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ORGANIZED INTERESTS, PUBLIC OPINION, AND POLICY RESPONSIVENESS IN THE AMERICAN STATES

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ABSTRACT

Organized interests are thought to influence policy, but whether and when interest group money overrides public opinion remains poorly understood. We investigate how gun interest group money and public opinion shape state gun laws. To test which force drives policy, we link 25 years of campaign finance records to a novel Gun Law Index paired with original estimates of constituent sentiment, 2000--2024. We show that pro-gun contributions produce deregulatory changes under Republican trifectas, while gun safety contributions generate regulatory tightening under Democratic trifectas. Using an instrumental variable design, we find that constituent sentiment does not causally predict policy change under Republican or Democratic trifectas. We document one of the most striking failures of democratic responsiveness in the history of the American Republic: while the twelve states in which universal background checks command at least 90% support have adopted them, only 8 other states have done so among the 36 states that have support between 80-90%, while assault weapons bans and concealed carry restrictions also enjoy durable majority support across 36 states, yet there has been far greater deregulation than regulation for both measures. These patterns provide unequivocal evidence that organized interests, rather than constituent preferences, drive gun policy in the United States.

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I. Introduction

A conventional expectation of American democracy holds that elected officials respond to constituent preferences, enacting popular policies and avoiding unpopular ones. Yet, few issues reveal the gap between majority preferences and policy outcomes as sharply as gun regulation in the United States. Gun violence remains a persistent public crisis that claimed 47,000 lives in 2024, has been the leading cause of death among children in each of the last five years, and burdens Americans with a homicide rate that is dramatically higher than in any other industrialized democracy, all of whom regulate firearms far more stringently (Centers for Disease Control and Prevention 2025; Goldstick et al. 2022; Wintemute 2015).

During the 1990s, the Clinton Administration advanced a number of federal measures design to reduce firearm violence, but by 2004 the restrictions on assault weapons and high-capacity magazines that had been adopted a decade earlier were gone. Moreover, the federal background check system that was put into place was incomplete since it allowed criminals, drug dealers, the mentally ill, convicted felons, and domestic batterers to avoid the system if they purchased their weapons from private sellers. Since the 1990s, there has been virtually no federal firearm legislation.[1] At the same time, states have a decidedly mixed record, with a limited number adopting an array of legislative measures to curtail gun violence, even as other states have pushed in the opposite direction to greatly expand the unrestricted presence of guns in American life. Moreover, since the 2008 *Heller* decision, which for the first time created a private right to have guns, the U.S. Supreme Court has repeatedly chosen to strip states of their ability to regulate firearms.

In this paper, we study the factors that have shaped legislative action—and inaction—across all 50 states by examining constituent gun preferences in each state, as well as the campaign contributions of groups opposing or supporting various state gun policies. To do this, we link 25 years of state campaign finance records from gun-related interest groups

1. Apart from a relatively modest law adopted during the Biden Administration in the wake of the Buffalo and Uvalde mass shootings.

and original state–year estimates of constituent gun sentiment derived from the Cooperative Election Study (CES) to a new Gun Law Index for all 50 states (2000–2024) that is designed to capture the intensity of each state's regulation of firearms.

At the same time, we identify the political institutional context within each state by identifying which party holds control in each of the legislative chambers as well as the governorship, and identify one important institutional feature: when one party controls all three of these power centers—a political trifecta. We employ two designs: first, a two-way fixed effects panel estimating whether contributions move policy differently under trifectas versus divided government; second, an instrumental variable design testing whether constituent sentiment causally predicts policy change. Together, these designs allow for a direct comparison of organized contributions and constituent sentiment as drivers of statutory change under different institutional regimes.

The results reveal that our index of state gun policy responds to interest group contributions rather than constituent preferences, but only under trifectas. Under Republican trifectas, pro-gun contributions drive deregulatory changes. Under Democratic trifectas, gun safety contributions drive regulatory tightening. Constituent sentiment does not predict policy change under either regime. Under divided government, neither contributions nor preferences predict change. Importantly, the deregulatory effect under Republican trifectas is robust across all specifications, while the tightening effect under Democratic trifectas, although present, is more sensitive to controls for state-specific trends. This asymmetry, which takes the form of a reliable one-way ratchet toward deregulation under Republican control combined with less consistent tightening under Democratic control, has significant implications for the long-term trajectory of state gun law and for democratic responsiveness more broadly.

This study makes five contributions. First, we develop a novel Gun Law Index measuring regulatory stringency across all 50 states from 1990 to 2024. Second, we provide the first systematic causal evidence that organized interests drive state gun policy under unified

partisan control while having no effect under divided government. Third, we introduce an index of original state–year estimates of constituent gun sentiment. Fourth, we show that our index of constituent sentiment does not causally predict policy change under any institutional configuration. Fifth, we reveal a systematic failure of democratic responsiveness: policymakers respond to organized interests rather than constituents under trifectas. This is structurally asymmetric: Republican trifectas function as a reliable deregulatory ratchet, translating pro-gun investment into statutory loosening against constituent preferences, while Democratic trifectas produce regulatory tightening that, though real, is less mechanically consistent.

The paper proceeds as follows: Section II situates our argument within the literature on interest groups and responsiveness. Section III presents the empirical strategy and data. Section IV presents results and robustness checks. Section V uses an evaluation of three separate gun policies—universal background checks, assault weapons bans, and restrictions on gun carrying—to underscore and highlight the findings of our regression analyses, and concludes with the implications of our findings for democratic responsiveness and gun policy in the United States.

II. Interest Groups and the Limits of Responsiveness

Traditional accounts of representation rely on electoral accountability, assuming the threat of the ballot box keeps officeholders tied to the median voter (Dahl 1971; Downs 1957a; Erikson et al. 1993; Page and Shapiro 1983; Stimson 2004). This expectation underlies both normative accounts of representation and empirical studies of policy congruence (Bartels 2008; Caughey and Warshaw 2022; Erikson et al. 1993; Gilens 2012; Page and Shapiro 1983). Another large empirical literature departs from this: policies in American states often diverge from constituent preferences and move toward ideological extremes even when public opinion

remains moderate (Fiorina et al. 2005; Grumbach 2018; Lax and Phillips 2012; Levendusky 2009; McCarty et al. 2006).

The puzzle in the gun domain is how difficult it has been to secure adoption of widely supported firearm restrictions, especially since the support is strongest among the most educated and most affluent Americans, who one might ordinarily expect to have greater influence on policy. This implies that organized interests in opposition to firearm regulation must be playing a particularly powerful role, since standard arguments (Gilens 2012) about the disproportionate influence of wealthy elites cannot explain why widely supported measures like universal background checks and assault weapons bans fail to pass.

We explain this failure with a theory of conditional influence: organized interests override constituent preferences when institutional conditions amplify the returns to political spending. In capture and influence models, organized transfers are investments, with equilibrium policy reflecting competing interests' strength (Becker 1983; Peltzman 1976; Stigler 1971). Menu-auction models formalize this exchange, showing organized actors can purchase policy influence (Bernheim and Whinston 1986). In elections, contributions are investments whose returns depend on the probability of enacting favorable statutes (Grossman and Helpman 1994, 2001; Snyder 1990). Unified partisan control reduces veto barriers and concentrates agenda authority, translating contributions into law (Binder 1999; Hall and Deardorff 2006; Tsebelis 2002). Divided government fragments authority, limiting returns on investment.

A. Interest Group Contributions and Policy Change

Contributions are the central mechanism through which organized interests seek to convert resources into influence and policy. Contributions secure access, shift policy toward donor preferences (Bernheim and Whinston 1986; Grossman and Helpman 1994, 2001; Snyder 1990), fund like-minded candidates (Jacobson 1980), shape party dynamics (Lowry 2013; Powell 2012), and enable information framing or legislative drafting (Hall and Deardorff 2006; Hall and Wayman 1990; Kalla and Broockman 2016).

The link between contribution and policy remains contested. Early studies found minimal effects on roll-call votes (Ansolabehere et al. 2003), but recent work shows influence at less visible stages like agenda setting or amendments (Baumgartner et al. 2009; Hall and Wayman 1990). Additionally, the legislative subsidy model explains that contributions subsidize aligned legislators' efforts without converting opponents (Hall and Deardorff 2006). While these funds subsidize sympathetic legislators by expanding their capacity by providing human capital and research support, resource advantages alone cannot force statutory change when multiple veto points obstruct the agenda (Tsebelis 2002). Gridlock models show shifts from the status quo require aligned veto players (Binder 1999; Krehbiel 1998) to make changes, and the process remains stuck until shocks alter bargaining (Alesina and Drazen 1991; Coate and Morris 1999; Fernandez and Rodrik 1991; Persson et al. 1997). Thus, the effectiveness of contributions depends on the institutional context.

B. The Conditional Effect of Unified Government

Under divided government, policy change must survive multiple veto points controlled by opposing actors: committees, floor time, amendments, and gubernatorial approval. These obstacles make statutory change difficult even when backed by substantial investments (Binder 1999; Krehbiel 1998; Tsebelis 2002).

Under unified partisan control, one party holds the governorship and legislative majorities, controlling chairs, scheduling, and agendas. By lowering coordination costs, unified control allows interest groups and their legislative allies to successfully convert these subsidies into binding statutes (Binder 1999; Hall and Deardorff 2006). The policy returns from contributions are thus conditional: they increase under unified control. This implies that interest group effects are episodic, with large changes in unified windows and "stickiness" under division (Baumgartner et al. 2009).

The direction of policy change aligns with the controlling coalition and its aligned interest groups: pro-gun contributions drive deregulation under Republican trifectas, and gun safety

contributions drive tightening under Democratic ones. However, as our results show, these effects are not perfectly symmetric. The deregulatory impact of pro-gun contributions under Republican trifectas is consistently large and statistically robust across specifications. The regulatory tightening effect of gun safety contributions under Democratic trifectas, while real, attenuates when controlling for state-specific trends, suggesting that Democratic-leaning states may have been trending toward stricter gun laws independent of contribution activity.

This asymmetry is consistent with the literature on the one-way nature of deregulatory ratchets: dismantling regulations is often more reliably accomplished by the Republican Party because it functions as an ideological movement united against government expansion. As a result, pro-gun coalitions face fewer internal friction points when dismantling regulations than gun safety groups face when navigating the diverse Democratic coalition to build new regulatory frameworks (Grossman and Hopkins 2016).

C. Asymmetry in Political Influence

Democratic theory predicts electoral punishment when politicians stray far from voter preferences (Arnold 1990; Downs 1957a, 1957b). Yet on state gun policy, standard mechanisms of electoral accountability fail. Existing research demonstrates that state-level policy frequently diverges from moderate majority views (Barry et al. 2018; Lax and Phillips 2012). What remains underspecified is the mechanism that allows this divergence to occur and persist despite the overwhelming consensus shared by both the median voter and respondents across the income and education spectrum, favoring moderate restrictions. Asymmetries between organized interests and diffuse publics explain this pattern.

Preference intensity differs sharply between groups. Median voters hold moderate views on gun regulation, but their preferences are typically less intense than those of organized activists and single-issue voters who place gun policy above other concerns (Arnold 1990). Interest groups concentrate and amplify these intense minorities, making them highly salient to legislators (Olson 1965). Legislators facing such pressure may therefore prioritize these

vocal constituencies over voters with weaker or more ambivalent views, even when the latter outnumber them.

Issue salience creates another asymmetry. For most voters, gun policy is one concern among many and rarely decides their vote. However, for organized interests on both sides it is the central issue. This difference allows groups to exert disproportionate influence over legislators, especially when other topics dominate public attention during elections (Arnold 1990; Schattschneider 1960). As a result, legislators can enact gun policies that diverge from broader constituent preferences without facing serious electoral backlash, since voters judge incumbents mainly on other dimensions.

Information and resources create yet another asymmetry. Interest groups possess technical expertise, legal knowledge, and legislative experience that most voters, and even many legislators and their staff, cannot match (Hall and Deardorff 2006; Wright 1996). Organized actors, therefore, often shape which policy options appear feasible, how bills are drafted, and which implementation details receive emphasis (Baumgartner et al. 2009; Drutman 2015). This dynamic can separate broad public support for moderate reforms from the actual statutory language that reaches the floor. For example, support for background checks can be translated into narrow or expansive regulatory designs depending on which actors supply expertise and provide model language and enforcement ideas.

Monitoring and attribution also favor organized interests. These actors can track a narrow policy area closely, observe legislative moves in real time, and reliably reward or punish politicians for incremental decisions (Arnold 1990; Olson 1965). Diffuse publics face much higher costs to monitor and attribute change, particularly when it happens in committees, amendments, or administrative steps rather than visible roll calls (Baumgartner et al. 2009; Hall and Wayman 1990). Organized pressure, therefore, binds legislators more consistently than mass opinion.

Finally, policy feedback locks in changes once enacted (Campbell 2003; Pierson 1993). For example, expanding concealed carry creates a mobilized group of permit holders invested

in defending the policy. Such feedback makes reversal harder, even if future majorities prefer moderation. The asymmetry between deregulatory and regulatory ratchets may be especially pronounced in the gun domain: dismantling permit requirements and background check systems is more easily accomplished than reconstructing them, and the constituencies created by permissive gun laws, including newly armed citizens, gun dealers, and related industries, become durable opponents of re-regulation. Interest groups that successfully push policy during unified control thus create constituencies that help defend those gains during subsequent divided government.

Together, these asymmetries allow organized interests to dominate policy outcomes despite broad preferences for moderation. The mechanisms that strengthen group influence systematically weaken the pull of constituent sentiment. Democratic responsiveness falters not because politicians ignore all electoral pressures, but because those pressures come disproportionately from organized interests rather than the wider public.

D. Hypotheses

From the framework laid out, we generate three hypotheses about when policy reflects organized interests rather than constituent preferences. We test these hypotheses by comparing the effects of interest group contributions and constituent gun sentiment on changes in the Gun Law Index under unified and divided partisan control. The index increases with regulatory stringency, so decreases indicate deregulation and increases indicate tightening.

The first two hypotheses focus on the conditional effects of organized interests' spending. Under Republican trifectas, pro-gun groups should exploit unified control to advance deregulatory changes, while divided government should constrain their influence. Formally:

H1. *Pro-gun interest group spending produces deregulatory policy change under Republican trifectas. Outside Republican trifectas, pro-gun spending has no meaningful systematic relationship with policy change.*

Symmetrically, gun safety groups should drive regulatory tightening when there is Democratic unified control:

H2. *Gun safety interest group spending produces regulatory tightening under Democratic trifectas. Outside Democratic trifectas, gun safety spending has no meaningful systematic relationship with policy change.*

The third hypothesis examines whether constituent preferences constrain policy independently of organized influence. If responsiveness works effectively, constituent sentiment should predict policy change, particularly under unified control when institutional barriers are low. However, if the asymmetries we identify systematically advantage organized interests, then:

H3. *Constituent gun sentiment has little to no effect on policy change under Republican trifectas, Democratic trifectas, or divided government. Conditional on institutional context, policy responds primarily to organized interests' spending rather than to constituent preferences.*

These hypotheses provide a direct test of democratic responsiveness. If policymakers respond to constituents, we should reject H3 and find that constituent sentiment predicts policy change, particularly under unified control. If policymakers instead respond mainly to organized interests when conditions allow, we should support H1 and H2 and find only weak or null effects of sentiment, with estimates that are substantively small. Such a pattern would indicate a systematic failure of democratic responsiveness in which policy reflects organized interests' preferences rather than majoritarian preferences.

III. Empirical Strategy

To test our hypotheses, we develop an empirical strategy that directly compares the influence of special interest contributions and constituent gun sentiment on state gun policy, conditional on partisan control of government. The analysis has two components. First, we estimate how pro-gun and gun safety contributions drive changes in our Gun Law Index, under Republican trifectas, Democratic trifectas, and divided government, using a TWFE panel design. Second, we examine whether constituent gun sentiment causally affects state

gun policy, using an instrumental variable approach that addresses potential endogeneity between policy and public opinion. Together, these designs allow us to assess the conditional responsiveness framework we laid out.

A. Special Interest Contributions and Gun Policy

1. Data and Measurement

Our analysis of special interest influence uses a state–year panel that combines annual information on state gun laws, contributions from gun interest groups, partisan control of state government, and demographic and economic covariates. The main sample covers the 50 states from 2000 to 2024, the period for which we have consistent data on both firearm statutes and campaign finance.

Our outcome is the change in the Gun Law Index, which measures the regulatory stringency of state gun policy in each state–year. The index is constructed from the RAND State Firearm Law Database as a base (RAND Corporation 2025). We then comprehensively update the database with an original coding scheme to determine whether the restriction applies to handguns, long guns, or both, and code variables on a $0/1/2$ scale accordingly. We cross-check the statutory record against Giffords Law Center summaries (Giffords Law Center 2025) and in records of state statutes as found in Westlaw, and treat changes in our indicators as arising only from changes in state statutes, rather than federal law. We then sum across laws to obtain an overall Gun Law Index, which increases as a state adopts more comprehensive and restrictive regulations.[2] For each statutory change, we code the Gun Law Index based on the effective year of the provision rather than the passage year, so that the index reflects when the policy actually takes legal effect.

The key explanatory variables are contributions from gun-related interest groups. We collect state-level campaign finance data from OpenSecrets regarding organizations whose primary mission is to advocate for gun rights or gun safety, based on their stated mission

2. Appendix A provides additional details on the construction and coding of the Gun Law Index.

and legal filings (OpenSecrets 2025). For each state–year, we aggregate all contributions to candidates for state legislative office who ultimately hold state office, successful gubernatorial candidates, to state party committees, and ballot measure committees. We measure annual pro-gun and gun safety contributions as the total real dollars contributed in each state–year.[3]

Institutional context is captured with indicators for partisan control of state government. We measure gubernatorial party from David Leip's United States Election Data, supplemented with hand-coded information for earlier elections and midterm successions when governors resigned, were impeached, or died in office (Leip 2025). State legislative party composition is drawn from Klarner's State Partisan Balance Data (1990–2008) (Klarner 2013) and the National Conference of State Legislatures State Partisan Composition series (2009–2023) (National Conference of State Legislatures 2025), from which we identify the party controlling each chamber. For Nebraska, because it has a unicameral, formally nonpartisan legislature, we code senators' party registration using Nebraska Blue Books (Nebraska Legislature 2025). From these data, we classify each state–year into one of three regimes: Republican trifecta (Republicans control the governorship and both chambers), Democratic trifecta (Democrats control the governorship and both chambers), and divided government (all other configurations).[4]

In addition to the trifecta classification, we construct two complementary measures that capture the degree of partisan control within each state–year. First, the Majority Score is a discrete variable ranging from 0 to 3, which shows how many of the three political institutions, that is, the governorship, the state senate, and the state house, are controlled by the same party. Second, the Ratio Score offers a continuous measure of partisan strength. We construct this score by summing the party's share of the gubernatorial vote in the most recent election, the party's seat share in the state's upper legislature, and the party's seat share in the lower

3. Nominal dollars are converted to real values by dividing by the CPI, where the base year is defined by the BLS as $1982 - 1984 = 100$.

4. Appendix A provides full details on the construction of the partisan control and trifecta indicators.

legislature. Each component ranges from 0 to 1, and the resulting score ranges from 0 to 3. Together, these measures allow us to capture the intensity of partisan control.

We supplement the law and contribution data with covariates that capture demographic and economic conditions, including estimated household firearm rate (HFR) (RAND Corporation 2020), incarceration rate (Bureau of Justice Statistics 2023a, 2023b, 2024), metropolitan residence (Kaplan 2025), population, (U.S. Census Bureau 2011, 2019, 2024), racial composition (U.S. Census Bureau 2012, 2020, 2025), unemployment rates (Bureau of Labor Statistics 2025b), and real per capita personal income (Bureau of Economic Analysis 2025; Bureau of Labor Statistics 2025a). They help account for confounding changes in the social and economic environment that could independently shape both contributions and gun policy.[5]

2. Identification Strategy

Our baseline TWFE models estimate within-state changes in the Gun Law Index as a function of lagged contributions interacted with partisan control of government. Our baseline specification for contribution is:

$$\begin{aligned} Y_{st} = \beta_1 \,\text{Contrib}_{s,t-1:t-2} + \beta_2 \,\text{Trifecta}_{s,t-1} + \\ \beta_3 \,\text{Contrib}_{s,t-1:t-2} \times \text{Trifecta}_{s,t-1} + \mathbf{X}_{s,t-1}\gamma + \alpha_s + \delta_t + \varepsilon_{st}. \end{aligned} \tag{1}$$

where Y_{st} denotes the annual change in the Gun Law Index in state s from year $t-1$ to year t; $\text{Contrib}_{s,t-1:t-2}$ is the average of total contributions in year $t-1$ and $t-2$ from either pro-gun or gun safety interest groups in state s, winsorized at 99 percentile.[6] $\text{Trifecta}_{s,t-1}$ is a dummy variable equal to one when the aligned party (Republicans for pro-gun, Democrats for gun safety) controls the governorship and both legislative chambers in year $t-1$ and zero otherwise;

5. Appendix A provides full details on how covariates were constructed.

6. We use the average of contributions in $t-1$ and $t-2$ as the treatment variable because we assume that legislative proposals influenced by interest groups' activity typically require one to two years to be drafted, introduced, and enacted after contributions are made. As a robustness check, we also estimate specifications using only the $t-1$ lag of contributions, and the results remain largely unchanged.

$\mathbf{X}_{s,t-1}$ includes lagged demographic and economic covariates along with contributions from interest groups on the opposing side of the gun policy discussion; α_s and δ_t denote state and year fixed effects; and ε_{st} is the error term. We estimate separate specifications for pro-gun and gun safety contributions. Our estimation uses population weights, and standard errors are clustered at the state level.

The main coefficient of interest is the interaction term between $\text{Contrib}_{s,t-1:t-2}$ and $\text{Trifecta}_{s,t-1}$, which captures how the marginal effect of interest group contributions on changes in gun law stringency depends on unified partisan control.[7]

B. Constituent Gun Sentiment and Gun Policy

1. Data and Measurement

To compare with special interest influence, we want to estimate the effect of constituent sentiment regarding gun control on changes in gun laws. However, there is no existing dataset that tracks constituent sentiment over time on the state and party level. While an individual's sentiment for gun control is not directly observable, it can be approximated by examining their responses to questions about various gun-related policies.

In order to estimate gun sentiment over time, across states, and between political parties, we use data from the CES from 2006–2024 (Schaffner et al. 2025). This survey is the most comprehensive nationwide study that collects party information, state of residence, and responses to questions related to gun policy. We use these questions to estimate an individual's gun sentiment, then fit a model based on demographic information to produce state–year–party estimates of gun sentiment, where a higher value indicates higher preference

7. The TWFE specification in Equation 1 is subject to several concerns, including endogeneity and reverse causality. These are addressed in detail in our robustness checks.

for gun control.[8] We use the same set of covariates and state gun laws as our analysis on special interest group spending.[9]

Item Response Theory (IRT). The first step is to gather information on questions related to gun sentiment. The CES does not ask a consistent sample size of individuals or identical questions over time. We identify questions solely related to gun policy in each year of the survey, as well as relevant demographic variables.[10]

From the gun-related questions, we estimate a latent "gun sentiment" using a unidimensional Item Response Theory (IRT) model to link this unobservable attribute with the observed responses. Given the mix of binary and ordinal questions, we use a combination of two-parameter logistic (2PL) and graded response (GRM) models to estimate gun-policy sentiment. We fit the IRT model using survey weights in the estimation process to approximate nationally representative estimates of gun sentiment scores Sent_{ist}. These scores are on a standardized scale with a mean of zero and a standard deviation of one relative to the weighted sample distribution.[11]

Fixed-Effects Model-Based Poststratification. To create our state–year–party estimates of support for gun regulation, we utilize a fixed-effects model-based poststratification technique. We estimate the following model:

$$\begin{aligned}\text{Sent}_{ist} = \beta_1 \text{Party}_i + \beta_2 \text{State}_s + \beta_3 \text{Year}_t + \beta_4 (\text{Party} \times \text{Year})_{it} + \beta_5 (\text{Party} \times \text{State})_{is} + \\ \mathbf{X}_i \gamma + \varepsilon_{ist},\end{aligned} \tag{2}$$

8. Appendix B provides additional details on the gun sentiment estimation strategy.

9. Our covariates are identical, except we utilize beer consumption as a control in this model because it is relevant to constituent behavior, but not interest group decision-making (Slater and Alpert 2024). We also control for Republican Majority Score to reflect the political composition of the legislature.

10. Table B1 in Appendix B details the gun-related questions selected.

11. We estimate gun sentiment using multiple specifications (see Figure C11 in Appendix C), and results are robust to the choice of questions.

where Sent_{ist} is the estimated sentiment for gun control for the individual i, who lives in state s in year t. The controls used to create these estimates are based on what CES consistently collects and uses year to-year to develop their population weights.[12]

We then create a stratified dataset from the CES, using every combination of demographic groups (and average age within those groups). We estimate each group's relative population using their survey weights. This provides an approximation of how represented that group is in its bin.

Once we fit our regression to the individual-level survey data, we predict the gun sentiment values for every group in our stratified data set. We then create state–year–party estimates by taking a weighted mean of the stratified predictions, with weights equal to the estimated proportion of individuals in each stratum within the state–year–party group. Figure 1 displays these estimates over time for each party. As a robustness check, we also fit gun sentiment using a multilevel regression with poststratification (MRP) method with state random effects, and our results are not sensitive to this specification.[13]

To validate our estimates, we analyze variation in gun sentiment based on HFR (Figure 2). Though HFR was not used in the creation of these estimates, it aligns in an expected way: the most pro-gun control Democratic states are those that have the lowest HFR, and the least pro-gun control Republican states are those that have the highest HFR. This provides evidence that we can rely on these estimates.

12. These include gender, race, education level, marital status, family income level, employment status, and age.

13. See Table F3 in Appendix F for the regression output.

14. We detail these changes in Table B1 in Appendix B. As a robustness check, we also run our analysis on the entire time frame, and our results are not sensitive to the years selected.

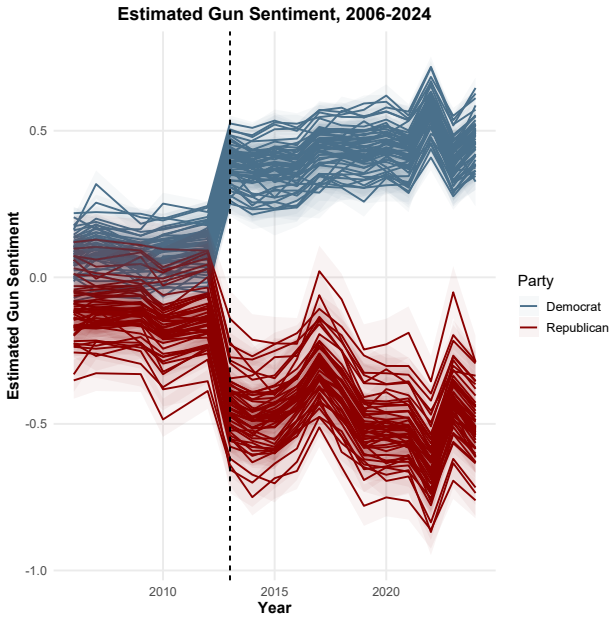

Figure 1: Gun Sentiment Estimates, 2006–2024. Lines show each party within each state; shading indicates 95% confidence intervals from bootstrap estimation. The vertical line marks 2013, when CES gun questions changed.[14]

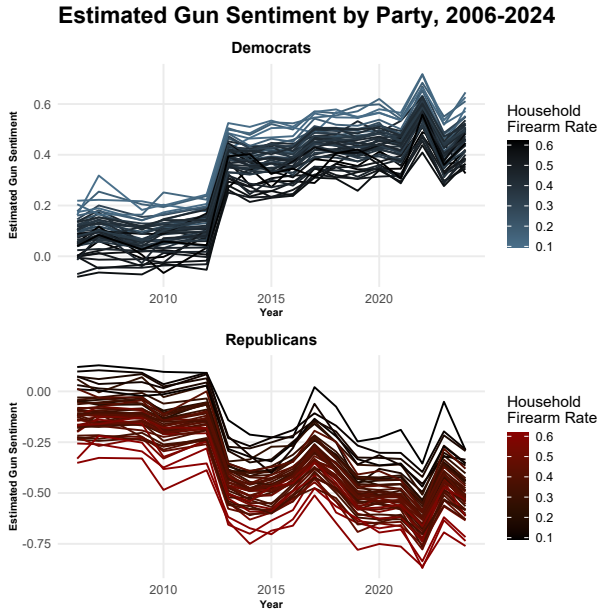

Figure 2: Gun Sentiment Estimates, 2006–2024. Each line denotes an individual state. Statewide HFR values are for 2006. The HFR values are highly stable over time: the correlation coefficient between the 2006 and 2018 values is 0.999.

2. Identification Strategy

To model the effect of estimated gun sentiment on changes in gun laws, we start with a TWFE model of the following format:

$$Y_{st} = \beta_1 \text{Sent}_{st-1} + \mathbf{X}_{st-1}\gamma + \text{State}_s + \text{Year}_t + \epsilon_{st} \tag{3}$$

where Y_{st} denotes the change in the Gun Law Index in state s and year t, and Sent_{st-1} represents gun sentiment in the previous year. Because gun law implementation is often not instantaneous, we lag our sentiment measure and control variables by one period to allow for the delayed response of legislative processes to public opinion. We cluster standard errors at the state level.

However, several endogeneity concerns threaten causal identification. First, dynamic reverse causality remains problematic despite the lag structure: laws enacted in period $t-1$ may influence sentiment in that same period, which then appears as a predictor of subsequent legislative changes in period t. Second, unobservable time-varying state characteristics that are not captured by our fixed effects may jointly determine both sentiment and legislative outcomes. For example, shifts in the intensity of gun culture, changes in lobbying activity, or the political salience of gun issues within a state evolve over time and affect both public opinion and legislators' willingness to enact gun laws. Finally, because our sentiment measure is estimated from the CES, measurement error may arise if expressed opinions are particularly vocal during periods of active legislative debate, correlating the measurement error with the policy process itself.

To mitigate these issues, we employ an instrumental variable, constructed in a quasi shift-share manner, leveraging cross-state variation in exposure to national partisan trends in gun sentiment. For each state s, party p, and year t, we construct:

$$Z_{spt} = \text{National}_{-s,pt} \times \text{Proportion}_{sp} \tag{4}$$

where $\text{National}_{-s,pt}$ is defined as:

$$\text{National}_{-s,pt} = \frac{\sum_{j \neq s}(\text{Sent}_{jpt} - \text{Sent}_{jp,t-1}) \cdot P_{jt} \cdot R_{jpt}}{\sum_{j \neq s} P_{jt} \cdot R_{jpt}} \tag{5}$$

where P_{jt} is the population of state j in year t, and R_{jpt} is the estimated proportion of individuals identifying with party p in state j in year t. This represents the population weighted average change in gun sentiment among party p members across all states except s, to make sure the national sentiment is not mechanically related to state s's sentiment.

The share component captures baseline exposure to party p's national trends. Proportion_{sp} is defined as:

$$\text{Proportion}_{sp} = P_{s2006} R_{sp2006} \tag{6}$$

States with larger baseline populations of a party receive greater weight from that party's national sentiment shifts. By creating separate instruments for each party within each state, we allow differential responses to partisan sentiment trends and a method to study both parties' changes separately.

In order for this to be a valid instrument, we must satisfy key assumptions. To ensure valid causal identification, we implement a quasi-shift-share instrument following standard practices in the literature (Borusyak et al. 2025; Goldsmith-Pinkham et al. 2020). National partisan sentiment trends predict state-level gun sentiment, as gun attitudes tend to be highly polarized along partisan lines, and national political discourse has an effect on individual state gun sentiment. Notably, our instrument must affect changes in gun laws only through the level of gun sentiment. While national sentiment shifts may correlate with various political developments that affect state s, they can only manifest into actual legislative change when they generate shifts in state s's own opinion on gun policy.

We include year fixed effects to absorb any common national shocks, so any violating shocks would have to differentially affect states based on their 2006 baseline partisan composition. We acknowledge that nationally-coordinated advocacy could pose a threat if organizations

systematically target states based on historical partisan strongholds. However, such advocacy would likely operate through shifting public sentiment rather than bypassing it entirely, and any direct effects would need to vary specifically with 2006 composition conditional on current political conditions and year fixed effects. Since state fixed effects absorb time-invariant compositional differences, the identifying variation comes from the interaction of predetermined characteristics with time-varying sentiment changes occurring exclusively in other states, making direct channels implausible.[15]

While our instrument is constructed from CES data, the aggregation method across states substantially reduces measurement error. State-specific factors that generate measurement error, such as heightened engagement during local legislative debates, are diminished when averaged across the 49 states. Critically, the leave-out construction ensures state s's own measurement error cannot contaminate its instrument. The national partisan sentiment shifts we capture reflect genuine changes in gun attitudes driven by national political discourse.

We implement our IV estimation strategy for two subsets of our data: the majority and minority party sentiment. We define the majority party to be the party that has control of at least two of three of the governorship, upper legislature, and lower legislature. If neither party has this control (such as a split in a legislature), the party with the higher estimated proportion of constituents is the majority. The minority party is the other party in each state–year.[16] Thus, both of our analyses are on the state–year level, and encapsulate the full environment of constituents. To test heterogeneity in the impact of constituent gun sentiment, we also run this analysis interacting estimated gun sentiment with the presence of a trifecta in government. We instrument this endogenous regressor with the interaction of our instrument and the trifecta indicator.

15. Appendix D outlines the IV estimation strategy and justification for the assumptions in greater detail.

16. Although one might prefer targets such as the statewide median voter or "single-issue" gun voters, our CES-based approach identifies state–year–party mean sentiment only. It cannot recover the within-state distribution or consistently isolate decisive gun voters across states and years without additional assumptions. We therefore focus on majority and minority party mean sentiment.

IV. Results

We evaluate whether state gun policy responds to organized interests or to constituent sentiment. First, descriptively, the Gun Law Index reveals substantial partisan divergence in state gun laws, with policy trajectories increasingly separating along party lines (Figure 3).[17] Then, through two different models, we examine if and how organized interest contributions and constituent sentiment cause changes in our Gun Law Index under different partisan control of state government.

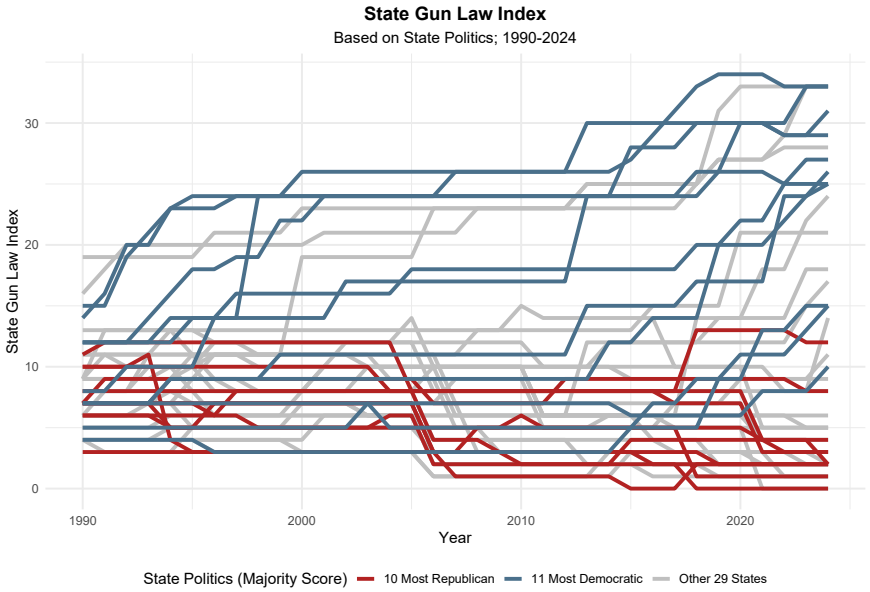

Figure 3: Gun Law Index trajectories by state Majority Score, 1990–2024. The figure plots the Gun Law Index for each state, categorized as the top 10, bottom 11 (the 11th tied with the 10th), and other middle 29 states by state Majority Score across 1990–2024.

A. Contribution Effects and Party Control

1. Descriptive Patterns in Organized Interests' Contributions

Before turning to the regression analysis, we briefly summarize the patterns of gun-policy organized interest contributions. These figures show contributions from the pro-gun side

17. We provide additional descriptive statistics regarding state politics and campaign finance patterns at the state level in Appendix C.

(Figure 4) and from the gun safety side (Figure 5) to the 50 states each year, color-coded into three groups: the most-Republican states, the most-Democratic states, and all others. In both figures, we see broadly similar levels of contributions across those three state groupings.[18]

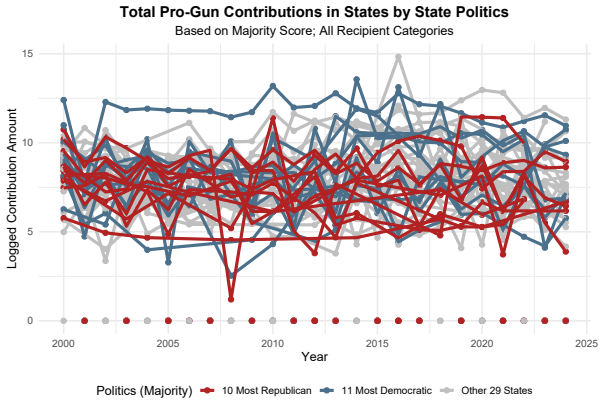

Figure 4: Total pro-gun SIG contributions by state political Majority Score, 2000–2024. Lines show each state's annual log contributions, grouped by Majority Score into the 10 most Republican (red), 11 most Democratic due to ties (blue), and remaining 29 states (gray).

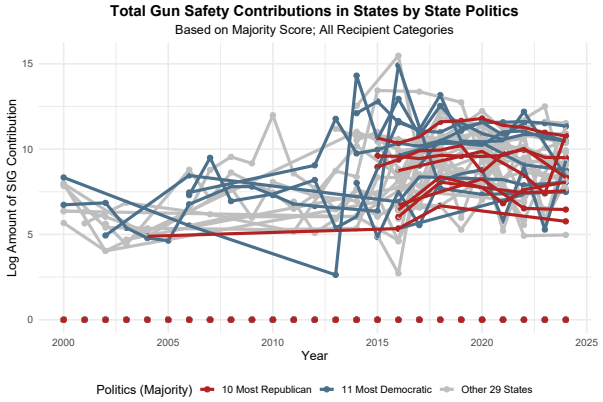

Figure 5: Total gun safety SIG contributions by state political Majority Score, 2000–2024. Lines show each state's annual log contributions, grouped by Majority Score into the 10 most Republican (red), 11 most Democratic due to ties (blue), and remaining 29 states (gray).

18. For the correlation between the contribution amounts of pro-gun and gun safety interest groups and partisan control, see Figure C7–Figure C10 in Appendix C.

2. Gun Interest Group Contributions Drive State Gun Policy Under Trifectas

Table 1a reports the results from estimating Equation 1 above: our baseline TWFE models that interact pro-gun contributions with Republican political control. The main effect of pro-gun SIG contributions is positive and statistically significant across all three models, suggesting that pro-gun contributions are associated with increases in the Gun Law Index under the baseline condition. Considered in isolation, this would be an anomalous finding, suggesting that pro-gun contributions elevate a state's gun regulation stringency as reflected in our Gun Law Index.

However, to determine the full impact of pro-gun contributions, one must consider both the main effect and the interaction term reflecting the level of Republican control. The interaction terms reveal a critical conditional relationship: the interaction between pro-gun contributions and Republican political control is negative and statistically significant across all specifications, suggesting that Republican control is imperative to the deregulatory impact of pro-gun SIG contributions. Notably, the magnitude of the interaction effect is substantially larger for Republican trifectas (-9.121) compared to Republican Majority Score and Republican Ratio Score, producing a net negative relationship that leads to deregulatory shifts in the Gun Law Index.[19] This means that $1 million in pro-gun contributions under a Republican trifecta is associated with the removal of approximately 3.2 gun laws.[20] Annual pro-gun contributions range from around $100 in South Dakota to approximately $162,000 in California.[21] For a state that has had a Republican trifecta, such as Nevada, whose annual pro-gun contribution is approximately $113,000, pro-gun contributions in that state would translate to roughly 0.36 fewer gun laws per year. [22]

19. Arizona in 2009–2010 is removed from the analysis using the Ratio Score because the governor was not elected, and thus the Ratio Score cannot be calculated. More information on this can be found in Appendix A.

20. This is calculated as the addition of the coefficients under a Republican trifecta: $5.968 - 9.121 = -3.153$.

21. Although California has never experienced a Republican trifecta, 2013–2024.

22. Nevada is the state with the highest annual average of pro-gun contributions that also experienced a Republican trifecta over the years of this study. This is calculated by multiplying Nevada's

A parallel pattern emerges on the gun safety side, as shown in Table 1b. Gun safety SIG contributions do not seem to have a statistically significant impact in the absence of Democratic political control. However, the interaction term for the Democratic trifecta is positive and significant, indicating that gun safety SIG contributions cause more restrictive state gun laws during periods of unified Democratic government. The Democratic Majority Score interaction is also positive and significant, but with a substantially smaller magnitude, and the Democratic Ratio Score interaction is insignificant. Under Democratic trifectas, each additional $1 million is associated with approximately 3.7 new gun laws.[23] With states such as Nevada, the recipient of the greatest dollar amount of gun safety SIG contributions, receiving $230,000 annually, this translates to roughly 0.85 additional gun laws per year under unified Democratic control, which they experienced betweeen 2019–2022.[24]

Taken together, these results suggest that when partisan control removes institutional veto points, gun interest group money translates more easily into shifts in the Gun Law Index, and the direction of change aligns with the dominant party's aligned interest groups. Under Republican trifectas, the impact of pro-gun contributions increases and leads to deregulatory shifts in state gun policy, as reflected in a decreased value of the Gun Law Index. Analogously, under Democratic trifectas, the impact of gun safety contributions increases and leads to regulatory tightening. This pattern is consistent with the conditional influence of organized interests operating through unified control of all veto points.

pro-gun contributions ($113,000) with the estimate of the coefficient under a trifecta (-3.2 gun laws per $1 million): $0.113 \times -3.153 = -0.36$. See Appendix C for information on contribution amounts.

23. This is calculated as the addition of coefficients under a Democratic trifecta: $-2.048 + 5.734 = 3.686$.

24. This is calculated by multiplying Nevada's gun safety contributions ($230,000) with the estimate of the coefficient under a trifecta (3.7 gun laws per $1 million): $0.230 \times -3.686 = 0.848$.

Table 1: Impact of Contributions on Change in Gun Law Score, 2000–2024: Interaction with State Politics Variables

(a) Pro-Gun

	Rep. Trifecta	Rep. Majority Score	Rep. Ratio Score
Pro-Gun SIG Contribution (in $millions)	5.968 (2.253) $p = 0.011$	4.471 (2.040) $p = 0.033$	10.612 (3.840) $p = 0.008$
State Politics	−0.191 (0.101) $p = 0.064$	−0.094 (0.085) $p = 0.275$	−0.668 (0.217) $p = 0.003$
Interaction with State Politics	−9.121 (2.600) $p = 0.001$	−1.906 (0.761) $p = 0.016$	−6.044 (2.805) $p = 0.036$
Num. Obs.	1150	1150	1148
R^2	0.197	0.192	0.194
Adj. R^2	0.135	0.130	0.132

(b) Gun Safety

	Dem. Trifecta	Dem. Majority Score	Dem. Ratio Score
Gun Safety SIG Contribution (in $millions)	−2.048 (2.074) $p = 0.328$	−3.149 (2.225) $p = 0.163$	−8.695 (5.184) $p = 0.100$
State Politics	0.112 (0.156) $p = 0.479$	0.127 (0.082) $p = 0.130$	0.467 (0.219) $p = 0.038$
Interaction with State Politics	5.734 (2.542) $p = 0.029$	2.156 (0.950) $p = 0.028$	5.493 (3.489) $p = 0.122$
Num. Obs.	1150	1150	1148
R^2	0.189	0.193	0.188
Adj. R^2	0.126	0.131	0.125

*The outcome is the change in the Gun Law Index across fifty states (2002–2024). The treatment, "SIG Contribution" is mean special interest group contributions from the prior two years across fifty states (2000–2023), in millions of USD. Standard errors are state-clustered.

3. Robustness Checks for Contribution Effects

We next assess whether the effects of organized interests from our baseline TWFE model are robust to alternative specifications and to potential violations of the identifying assumptions.

Placebo Analysis Using Future Treatment and Past Outcome. Our placebo analysis addresses concerns about reverse causality by examining whether future contributions from organized interests affect the Gun Law Index. Specifically, we replace past (or lagged) contributions with future (or lead) contributions in years $t + 1$, $t + 2$, as well as averages

over $t + 1$ and $t + 2$. Across these placebo specifications, the coefficients on interactions between future contributions and partisan trifectas are not statistically significant (Table 2a and Table 2b).[25] The absence of systematic effects based on future placebo treatment refutes the claim that organized interests just respond to previous statutory changes, and instead supports our interpretation that contributions operate predominantly as a driver of subsequent legal change rather than the reverse.

Table 2: Impact of Future Contributions on Change in Gun Law Score, 2000–2024

(a) Pro-Gun

	Future (t+1)	Future (t+1 ∼ t+2)	Future (t+2)
Future Pro-Gun SIG Contribution (in $millions)	−2.521 (1.732) $p = 0.152$	−3.536 (2.918) $p = 0.231$	−1.196 (2.357) $p = 0.614$
Republican Trifecta	−0.309 (0.083) $p = 0.001$	−0.300 (0.083) $p = 0.001$	−0.302 (0.081) $p = 0.000$
Interaction with Republican Trifecta	1.950 (3.327) $p = 0.560$	1.121 (4.379) $p = 0.799$	−0.387 (3.753) $p = 0.918$
Num. Obs.	1200	1150	1150
R^2	0.205	0.210	0.206
Adj. R^2	0.145	0.149	0.145

(b) Gun Safety

	Future (t+1)	Future (t+1 ∼ t+2)	Future (t+2)
Future Gun Safety SIG Contribution (in $millions)	0.620 (1.801) $p = 0.732$	2.286 (2.518) $p = 0.368$	0.687 (2.205) $p = 0.757$
Democratic Trifecta	0.012 (0.144) $p = 0.936$	−0.042 (0.130) $p = 0.748$	3.28×10^{-3} (0.121) $p = 0.978$
Interaction with Democratic Trifecta	6.584 (4.131) $p = 0.117$	8.459 (4.412) $p = 0.061$	5.685 (2.488) $p = 0.027$
Num. Obs.	1200	1150	1150
R^2	0.207	0.213	0.206
Adj. R^2	0.147	0.152	0.145

*The outcome is the change in the Gun Law Index across fifty states (2000–2023). The treatment "SIG Contribution" is mean special interest group contributions for the year(s) indicated in the column header, in millions of USD. Standard errors are state-clustered. "t+1 ∼ t+2" refers to the mean of special interest group contributions in times t+1 and t+2.

25. The single statistically significant result in the $t + 2$ gun safety model lacks robustness across all other lead periods, and thus does not constitute systematic evidence of an anticipatory effect. Results remain unchanged when extending the placebo period to year $t + 3$, seen in Table E1a and Table E1b in Appendix E.

State–Specific Time Trend. To address potential concerns about differential preexisting state-level trends, we re-estimate our models with state-specific and group-specific time trends. Our models include state–specific linear trends, as well as group–specific trends that vary by baseline firearm prevalence or by state partisan control (Table 3a and Table 3b).[26] In all three models, the interaction between pro–gun contributions and Republican trifectas remains significantly negative. These models indicate the robustness of the main results in that they are not generated by differential preexisting trajectories in gun laws across states or groups. For gun safety contributions, the interaction with Democratic trifectas remains positive in all three specifications. Unlike the pro-gun results, which remain significant across all trend specifications, the gun safety contribution effects become statistically insignificant in one of three models when we control for state-specific trends. This pattern suggests that some states receiving more gun safety contributions may have already been trending toward stricter gun laws, making it harder to isolate the causal impact of the money itself.

26. We use household firearm estimate in 1990 to show baseline firearm prevalence at each state, and Republican Ratio Score to denote state partisan control.

Table 3: Impact of Contributions on Change in Gun Law Score, 2000–2024: Unit/Group-Specific Trend

(a) Pro-Gun

	State-Specific Trend	HFR-Group Trend	State-Politics-Group Trend
Pro-Gun SIG Contribution (in $millions)	5.979 (2.551) $p = 0.023$	5.905 (2.242) $p = 0.011$	5.845 (2.256) $p = 0.013$
Republican Trifecta	−0.120 (0.094) $p = 0.207$	−0.186 (0.102) $p = 0.075$	−0.191 (0.100) $p = 0.063$
Interaction with Republican Trifecta	−10.058 (3.383) $p = 0.005$	−9.563 (2.520) $p = 0.000$	−9.513 (2.504) $p = 0.000$
Num. Obs.	1150	1150	1150
R^2	0.231	0.198	0.199
Adj. R^2	0.131	0.134	0.135

(b) Gun Safety

	State-Specific Trend	HFR-Group Trend	State-Politics-Group Trend
Gun Safety SIG Contribution (in $millions)	−3.767 (2.495) $p = 0.138$	−2.264 (2.079) $p = 0.281$	−1.935 (2.125) $p = 0.367$
Democratic Trifecta	0.068 (0.196) $p = 0.729$	0.114 (0.155) $p = 0.468$	0.122 (0.152) $p = 0.428$
Interaction with Democratic Trifecta	4.698 (3.052) $p = 0.130$	5.917 (2.519) $p = 0.023$	5.437 (2.646) $p = 0.045$
Num. Obs.	1150	1150	1150
R^2	0.226	0.189	0.190
Adj. R^2	0.125	0.124	0.125

*The outcome is the change in the Gun Law Index across fifty states (2002–2024). The treatment, "SIG Contribution" is mean special interest group contributions from the prior two years across fifty states (2000–2023), in millions of USD. Standard errors are state-clustered. States were binned by 1990 HFR into top 10, bottom 10, and middle 30, and by Republican Ratio Score into top 10, bottom 11 (due to ties), and middle 29.

Control For Time-Varying Gun Violence. We address potential concerns about unobserved time–varying confounders that could jointly affect contributions and statutory change. We add three patterns of controls related to gun violence; one shows fatalities each year arising from school shootings (Riedman 2025), and two other patterns use fatalities from mass shootings using three different data sources (Follman et al. 2025; Violence Prevention Project 2024). Table 4a and Table 4b show that including these controls into TWFE models

leaves estimates essentially unchanged. These results suggest that our findings are not driven by differential exposure to high–profile gun violence events.[27]

Table 4: Impact of Contributions on Change in Gun Law Score, 2000–2024: Shooting Covariates

(a) Pro-Gun

	Riedman Dataset	MJ Dataset	VPP Dataset
Pro-Gun SIG Contribution (in $millions)	5.982 (2.305) $p = 0.012$	5.921 (2.208) $p = 0.010$	5.870 (2.186) $p = 0.010$
Republican Trifecta	−0.190 (0.103) $p = 0.070$	−0.184 (0.103) $p = 0.080$	−0.178 (0.103) $p = 0.090$
Interaction with Republican Trifecta	−9.165 (2.739) $p = 0.002$	−9.462 (2.796) $p = 0.001$	−9.730 (2.849) $p = 0.001$
Num. Obs.	1150	1150	1150
R^2	0.197	0.198	0.200
Adj. R^2	0.134	0.136	0.138

(b) Gun Safety

	Riedman Dataset	MJ Dataset	VPP Dataset
Gun Safety SIG Contribution (in $millions)	−1.965 (2.076) $p = 0.349$	−1.990 (2.150) $p = 0.359$	−1.866 (2.166) $p = 0.393$
Democratic Trifecta	0.111 (0.156) $p = 0.479$	0.101 (0.151) $p = 0.508$	0.084 (0.152) $p = 0.583$
Interaction with Democratic Trifecta	5.681 (2.557) $p = 0.031$	5.953 (2.443) $p = 0.018$	6.330 (2.557) $p = 0.017$
Num. Obs.	1150	1150	1150
R^2	0.189	0.189	0.191
Adj. R^2	0.126	0.126	0.129

*The outcome is the change in the Gun Law Index across fifty states (2002–2024). The treatment, "SIG Contribution" is mean special interest group contributions from the prior two years across fifty states (2000–2023), in millions of USD. Standard errors are state-clustered. "Riedman" refers to the K-12 School Shooting database (Riedman 2025). "MJ" refers to the Mother Jones database (Follman et al. 2025). "VPP" refers to the Violence Prevention Project (Violence Prevention Project 2024).

4. Impact on State Elections.

To examine the mechanisms through which interest group money affects gun laws, we estimate additional TWFE models with electoral outcomes as the dependent variables and SIG contributions as the treatment. This approach allows us to assess whether the estimated

27. For additional robustness checks, including alternative treatment and covariate specifications, see Table E2a–Table E3b in Appendix E.

policy effects reflect SIGs' direct influence on policymaking or instead operate indirectly through elections. Specifically, we test whether SIG contributions predict the emergence of unified partisan control (trifectas), institutional control measured by the Majority Score, or the relative prevalence of party captured by the Ratio Score. The results in Table 5 and Table 6 reveal the same basic pattern: both pro-gun and gun safety SIG contributions do not significantly predict trifecta formation or majority control, indicating that special interest money does not systematically determine which party controls state government. By contrast, SIG contributions significantly predict the more granular Ratio Score, suggesting that interest group spending may modestly shift electoral balances without altering overall control. In sum, these results suggest that SIG contributions do not determine partisan control, reinforcing our interpretation of the main estimates: SIGs primarily shape policy once partisan control, especially trifecta control, is in place.

Table 5: Impact of Pro-Gun Contributions on Elections, 2000–2024: Three Different Outcome Patterns

	Rep. Trifecta	Rep. Majority Score	Rep. Ratio Score
Pro-Gun SIG Contribution (in $millions)	−0.507 (0.585) $p = 0.391$	−0.444 (1.675) $p = 0.792$	0.703 (0.309) $p = 0.027$
Num. Obs.	1150	1150	1148
R^2	0.726	0.787	0.860
Adj. R^2	0.705	0.771	0.849

*Outcome variables are Republican Trifecta, Republican Majority Score, and Republican Ratio Score (2002–2024). The treatment, "SIG Contribution" is mean special interest group contributions from the prior two years across fifty states (2000–2023), in millions of USD. Standard errors are state-clustered.

Table 6: Impact of Gun Safety Contributions on Elections, 2000–2024: Three Different Outcome Patterns

	Dem. Trifecta	Dem. Majority Score	Dem. Ratio Score
Gun Safety SIG Contribution (in $millions)	0.758 (0.889) $p = 0.398$	1.650 (1.701) $p = 0.337$	1.316 (0.392) $p = 0.002$
Num. Obs.	1150	1150	1148
R^2	0.550	0.788	0.844
Adj. R^2	0.516	0.772	0.833

*Outcome variables are Democratic Trifecta, Democratic Majority Score, and Democratic Ratio Score (2002–2024). The treatment, "SIG Contribution" is mean special interest group contributions from the prior two years across fifty states (2000–2023), in millions of USD. Standard errors are state-clustered.

B. Constituent Sentiment and Gun Policy

We directly compare how organized interests and public opinion each influence changes in gun policy.[28] The second section of our analysis concerns how policymakers respond to constituent gun policy sentiment in the form of changes in gun laws. Since the CES questions differ between years, the questions asked between years 2006–2012 are limited.[29] Our main analysis, therefore, restricts the years to 2013–2024 to use the most reliable estimates of gun sentiment. Our results do not find evidence of a causal link between constituent gun sentiment and changes in gun policy, giving evidence that politicians are unresponsive to the behavior and sentiment of their constituents on gun-related issues.

1. Constituent Gun Sentiment Does Not Predict Policy Change

Both our TWFE and our IV estimation (Table 7) do not support a causal link between individual support of gun control and changes in policy. For both the majority and minority party, we fail to find evidence of an effect of estimated gun sentiment. Thus, we do not see any evidence that politicians are responding to either their own party's or the opposing party's constituent sentiment. Importantly, these null results are not simply an artifact of inflated standard errors or weak identification. Across all IV specifications, the weak instrument F-statistics are well above the conventional threshold of ten, indicating sufficiently strong instruments. Although the IV estimates have larger standard errors than the TWFE models, the magnitude and direction of these coefficients are consistent across specifications, supporting that our IV estimates are reliable and not driven by statistical noise.

28. As shown in Table F4 in Appendix F, SIG funding and constituent gun sentiment are not significantly correlated, allowing us to model their effects on policy independently.

29. see Table B1 in Appendix B for more details.

Table 7: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.551 (0.364) $p = 0.136$	-1.070 (1.952) $p = 0.584$	-0.543 (0.368) $p = 0.146$	0.991 (1.759) $p = 0.574$
Num. Obs.	550	550	550	550
R^2	0.231	0.202	0.231	0.205
Adj. R^2	0.119	0.085	0.119	0.089
Weak Instrument F-Stat		28.11		28.01

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population.

2. Government Trifecta Does Not Change the Effect of Constituent Sentiment

Similar to our analysis of interest group contributions, we hope to explore if there is a differential impact of estimated gun sentiment under the presence of a trifecta. We replicated our analysis, focusing on Republican, Democratic, or any trifectas, show in Table 8, Table 9, and Table 10, respectively. Across all analyses, both our TWFE and our IV estimation do not produce a significant effect. Thus, there is no evidence that partisan control differentially affects the relationship between constituent gun sentiment and changes in policy. Unlike interest groups, the trifecta does not appear to provide a channel for legislative action in response to constituent pressure.

Table 8: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024: Republican Trifecta

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.439 (0.517) $p = 0.400$	-1.643 (2.098) $p = 0.434$	-0.274 (0.481) $p = 0.572$	1.891 (1.925) $p = 0.326$
Interaction with Trifecta	0.101 (1.270) $p = 0.937$	1.157 (2.870) $p = 0.687$	-2.050 (1.239) $p = 0.105$	-3.318 (4.072) $p = 0.416$
Num. Obs.	550	550	550	550
R^2	0.232	0.195	0.235	0.195
Adj. R^2	0.116	0.073	0.119	0.074
Weak Instrument F-Stat		19.16		15.79

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population.

Table 9: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024: Democratic Trifecta

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.540 (0.366) $p = 0.147$	0.418 (1.585) $p = 0.792$	-0.511 (0.327) $p = 0.124$	-0.688 (1.445) $p = 0.634$
Interaction with Trifecta	1.511 (2.159) $p = 0.487$	-6.137 (5.833) $p = 0.293$	-0.774 (1.182) $p = 0.516$	4.123 (4.275) $p = 0.335$
Num. Obs.	550	550	550	550
R^2	0.234	0.200	0.234	0.204
Adj. R^2	0.119	0.079	0.118	0.084
Weak Instrument F-Stat		14.30		14.47

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population.

Table 10: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024: Any Trifecta

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.642 (0.408) $p = 0.122$	-0.636 (1.570) $p = 0.686$	-0.655 (0.467) $p = 0.166$	0.586 (1.170) $p = 0.617$
Interaction with Trifecta	0.440 (0.566) $p = 0.441$	-0.821 (1.874) $p = 0.661$	-0.875 (0.616) $p = 0.162$	0.819 (1.800) $p = 0.649$
Num. Obs.	550	550	550	550
R^2	0.234	0.217	0.235	0.215
Adj. R^2	0.118	0.098	0.120	0.096
Weak Instrument F-Stat		16.21		14.78

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population.

3. Robustness Checks for Gun Sentiment Effects

Alternative Time Frame. As a robustness check, we perform the analysis on the entire dataset, 2006–2024. While the TWFE shows moderate statistically significant effects, our IV results are insignificant (Table 11), providing evidence that our results are not specific to the time frame chosen in our main analysis, and the associations displayed are mainly due to the endogeneity of gun sentiment and gun laws.

Table 11: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2006–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.601 (0.232) $p = 0.013$	-0.618 (0.848) $p = 0.466$	-0.570 (0.241) $p = 0.022$	0.637 (0.804) $p = 0.428$
Num. Obs.	850	850	850	850
R^2	0.194	0.164	0.193	0.164
Adj. R^2	0.115	0.082	0.114	0.082
Weak Instrument F-Stat		159.76		140.38

*The outcome is the change in the Gun Law Index across fifty states from 2008–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population. Because our instrument uses periods $t-1$ and $t-2$ in its construction, we are restricted to years 2008–2024 for our analysis.

Alternative Instrument. A concern could be that relevance of our instrument is driven by the changes in populous states. As an alternative instrument, we redefine our national sentiment to be weighted not by both population and relative proportion within a state, but just by relative proportion (Table 12). The instrument remains relevant, and we produce similar insignificant results to our main specification.[30]

Table 12: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024: Alternative Instrument

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.551 (0.364) $p = 0.136$	-0.994 (1.935) $p = 0.608$	-0.543 (0.368) $p = 0.146$	0.915 (1.751) $p = 0.601$
Num. Obs.	550	550	550	550
R^2	0.231	0.205	0.231	0.208
Adj. R^2	0.119	0.088	0.119	0.092
Weak Instrument F-Stat		29.00		28.66

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population. The IV was adjusted from the main specification, weighing national gun sentiment only by relative population within the state.

V. Discussion

A. The Representation Paradox

The empirical patterns we have documented, namely that organized interests drive statutory change under unified partisan control while constituent sentiment does not causally predict policy movement, can be clarified and brought into sharp relief by focusing on three specific policy domains: universal background checks (Figure 6), assault weapons bans (Figure 7), and concealed carry restrictions (Figure 8). These figures reveal not merely a gap between preferences and policy, but a systematic institutional disconnect that has persisted across more than a decade, even in the face of overwhelming, stable, bipartisan public support.

30. For additional robustness checks, including using treatment moving-averages and splitting groups based on constituent population, see Table F1 and Table F2 in Appendix F.

B. Universal Background Checks: Consensus Without Policy Response

Figure 6 presents perhaps the most striking evidence of democratic failure in modern America. The figure tracks state–year public support for universal background checks from 2013 through 2024, alongside actual statutory changes and the presence of unified partisan control. The level of support across every single year in every single state for this policy is extraordinary. Average support exceeds 80% in all but two states, and even they massively support universal background checks at 79% (Alaska) and 73% (Montana). This is not a modest preference. It is an overwhelming supermajority that spans partisan, geographic, and demographic divisions. States as politically diverse as South Carolina and Alabama (89% average support), California (93%), and Texas (85%) all exhibit massive public backing for this single policy reform. This degree of consensus is virtually unprecedented in contemporary American politics on any contested issue.

Figure 6 also displays the estimated linear regression coefficient from a model of percent support for universal background checks by year for each state. The "Percentage Point Change in Support" column reveals that in the vast majority of states, support has either held steady or increased over the 2013–2024 period. The supermajority in favor of universal background checks has been durable and consistent. But in the face of this massive support, the policy response has been limited. As of 2013, only ten states had universal background check laws in effect. By 2024, that number had increased to twenty, a gain of ten states over twelve years. This means that despite twelve years of massive, supermajority support across the nation, thirty states still do not require background checks for all gun sales. Of the 11 adoptions that did occur, 9 occurred under Democratic trifectas, as the blue outlines in Figure 6 make clear.[31]

31. Interestingly, Nevada adopted background checks through a citizen referendum (with no Democratic trifecta in place), but the law did not actually become operative until a Democratic trifecta corrected some problems with the referendum in 2019. The other state to adopt universal background checks was Vermont in 2018. Just two days after the Parkland, Florida, school shooting, Vermont Republican Governor Phil Scott learned of shocking charges against an 18-year-old who had detailed plans to carry out a school shooting at a Vermont High School. Shortly thereafter, the massively democratic state legislature, which had a veto-proof majority, expanded criminal

Conversely, numerous states with 89% average support and zero percentage-point decline over the period have never adopted universal background checks, often under Republican trifecta control for 100% of these years (Indiana, South Carolina, Alabama, and Florida). The one state to eliminate background checks over this period—Iowa—showed average support for retaining background checks of 88%, which was stifled by a Republican trifecta in 2021. On this issue, the only hope for massive constituent preference to be heard is through Democratic control. The representational failure here is not subtle. We are not describing a case where public opinion is divided 50–50, and elites tilt policy slightly toward one side. We are describing a case where 80–90% of constituents support a specific, clearly defined policy reform, that support has been stable for over a decade, and 60% of states still refuse to enact it. If democratic responsiveness operated as conventionally theorized, if the threat of electoral punishment kept legislators tethered to constituent preferences, universal background checks would have been adopted nationwide years ago, regardless of party control.

Moreover, this is not a case where one might argue that economic or educational elites oppose the policy and therefore responsiveness operates along class lines (Bartels 2008; Gilens 2012). Survey data from the American National Election Studies show that support for background checks is stronger, not weaker, among higher-income and college-educated respondents (American National Election Studies 2021). The standard elite-responsiveness account cannot explain why a policy favored by both the median voter and economic and educational elites fails to pass. It is difficult to identify another instance in the history of the American Republic where a specific, concrete policy proposal has enjoyed such extreme, durable, widespread public support across every state for such an extended period, and yet has failed so completely to translate into federal law or adoption by a majority of states. Universal background checks represent the limiting case of democratic responsiveness failure.

background checks to private sales, raised the legal age to buy firearms to 21, and banned bump stocks and high-capacity magazines.

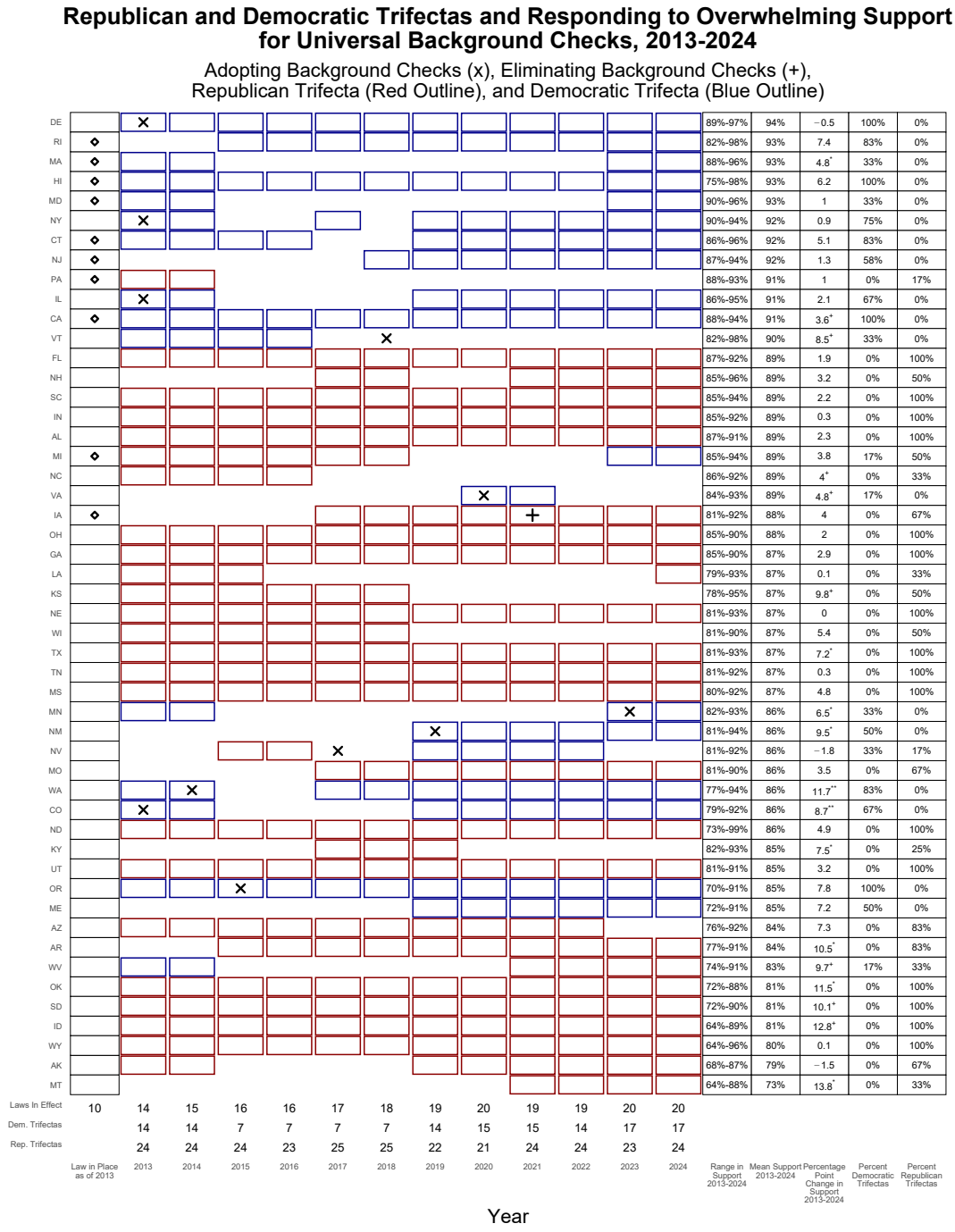

Figure 6: State–Year CES Opinion on Universal Background Checks, 2013–2024. The 10 states that adopted Universal Background Checks prior to 2013 still had them in place at the start of the year. "Support" is the share of CES respondents who supported the statement "Background checks for all sales, including at gun shows and over the Internet." "Percentage Point Change in Support" is the estimated regression coefficient from a model of support on year; +, *, and ** denote statistical significance at the 10%, 5%, and 1% levels, respectively. For 2020 and 2022, the CES did not inquire about support for background checks. 21 states had a Republican trifecta and 10 states had a Democratic trifecta in at least 8 of the 12 years.

C. Assault Weapons Bans: Majority Support, Partisan Divergence

Figure 7 presents a parallel case for assault weapons bans with somewhat lower but still substantial public support, with thirty-six states showing at least 55% average support and 23 in excess of 60%, yet with only 10 having these bans in 2024. Over the twelve years depicted, only three states adopted these bans (all with Democratic trifectas), although Rhode Island, with 72% average support and Democratic trifectas for the last ten years, did not adopt a ban. Interestingly, the geographic and partisan variation is more pronounced than in the background check case: support tends to be higher in Democratic-leaning states and lower and declining in Republican-leaning states, though even in some Republican strongholds, like Texas, a clear and stable majority supports the ban—to no avail.

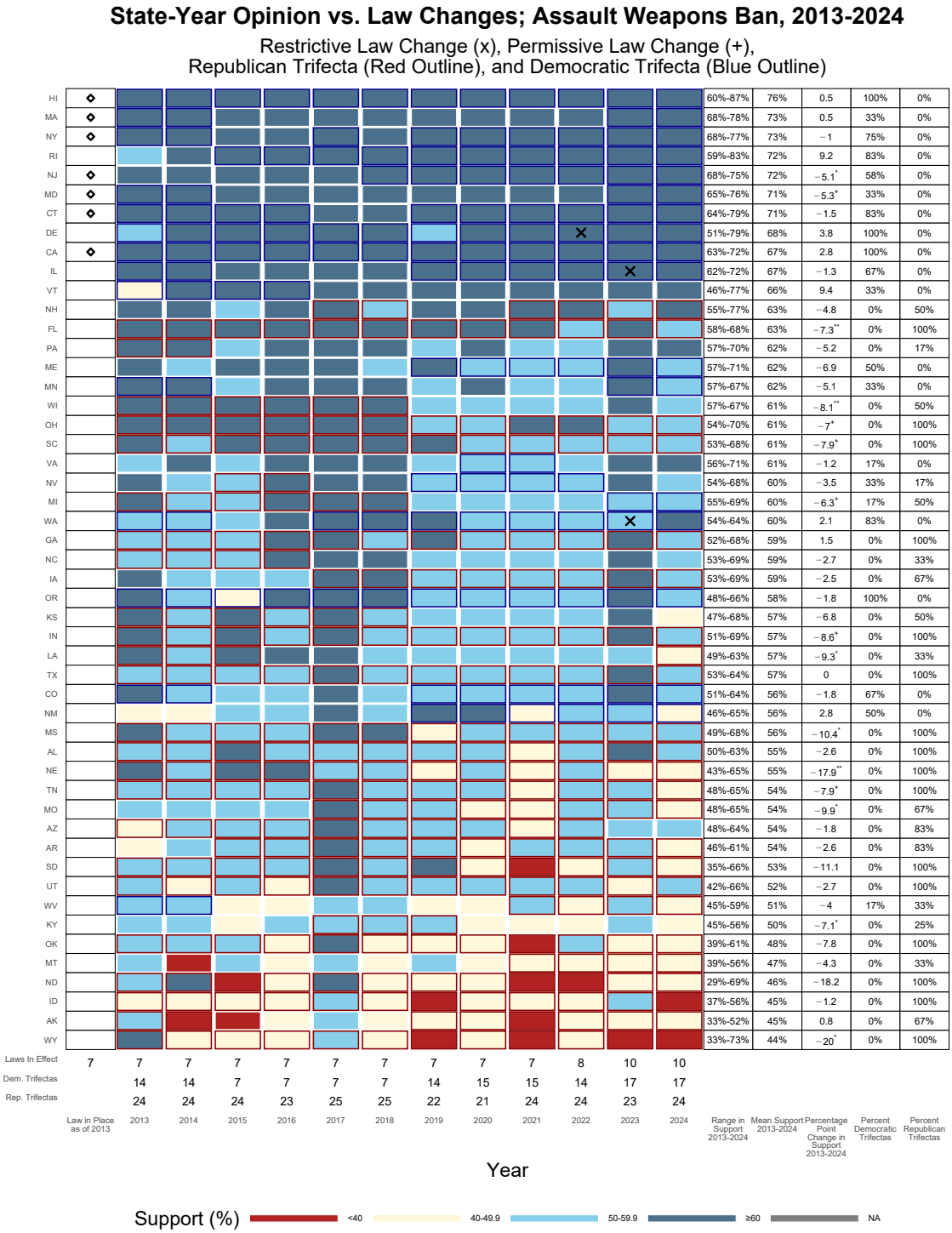

Figure 7: State–Year CES Opinion on an Assault Weapons Ban, 2013–2024. The 7 states that adopted an Assault Weapons Ban prior to 2013 still had them in place at the start of that year. "Support" is the share of CES respondents who supported the statement "Ban Assault Rifles." "Percentage Point Change in Support" is the estimated regression coefficient from a model of support on year; +, *, and ** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

D. Concealed Carry Deregulation: Systematic Divergence

Figure 8 presents the starkest evidence of policy change proceeding against constituent preferences. The figure tracks state–year opinion on concealed carry permit requirements from 2013 through 2024, showing the share of respondents who opposed making it easier to obtain a concealed carry permit.

The pattern of public opinion is clear. Across the twelve-year period, 36 states showed at least 55% average support for restricting concealed carry with 22 states in excess of 60%, yet policy moved in the opposite direction on a massive scale. As the figure's annotation notes, although 35 states had discretionary restrictions on concealed carry at some point from 1990 to 2012, the gun lobby campaign had eliminated those restrictions in all but ten states by the start of 2013. During the 2013–2024 period, this deregulatory wave accelerated. The number of states with permitless carry (also called "constitutional carry") increased from a handful to over half of all states. Changes are marked in the figure with "+" (loosening from prohibition or "may-issue" to "shall-issue") and "++" (loosening to permitless carry). Interestingly, support for more restrictions on gun carrying rose in 30 of the 50 states over the period, while public policy moved strongly in the opposite direction.

One other factor played a major role in the legal changes shown in Figure 8: Second Amendment litigation. Thus, Illinois adopted right-to-carry under a Democratic trifecta in 2013 at the direction of a federal court ruling that this was constitutionally mandated. Similarly, the six states showing strong support for carry restrictions followed the Illinois path after the U.S. Supreme Court decision in *Bruen* in 2022.

States under Republican trifectas systematically eliminated permit requirements, even when public opinion opposed such moves. For example, 58% of Texas citizens wanted to tighten restrictions on gun carrying, with support increasing over this period, yet Texas adopted permitless carry in 2021 while under Republican control.

The concealed carry case also illustrates the long-run consequences of the deregulatory power of the Republican trifecta. Once a state eases permit requirements, a new constituency of carriers emerges, gun sellers and trainers prosper, and these groups become durable opponents of re-regulation. The policy feedback effect (Campbell 2003; Pierson 1993) locks in the deregulatory change. Democratic trifectas in the future would face not only organized pro-gun opposition but also a mobilized base of constituents whose newly acquired rights would be curtailed by any attempt to restore or enhance permit requirements. The deregulatory ratchet thus operates not only in the short run through conditional influence but also in the long run through policy feedback. Taken together, the concealed carry deregulation wave represents a clear case of organized interests (buttressed by a supportive Supreme Court) driving policy directly against constituent preferences.

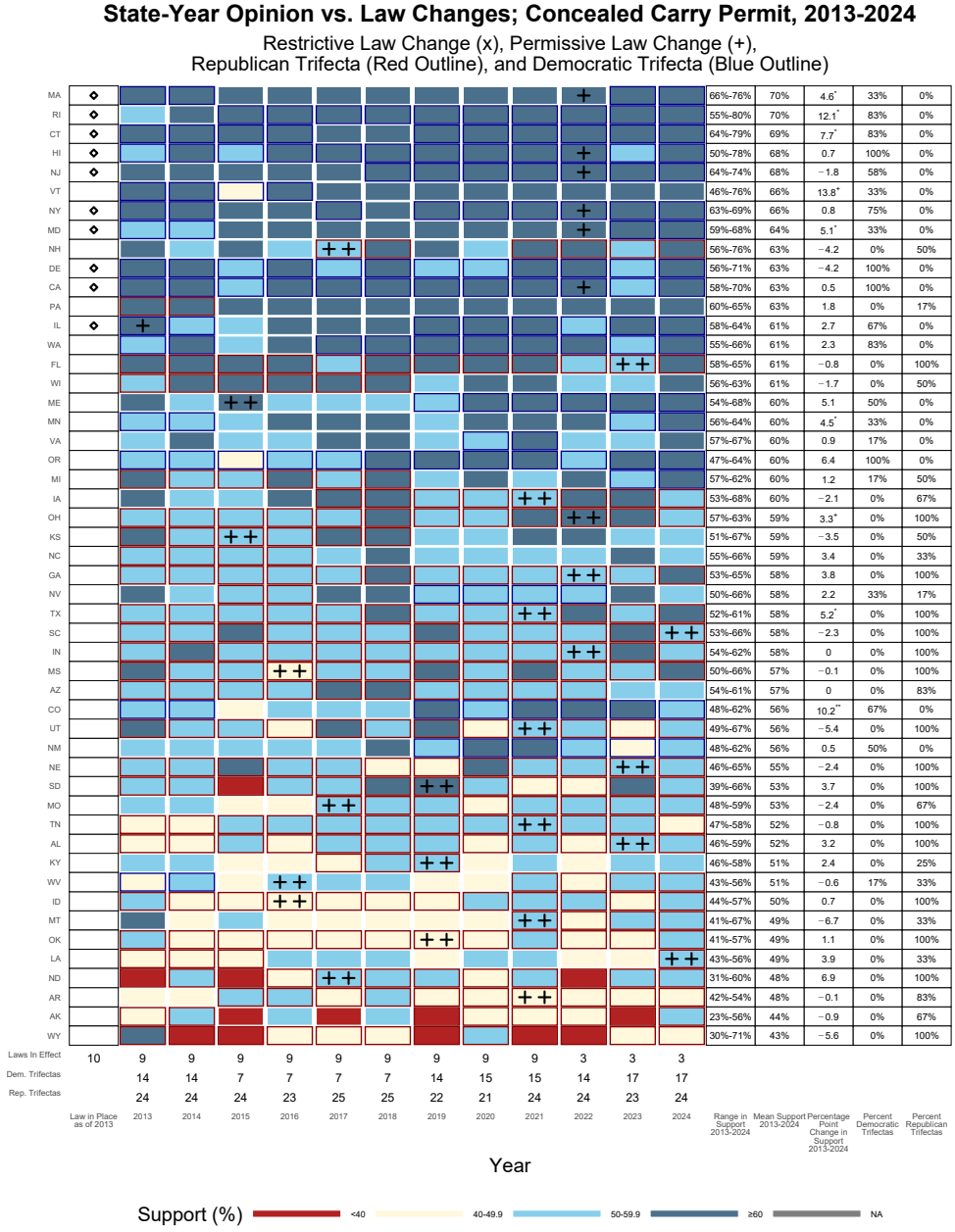

Figure 8: State–Year CES Opinion on Concealed Carry, 2013–2024. Although 35 states had discretionary restrictions on concealed carry at some point from 1990–2012, the gun lobby campaign had eliminated those restrictions in all but 10 states by the start of 2013. "Support" is the share of CES respondents who opposed the statement "Make it easier for people to obtain a concealed carry permit." A single plus sign (+) indicates a change from either a prohibition on concealed carry or a "may-issue" regime to a "shall-issue" regime. A double plus sign (++) indicates a change to permitless carry. "Laws in Effect" reflects the number of laws in each year that are at least as restrictive as a "may-issue" policy. "Percentage Point Change in Support" is the estimated regression coefficient from a model of support on year; +, *, and ** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

E. Limitations of Our Research

Two limitations qualify how far the results should be generalized. First, our design identifies what drives state gun policy, but it cannot entirely resolve how influence operates inside legislatures. We estimate state–year changes in statutory stringency as a function of aggregate campaign contributions and constituent sentiment, which allows us to test whether enacted law responds to organized money or public preferences conditional on institutional context. However, this approach does not isolate the internal channels through which influence is exercised, such as agenda setting, bill drafting, committee bargaining, amendment activity, or other procedural strategies central to legislative subsidy accounts. Pinning down these mechanisms would require additional data and a different research design, which we pursue in future work.

Second, we focus on a high-salience domain where organized interests are well-resourced and strongly mobilized. Gun regulation is a central partisan issue with unusually well-organized interest group infrastructure and repeated legislative activity, conditions that plausibly amplify the ability of contributions to operate as legislative subsidies. This makes the domain an informative setting for testing conditional influence, but it also means the magnitudes we estimate should not be assumed to carry over to policy areas with weaker mobilization, fewer legislative opportunities, or different institutional incentives, including national institutions.

Even so, we view the core implication as portable: contributions operate as legislative subsidies whose policy returns depend on institutional configuration, especially the alignment of agenda control and veto points. What should vary across domains is the magnitude of these returns, as the relative advantages of organized actors depend on salience, technical complexity, and the capacity of voters and media to monitor policy details. Comparative analyses across issue areas and institutional settings would help specify these scope conditions

and clarify when, if ever, constituent preferences exert independent leverage on statutory change.

F. Implications for Democratic Responsiveness

Taken together, these three cases, universal background checks, assault weapons bans, and concealed carry deregulation, demonstrate the breadth and persistence of the responsiveness failure we identify. The disconnect between constituent preferences and policy is not confined to any one issue or moment. It is systematic, durable, and apparent across multiple dimensions of gun regulation.

The universal background check case demonstrates that even overwhelming, stable, bipartisan supermajority support is insufficient to produce policy change in the absence of the correct institutional configuration. Constituent sentiment, no matter how strong, does not translate into law unless organized interests aligned with that sentiment can exploit a window of unified partisan control. In the absence of such a window, or in the presence of organized opposition with access to veto points, even 80–90% public support fails.

The assault weapons ban case demonstrates that moderately high levels of public support produce divergent policy outcomes depending on which party holds unified control. States with similar levels of constituent support for bans move in opposite directions—some adopting bans, others preempting them—based entirely on whether Democrats or Republicans control the governorship and legislature. Constituent sentiment predicts neither adoption nor rejection. Organized interest influence, conditional on institutional configuration, drives the outcome.

The concealed carry case demonstrates that organized interests can drive policy against constituent preferences when they hold the institutional advantage. Deregulation proceeded across dozens of states despite stable public opposition, because pro-gun groups successfully exploited Republican trifectas to eliminate permit requirements over the objections of the median voter. This is not failed responsiveness due to weak public engagement or ambiguous preferences. It is systematic override of clear majority opposition.

It is difficult to reconcile these patterns with conventional accounts of democratic representation. If electoral accountability functions as theorized, if politicians respond to constituent preferences to avoid electoral punishment, then universal background checks would be federal law, assault weapons bans would be far more common, and permitless carry would not have spread to half the states. The fact that none of this has occurred, despite public opinion that would support the first two and oppose the third, suggests that the conventional account is incomplete. Organized interests, operating through the conditional mechanism we have identified, override constituent preferences systematically when institutions create opportunities for them to do so.

The logic of conditional influence in which organized resources are converted into statutory change when veto points align, with returns depending on institutional configuration rather than constituent demand, generalizes beyond gun policy to other polarized, high salience domains where single-issue groups command substantial resources and can exploit unified partisan control. Our findings suggest that democratic responsiveness is not a smooth, continuous function of public opinion, but a discontinuous, conditional process in which organized interests dominate outcomes during windows of institutional opportunity, and constituent preferences are sidelined even when they are overwhelming, stable, and bipartisan.

In the domain of state gun policy, the representation gap we document is not a minor deviation from the median voter. It is a systematic and persistent failure in which policy responds to organized money rather than constituent sentiment, and in which even some of the most widely supported proposals in American politics, backed by supermajorities in every state for more than a decade, have failed to become law in 60% of the states. Rather, the figures suggest that when gun policy reaches the legislative arena, even widespread and sustained public support for restriction often has surprisingly little independent traction.

The paper's causal results help explain why: marginal changes in constituent sentiment do not predict statutory change, whereas organized spending under trifectas does. The combined lesson is that state gun policy is not primarily tracking the public's issue-specific preferences.

It is tracking the interaction between organized political pressure and institutional opportunity. When unified control opens a window, aligned, organized interests are positioned to effectuate legislative action. When that window is closed, even overwhelming public support is often incapable of producing change.

This conclusion has implications that go beyond gun policy and point to a broader lesson about American democracy: the institutions that are supposed to translate citizen preferences into law can, under some conditions, become channels through which organized interests systematically override those preferences. On gun policy, that failure is especially consequential because the resulting laws govern questions of violence, injury, and public safety in every state in the nation.

Disclosures

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Conflicts of Interest

The authors declare no conflicts of interest.

Institutional Review Board Status

The Stanford University Institutional Review Board has determined that this study does not involve human subjects as defined in 45 CFR 46.102(e) and therefore does not require full review by the Institutional Review Board. This determination was made on December 11, 2025.

Data Availability

This project uses four primary data components to create the analytic panels: (1) SIG-level contribution data obtained from OpenSecrets under an acquisition agreement (OpenSecrets 2025), (2) the RAND State Firearm Law Database (RAND Corporation 2025) for the creation of our Gun Law Index, with supplement from Giffords Law Center (Giffords Law Center 2025) and in records of state statutes as found in Westlaw, (3) constituent gun sentiment measures derived from the Cooperative Election Study (Schaffner et al. 2025), and (4) publicly available state-level covariates (Bureau of Economic Analysis 2025; Bureau of Justice Statistics 2023a, 2023b, 2024; Bureau of Labor Statistics 2025a, 2025b; Kaplan 2025; Klarner 2013; Leip 2025; National Conference of State Legislatures 2025; Nebraska Legislature 2025; RAND Corporation 2020; Slater and Alpert 2024; U.S. Census Bureau 2011, 2012, 2019, 2020, 2024, 2025). All underlying data sources are public except for the SIG contribution data, which will be available only in aggregated form within the merged panel.

All code, detailed documentation, and the directory structure required to reproduce every table and figure in the paper will be deposited in an appropriate repository upon publication. Until the public release, the code package is available from the authors at their discretion and upon reasonable request.

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Appendix A — Data Panel Construction

1. Variables for Laws

We derived our definitions and codings of state gun laws from RAND's State Firearm Law Navigator (RAND Corporation 2025). This dataset contains comprehensive information on state gun laws over time, including the category of law and enaction date. Using these categories, we defined relevant types of gun laws, displayed in Table A1. Using this data, we handcoded variables representing the status of individual state laws on a 0/1/2 scale, where 0 meant the state did not adopt the restriction, 1 meant the state adopted the restriction for either handguns or long guns, and 2 meant the state adopted the restriction for both handguns and long guns. Laws that always applied to handguns and long guns (for example, stand your ground) were coded as 0/2 binary variables, and laws that could never apply to one type of gun (for example, concealed carry categories) were coded as 0/1 binary variables. When coding, we checked each law with descriptions from Giffords Law Center summaries (Giffords Law Center 2025) and in records of state statutes as found in Westlaw, and supplemented with the most recently updated information when there was a discrepancy. Years were based on the year the law became effective, or the year the law was repealed. All changes in the indicator variables in our data resulted from changes in state statutes, and we do not include federal laws that affected all 50 states, as we are focusing on state government response to pressures.

Table A1: Gun Laws Descriptions

Variable	**Description**
Universal Background Checks	Criminal and mental health checks for nearly all firearm sales and transfers.
Minimum Age 21	Prohibits sale to and purchase of guns by individuals under 21.
Permit to Purchase	Requires license or permit from law enforcement or state agency before firearm purchase.
Waiting Periods	Imposes minimum time sellers must wait before delivering a gun to a purchaser.
Training Requirements	Requires safety training certificate for firearm purchase.
Extreme Risk Protection Orders	Allow officials to petition court to remove firearms from at-risk individuals.
Domestic Violence Protection Orders	Prohibits firearm ownership for individuals served with a domestic violence restraining order.
Mental Health Prohibition	Prohibits the possession of firearms by individuals adjudicated as being mentally incompetent, with a standard more restrictive than established by the Brady Act.
Assault Weapon Sales Ban	Ban on sales of specified weapons or those with features classifying them as assault weapons.
Large Capacity Magazine Ban	Ban on sales of high-capacity magazines.
Ghost Guns	Bans manufacture or sale of privately made firearms lacking serial numbers.
Required Reporting of Lost/Stolen Goods	Mandates reporting of lost or stolen firearms to authorities.
Child Access – Storage	Penalties for storing guns in a manner accessible to minors.
Child Access – Reckless	Prohibits furnishing guns to minors.
Open Carry – Limiting	Either prohibits open carry or allows only with specific limitations or license requirements.
Open Carry – Prohibiting	Prohibits open carrying of guns.
Concealed Carry – Prohibiting	Prohibits concealed carrying of guns.
Concealed Carry – May Issue	Grants discretion to issuing authorities for CCW permits.
Concealed Carry – Permit Required	Requires permits for concealed carry.
Expanded Castle Doctrine	Allows use of deadly force in self-defense without duty to retreat in specified locations outside the home.
Stand Your Ground	Expands castle doctrine to any location.

2. Interest Group Variable

State-level campaign finance data come from OpenSecrets under a data acquisition agreement. The raw files include all contributions made by pro-gun and gun safety SIGs to state-level candidates and committees from 2000–2024. Each record contains an organization identifier and name, recipient identifier, recipient office or committee type, contribution amount, contribution date, and filing jurisdiction.

We first trim and harmonize state identifiers, converted contribution dates to calendar years, parsed contribution amounts into numeric values, and standardized organization identifiers and names to eliminate duplicates created by formatting inconsistencies. We then restricted the data to the time scope of our study.

Contribution records were aggregated to the state–year level. For each state and year, we calculated (1) the total dollar value of contributions by each special interest category, (2), the number of distinct contributing organizations in each category, and (3), an indicator for whether any contributions from that category occurred in that year. States with no contributions from a given category in a given year were coded as zero for contribution totals and as having no contributing organizations in that category.

The resulting state–year SIG panel contains four types of variables: (1) annual dollar totals of contributions by category, (2) annual counts of unique contributing organizations by category, (3) state identifiers, and (4) calendar year. These aggregates are merged to the main state–year panel that includes the Gun Law Index, constituent gun sentiment, partisan control, and demographic covariates.

3. Control Variables

1. Population

State population is from the Census Bureau. For each year of data, the Census provides estimates of state populations as of July 1st of that year.

2. Incarceration

Data on incarceration was pulled from the Bureau of Justice Statistics. Specifically, these counts are "Prisoners Under the Jurisdiction of State or Federal Correctional Authorities" in each year of data. Incarceration rates were calculated using population data from the Census Bureau.

3. Unemployment

Data on unemployment rate is compiled from the Bureau of Labor Statistics. Each state's non-seasonally adjusted unemployment rate for each year is directly calculated by the Bureau of Labor Statistics.

4. Per Capita Ethanol Consumption from Beer

This data is pulled from the National Institute on Alcohol Abuse and Alcoholism, a part of the National Institutes of Health (NIH). They report apparent per capita alcohol consumption on the state level from 1977–2022. We specifically use "Gallons of ethanol per capita age 14 and older" from beer as our metric. Because 2023 data is not yet available, we impute 2022 data for 2023.

5. Metropolitan Statistical Area (MSA)

This data is pulled from Jacob Kaplan's concatenated data on Harvard Dataverse. This is a cleaned and aggregated version of the FBI's Arrests by Age Sex and Race yearly data. For each agency, the data contains a variable indicating which MSA a given agency is a part of. Using this, we created an indicator variable if each agency was a part of an MSA. This was then used with the population variable provided by the FBI to compute the number of people living in an MSA in each state–year. Finally, this was divided by the state population variable from this dataset to create the proportion of individuals living in an MSA out of the entire state population.

6. CPI

The yearly CPI data are derived from the Bureau of Labor Statistics (BLS). This data is specifically "All items in U.S. city average, all urban consumers, not seasonally adjusted." This data only varies by year, not by state. CPI is not directly used as a control, but rather used to calculate Real Per Capita Personal Income and convert nominal interest group contributions to real dollars.

7. Real Per Capita Personal Income (RPCPI)

Annual Personal Income is taken from the Bureau of Economic Analysis' (BEA) state-level data. The BEA directly calculates per capita personal income. This was converted from a nominal to real value by dividing this metric by the CPI from the BLS.

8. Demographics

Demographic data is taken from the U.S. Census Bureau. Specifically, these are population estimates done by the Census as of July 1st of the given year, broken down by age, sex, and race. We use this data to create race variables, calculating the proportion of individuals that are white, black, and other in a population, separated by Hispanic and non-Hispanic. It is important to note that "Two or More Races" is a separate category of our data that was added to the "other races" category. In our analysis, we use the proportion of black individuals and proportion of white non-Hispanic individuals as controls.

9. Household Firearm Rate (HFR)

Household Firearm Rate estimates are taken from RAND. They specifically estimate state-based HFR using FSS (fraction of suicides with a firearm) as a predictor. This data is from 1990-2018, so 2018 data for each state is used as an estimate of HFR for years 2019–2023.

10. Governor

Data on governor election outcomes is derived from David Leip's United States Election Data, downloaded from Stanford Searchworks. This data is from elections 1990–2024. In order to obtain the election data before 1990 (for the state of the political climate in a state in the year 1990), we scraped the data from David Leip's election atlas website directly. For each election, we store the total number of votes in a gubernatorial election, the number of votes for the Democratic candidate, and the number of votes for the Republican candidate. If an independent won the election, we recorded the number of votes they received (this means that the number of votes in each party will most likely not sum up to the "total votes" variable). We also created a variable that indicates which party the governor is based on the party that obtained the maximum amount of votes in a given election. Each election's outcome is populated in the next years' state–year row (for example, if an election happened in Alabama in 2016, the results of that election are in the Alabama 2017 row). If there was no election, results from the previous election are populated. Every state–year is accounted for except for New York's 1986 election, which was obtained through a FOIA request. We also hand-coded the following state–years, as there was a non-elected governor for various reasons:

- Arizona 1988-1990: The Governor was impeached and replaced with a Democrat, who held the position until the 1990 election.
- Alabama 1993-1994: The Lieutenant Governor (Democrat) takes over after the Governor (Republican) was convicted of a felony.
- Arizona 2009-2010: The standing Governor became the U.S. Secretary of Homeland Security, so the Arizona Secretary of State (Republican) came in to the governor position on 1/20/2009.
- Arkansas 1996-1998: In 1996, the standing Governor was convicted of fraud, so the Lieutenant Governor (Republican) was sworn in on 7/15/1996.
- Louisiana 1991: In March 1991, the Governor switched affiliation from Democrat to Republican.
- Vermont 1992: The Governor (Republican) died in office in 8/13/1991, so the Lieutenant Governor (Democrat) took over in 1992.
- Virginia 2010: There was a typo in the original data that has been noted - based on the year definitions the Governor should be Bob McDonnell (Republican), inaugurated on 1/16/2010.

For each of these, there should be missing values for the number of votes for each party, as no election occurred. However, the governing party is recorded. These records were checked with our state legislature data, which contains the party of the governor.

11. State Legislature

Data from 1990–2008 is derived from Dr. Carl Klarner's State Partisan Balance Data, downloaded from the Harvard dataverse. This dataset contains the number of state legislators who are Democrats, Republicans, Independents, and vacant, governor party, as well as measures of a divided government (at least one of upper house, lower house, and governor are a different party) and simple divided government (both chambers of the state legislature are the same party, but the governor is different). We use the number of individuals in each party while in session, rather than what is elected, as this reflects party control for passing legislation. There is also a variable that indicates which party is in control of each chamber.

Data from 2009–2023 is derived from the National Conference of State Legislature (NCSL) State Partisan Composition. For each year, this data contains the number of individuals of each party (Republican, Democrat, Independent, vacancies) in each state, as well as the total number of seats. There is data on years 2009–2011 in both the Klarner data as well as the NCSL. After checking these between each other, there are some single digit discrepancies due to the data being pulled at different times of the year, but this does not seem to change which party is in power. Thus, we use NCSL data for these years. To match the Klarner data, we create variables of which party is in power of the chamber by recording the party with the maximum number of seats in a given chamber (due to independents, the share of this party is not always > 0.5).

Since Nebraska is a unicameral and nonpartisan legislature, these datasets do not record the number of individuals in each party in the Nebraska legislature. Following the advice of Dr. Charlyene Berens of the University of Nebraska – Lincoln, we gather the party registration of the Senators in the Nebraska legislature from Wikipedia. The Wikipedia entry cites the Nebraska Blue Books, which are published by the state. From this page, we counted the number of individuals of each party in the state legislature and recorded these in our columns about the "senate", or upper chamber of the state legislature.

Appendix B — Gun Sentiment Measure

To estimate constituent gun sentiment, we use data from the CES from its creation in 2006 to the latest 2024 data (Schaffner et al. 2025).

1. Item Response Theory (IRT)

After gathering data on all gun-related questions in the CES, items were recoded on a consistent scale where higher values indicate more pro-gun control attitudes. We kept data on individuals that answered at least one gun-related question, which left a total of 646,649 individuals over the 19 years (note that in the years 2008 and 2011, there were no gun-related questions, so we cannot use these survey years for our estimation).

From these questions related to gun control, we want to estimate a latent "gun sentiment" by using a uni-dimensional IRT model to link this unobservable attribute with these observed responses. We consider the assumptions of IRT as follows:

- Monotonicity: As gun sentiment increases, the probability of a higher score on an answer also increases. Because we recoded the questions explicitly, this is held.
- Unidimensionality: We assume the gun control measure is the driving force for the responses to the observed questions. Because the questions selected are fairly explicitly about gun policies, we believe this to be true.
- Local Independence: Given a certain gun sentiment, responses given to separate questions are mutually independent. The CES is well established and managed following proper survey practices, so there is no reason for us to believe the answer or order of questions influence one another.

In this section, we refer to a "correct" answer as an answer that corresponds to being "pro-gun control". We have a mix of binary and scale questions, so we use a mix of the 2-Parameter Logistics (2PL) and Graded Response (GRM) models to estimate gun-policy sentiment. For binary questions (those for which the responses are just "agree" vs. "disagree" or "for" vs. "against"), we model the probability of a correct answer as:

$$P(Y_{ij} = 1|\theta_i) = \frac{\exp\left[a_j(\theta_i - b_j)\right]}{1 + \exp\left[a_j(\theta_i - b_j)\right]} \tag{7}$$

where Y_{ij} is the response of individual i to question j, θ_i is the gun sentiment of individual i, a_j is the discrimination parameter of question j (how well the question differentiates those with low and high gun-control sentiment), and b_j is the difficulty parameter of question j (the point at which 50% of respondents chose the correct answer)
For questions that have a scale of responses, we model the probability of a certain answer as:

$$P(Y_{ij} \geq k|\theta_i) = \frac{\exp\left[a_j(\theta_i - b_{jk})\right]}{1 + \exp\left[a_j(\theta_i - b_{jk})\right]} \tag{8}$$

where k is a certain score, and the difficulty parameter b_{jk} varies with k.

We then fit the IRT model by weighted marginal maximum likelihood using the Expectation-Maximization (EM) algorithm, incorporating CES survey weights so that estimation reflects the weighted sample. Given the estimated item parameters, we computed respondent gun-sentiment scores θ_i using expected a-posteriori (EAP) scoring. Scores are on a standardized scale with a mean of zero and a standard deviation of one relative to the weighted sample distribution. We also fit the IRT model using several specifications of the questions used in Figure C11, and we find the gun sentiment estimates are not sensitive to the specific questions used.

Table B1: Gun-Related Questions in CES

Question	**Answers**	**Years.Asked**
Do you have any guns or revolvers in your home or garage?	(1) Yes (2) No (3) Not Sure	2006, 2007
Do you or does anyone in your household own a gun?	(1) Personally own a gun (2) Don't personally own a gun, but someone in the household owns a gun (3) No one in the household owns a gun (8) Not sure	2020, 2022, 2024
In general, do you agree or disagree that an individual has a right to have a registered handgun at home?	(1) Agree (2) Disagree	2009
In general, do you feel that the laws covering the sale of firearms should be made more strict, less strict, or kept as they are?	(1) More Strict (2) Less Strict (3) Kept As They Are (8) Skipped (9) Not Asked	2010, 2012
Background checks for all sales, including at gun shows and over the Internet.	(1) For (2) Against	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2021, 2023, 2024
Prohibit state and local governments from publishing the names and addresses of all gun owners.	(1) For (2) Against	2013, 2014, 2015, 2016, 2017, 2020, 2022
Ban high-capacity magazines for guns [more than 20 bullets].	(1) For (2) Against	2013, 2014
Ban assault rifles.	(1) For (2) Against	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024
Make it easier for people to obtain a concealed carry permit.	(1) For (2) Against	2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024
Ban bump stocks (a device attached to a semi-automatic weapon that allows bullets to be fired more rapidly).	(1) For (2) Against	2019
Provide federal funding to encourage states to take guns away from people who already own them but might pose a threat to themselves or others.	(1) For (2) Against	2022
Improve background checks to give authorities time to check the juvenile and mental health records of any prospective gun buyer under the age of 21	(1) For (2) Against	2022
Allow teachers and school officials to carry guns in public schools	(1) For (2) Against	2022
Increase spending on mental health and school safety; allow police to confiscate guns from people deemed to be dangerous by a judge; prohibit people convicted of domestic violence from owning guns; enhance background checks on minors; increase penalties for illegal gun purchases.	(1) For (2) Against	2023, 2024
How important are each of these issues to you? Gun Control	(1) Very Important (2) Somewhat Important (3) Not Important (8) Skipped (9) Not Asked	2015, 2016

2. Fixed-Effects Model-Based Poststratification

Once we created our individual gun sentiment estimates, we utilize a fixed-effects model with poststratification technique to create state–year–party estimates. Using our individual level data, we estimate the relationship between gun sentiment and our demographic variables as follows:

$$\begin{aligned} Y_{ist} = \beta_1 \text{Party}_i + \beta_2 \text{State}_s + \beta_3 \text{Year}_t + \\ \beta_4 (\text{Party} \times \text{Year})_{it} + \beta_5 (\text{Party} \times \text{State})_{is} + \mathbf{X}_i \gamma + \varepsilon_{ist}, \end{aligned} \tag{9}$$

where Y_{ist} is the estimated sentiment for gun control for the individual i in state s in year t, Party_i is a categorical variable of party affiliation for individual i, State_s is state fixed effects, Year_t is year fixed effects, and $\mathbf{X}_i$ is a vector of demographic individual-level covariates.

The controls used to create these estimates are based on what CES consistently collects and uses year to-year to develop their population weights. These include gender, race, education level, marital status, family income level, employment status, and age.

We then create a stratified dataset using CES data of demographic groups combination. We estimate each groups relative population in their state–year–party bin as the sum of the weights of the individuals in that group over the sum of all weights within the bin. This allows for a relative approximation of how represented that group is in their bin. For this data, we only keep individuals that do not have missing values for any demographics, so there are individuals not included in this dataset that were used to create the gun sentiment scores (as that was just based on if they answered a gun-related question).

Once we fit our regression to the individual level survey data, we predict values of gun sentiment for every group in our stratified data frame. We then create state–year–party estimates by using a weighted mean of the stratified estimates, with weights relative to the proportion of individuals in that strata within the state–year–party group. Finally, to create 2008 and 2011 estimates, we imputed using the means of each party-year-state cell of the years before and after the year imputed.

We fit this model using survey weights to account for the sampling design of the CES and to produce population-representative estimates. To further improve the validity of these estimates, we use bootstrap estimation to quantify uncertainty. For each of the 1,000 bootstrap samples, we re-fit the model and generate predictions, allowing us to construct confidence intervals that account for sampling variability. Our point estimates are based on the full sample.

Appendix C — Descriptive Statistics

1. Gun Policy and State Characteristics

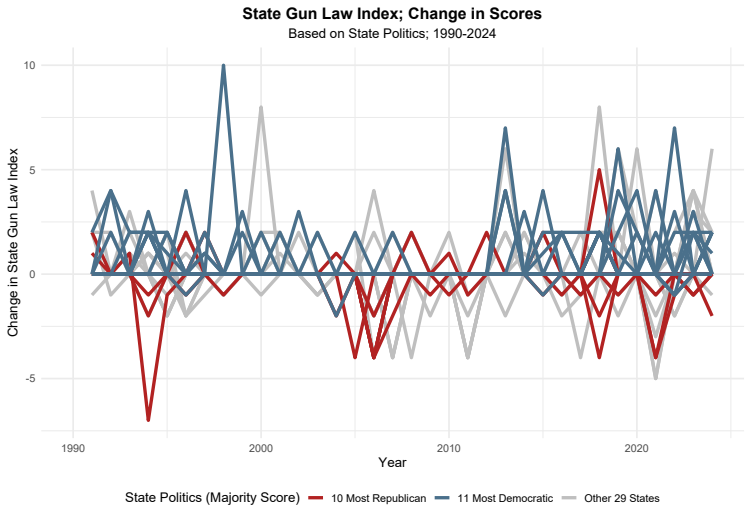

Figure C1: Annual change in the Gun Law Index by state political majority, 1990–2024. State trajectories of yearly changes in the Gun Law Index are grouped into the 10 most Republican states, the 11 most Democratic states, and the remaining 29 states according to the state Majority Score.

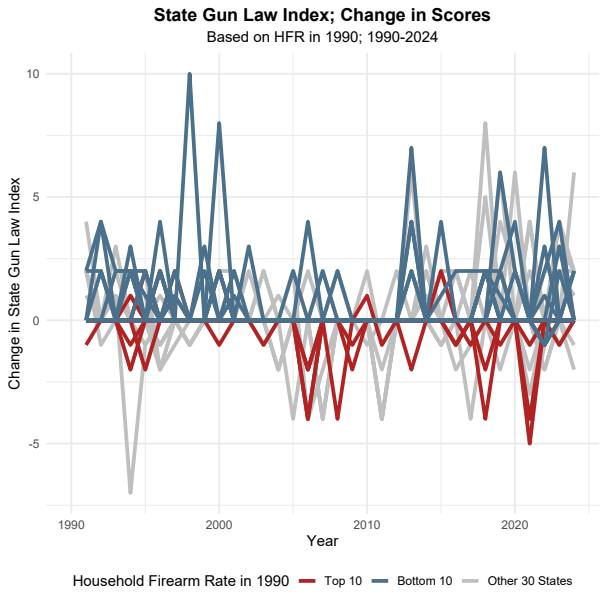

Figure C2: Annual change in the Gun Law Index by baseline HFR, 1990–2024. Each line traces yearly changes in the Gun Law Index for a state, grouped by their 1990 household firearm rate into top 10 (in red), bottom 10 (in blue), and other 30 states (in gray).

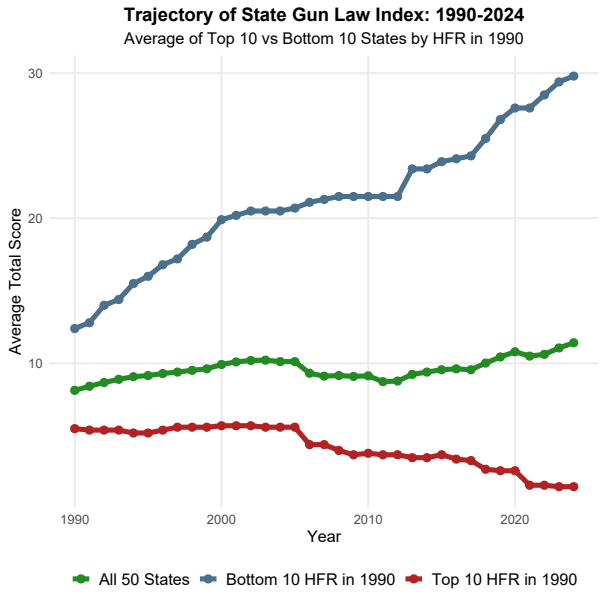

Figure C3: Gun Law Index trajectories by baseline HFR groups, 1990–2024. The figure plots the average Gun Law Index for states in the top 10 (in red), bottom 10 (in blue), and all 50 states (in green) by household firearm rate in 1990.

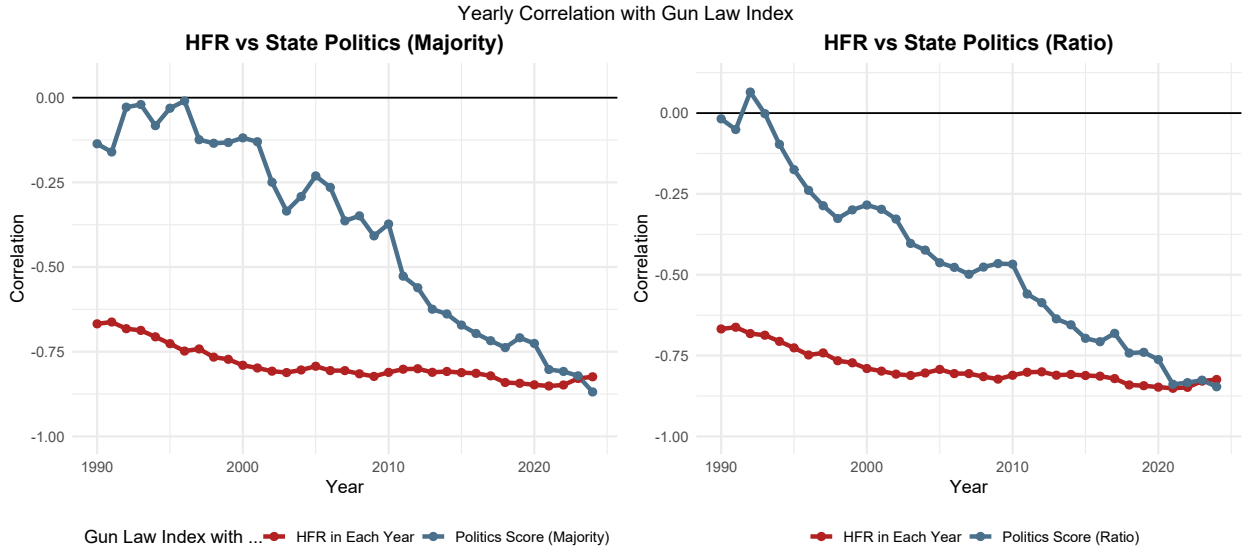

Figure C4: Yearly correlation between the Gun Law Index and state characteristics, 1990–2024. The series plot yearly correlations of the Gun Law Index with HFR (in red) and two variables regarding state politics (in blue): the state political Majority Score (the left plot) and the Ratio Score (the right plot).

Table C1: Descriptive Statistics Table: Based on State Partisanship

Variable	State Republican Majority Score (1990–2024)		
	10 Most Republican	**11 Most Democratic**	**Other 29 States**
	N = 385	N = 385	N = 980
Republican Ratio Score	1.9 (0.3)	1.1 (0.3)	1.5 (0.3)
Republican Majority Score			
0	4 (1.0%)	214 (56%)	221 (23%)
1	20 (5.2%)	146 (38%)	261 (27%)
2	71 (18%)	23 (6.0%)	240 (24%)
3	290 (75%)	2 (0.5%)	258 (26%)
Incarceration Rate per 100k	360.2 (128.1)	342.2 (162.3)	410.1 (163.5)
Police Staff per 100k	309.4 (62.5)	291.4 (65.1)	317.8 (79.3)
Poverty Rate	12.0 (2.7)	11.5 (3.3)	12.9 (3.8)
Unemployment Rate	4.6 (1.8)	5.6 (1.9)	5.4 (1.9)
Ethanol Consumption from Beer	1.2 (0.2)	1.1 (0.2)	1.2 (0.2)
Urban Resident Rate	65.0 (21.8)	82.4 (15.9)	69.3 (18.6)
Income per Capita	17,269.4 (3,271.6)	19,783.7 (4,031.5)	17,719.9 (3,376.5)
Black Resident Rate	7.0 (8.3)	8.5 (8.6)	12.8 (9.7)
White Non-hispanic Resident Rate	78.6 (11.2)	65.5 (20.9)	74.5 (13.4)

*Values are presented as mean (SD). Data do not include Washington DC. Some but not all of these variables are included as covariates in regression models.

Table C2: Descriptive Statistics Table: Based on Household Firearm Rate

Variable	Household Fiream Rate in 1990		
	Top 10	**Bottom 10**	**Other 30 States**
	N = 350	N = 350	N = 1,050
Household Firearm Rate since 1990	58.5 (4.4)	17.4 (5.6)	40.6 (6.1)
Incarceration Rate per 100k	424.8 (171.9)	366.5 (155.5)	376.5 (153.3)
Police Staff per 100k	295.9 (54.9)	344.1 (67.3)	303.5 (77.7)
Poverty Rate	13.8 (3.7)	10.9 (2.5)	12.5 (3.5)
Unemployment Rate	5.2 (1.8)	5.7 (2.0)	5.2 (1.9)
Ethanol Consumption from Beer	1.3 (0.2)	1.1 (0.2)	1.2 (0.2)
Urban Resident Rate	47.0 (14.6)	90.9 (9.3)	72.7 (15.1)
Income per Capita	16,620.9 (3,770.6)	21,306.8 (3,557.0)	17,482.1 (2,907.5)
Black Resident Rate	9.1 (12.3)	13.1 (7.7)	10.2 (8.8)
White Non-hispanic Resident Rate	80.0 (11.7)	61.4 (17.0)	75.2 (14.1)

*Values are presented as mean (SD). Data do not include Washington DC. Some but not all of these variables are included as covariates in regression models.

2. Ranking Regarding State Politics and HFR

Table C3: Top 10 Democrat-Leaning States (1990-2024)

Rank	State	Majority Score	Ratio Score	Rank (Ratio)
1	Hawaii	2.7714	2.2527	1
2	Maryland	2.6571	1.9736	4
3	Washington	2.5429	1.6414	12
4	California	2.4857	1.7699	5
5	New Mexico	2.4571	1.7320	7
6	Rhode Island	2.4000	2.1662	2
7	Delaware	2.3714	1.7214	8
8	Connecticut	2.3143	1.6329	13
9	Massachusetts	2.3143	2.1048	3
10	Oregon	2.2000	1.5641	16
11	West Virginia	2.2000	1.7684	6

*States ranked by average Democrat Majority Score (1990-2024). "Majority Score" is based on binary control of governor, state senate, and state house. "Ratio Score" uses vote share ratios. "Rank (Ratio)" shows ranking based on Ratio Score.

Table C4: Top 10 Republican-Leaning States (1990-2024)

Rank	State	Majority Score	Ratio Score	Rank (Ratio)
1	Utah	3.0000	2.0782	3
2	South Dakota	2.9429	2.0376	4
3	Idaho	2.8000	2.1203	1
4	North Dakota	2.7714	2.0275	5
5	Nebraska	2.7714	1.8164	7
6	Ohio	2.6571	1.7893	8
7	Arizona	2.6286	1.6780	12
8	Wyoming	2.6286	2.0857	2
9	Florida	2.4286	1.7122	10
10	Kansas	2.4286	1.8885	6
11	South Carolina	2.4286	1.6343	16

*States ranked by average Republican Majority Score (1990-2024). "Majority Score" is based on binary control of governor, state senate, and state house. "Ratio Score" uses vote share ratios. "Rank (Ratio)" shows ranking based on Ratio Score.

Table C5: Top 10 High HFR States

Rank	State	HFR (1990)	Average HFR (1990-2024)	Rank (1990-2024)
1	Alaska	70.0349	62.8829	2
2	Wyoming	69.3700	63.2457	1
3	Montana	67.0711	62.7197	3
4	Arkansas	65.2539	57.5201	6
5	South Dakota	65.1373	59.3024	4
6	Idaho	63.7143	56.5979	7
7	Mississippi	63.4147	56.0801	8
8	West Virginia	63.1742	57.6359	5
9	North Dakota	61.0455	55.1089	9
10	Alabama	60.7802	53.5233	10

*States ranked by HFR in 1990. Rank (1990-2024) shows the ranking based on average HFR from 1990–2024.

Table C6: Bottom 10 Low HFR States

Rank	State	HFR (1990)	Average HFR (1990-2024)	Rank (1990-2024)
50	Hawaii	12.0584	10.0336	50
49	Massachusetts	14.9612	11.7761	49
48	New Jersey	15.2488	11.8601	48
47	Rhode Island	17.1708	13.8307	47
46	New York	21.0174	16.9650	46
45	Connecticut	22.4802	17.7627	45
44	Illinois	25.7098	20.9216	44
43	Maryland	27.8443	22.8661	42
42	California	28.1053	21.4056	43
41	Delaware	31.2217	26.8445	41

*States ranked by HFR in 1990. Rank (1990-2024) shows the ranking based on average HFR from 1990–2024.

3. Organized Interest Contribution

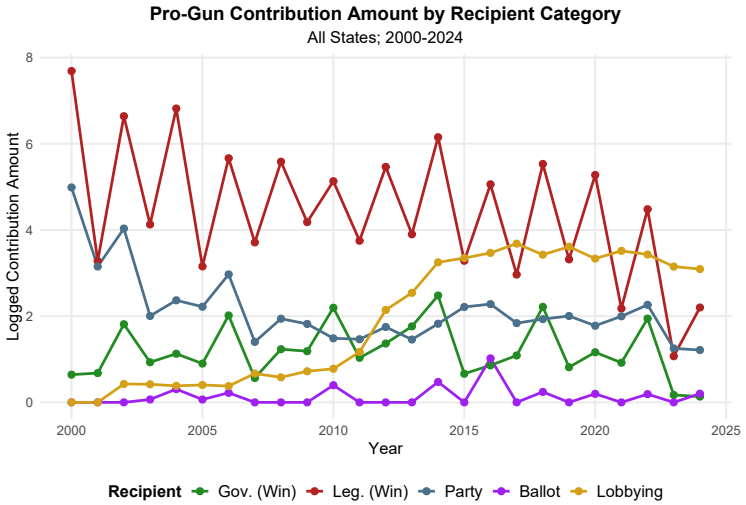

Figure C5: Pro-gun SIG contributions by recipient type, 2000–2024. Five lines show logged annual contributions to winning gubernatorial candidates, winning legislative candidates, party committees, ballot measure committees, and lobbying organizations in each state–year.

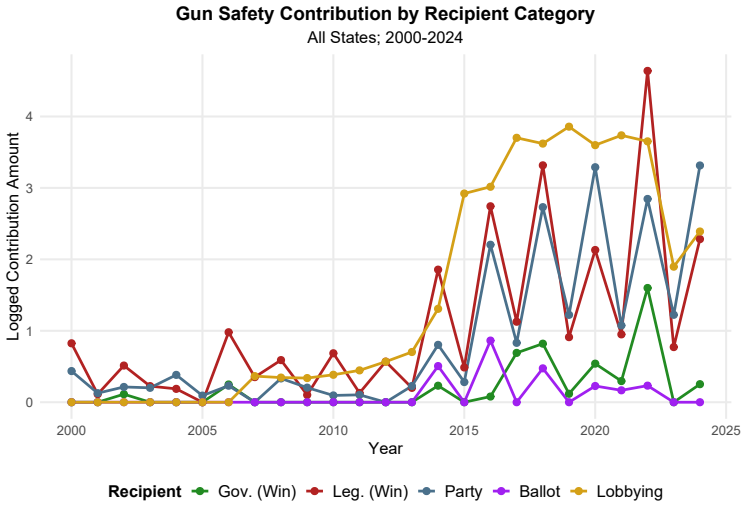

Figure C6: Gun safety SIG contributions by recipient type, 2000–2024. Five lines show logged annual contributions to winning gubernatorial candidates, winning legislative candidates, party committees, ballot measure committees, and lobbying organizations in each state–year.

Table C7: Pro-Gun Contributions: Top 5 and Bottom 5 States by Average Annual Contribution; 2000–2024

Rank	State	Annual Pro-Gun Contribution	Average HFR	Rep. Score (Majority)
1	CA	161,917	21.41	0.51
2	NV	112,912	35.91	1.23
3	TX	84,866	37.39	2.31
4	WA	56,752	35.94	0.37
5	CO	29,364	34.58	1.20
50	SD	101	59.30	2.94
49	MN	304	42.24	1.09
48	WY	494	63.25	2.63
47	AL	535	53.52	1.63
46	AR	553	57.52	1.29

Table C8: Gun Safety Contributions: Top 5 and Bottom 5 States by Average Anuual Contribution; 2000–2024

Rank	State	Annual Gun Safety Contribution	Average HFR	Rep. Score (Majority)
1	NV	232,311	35.91	1.23
2	WA	120,492	35.94	0.37
3	ME	120,452	41.57	0.66
4	VA	80,968	37.09	1.51
5	OR	61,750	40.93	0.69
50	MS	0	56.08	1.57
49	ND	0	55.11	2.77
48	OK	0	47.66	1.69
47	RI	0	13.83	0.49
46	SD	0	59.30	2.94

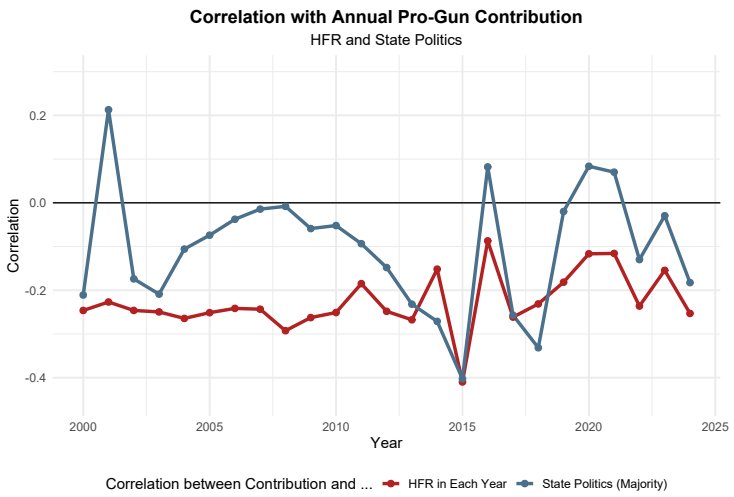

Figure C7: Unweighted yearly correlation between pro-gun SIG contributions and state characteristics, 2000–2024. The series plot the correlation between pro-gun contributions and state HFR (in red) and the correlation between pro-gun contributions and the state political Majority Score (in blue) in each year, giving each state equal weight.

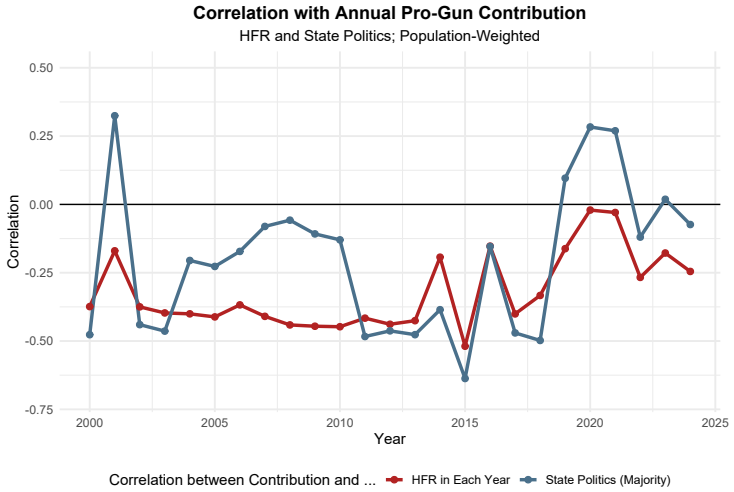

Figure C8: Population-weighted yearly correlation between pro-gun SIG contributions and state characteristics, 2000–2024. The series plot the correlation between pro-gun contributions and state HFR (in red) and the correlation between pro-gun contributions and the state political Majority Score (in blue) in each year, weighting states by population.

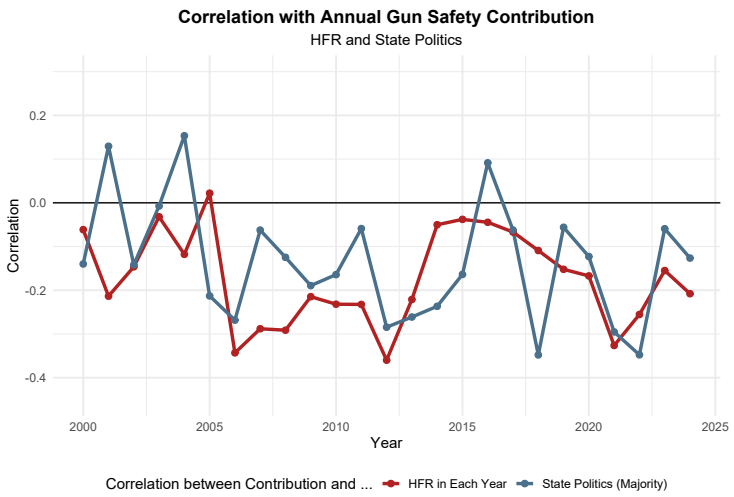

Figure C9: Unweighted yearly correlation between gun safety SIG contributions and state characteristics, 2000–2024. The series plot the correlation between gun safety contributions and state HFR (in red) and the correlation between gun safety contributions and the state political Majority Score (in blue) in each year, giving each state equal weight.

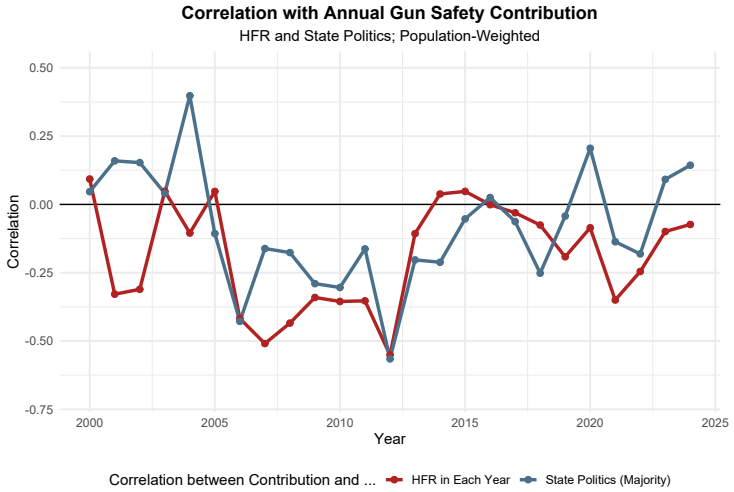

Figure C10: Population-weighted yearly correlation between gun safety SIG contributions and state characteristics, 2000–2024. The series plot the correlation between gun safety contributions and state HFR (in red) and the correlation between gun safety contributions and the state political Majority Score (in blue) in each year, weighting states by population.

4. Gun Sentiment Characteristics

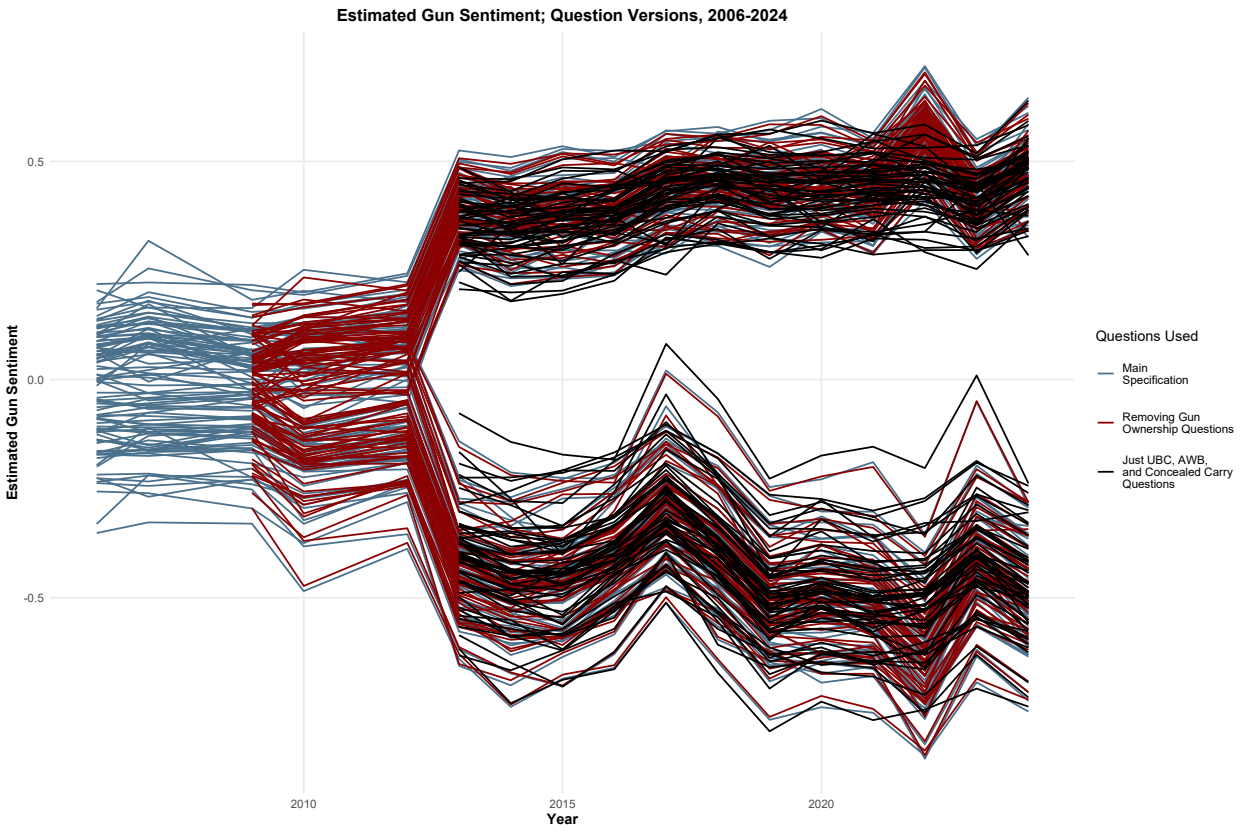

Figure C11: Estimated Gun Sentiment using Different Specifications, 2006–2024. 'Main Specification' uses all questions in Table B1 (our primary analysis). 'Removing Gun Ownership Questions' uses all questions except those on household or personal firearm ownership. 'Just UBC, AWB, and Concealed Carry Questions' estimates IRT using only: background checks for all sales, including at gun shows and over the Internet, ban assault rifles, and make it easier for people to obtain a concealed carry permit.'

Appendix D — IV Estimation Strategy

We implement an instrumental variable approach, in a quasi-shift-share manner, that exploits variation in state-level exposure to national partisan trends in gun sentiment. For each state s, party p, and year t, we construct:

$$Z_{spt} = \text{National}_{-s,pt} \times \text{Proportion}_{sp} \tag{10}$$

where $\text{National}_{-s,pt}$ is defined as:

$$\text{National}_{-s,pt} = \frac{\sum_{j \neq s} (\text{Sent}_{jpt} - \text{Sent}_{jp,t-1}) \cdot P_{jt} \cdot R_{jpt}}{\sum_{j \neq s} P_{jt} \cdot R_{jpt}} \tag{11}$$

The variables are defined as follows:

- Sent_{spt} is the estimated gun sentiment of individuals in state s who identify with party p in year t
- P_{jt} is the population of state j in year t
- R_{jpt} is the relative proportion of the population of party p in state j in year t

This change represents the population weighted average change in gun sentiment among party p members across all states except s, to make sure the shift is not mechanically related to state s's sentiment. Thus, this is a shift in national gun sentiment trends.

The share component captures baseline exposure to party p's national trends. Proportion_{sp} is defined as

$$\text{Proportion}_{sp} = P_{s2006} R_{sp2006} \tag{12}$$

where P_{s2006} is state s's 2006 population and R_{sp2006} is the estimated proportion of individuals identifying with party p in state s in 2006. States with larger baseline populations of a party receive greater weight from that party's national sentiment shifts. By creating separate instruments for each party within each state, we allow differential responses to partisan sentiment trends and a method to study both parties changes separately.

In order for this to be a valid instrument, we must satisfy key assumptions. First, national partisan sentiment trends predict state-level gun sentiment. Gun attitudes tend to be highly polarized along partisan lines. National political discourse has an effect on individual state gun sentiment. When national sentiment shifts, due to events such as a mass shooting, these changes affect individuals in individual states through shared media consumption, social networks, and partisan information channels. States with larger baseline populations of a given party are more exposed to that party's national sentiment shifts. We verify relevance empirically through first stage F-statistics that are greater than 10.

Our instrument must also satisfy monotonicity: increases in national partisan gun sentiment must shift state-level partisan gun sentiment in the same direction for all states. This assumption is plausible because the mechanism operates through shared partisan identity, rather than cross-partisan reaction. When national Democratic gun sentiment becomes more pro-gun control, Democrats in all states are exposed to similar partisan messaging,

increasing their sentiment for gun control. This works similarly for shifts in Republican gun sentiment. Because our instrument is constructed party-specifically, this rules out "defier" states where partisans would respond opposite to national sentiment of their same party, which is implausible given shared partisan identity.

Next, the instrument is uncorrelated with unobserved determinants of state s's gun laws. The two sources of variation within our instrument make sure this is true. Our exposure is at a baseline before the period of analysis, so it is predetermined relative to current gun law changes. As well, in our creation of the national sentiment component, we explicitly leave out state s so there is no direct link between state s's policy and social environment to unobserved characteristics.

Finally, our instrument must affect changes in gun laws only through the level of gun sentiment. While national sentiment shifts may correlate with various political developments that affect state s, they can only manifest into actual legislative change when they generate shifts in state s's own opinion on gun policy. We include year fixed effects to absorb any common national shocks, so any violating shocks would have to differentially affect states based on their 2006 baseline partisan composition. We acknowledge that nationally-coordinated advocacy could pose a threat if organizations systematically target states based on historical partisan strongholds. However, such advocacy would likely operate through shifting public sentiment rather than bypassing it entirely, and any direct effects would need to vary specifically with 2006 composition conditional on current political conditions and year fixed effects. Since state fixed effects absorb time-invariant compositional differences, the identifying variation comes from the interaction of predetermined characteristics with time-varying sentiment changes occurring exclusively in other states, making direct channels implausible.

We implement our IV estimation strategy for two subsets of our data: the majority and minority party sentiment. We define the majority party to be the party that has control of at least 2 of 3 of the governorship, upper legislature, and lower legislature. If neither party has this control (such as a split in a legislature), the party with the higher estimated proportion of constituents is the majority. The minority party is the other party in each state–year. Thus, both of our analyses are on the state–year level, and encapsulate the full environment of constituents. By analyzing these groups, we can examine how politicians respond to sentiment from their own supporters, as well as the opposing party.

For our heterogeneous analysis of government trifectas, we must define an additional instrument for the interaction of estimated gun sentiment and a trifecta. We define this instrument as follows:

$$Z_{spt} = \text{National}_{-s,pt} \times \text{Proportion}_{sp} \times \mathbb{1}\{\text{Trifecta}_{spt}\} \tag{13}$$

where $\mathbb{1}\{\text{Trifecta}_{spt}\}$ is an indicator if, in the state government, party p holds a trifecta in state s in year t. We run this analysis for specifically Republican and Democrat trifectas, as well as if there is any trifecta in the state–year.

Appendix E — Additional Interest Group Analysis

Table E1: Impact of Future Contributions on Change in Gun Law Score, 2000–2024: Continued

(a) Pro-Gun

	Future (t+1 ∼ t+3)	Future (t+2 ∼ t+3)	Future (t+3)
Future Pro-Gun SIG Contribution (in $millions)	−5.162 (2.676) $p = 0.059$	−3.278 (2.774) $p = 0.243$	−2.775 (3.552) $p = 0.438$
Republican Trifecta	−0.302 (0.087) $p = 0.001$	−0.304 (0.085) $p = 0.001$	−0.327 (0.092) $p = 0.001$
Interaction with Republican Trifecta	3.026 (4.480) $p = 0.502$	2.020 (4.353) $p = 0.645$	3.133 (4.819) $p = 0.519$
Num. Obs.	1100	1100	1100
R^2	0.218	0.215	0.214
Adj. R^2	0.156	0.152	0.151

(b) Gun Safety

	Future (t+1 ∼ t+3)	Future (t+2 ∼ t+3)	Future (t+3)
Future Gun Safety SIG Contribution (in $millions)	3.635 (2.508) $p = 0.154$	2.786 (2.180) $p = 0.207$	2.241 (2.097) $p = 0.290$
Democratic Trifecta	−0.036 (0.127) $p = 0.777$	4.89×10^{-3} (0.118) $p = 0.967$	0.070 (0.120) $p = 0.563$
Interaction with Democratic Trifecta	6.476 (3.963) $p = 0.109$	3.617 (2.263) $p = 0.116$	−0.556 (1.940) $p = 0.776$
Num. Obs.	1100	1100	1100
R^2	0.216	0.211	0.208
Adj. R^2	0.154	0.148	0.145

*The outcome is the change in the Gun Law Index across fifty states (2000–2021). The treatment "SIG Contribution" is mean special interest group contributions for the year(s) indicated in the column header, in millions of USD. Standard errors are state-clustered. "t+1 ∼ t+3" refers to the mean of special interest group contributions in times t+1, t+2, and t+3, while "t+2 ∼ t+3" refers to the mean of special interest group contributions in times t+2 and t+3.

Table E2: Impact of Contributions on Change in Gun Law Score, 2000–2024: Alternative Treatment Specifications

(a) Pro-Gun

	Log Dollar (t-1 $\sim$ t-2)	Log Dollar (t-1)	Dollar (t-1)
Pro-Gun SIG Contribution (in $millions)			5.772 (1.969) $p = 0.005$
Log Pro-Gun SIG Contribution (in $millions)	0.026 (0.028) $p = 0.361$	0.033 (0.019) $p = 0.081$	
Republican Trifecta	0.276 (0.208) $p = 0.191$	0.196 (0.156) $p = 0.216$	−0.236 (0.109) $p = 0.035$
Interaction with Republican Trifecta	−0.081 (0.029) $p = 0.007$	−0.076 (0.022) $p = 0.001$	−9.367 (2.186) $p = 0.000$
Num. Obs.	1150	1200	1200
R^2	0.194	0.192	0.201
Adj. R^2	0.132	0.132	0.142

(b) Gun Safety

	Log Dollar (t-1 $\sim$ t-2)	Log Dollar (t-1)	Dollar (t-1)
Gun Safety SIG Contribution (in $millions)			−0.210 (2.631) $p = 0.937$
Log Gun Safety SIG Contribution (in $millions)	-2.38×10^{-3} (0.018) $p = 0.895$	9.19×10^{-3} (0.016) $p = 0.567$	
Democratic Trifecta	0.119 (0.120) $p = 0.325$	0.107 (0.110) $p = 0.333$	0.109 (0.132) $p = 0.411$
Interaction with Democratic Trifecta	0.016 (0.034) $p = 0.644$	0.025 (0.027) $p = 0.360$	5.906 (3.270) $p = 0.077$
Num. Obs.	1150	1200	1200
R^2	0.185	0.180	0.188
Adj. R^2	0.123	0.119	0.128

*The outcome is the change in the Gun Law Index across fifty states (2001–2024). The treatment "SIG Contribution" is mean special interest group contributions for the year(s) indicated in the column header, in millions of USD. Standard errors are state-clustered. "t-1 $\sim$ t-2" is mean special interest group contributions in times t-1 and t-2.

Table E3: Impact of Contributions on Change in Gun Law Score, 2000–2024: Alternative Covariate Specifications

(a) Pro-Gun

	Less Covariates	No Covariates	Added Covariates
Pro-Gun SIG Contribution (in $millions)	5.937 (2.233) $p = 0.011$	6.084 (2.173) $p = 0.007$	4.972 (2.251) $p = 0.032$
Republican Trifecta	−0.202 (0.096) $p = 0.041$	−0.206 (0.092) $p = 0.029$	−0.238 (0.100) $p = 0.021$
Interaction with Republican Trifecta	−9.282 (2.624) $p = 0.001$	−9.380 (2.531) $p = 0.001$	−8.740 (2.307) $p = 0.000$
Num. Obs.	1150	1150	1150
R^2	0.196	0.194	0.204
Adj. R^2	0.137	0.137	0.139

(b) Gun Safety

	Less Covariates	No Covariates	Added Covariates
Gun Safety SIG Contribution (in $millions)	−1.771 (2.268) $p = 0.439$	−1.915 (2.315) $p = 0.412$	−2.244 (1.996) $p = 0.266$
Democratic Trifecta	0.125 (0.145) $p = 0.393$	0.136 (0.141) $p = 0.340$	0.145 (0.157) $p = 0.362$
Interaction with Democratic Trifecta	5.815 (2.606) $p = 0.030$	5.630 (2.546) $p = 0.032$	6.397 (2.440) $p = 0.012$
Num. Obs.	1150	1150	1150
R^2	0.187	0.185	0.197
Adj. R^2	0.128	0.129	0.132

*The outcome is the change in the Gun Law Index across fifty states (2002–2024). The treatment, "SIG Contribution" is mean special interest group contributions from the prior two years across fifty states (2000–2023), in millions of USD. Standard errors are state-clustered. The "Less Covariates" model includes only logged incarceration rate, unemployment rate, and real per capita personal income. The "Added Covariates" includes baseline covariates plus poverty rate, per capita ethanol consumption from beer, police staffing, and Hispanic population.

Appendix F — Additional Sentiment Analysis

Table F1: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2006–2024: 3–Year Moving Average

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.738 (0.285) $p = 0.013$	-2.055 (1.327) $p = 0.122$	-0.717 (0.292) $p = 0.018$	1.744 (1.171) $p = 0.137$
Num. Obs.	750	750	750	750
R^2	0.207	0.085	0.206	0.113
Adj. R^2	0.120	-0.016	0.119	0.015
Weak Instrument F-Stat		29.41		27.81

*The outcome is the change in the Gun Law Index across fifty states from 2010–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population. The treatment variable was adjusted to be a 3–year previous moving average of estimated gun sentiment, and the instrument was adjusted to be a 3–year previous moving average of the shift-share variable.

Table F2: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024

	Change in Gun Law (Majority Constituent Sentiment)		Change in Gun Law (Minority Constituent Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.074 (0.133) $p = 0.582$	0.036 (0.633) $p = 0.955$	-0.071 (0.133) $p = 0.593$	-0.109 (0.535) $p = 0.838$
Num. Obs.	550	550	550	550
R^2	0.228	0.228	0.228	0.228
Adj. R^2	0.115	0.115	0.115	0.115
Weak Instrument F-Stat		65.42		76.80

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority Constituents is defined as the party that has the majority relative population in the state–year.

Table F3: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2013–2024: Using MRP Estimated Gun Sentiment

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.551 (0.364) $p = 0.136$	-1.070 (1.952) $p = 0.584$	-0.543 (0.368) $p = 0.146$	0.990 (1.759) $p = 0.574$
Num. Obs.	550	550	550	550
R^2	0.231	0.202	0.231	0.205
Adj. R^2	0.119	0.085	0.119	0.089
Weak Instrument F-Stat		28.12		28.01

*The outcome is the change in the Gun Law Index across fifty states from 2014–2024. Standard errors are state-clustered. Majority party is the party controlling at least two of the three governing bodies (governor, upper legislature, lower legislature) in each state-year. For split governments, majority party is determined by higher relative state-year population. Estimated Gun Sentiment was created using an MRP approach with state random effects.

Table F4: Impact of Contributions on Estimated Gun Sentiment, 2006–2024

	Rep. Gun Sentiment	Dem. Gun Sentiment
Pro-Gun SIG Contribution (in $millions)	1.52×10^{-8} (1.00×10^{-6}) $p = 0.988$	-4.20×10^{-8} (1.00×10^{-6}) $p = 0.967$
Gun Safety SIG Contribution (in $millions)	5.64×10^{-9} (1.00×10^{-6}) $p = 0.996$	2.32×10^{-8} (1.00×10^{-6}) $p = 0.982$
Num. Obs.	950	950
R^2	0.996	0.995
Adj. R^2	0.995	0.994

*The outcome is the gun sentiment across fifty states (2006–2024). The treatment, "SIG Contribution" is mean special interest group contributions for the given year in millions of USD. Standard errors are state-clustered.