkansky, Ira, and Richard I. Hofferbert. 1969. "Dimensions of State Politics, Economics, and Public
        Policy." *The American Political Science Review* 63 (3):867-879.
Sorens, Jason, Fait Muedini, and William P. Ruger. 2008. "U.S. State and Local Public Policies in 2006: A
        New Database." *State Politics and Policy Quarterly* 8 (3):325-360.
Spitzer, Robert J. 2008. *The Politics of Gun Control*. 4th ed. Washington: CQ Press.
Supreme Court of the United States. 2008. District of Columbia, Et Al. v. Dick Anthony Heller. U.S.
Supreme Court of the United States. 2010. Otis McDonald, Et Al. v. City of Chicago, Illinois, Et Al.
Wilson, Harry. 2007. *Guns, Gun Control, and Elections: The Politcs and Policy of Firearms*. Lanham:
        Rowman and Littefield.
Winkler, Adam. 2011. *Gun Fight: The Battle Over the Right to Keep and Bear Arms in America*. New York,
        NY: W. W. Norton and Company.
Wright, Gerald C., Jr., Robert S. Erikson, and John P. McIver. 1987. "Public Opinion and Policy Liberalism
        in the American States." *American Journal of Political Science* 31 (4):980-1001.
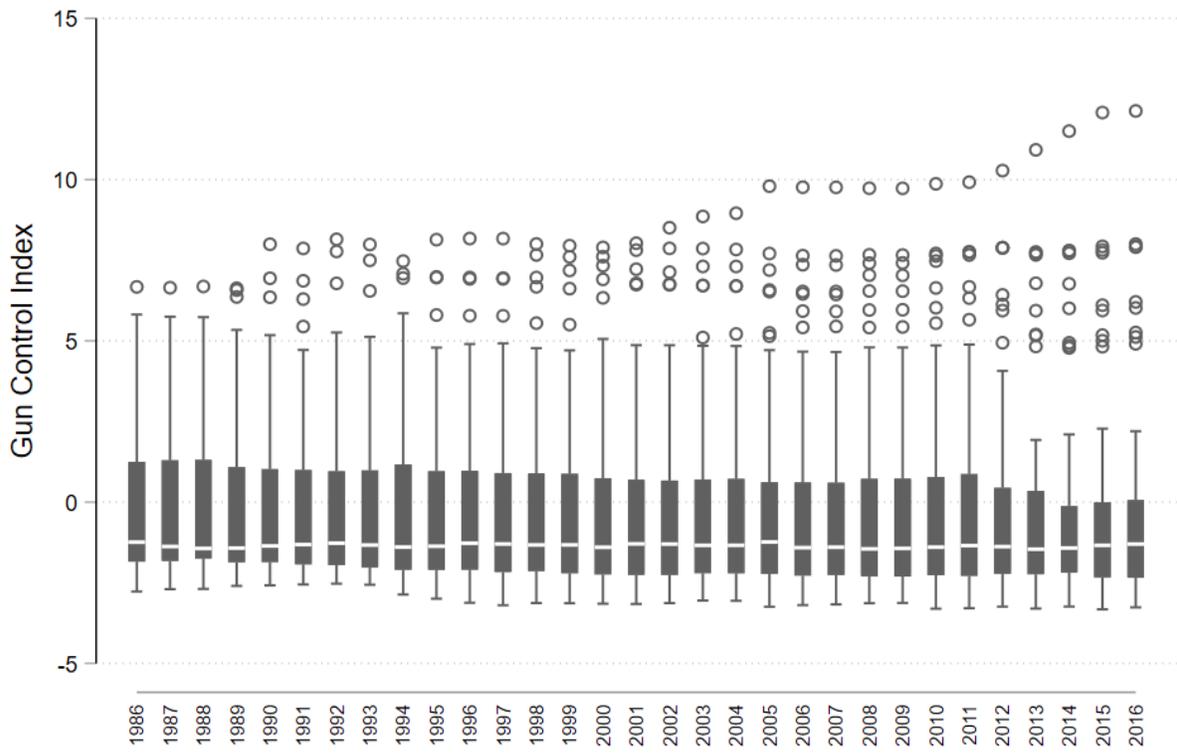
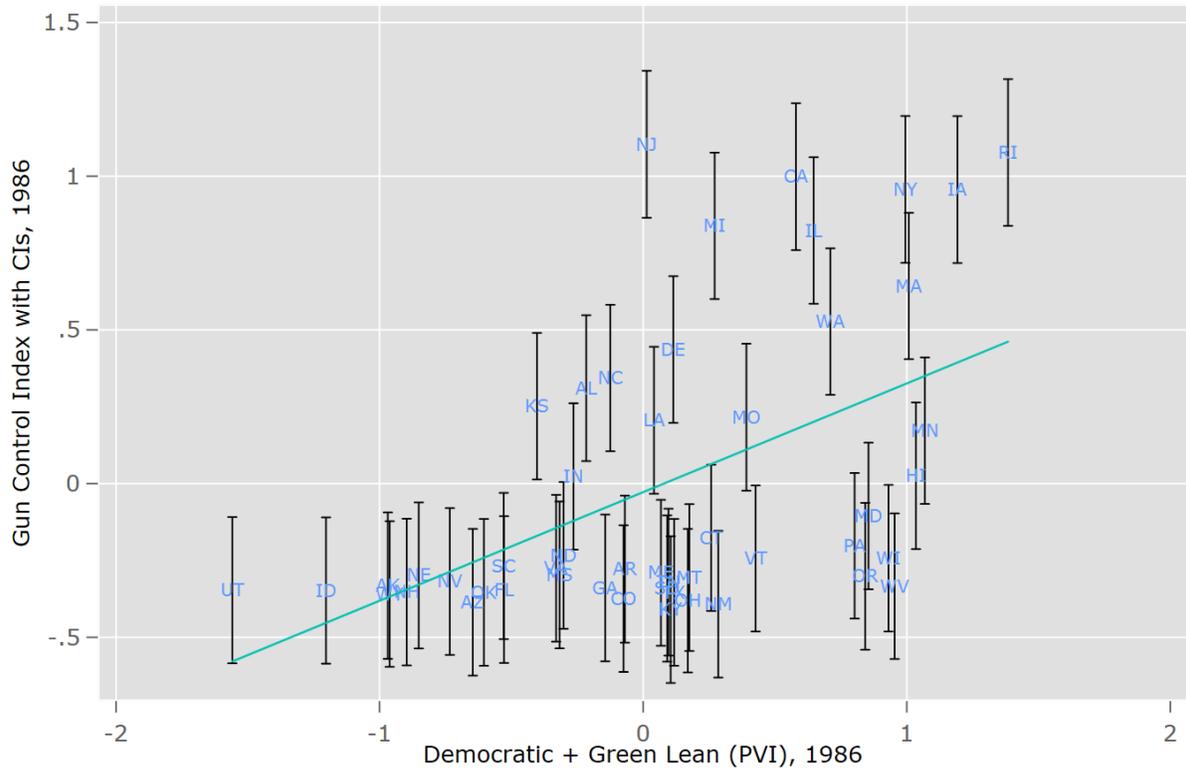Figure 1: Distribution of State Gun Control Index Scores, 1986 to 2016

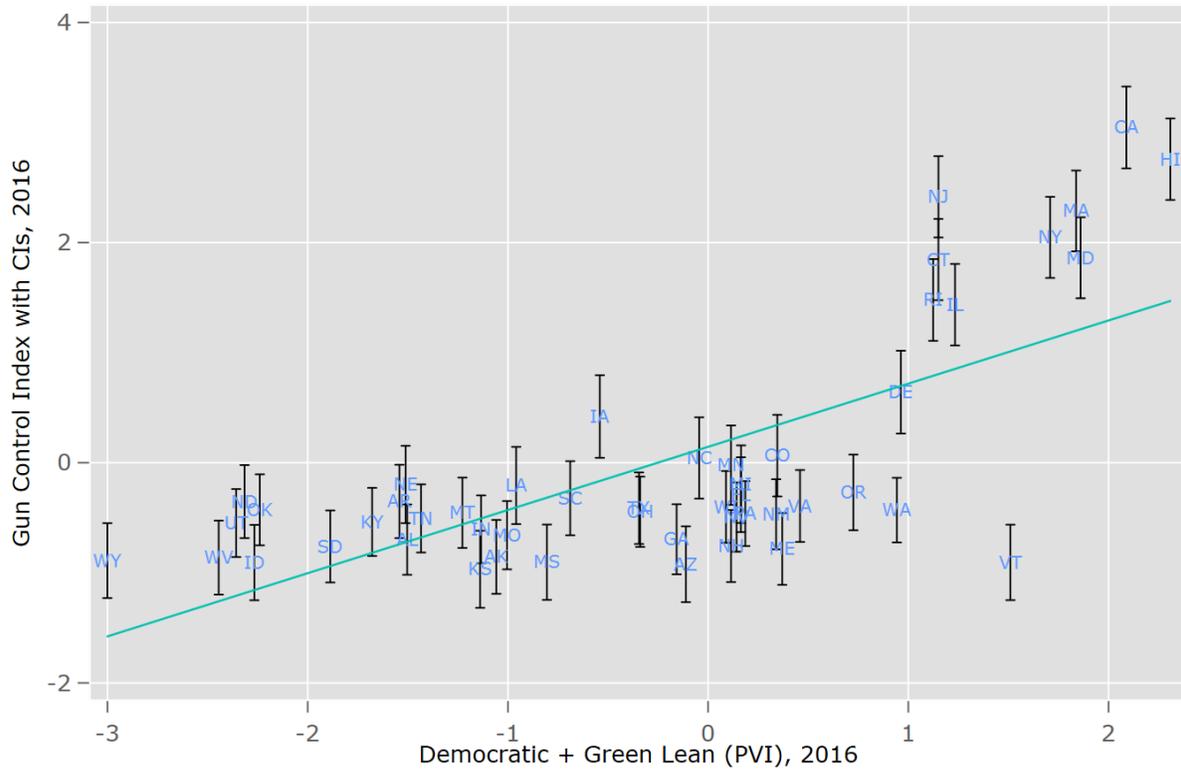Figure 2: Partisanship and Gun Policy, 1986
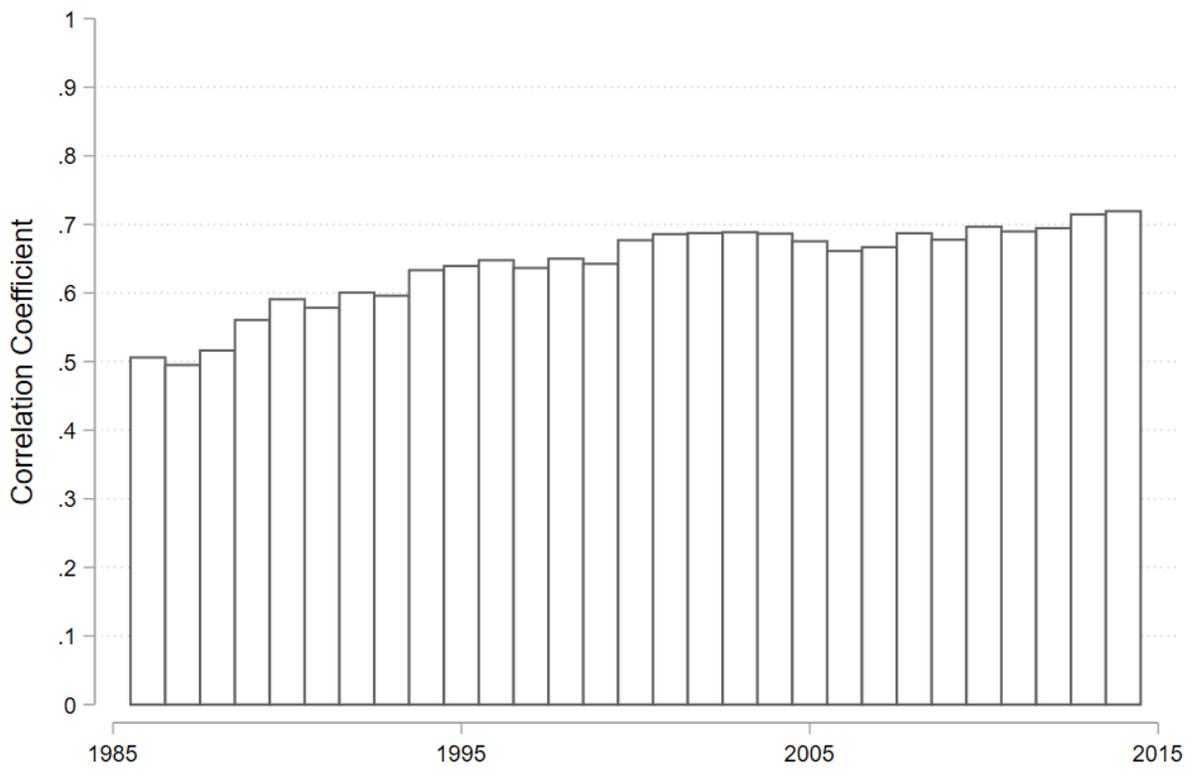
Figure 3: Partisanship and Gun Policy, 2016

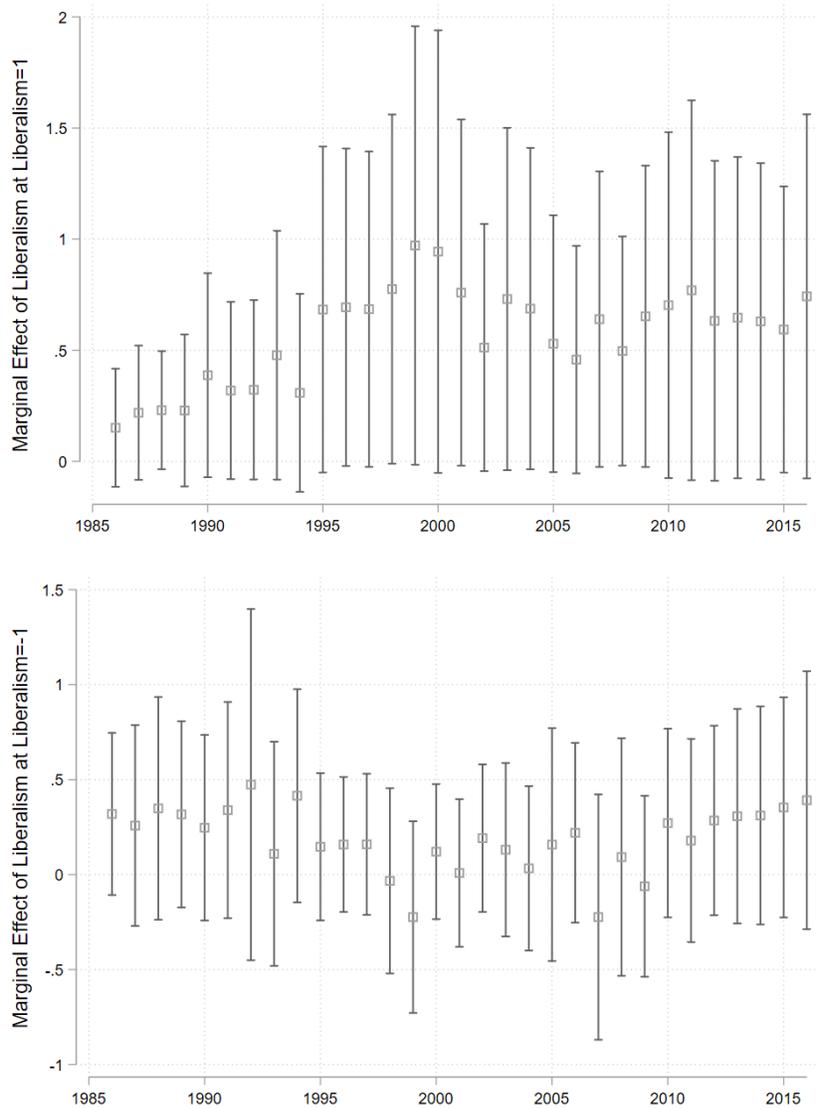Figure 4: Correlations Between Gun Control and Policy Liberalism Over Time

Figure 5: Marginal Effects of Opinion Liberalism on Gun Policy at Low (top) and High (bottom)
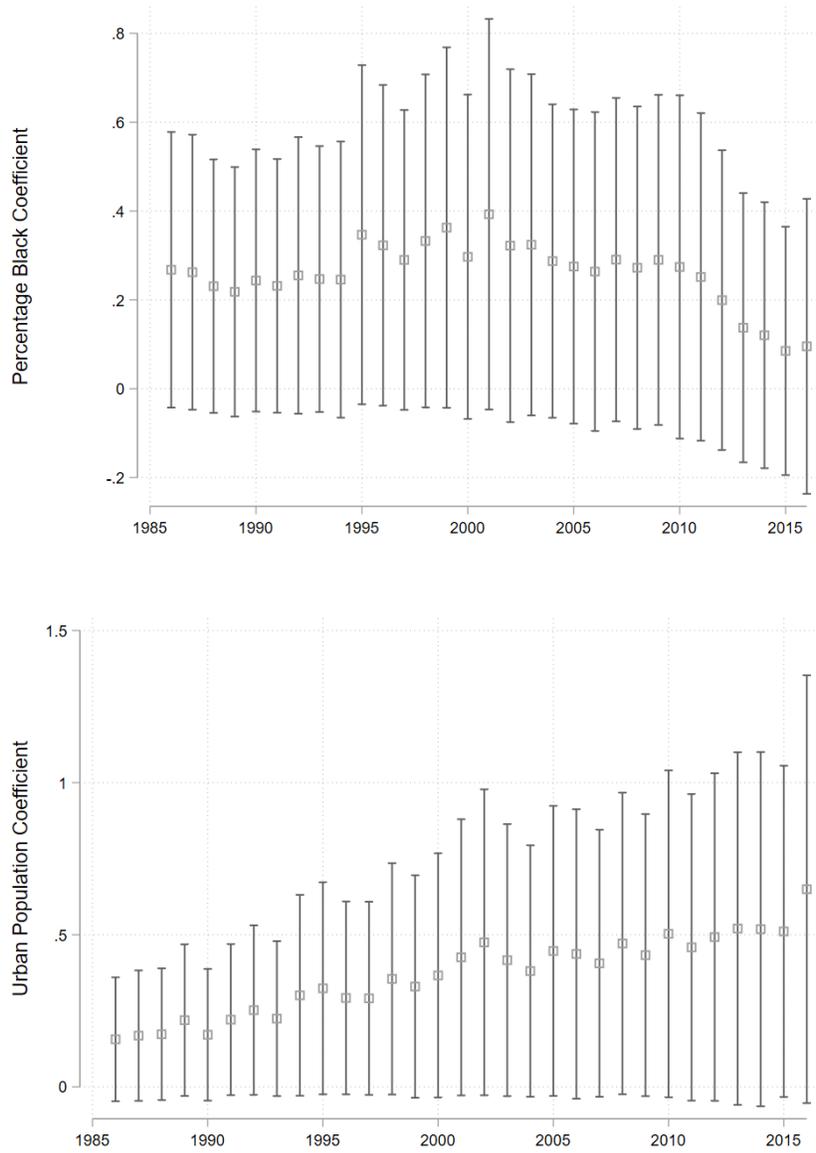
Values, 1986–2016

Figure 6: Evolution of Coefficient Estimates on Percentage Black and Urban Population in Gun

Control Model, 1986–2016

Variable	Type	Years with Variance
Higher minimum age than federal	Dichotomous	1986-2016
Handgun a month law	Dichotomous	1986-2016
Store security precautions	Dichotomous	1986-2016
Owners must report theft	Dichotomous	1986-2016
Design safety standards	Dichotomous	1986-2016
Constitutional right to keep/bear	Dichotomous	1986-2016
Training req for carry permit	Dichotomous	1986-2016
Machine gun regulations	Continuous	1986-2016
Sound suppressor regulations	Continuous	1986-2016
Short-barreled rifle regulations	Continuous	1986-2016
Short-barreled shotgun regulations	Continuous	1986-2016
Any other Class III weapon regs	Continuous	1986-2016
Local handgun/long gun bans	Continuous	1986-2013
Waiting periods	Continuous	1986-2016
Dealer regulations	Continuous	1986-2016
Private sale background checks	Continuous	1986-2016
Licensing index	Continuous	1986-2016
Registration requirements	Continuous	1986-2016
Sales record retention	Continuous	1986-2016
Initial carry permit cost	Continuous	1986-2016
Ease of open carry index	Continuous	1986-2016
Ease of concealed carry index	Continuous	1986-2016
Duty to retreat index	Continuous	1986-2016
Local/state assault weapons bans	Continuous	1989-2016
High-capacity magazine bans	Continuous	1989-2016
Locking devices requirements	Continuous	1994-2016
Ammunition microstamping	Continuous	2000-2016
.50 cal rifle bans	Continuous	2003-2016
Carry permit term	Duration	1986-2016

Table 1: Policies Included in the Gun Control Index

Variable	1986 Coef.	2016 Coef.
.50 Caliber Ban		1.8
Microstamping		1.6
Locking Devices		1.9
Assault Weapons Ban		1.9
Large-Capacity Mags Ban		1.9
CCW Training	0.5	1.3
CCW Cost	-1.0	1.7
CCW Term	-0.9	-1.8
Open-Carry Index	-1.5	-1.9
Concealed-Carry Index	-0.3	-1.9
Local Gun Ban	1.3	
Minimum Age	(constr.)	(constr.)
Waiting Period	1.7	1.9
Gun a Month	-0.5	1.3
Dealer Regulation	1.6	1.8
Store Security	1.6	1.6
Owner Theft Reporting	-0.4	1.7
Private Sale Background	1.8	1.9
Gun Owner Licensing	1.9	1.9
Gun Registration	1.7	1.9
Design Safety Standard	0.6	1.7
No Duty to Retreat	1.6	-1.5
Sales Records Retention	1.7	1.8
Constitutional Protection	-1.5	-1.7
Machine Guns	-1.9	-1.9
Sound Suppressors	-1.9	-1.9
Short-Barreled Rifles	-1.9	-1.9
Short-Barreled Shotguns	-1.9	-1.9
Any Other Weapon	-1.9	-1.9
Bayesian Information Criterion	1530.3	1311.0

Table 2: Gun Control Index Loadings (Z-statistics) on Policies, 1986 and 2016

Variable	Coef. (S.E.)	Coef. (S.E.)	Coef. (S.E.)
Lag carry index	0.55	0.18	0.60
	(0.43)	(0.44)	(0.47)
Lag gun control	4.3	4.9	2.6
	(1.7)	(1.9)	(1.6)
Lag Berry et al.	2.3		2.7
	(0.9)		(1.1)
2013 Berry et al.			-1.4
			(2.0)
Lag PVI		2.1	-1.8
		(1.3)	(1.1)
2016 PVI			2.7
			(0.9)
BIC	306.0	312.2	

Table 3: Liberalism and Carry Law Change, 1986–2016