Loaded Chambers: Organized Interests, Public Opinion, and Policy Responsiveness in U.S. States

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Abstract

Organized interests are widely thought to influence policy, but whether and when interest group money overrides constituent preferences remains poorly understood. We investigate how gun interest group money shapes state gun laws independent of constituent preferences. We link 25 years of campaign finance records to a novel Gun Law Index measuring gun law stringency across fifty states, 2000–2024. We pair these data with original estimates of constituent gun sentiment to test which force drives policy. We show that pro-gun contributions produce deregulatory changes under Republican trifectas, while gun safety contributions may also generate regulatory tightening under Democratic trifectas. Using a shift-share instrumental variable design, we find that constituent sentiment does not causally predict policy change under either Republican or Democratic trifectas. Under divided government, neither contributions nor constituent preferences have discernible effects. Our findings demonstrate that gun policy interest groups exploit unified partisan control to advance their agendas independent of constituent preferences, revealing a systematic failure of policy responsiveness in American states.

Keywords: campaign finance, interest groups, political responsiveness, gun policy, public opinion, polarization, gun violence, state politics

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I. Introduction

Few issues reveal the gap between majority preferences and policy outcomes as sharply as gun regulation in America. Gun violence claimed roughly 47,000 lives in 2024 and has been the leading cause of death among children in each of the last five years (Centers for Disease Control and Prevention 2025; Goldstick et al. 2022; Wintemute 2015). In response, the public broadly supports moderate reforms such as universal background checks and waiting periods (Gallup 2022; Pew Research Center 2023). Yet state policy responses have diverged sharply along partisan lines: some states have moved toward more stringent regulatory regimes, while others have moved toward expansive deregulation. This presents a puzzle of democratic responsiveness: why have state gun policies diverged so sharply while majority preferences remain broadly moderate on gun safety measures?

American politics has grown more polarized over the past several decades, with partisan divisions evident across a wide range of issues (Baldassarri and Gelman 2008; Baldassarri and Page 2021; Fiorina and Abrams 2008; Graham and Svolik 2020; Grumbach 2018; Hobolt et al. 2024; Holliday et al. 2024, 2025; Levendusky 2018; Smidt 2017). Standard accounts attribute policy divergence to mass polarization, partisan sorting, or the geographic clustering of like-minded constituents (Abramowitz 2010; Levendusky 2009; Mason 2018; McCarty et al. 2006; Rodden 2010, 2019; Stewart et al. 2021). On gun policy, these explanations fall short. Public opinion has remained broadly moderate and stable even as state gun laws have moved to opposing poles. Partisan gaps in gun attitudes exist in the electorate, but they are insufficient to explain the magnitude of policy polarization observed across states. This disconnect suggests that organized interests, rather than shifts in voter preferences, may be central to the creation of polarized policy outcomes and to systematic gaps between constituent preferences and state policy. The question, then, is when organized interests can convert resources into statutory change, and how control of veto points shapes that process.

We show that organized interests shape gun policy in ways that depend crucially on institutional context. In our framework, we treat contributions as policy investments in which the returns to organizing giving should be highest when institutional barriers to enacting statute are low (Becker 1983; Bernheim and Whinston 1986; Peltzman 1976; Snyder 1990). In state politics, that high return condition is unified partisan control. When one party controls the governorship and both chambers, agenda control and veto alignment increase the probability that organized resources can be converted into enacted law; when control is divided, veto points sharply limit that conversion (Binder 1999; Hall and Deardorff 2006; Tsebelis 2002).

Gun policy offers a well-suited case for examining these dynamics. State gun policies have polarized sharply between more regulatory and more deregulatory regimes even as the public supports moderate gun safety measures (Gallup 2022; Pew Research Center 2023). Organized interests on both sides have invested heavily in contributions to shape state-level outcomes. Yet we lack systematic evidence on whether policymakers respond more strongly to interest group contributions or to constituent preferences when they change gun policy, and on how institutional context conditions this responsiveness.

We address this gap by linking 25 years of state campaign finance records to a new Gun Law Index for all fifty states, 2000–2024, and pairing these data with original state–year estimates of constituent gun sentiment from the CES using IRT and model-based poststratification. Leveraging the presence of unified partisan control, we use a two-part empirical strategy. First, a two-way fixed effects panel design estimates whether contributions move policy differently under Republican trifectas, Democratic trifectas, and divided government. Second, a shift-share instrumental variable design tests whether constituent sentiment causally predicts policy change once we address endogeneity between policy and opinion. Together, these designs allow a direct comparison of organized contributions and constituent sentiment as drivers of statutory change under different institutional regimes.

The results reveal that state gun policy responds to interest group contributions rather than constituent preferences, but only under trifectas. Under Republican trifectas, pro-gun contributions drive significant deregulatory changes in state gun law, such as expansions of concealed carry and weakening of background check requirements. Under Democratic trifectas, gun safety contributions may also drive regulatory tightening, including restrictions on certain types of guns, and enhanced licensing protocols. Constituent gun sentiment, by contrast, does not predict policy change under either Republican or Democratic trifectas. Contributions move statute even when constituent sentiment remains relatively moderate: pro-gun money produces deregulatory change under Republican unified control despite widespread support for incremental regulation. Under divided government, neither contributions nor constituent preferences predict policy change. These patterns show how organized interests exploit unified control to produce policy shifts that move away from the preferences of the median voter.

This study makes five contributions. First, we develop a novel Gun Law Index measuring regulatory stringency across all fifty 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 original state-year estimates of constituent gun sentiment using IRT and fixed-effects model-based poststratification. Fourth, using a shift-share instrumental variable design, we show that constituent sentiment does not causally predict policy change under any institutional configuration. Fifth, directly comparing these forces reveals a systematic failure of democratic responsiveness: policymakers respond to organized interests rather than constituents under trifectas. This reveals that interest groups exploit windows of unified control to capture policymaking independent of constituent preferences on gun policy in American states.

The paper proceeds as follows: Section II situates our argument within the literature on interest groups, campaign finance, gun policy, and responsiveness. Section III presents the empirical strategy and data, including the gun law index, interest group contributions, and estimates of constituent gun sentiment, as well as the panel and instrumental variable designs.

Section IV presents the results on the causal effects of gun interest group contributions and constituent sentiment on policy under different institutional conditions, along with robustness checks. We conclude in Section V with a discussion of the implications of our findings for democratic responsiveness, money in politics, and gun policy in the United States.

II. Interest Groups and the Limits of Responsiveness

A canonical understanding of American democracy holds that elected officials respond to constituent preferences, enacting popular policies and avoiding unpopular ones (Dahl 1971; Stimson 2004). This expectation underlies both normative accounts of representation and empirical studies of policy congruence between mass preferences and elite behavior (Bartels 2008; Downs 1957a, 1957b; Erikson et al. 1993; Gilens 2012; Page and Shapiro 1983). Yet a large body of work documents that 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).

Gun regulation exemplifies this pattern. Since 1990, some states have adopted highly permissive regimes while others have enacted comprehensive restrictions (Grumbach 2022; Siegel et al. 2019), even though public support for moderate regulatory measures such as universal background checks and waiting periods remains high and partisan gaps between gun owners and non-gun owners are modest (Barry et al. 2018; Lacombe 2019; Parker et al. 2017). If policymakers are expected to respond to constituents, why does policy move away from the moderate center that most constituents occupy?

Prior research demonstrates that policy outcomes often reflect the preferences of affluent donors rather than ordinary citizens (Bartels 2008; Gilens 2012; Gilens and Page 2014). This unequal responsiveness has been documented across issue areas and levels of government, but the institutional mechanisms remain underspecified. We explain this failure of democratic

responsiveness with a theory of conditional influence. Our framework clarifies when organized interests can override constituent preferences by identifying the institutional conditions under which political spending yields policy returns. In capture and influence models, organized transfers are investments: groups supply resources in exchange for favorable policy, with equilibrium policy reflecting the relative strength and organization of competing interests (Becker 1983; Peltzman 1976; Stigler 1971). Menu-auction models formalize this exchange logic and show organized actors can purchase influence over policy choices (Bernheim and Whinston 1986). Translating this logic to elections, campaign contributions operate as investments whose expected returns depend on the probability that a friendly coalition can enact statute (Grossman and Helpman 1994, 2001; Snyder 1990). That probability is shaped by institutions. Unified partisan control reduces veto barriers and concentrates agenda-setting authority, allowing the legislative subsidy provided by contributions and allied lobbying to translate into statutory change (Binder 1999; Hall and Deardorff 2006; Tsebelis 2002).Under divided government, by contrast, fragmented authority raises the cost of reform and sharply limits the policy returns to the same investments.

A. Interest Group Contributions and Policy Change

Contributions are the central mechanism through which organized interests seek to convert resources into political leverage and then policy. Contributions function as investments that secure access and shift policy toward the preferences of organized interests (Bernheim and Whinston 1986; Grossman and Helpman 1994, 2001; Snyder 1990). Interest groups influence elections by funding sympathetic candidates and opposing hostile ones (Jacobson 1980). They shape internal party dynamics through contributions that affect leadership contests, committee assignments, and caucus priorities (Lowry 2013; Powell 2012). They purchase access to policymakers, enabling groups to present information, frame issues, and propose legislative language (Hall and Deardorff 2006; Hall and Wayman 1990; Kalla and Broockman 2016). Contributions are also among the most visible and quantifiable tools that interest

groups deploy to influence policy outcomes (Baumgartner et al. 2009; Drutman 2015; Wright 1996).

The link between contribution and policy remains contested. Early research found minimal effects of money on roll-call votes, leading some scholars to question whether contributions truly "buy" policy (Ansolabehere et al. 2003). More recent work shows that contributions may not flip votes on high salience floor decisions, but they influence less visible stages of the legislative process: which bills receive committee hearings, how proposals are amended behind closed doors, how much effort party leadership invests in whipping votes, and whether bills reach the floor for consideration (Baumgartner et al. 2009; Hall and Wayman 1990). Evidence from field experiments shows that contributions facilitate privileged access to policymakers (Kalla and Broockman 2016). The pattern that emerges is one in which aggregate spending is modest, but marginal dollars targeted to pivotal contexts such as trifectas have outsize effects on what legislation is advanced and passed (Ansolabehere et al. 2003; Grossman and Helpman 1994, 2001; Snyder 1990).

The concept of legislative subsidy captures this mechanism (Hall and Deardorff 2006). Contributions and allied lobbying enable sympathetic legislators to invest more time and resources in advancing preferred policies. Rather than purchasing votes, money subsidizes effort. A legislator already inclined to support gun rights or gun safety can use contributions to hire staff, commission research, coordinate with allies, and navigate procedural obstacles. The result is that contributions amplify the effectiveness of aligned legislators without necessarily converting opponents.

Legislative subsidy alone cannot explain when contributions generate observable policy change; subsidized effort may be necessary but is not sufficient. Even well-resourced legislators cannot overcome institutional barriers when veto points are controlled by actors with divergent preferences (Tsebelis 2002). Work on gridlock and pivotal politics points out that shifts away from the status quo require alignment among veto players and institutional pivots as well as partisan majorities (Binder 1999; Krehbiel 1998). When several actors block change and

distributional stakes are large, policy often remains stuck at the status quo until shocks alter the bargaining environment (Alesina and Drazen 1991; Coate and Morris 1999; Fernandez and Rodrik 1991; Persson et al. 1997). This line of research makes clear that the effectiveness of contributions depends on institutional context.

B. The Conditional Effect of Unified Government

Under divided government, policy change must survive multiple veto points controlled by actors with opposing preferences. A proposal favored by one party and its aligned interest groups must pass committees, receive floor time, survive hostile amendments, and often obtain gubernatorial approval from the opposing party. Veto-player and pivotal-politics models imply that these institutional hurdles make major statutory change difficult even when organized actors invest substantial resources (Binder 1999; Krehbiel 1998; Tsebelis 2002).

Under unified partisan control, the same party holds the governorship and majorities in both chambers, and it controls committee chairs, floor scheduling, and agenda-setting. Coordination costs fall and the effective threshold for change drops (Binder 1999). In this setting, the legislative subsidy provided by contributions and allied lobbying can be converted into enacted statute (Hall and Deardorff 2006).

We describe this as the conditional effect of unified government. Contributions occur under both divided and unified control, but the policy return to those investments is much higher when veto points align. This has two empirical implications. First, regressions that average across institutional regimes will tend to understate donor influence because they pool high-return periods (unified control) with low-return periods (divided control). Second, interest group influence should be episodic rather than continuous. Large policy moves should concentrate in windows of unified control, while divided government produces policy "stickiness" even as organized money continues to flow (Baumgartner et al. 2009).

The direction of change depends on which coalition controls government and which organized interests are aligned with that coalition. Under Republican trifectas, pro-gun contributions should be most productive in generating deregulatory change; under Democratic trifectas, gun safety contributions should be most productive in generating regulatory tightening. The magnitude of change depends on contribution levels conditional on unified control.

Crucially, the same institutional logic also implies weak responsiveness to marginal shifts in constituent preferences when government is divided. When veto points are fragmented, neither organized resources nor diffuse public sentiment can reliably overcome the structural barriers to major statutory reform, so policy remains near the status quo until institutional conditions change (Binder 1999; Tsebelis 2002).

C. Asymmetry in Political Influence

If unified control increases the policy returns of contributions, why do constituent preferences not counterbalance this effect? Democratic theory implies that politicians who move far from voter preferences should face electoral punishment (Arnold 1990; Downs 1957a, 1957b). Yet on gun policy, states enact statutes that plausibly diverge from moderate public opinion in both permissive and restrictive directions (Barry et al. 2018; Lax and Phillips 2012). Our framework highlights a set of asymmetries between organized interests and diffuse publics that weaken mass constraints even when institutional barriers to lawmaking are low.

First, preference intensity is asymmetric (Arnold 1990). While median voters may hold moderate views on gun regulation, their preferences are often less intense than those of organized activists and single-issue voters who prioritize firearms policy above other considerations. Interest groups concentrate and amplify these intense minorities, making them electorally salient to legislators who might otherwise respond to broader but more diffuse public preferences (Olson 1965). Legislators facing pressure from organized groups

with strong preferences may rationally prioritize those constituencies over voters with weak or ambivalent views, even when the latter outnumber the former.

Second, issue salience is asymmetric (Schattschneider 1960). For most voters, gun policy is one issue among many and may not determine vote choice. For organized interests on both sides of the gun debate, gun policy is the paramount concern. This disparity in salience allows groups to exercise disproportionate influence over legislators' behavior, particularly when other issues dominate constituents' attention during elections (Arnold 1990). Legislators may enact policies that diverge from constituent preferences on guns without suffering electoral consequences, because voters evaluate incumbents primarily on other dimensions.

Third, information and resources are asymmetric. Interest groups possess technical expertise, legal resources, and legislative experience that far exceed those available to most voters or even to legislators and their staff (Hall and Deardorff 2006; Wright 1996). As a result, organized actors often shape which policy options are seen as feasible, how proposals are drafted, and which implementation details are foregrounded (Baumgartner et al. 2009; Drutman 2015; Hall and Deardorff 2006; Wright 1996).This can decouple broad public preferences for "moderate" reforms from the specific statutory content that ultimately reaches the floor. For example, support for background checks can be translated into narrow or expansive regulatory designs depending on which actors supply expertise, model langauge, and enforcement capacity.

Fourth, monitoring and attribution are asymmetric. Organized interests can devote sustained attention to a narrow policy domain, monitor legislative behavior in real time, and credibly reward or punish politicians for incremental moves (Arnold 1990; Olson 1965). Diffuse publics face higher information costs and weaker attribution, especially when policy change occurs through committee work, amendments, and administrative details rather than high visibility roll calls (Baumgartner et al. 2009; Hall and Wayman 1990). This makes organized pressure more continuously binding than mass opinion.

Finally, policy feedback effects entrench changes once enacted (Campbell 2003; Pierson 1993). When a state expands concealed carry rights, gun owners who obtain permits become a mobilized constituency with a stake in defending those rights. When a state enacts universal background checks, the administrative infrastructure and compliance costs create bureaucratic and business constituencies invested in maintaining the regime. These feedback effects make policies sticky, raising the threshold for reversal even if future electoral coalitions might prefer more moderate alternatives. Interest groups that successfully push policy during unified control thus create constituencies that help defend those gains during subsequent divided government.

Together, these asymmetries explain why organized interests can dominate policy outcomes despite public preferences for moderation. The mechanisms that amplify interest group influence systematically weaken the constraining effect of constituent sentiment. Democratic responsiveness fails not because policymakers are insulated from all electoral pressures, but because the pressures they face come disproportionately from organized interests rather than from the broader public.

D. Hypotheses

Our argument yields three hypotheses about when policy reflects organized interests rather than constituent preferences. We evaluate these hypotheses by comparing the effects of interest group contributions and constituent gun sentiment on state gun policy under unified and divided partisan control. The Gun Law Index increases with regulatory stringency; deregulatory change corresponds to a decrease in the index and regulatory tightening corresponds to an increase.

Our first two hypotheses concern the conditional effects of organized interest contributions. Under Republican trifectas, pro-gun groups should be able to exploit unified control to advance deregulatory changes, while divided government should constrain their influence. Formally:

H1. *Pro-gun interest group contributions increase deregulatory policy change under Republican trifectas. Outside Republican trifectas, pro-gun contributions have no systematic relationship with policy change.*

Symmetrically, gun safety groups should drive regulatory tightening only when Democrats control all veto points:

H2. *Gun safety interest group contributions increase regulatory tightening under Democratic trifectas. Outside Democratic trifectas, gun safety contributions have no systematic relationship with policy change.*

Our third hypothesis tests whether constituent preferences constrain policy independent of organized interest influence. If democratic responsiveness functions 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. *State-year 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 contributions 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 when institutional barriers are low. If policymakers instead respond mainly to organized interests when institutional conditions permit, H1 and H2 should be supported and we find little evidence that constituent sentiment affects policy change, with estimates that are substantively small. This pattern would indicate a systematic failure of democratic responsiveness in which policy reflects donor preferences rather than voter 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 a shift-share 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 fifty 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 and different sources. Our index has 21 categories of gun laws capturing three dimensions: *who*, regulations screening individuals for acquisition; *what*, laws regulating which guns and gun accessories are available or prohibited; and *how*, laws regulating the use and carriage of guns. For each category, we record 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 bundles to obtain an overall Gun Law Index, which increases as a state adopts more comprehensive and restrictive regulations.[1] 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 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 nominal dollars contributed in each state–year.

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 (1990–2011) (Klarner 2013) and the National Conference of State Legislatures State Partisan Composition series (2012–2023) (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

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

trifecta (Republicans control the governorship and both chambers), Democratic trifecta (Democrats control the governorship and both chambers), and divided government (all other configurations).[2]

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 by summing the party's vote share in the gubernatorial election and its seat shares in the state senate and state house, also yielding a scale 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.[3]

2. Identification Strategy

We use a TWFE panel design to estimate how pro-gun and gun safety contributions shape state gun policy under different institutional conditions.

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

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

Baseline TWFE Models. 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 pro-gun contribution is:

$$\begin{aligned} Y_{it} = \beta_1 \, \text{ProGun}_{i,t-1:t-2} + \beta_2 \, \text{RepTrifecta}_{i,t-1} + \\ \beta_3 \, \text{ProGun}_{i,t-1:t-2} \times \text{RepTrifecta}_{i,t-1} + \mathbf{X}_{i,t-1}\gamma + \alpha_i + \delta_t + \varepsilon_{it}. \end{aligned} \tag{1}$$

where Y_{it} denotes the annual change in the Gun Law Index in state i from year $t-1$ to year t; $\text{ProGun}_{i,t-1:t-2}$ shows the average of total contributions in year $t-1$ and $t-2$ from pro-gun and interest groups in state i, winsorized at 99 percentile.[4] $\text{RepTrifecta}_{i,t-1}$ is a dummy variable equal to one when Republicans control the governorship and both legislative chambers in year $t-1$ and zero otherwise; $\mathbf{X}_{i,t-1}$ includes lagged demographic and economic covariates along with contributions from interest groups in the opposing side of the gun policy discussion; α_i and δ_t denote state and year fixed effects; and ε_{it} is an error term. Our estimation uses weights equal to each state's population and standard errors are clustered at the state level.

When estimating the impact of gun safety contributions, our baseline is:

$$\begin{aligned} Y_{it} = \beta_1 \, \text{GunSafety}_{i,t-1:t-2} + \beta_2 \, \text{DemTrifecta}_{i,t-1} + \\ \beta_3 \, \text{GunSafety}_{i,t-1:t-2} \times \text{DemTrifecta}_{i,t-1} + \mathbf{X}_{i,t-1}\gamma + \alpha_i + \delta_t + \varepsilon_{it}. \end{aligned} \tag{2}$$

where $\text{DemTrifecta}_{i,t}$ is defined analogously to $\text{RepTrifecta}_{i,t}$ as a binary variable equal to one when Democrats control the governorship and both legislative chambers in year t. All other components of the specification, including covariates, fixed effects, and clustering, remain unchanged.

4. 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 unchanged.

These TWFE models are interpreted as a difference-in-differences design with continuous treatments. The main coefficients of interest are the interaction terms between $\text{ProGun}_{i,t-1:t-2}$ and $\text{RepTrifecta}_{i,t-1}$, as well as those between $\text{GunSafety}_{i,t-1:t-2}$ and $\text{DemTrifecta}_{i,t-1}$,which capture how the marginal effect of interest group contributions on changes in gun law stringency depends on unified partisan control.

Addressing Concerns about TWFE Models. The TWFE specifications in Equation 1 and Equation 2 are subject to several familiar concerns. First, observed outcomes may simply reflect systematic differences in the political allocation of interest group contributions, rather than a causal response of gun laws to organized interests. For example, if pro–gun interest groups concentrate their giving in states under Republican trifectas, the effects of contributions cannot be separately identified from the effects of state political control. Second, special interest contributions may respond endogenously to changes in gun policy, giving rise to reverse causality.[5] Third, identification relies on a parallel trends assumption for treated and less–treated states. Fourth, a potential alternative interpretation of our results is that the apparent effect of interest group contributions on policy simply reflects their influence on elections, whereby they help generate trifectas that subsequently enable policy change. Finally, unobserved time–varying shocks affecting both contributions and gun law changes could bias our estimates.

When it comes to the distribution of contributions from organized gun interests, we show that these groups are not narrowly targeted to a particular set of states or partisan environments. Both pro–gun and gun safety interest groups distribute contributions broadly across the country, reaching states under unified Republican control, unified Democratic control, and divided government alike. Consistent with this pattern, the correlation between

5. An instrumental variable method is another potential solution to this endogeneity problem; however, we find that the shift-share instrument we use for constituent gun sentiment analysis does not meet the relevance requirement (i.e, F value is < 10) as to gun interest group contributions, which is why we adopt TWFE models in this analysis.

the level of interest group contributions and state political conditions remains low.[6] In other words, contribution flows do not simply mirror the prevailing political alignment of a state in a given year. This descriptive evidence suggests that observed partisan divergence in gun laws cannot be simply attributed to differences in the partisan allocation of interest groups' giving. Instead, contributions are deployed in a manner that is largely independent of political conditions, providing a useful setting to evaluate whether organized interests exert influence on subsequent policy outcomes, as opposed to merely reflecting existing partisan control.

We address reverse causality by employing placebo specifications in which we replace the baseline treatment with future pro–gun (and, symmetrically, gun safety) contributions. In particular, we use leads of the contribution variables based on years $t+1$, $t+2$, and $t+3$ as placebo treatment and examine whether they predict past changes in the Gun Law Index. If special interest groups simply react to legislative changes, these placebo coefficients should be significant. By contrast, the absence of systematic effects of future treatment is consistent with our interpretation that contributions primarily operate as a driver of subsequent legal change, rather than the reverse.

To relax the parallel trends assumption, we augment the baseline model in Equation 1 and Equation 2 with more flexible time trends. First, we allow for state–specific linear trends by interacting state dummy variables with a linear year variable. Second, we use alternative specifications with group–specific trends, where trends are allowed to vary by baseline firearm prevalence or state politics. These models assess whether the main results are just driven by differential trajectories across states or, rather, by interest group contributions.

We estimate additional TWFE models to assess whether interest group contributions affect policy indirectly through state elections or instead operate conditional on partisan control. In these models, electoral and institutional-control outcomes serve as dependent variables and SIG contributions as the treatment.[7] We use three outcome patterns: an

6. For detailed descriptive statistics, see subsection 4 in Appendix C.
7. SIG: special interest group(s).

indicator for trifecta control, the Majority Score capturing institutional control, and the Ratio Score measuring the relative prevalence of each party. If contributions primarily work through elections, they should significantly predict the formation of trifectas (and related control measures). By contrast, non-significant effects on trifecta formation would show that interest groups influence on policy mainly when partisan control is established, rather than by reshaping electoral outcomes themselves.

We also address concerns about time-varying unobserved confounding shocks related to gun violence. Specifically, since fatal school shootings affect both interest group contributions and state gun law, we take into account fatalities from school shootings or mass shootings as additional controls (Baldwin et al. 2025; Luca et al. 2020). Finally, we examine the robustness of the results to a range of model specifications, including alternative specifications on treatment and the range of covariates.[8]

B. Constituent Gun Sentiment and Gun Policy

1. Data and Measurement

Our analysis of constituent gun sentiment influence uses a similar state-year panel as our analysis of special interests, combining annual information on state gun laws with estimated gun sentiment and covariates. However, because the CES survey, from which we derive our gun sentiment estimates, only began in 2006, and we utilize lagged changes in this value over time, our sample covers the fifty states from 2008–2024. Our outcome and covariates are structured similarly to our analysis of interest group influence.[9]

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. An individual's

8. Such as lag period and log versus level structures.

9. Our covariates are identical, except we utilize beer consumption (Slater and Alpert 2024) as a control in this model because it is relevant to constituent behavior, but not interest group decision-making.

sentiment for gun control is an unobserved characteristic, observed partially through 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 for gun control.[10]

Item Response Theory (IRT). The first step is to gather information on questions related to gun sentiment. The CES does not ask for a consistent sample size of individuals or questions over time. We identify questions solely related to gun policy in each year of the survey, as well as relevant demographic variables.[11]

From the gun-related questions, we estimate a latent "gun sentiment" using a unidimensional 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 θ_i. These scores are on a standardized scale with a mean of zero and a standard deviation of one relative to the weighted sample distribution.

10. Appendix B provides additional details on the gun sentiment estimation strategy.
11. Table 25 in Appendix B details the gun-related questions selected.

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

$$Y_{ist} = \beta_1 \text{Party}_i + \beta_2 \text{State}_s + \beta_3 \text{Year}_t + \beta_4 (\text{Party} \times \text{Year})_{it} + \beta_5 (\text{Party} \times \text{State})_{is} + \mathbf{X}_i \gamma + \varepsilon_{ist}, \tag{3}$$

where Y_{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. These include gender, race, education level, marital status, family income level, employment status, and age.

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 a relative 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.[12]

To validate our estimates, we analyze variation in gun sentiment across time, states, and political parties. Figure 1 presents these patterns differentiated by HFR. 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

12. See Appendix E for the full regression output.

13. We detail these changes in Appendix B. As a robustness check, we also run our analysis on years 2013–2024, and our results are not sensitive to the time frame.

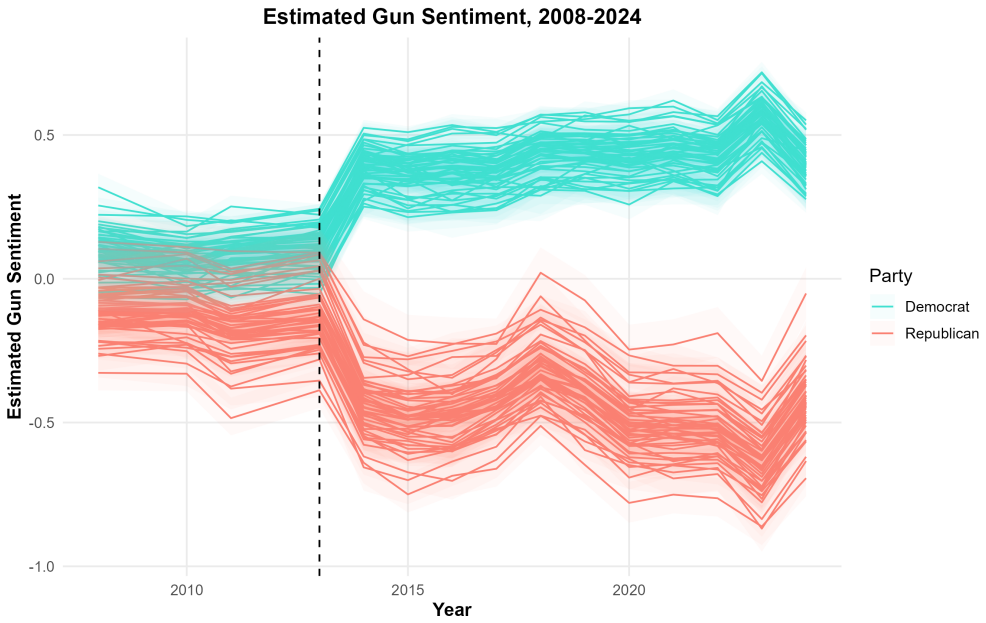


Figure 1: Gun Sentiment Estimates, 2008–2024. Each line denotes a party in an individual state. Shaded areas represent 95% confidence intervals from bootstrap estimation. The vertical line marks the year 2013, where the questions in the CES related to guns significantly changed.[13]

Republican states are those that have the highest HFR. This provides evidence that we can rely on these estimates.

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:

$$Y_{st} = \beta_1 \text{Sent}_{st-1} + \mathbf{X}_{st-1}\gamma + \text{State}_s + \text{Year}_t + \epsilon_{st} \tag{4}$$

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.

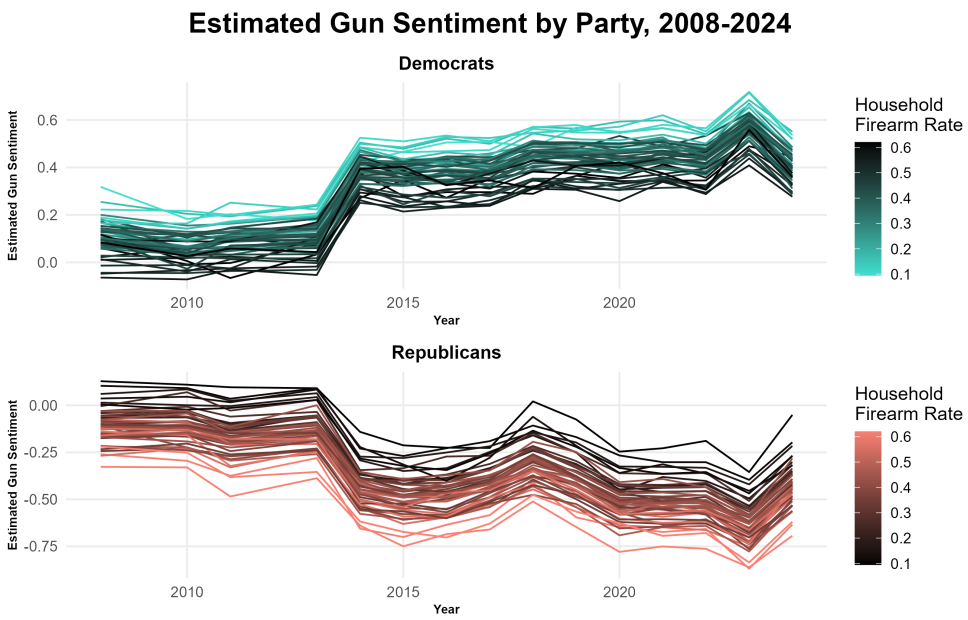


Figure 2: Gun Sentiment Estimates, 2008-2024. Each line denotes an individual state. HFR is defined by the 2008 level.

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 implement a shift-share instrument 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:

$$Z_{spt} = \text{Shift}_{-s,pt} \times \text{Share}_{sp} \tag{5}$$

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

$$\text{Shift}_{-s,pt} = \frac{\sum_{j \neq s}(\text{Sent}_{jpt} - \text{Sent}_{jp,t-1}) \cdot P_{jt} \cdot R_{jpt}}{\sum_{j \neq i} P_{jt} \cdot R_{jpt}} \tag{6}$$

This 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.

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

$$\text{Share}_{sp} = P_{s2006} R_{sp2006} \tag{7}$$

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. To ensure valid causal identification, we implement a 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. [14]

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, cancel out when averaged across the 49 states included in the $\text{Shift}_{-s,pt}$ variable. 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. 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.

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

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.[15] Then, through two different models, we examine how pro-gun and gun safety contributions cause changes in our Gun Law Index under different partisan control of state government. First, we employ TWFE models that interact contributions with partisan trifectas, which allows us to assess whether money from gun policy interest groups translates into regulatory tightening or deregulation only when a single party controls all veto points. Second, we turn to constituent gun sentiment. Using our state–year–party measures and the shift-share instrumental variable approach described above, we test whether policy responds to constituent sentiment once we address reverse causality from policy to attitudes and unobserved time-varying confounders. Across both parts of the analysis, we focus on whether policy change is concentrated in periods of unified government and whether any detectable responsiveness runs to organized donors or to constituents.

15. Figure 3 and Figure 4 show trajectories of the Gun Law Index, and Appendix C includes more information about how states and their groups show different Gun Law Indexes.

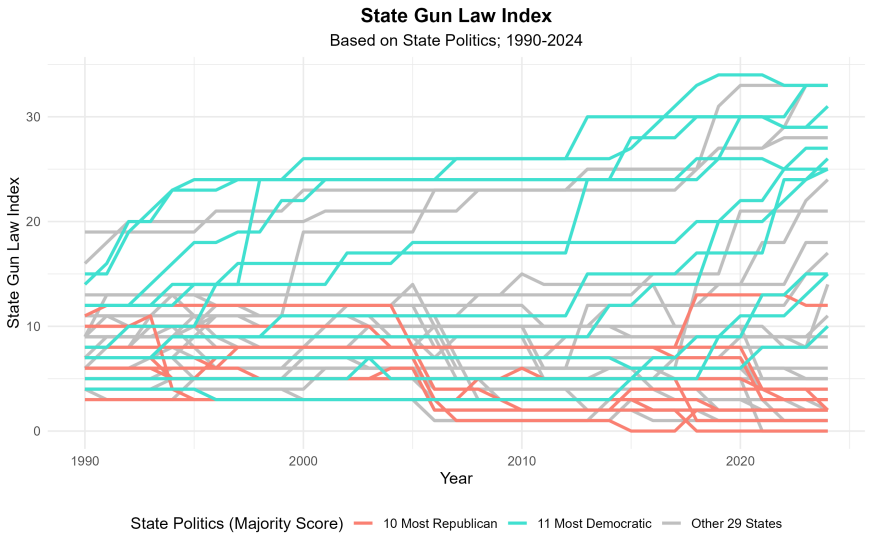


Figure 3: Gun law index trajectories by state majority score, 1990–2024. The figure plots the Gun Law Index for each state, categorized as the top 10, bottom 11 (the 11th tied with the 10th), and other middle 29 states by state majority score across 1990–2024.

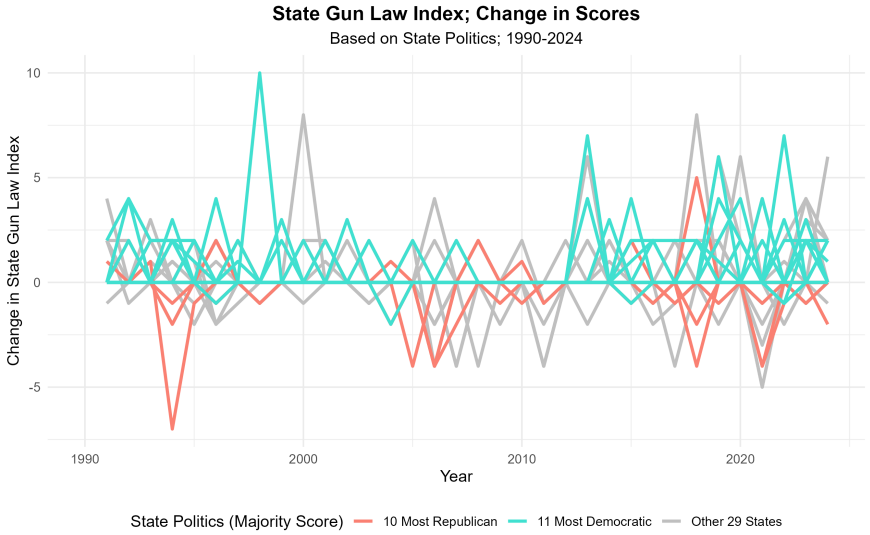


Figure 4: Annual change in the Gun Law Index by state political majority, 1990–2024. State trajectories of yearly changes in the Gun Law Index are grouped into the 10 most Republican states, the 11 most Democratic states, and the remaining 29 states according to the state majority score.

A. Contribution Effects and Party Control

We estimate the effect of organized interests' contributions on changes in state gun laws and how that effect varies with unified partisan control, then assess the robustness of our results.

1. Gun Interest Group Contributions Drive State Gun Policy Only Under Trifectas

Table 1 reports the results from our baseline TWFE models that interact pro-gun contributions with Republican trifectas. The results show a clear pattern: deregulatory shifts in the Gun Law Index are concentrated in state–years with unified Republican control. Additionally, the effect of pro-gun SIG contributions increases sharply under Republican trifectas. Conversely, under divided government, pro-gun SIG contributions have no detectable effect.

By contrast, we find no significant effects when using alternative measures of state partisan strength, such as the Republican majority score or the Republican ratio score. This insignificant result underscores that what matters for translating SIG contributions into policy change is unified partisan control across all three arms (governorship and both legislative chambers), rather than incremental increases in partisan seat shares or partial control of one or two branches.

In other words, greater Republican representation absent a trifecta does not, by itself, amplify the policy impact of pro-gun SIG contributions. A similar pattern emerges for the gun safety side. Gun safety SIG contributions cause more restrictive state gun laws only during periods of unified Democratic government, but not under divided control. We also find insignificant results when we use alternative measures of partisan strength, such as the Democratic majority score or the Democratic ratio score.

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 the Gun Law Index. Analogously, under Democratic trifectas, the impact of gun safety contributions increases and leads to regulatory tightening. Under divided government, in contrast, contributions from both sides are essentially unrelated to changes in the index. This pattern is consistent with the conditional influence of organized interests operating through unified control of all veto points.

Table 1: Baseline TWFE; Pro-Gun Contribution: Interaction with State Politics Variables; 2000–2024

	Rep. Trifecta	Rep. Majority Score	Rep. Ratio Score
SIG Contribution	0.766 (0.749)	0.308 (0.798)	1.932 (1.292)
	$p = 0.312$	$p = 0.701$	$p = 0.142$
State Politics	-0.279 (0.100)	-0.090 (0.052)	-0.617 (0.217)
	$p = 0.007$	$p = 0.089$	$p = 0.006$
Interaction with State Politics	-2.397 (1.026)	-0.556 (0.308)	-1.605 (0.832)
	$p = 0.024$	$p = 0.077$	$p = 0.060$
Num. Obs.	1224	1224	1222
R^2	0.197	0.192	0.194
Adj. R^2	0.138	0.133	0.135

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 2: Baseline TWFE; Gun Safety Contribution: Interaction with State Politics Variables; 2000–2024

	Dem. Trifecta	Dem. Majority Score	Dem. Ratio Score
SIG Contribution	-0.127 (0.689)	-0.281 (0.697)	-2.194 (1.738)
	$p = 0.855$	$p = 0.688$	$p = 0.213$
State Politics	0.112 (0.137)	0.104 (0.047)	0.415 (0.230)
	p = 0.416	p = 0.031	p = 0.077
Interaction with State Politics	1.892 (0.930)	0.626 (0.323)	1.764 (1.187)
	$p = 0.047$	$p = 0.059$	$p = 0.144$
Num.Obs.	1249	1224	1222
R^2	0.190	0.193	0.190
Adj. R^2	0.131	0.133	0.131

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

2. 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 statistically significant (Table 3 and Table 4). Results remain unchanged when extending the placebo period to year $t+3$ (Table 5 and Table 6). 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 3: Placebo Test; Pro-Gun Contribution: Using Future Contributions as Treatment; 2000–2024

	Future (t+1)	Future (t+1 $\sim$ t+2)	Future (t+2)
Future SIG Contribution	-0.717 (0.796)	-0.416 (1.327)	0.168 (1.133)
	$p = 0.372$	$p = 0.755$	$p = 0.883$
Rep. Trifecta	-0.354 (0.093)	-0.317 (0.093)	-0.325 (0.092)
	$p = 0.000$	$p = 0.001$	$p = 0.001$
Interaction with Rep. Trifecta	0.529 (1.440)	-0.345 (1.972)	-0.624 (1.645)
	$p = 0.715$	$p = 0.862$	$p = 0.706$
Num. Obs.	1224	1224	1223
R^2	0.195	0.197	0.195
Adj. R^2	0.137	0.138	0.136

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. "t+1 $\sim$ t+2" refers to the mean of special interest group contributions in times t+1 and t+2. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 4: Placebo Test; Gun-Safety Contribution: Using Future Contributions as Treatment; 2000–2024

	Future (t+1)	Future (t+1 ∼ t+2)	Future (t+2)
Future SIG Contribution	0.188 (0.650)	0.654 (0.997)	0.291 (0.916)
	$p = 0.773$	$p = 0.515$	$p = 0.752$
Dem. Trifecta	0.093 (0.157)	0.055 (0.154)	0.110 (0.146)
	p = 0.557	p = 0.723	p = 0.456
Interaction with Dem. Trifecta	2.435 (1.507)	3.394 (1.726)	1.992 (1.154)
	$p = 0.113$	$p = 0.055$	$p = 0.091$
Num. Obs.	1249	1249	1248
R^2	0.196	0.200	0.194
Adj. R^2	0.138	0.143	0.135

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. "t+1 ∼ t+2" refers to the mean of special interest group contributions in times t+1 and t+2. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 5: Placebo Test; Pro-Gun Contribution: Using Further Future Contributions as Treatment; 2000–2024

	Future (t+1 ∼ t+3)	Future (t+2 ∼ t+3)	Future (t+3)
Future SIG Contribution	-0.168 (1.112)	0.340 (0.984)	0.281 (0.973)
	$p = 0.881$	$p = 0.731$	$p = 0.774$
Rep. Trifecta	-0.309 (0.097)	-0.308 (0.096)	-0.339 (0.104)
	$p = 0.002$	$p = 0.002$	$p = 0.002$
Interaction with Rep. Trifecta	-0.517 (2.013)	-0.888 (1.764)	-0.227 (1.683)
	$p = 0.798$	$p = 0.617$	$p = 0.893$
Num. Obs.	1224	1223	1222
R^2	0.197	0.196	0.194
Adj. R^2	0.138	0.137	0.135

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. "t+1 ∼ t+3" refers to the mean of special interest group contributions in times t+1 and t+3, while "t+2 ∼ t+3" refers to the mean of special interest group contributions in times t+2 and t+3. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 6: Placebo Test; Gun-Safety Contribution: Using Further Future Contributions as Treatment; 2000–2024

	Future (t+1 ∼ t+3)	Future (t+2 ∼ t+3)	Future (t+3)
Future SIG Contribution	1.002 (1.065)	0.848 (0.979)	0.517 (0.872)
	$p = 0.351$	$p = 0.391$	$p = 0.556$
Dem. Trifecta	0.068 (0.157)	0.111 (0.150)	0.168 (0.149)
	p = 0.666	p = 0.461	p = 0.263
Interaction with Dem. Trifecta	2.866 (1.953)	1.749 (1.558)	0.282 (1.307)
	$p = 0.149$	$p = 0.267$	$p = 0.830$
Num. Obs.	1249	1248	1247
R^2	0.197	0.193	0.188
Adj. R^2	0.139	0.134	0.130

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. "t+1 ∼ t+3" refers to the mean of special interest group contributions in times t+1 and t+3, while "t+2 ∼ t+3" refers to the mean of special interest group contributions in times t+2 and t+3. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

State–Specific Time Trend. We relax the parallel trends assumption by allowing for more flexible trend structures. Our models include state–specific linear trends (Table 7), as well as group–specific trends that vary by baseline firearm prevalence or by state partisan control (Table 8).[16] 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 pre–existing trajectories in gun laws across states or groups. These results show that the increasing impact of pro-gun contributions under trifectas is robust after allowing for state-unique and group-unique time trends. For gun safety contributions, the interaction with Democratic trifectas remains positive while two of three models produce insignificant results, which imply that baseline TWFE estimates might include state-unique and group-unique trends.

16. 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 7: Baseline TWFE; Pro-Gun Contribution: Unit/Group-Specific Trend; 2000–2024

	State-Specific Trend	HFR-Group Trend	State-Politics-Ratio-Group Trend
SIG Contribution	1.463 (0.846)	0.820 (0.748)	1.010 (0.732)
	$p = 0.090$	$p = 0.279$	$p = 0.174$
Rep. Trifecta	-0.210 (0.081)	-0.279 (0.103)	-0.260 (0.099)
	$p = 0.013$	$p = 0.009$	$p = 0.011$
Interaction with Rep. Trifecta	-3.294 (1.220)	-2.807 (0.969)	-2.981 (0.911)
	$p = 0.010$	$p = 0.006$	$p = 0.002$
Num. Obs.	1224	1224	1224
R^2	0.237	0.199	0.201
Adj. R^2	0.146	0.139	0.142
Variables Excluded (multicollinearity)	State = Wyoming Year = 2000	HFR = Middle 30 Year = 2000	Ratio = Middle 29 Year = 2000

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. States were broken up into bins based on HFR, denoted by the top 10 HFR states, the bottom 10 HFR states, and the middle 30 HFR states in 1990. States were also broken up into bins based on the Republican ratio score, denoted by the top 10 Republican ratio scores, the bottom 10 Republican ratio scores, and the middle 29 Republican ratio scores (because of split governments). Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 8: Baseline TWFE; Gun-Safety Contribution: Unit/Group-Specific Trend; 2000–2024

	State-Specific Trend	HFR-Group Trend	State-Politics-Ratio-Group Trend
SIG Contribution	-1.537 (0.893)	-0.293 (0.722)	-0.203 (0.722)
	$p = 0.092$	$p = 0.687$	$p = 0.779$
Dem. Trifecta	0.110 (0.134)	0.120 (0.133)	0.120 (0.126)
	p = 0.416	p = 0.370	p = 0.342
Interaction with Dem. Trifecta	1.316 (1.153)	1.989 (0.915)	1.786 (0.953)
	$p = 0.260$	$p = 0.035$	$p = 0.067$
Num. Obs.	1249	1249	1249
R^2	0.232	0.191	0.193
Adj. R^2	0.139	0.130	0.132

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. States were broken up into bins based on HFR, denoted by the top 10 HFR states, the bottom 10 HFR states, and the middle 30 HFR states in 1990. States were also broken up into bins based on the Republican ratio score, denoted by the top 10 Republican ratio scores, the bottom 10 Republican ratio scores, and the middle 29 Republican ratio scores (because of split governments). Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

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 four patterns of controls related to gun violence; one shows fatalities each year

arising from school shootings, and three other patterns use fatalities from mass shootings using three different data sources (Follman et al. 2025; Gun Violence Archive 2025; Violence Prevention Project 2024). Table 9 shows that including these controls into TWFE models leaves estimates about pro-gun contributions essentially unchanged. These results suggest that our findings about pro-gun contributions are not driven by differential exposure to high–profile gun violence events. When it comes to gun safety contributions, while they show positive coefficients of the interaction term, these results are insignificant, implying regulatory tightening under Democratic trifectas was partially affected by gun violence incidents (Table 10).

Table 9: Baseline TWFE; Pro-Gun Contribution: Shooting Covariate; 2000–2024

	Riedman Dataset	MJ Dataset	GVA Dataset	VPP Dataset
SIG Contribution	2.790 (1.166)	2.732 (1.214)	2.949 (1.450)	2.661 (1.183)
	$p = 0.021$	$p = 0.029$	$p = 0.048$	$p = 0.029$
Rep. Trifecta	0.034 (0.272)	0.029 (0.269)	0.028 (0.273)	0.029 (0.270)
	$p = 0.901$	$p = 0.915$	$p = 0.918$	$p = 0.916$
Interaction with Rep. Trifecta	-4.463 (1.790)	-4.255 (1.744)	-4.304 (1.807)	-4.259 (1.708)
	$p = 0.016$	$p = 0.018$	$p = 0.021$	$p = 0.016$
Num. Obs.	538	538	538	538
R^2	0.296	0.292	0.293	0.292
Adj. R^2	0.191	0.186	0.187	0.186

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. "Riedman" refers to the K-12 School Shooting database (Riedman 2025). "MJ" refers to the Mother Jones database (Follman et al. 2025). "GVA" refers to the Gun Violence Archive (Gun Violence Archive 2025). "VPP" refers to the Violence Prevention Project (Violence Prevention Project 2024). Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 10: Baseline TWFE; Gun-Safety Contribution: Shooting Covariate; 2000–2024

	Riedman Dataset	MJ Dataset	GVA Dataset	VPP Dataset
SIG Contribution	-1.047 (0.949)	-1.267 (1.052)	-1.315 (0.960)	-1.169 (1.029)
	$p = 0.276$	$p = 0.234$	$p = 0.177$	$p = 0.261$
Dem. Trifecta	0.165 (0.639)	0.176 (0.640)	0.154 (0.619)	0.165 (0.641)
	p = 0.798	p = 0.784	p = 0.805	p = 0.798
Interaction with Dem. Trifecta	1.562 (1.644)	1.489 (1.626)	1.520 (1.628)	1.579 (1.619)
	$p = 0.347$	$p = 0.364$	$p = 0.355$	$p = 0.334$
Num. Obs.	549	549	549	549
R^2	0.290	0.287	0.287	0.287
Adj. R^2	0.185	0.181	0.181	0.181

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. "Riedman" refers to the K-12 School Shooting database (Riedman 2025). "MJ" refers to the Mother Jones database (Follman et al. 2025). "GVA" refers to the Gun Violence Archive (Gun Violence Archive 2025). "VPP" refers to the Violence Prevention Project (Violence Prevention Project 2024). Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Impact on State Elections. We estimate additional TWFE models with electoral outcomes as dependent variables and special interest group contributions as the treatment to assess whether the estimated policy effects reflect special interest groups' direct influence on policy 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 11 show that pro-gun SIG contributions do not significantly predict trifecta formation or Republican 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 special interest group contributions do not determine partisan control, reinforcing our interpretation of the main estimates: special interest groups primarily shape policy once partisan control, especially trifecta control, is in place.

Table 11: Baseline TWFE; Impact of Pro-Gun SIG Contributions on Elections; Three Different Outcome Patterns; 2000–2024

	Rep. Trifecta	Rep. Majority Score	Rep. Ratio Score
SIG Contribution	0.125 (0.266)	0.326 (0.576)	0.258 (0.119)
	$p = 0.641$	$p = 0.574$	$p = 0.034$
Num. Obs.	1224	1224	1222
R^2	0.674	0.756	0.847
Adj. R^2	0.651	0.739	0.837

*Outcome variables include Republican Trifecta, Republican Majority Score, and Republican Ratio Score. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Alternative Treatment and Covariate Specifications. We also evaluate robustness to other alternative forms for treatment and the set of included covariates. When it comes to the treatment specifications, we use a one-year lag of contributions (as opposed to the average of one- and two-year lags), as well as log form of contributions. Table 14 shows essentially unchanged results regardless of multiple treatment specifications. Table 15 reveals insignificant results using log form of gun safety contribution, which might suggest that the main results of the gun safety side is mainly driven by larger amount of contributions and these impacts are suppressed when using log form.

As to the scope of covariates, we checked three patterns with different lists of covariates. The first model excludes less time-varying covariates and includes log incarceration rate, unemployment rate, and median income. The second model copes with a potential concern about over-controlling and excludes every covariate. The last model rather expands covariates used in prior research, such as log police staff rate, beer consumption, and Hispanic resident rate. Across these alternatives, the estimated effect of pro–gun contributions under Republican trifectas remains consistently and significantly negative (Table 14), while the estimated effect of gun safety contributions under Democratic trifectas produces one insignificant estimate (Table 15).

Overall, our robustness checks regarding pro-gun contributions address common concerns in TWFE analyses. They further reinforce the conclusion that our main results are not a

product of particular model choices, but rather reflect a stable pattern in which pro-gun organized interests move policy in their preferred direction under Republican trifecta. On the gun safety side, some of our robustness checks show limited impact of their contributions on state gun law change, which is consistent with Baldwin et al. (2025).[17]

Table 12: Baseline TWFE; Pro-Gun Contribution: Other Treatment Specifications; 2000–2024

	Log (t-1 $\sim$ t-2)	Log (t-1)	Dollar (t-1)
Log SIG Contribution	0.023 (0.025)	0.030 (0.017)	
	$p = 0.378$	$p = 0.084$	
Rep. Trifecta	0.308 (0.199)	0.208 (0.159)	-0.279 (0.100)
	p = 0.129	p = 0.199	p = 0.007
Interaction with Trifecta (Log $)	-0.083 (0.026)	-0.071 (0.020)	
	$p = 0.002$	$p = 0.001$	
SIG Contribution			0.766 (0.749)
			$p = 0.312$
Interaction with Trifecta (Non-Log $)			-2.397 (1.026)
			$p = 0.024$
Num. Obs.	1176	1176	1224
R^2	0.191	0.192	0.197
Adj. R^2	0.131	0.132	0.138

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. "t-1 $\sim$ t-2" refers to the mean of special interest group contributions in times t-1 and t-2. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

17. This citation to Baldwin et al. (2025) without a hyperlinked year to the full citation in the References section of this paper is different than the NBER paper by the same authors. The NBER working paper (Baldwin et al. 2025) does not contain this analysis. However, a revised, peer-reviewed version will very soon be forthcoming in the PNAS that does contain this analysis.

Table 13: Baseline TWFE; Gun-Safety Contribution: Other Treatment Specifications; 2000–2024

	Log (t-1 ∼ t-2)	Log (t-1)	Dollar (t-1)
Log SIG Contribution	5.08e-03 (0.017)	7.86e-03 (0.015)	
	$p = 0.770$	$p = 0.591$	
Dem. Trifecta	0.111 (0.103)	0.106 (0.110)	0.112 (0.137)
	p = 0.284	p = 0.340	p = 0.416
Interaction with Trifecta (Log $)	0.019 (0.032)	0.023 (0.025)	
	$p = 0.546$	$p = 0.364$	
SIG Contribution			-0.127 (0.689)
			$p = 0.855$
Interaction with Trifecta (Non-Log $)			1.892 (0.930)
			$p = 0.047$
Num. Obs.	1200	1200	1249
R^2	0.179	0.180	0.190
Adj. R^2	0.118	0.119	0.131

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the special interest group contributions for the year(s) indicated in the column header in millions of USD. "t-1 ∼ t-2" refers to the mean of special interest group contributions in times t-1 and t-2. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 14: Baseline TWFE; Pro-Gun Contribution: Change in Covariates; 2000–2024

	Less Covariates	No Covariates	Added Covariates
SIG Contribution	0.794 (0.674)	0.652 (0.790)	0.668 (0.642)
	$p = 0.245$	$p = 0.413$	$p = 0.303$
Rep. Trifecta	-0.276 (0.089)	-0.247 (0.080)	-0.336 (0.101)
	p = 0.003	p = 0.003	p = 0.002
Interaction with Rep. Trifecta	-2.404 (0.907)	-2.316 (0.957)	-2.735 (0.756)
	$p = 0.011$	$p = 0.019$	$p = 0.001$
Num. Obs.	1224	1224	1224
R^2	0.196	0.194	0.208
Adj. R^2	0.140	0.141	0.148

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. The "Less Covariates" model only includes logged incarceration rate, unemployment rate, and real per capita personal income as covariates. The "Added Covariates" includes our baseline covariates, as well as poverty rate, per capita ethanol consumption from beer, police staffing, and Hispanic population. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

Table 15: Baseline TWFE; Gun-Safety Contribution: Change in Covariates; 2000–2024

	Less Covariates	No Covariates	Added Covariates
SIG Contribution	-0.015 (0.716)	0.054 (0.693)	-0.392 (0.798)
	$p = 0.983$	$p = 0.938$	$p = 0.626$
Dem. Trifecta	0.115 (0.139)	0.087 (0.166)	0.146 (0.137)
	p = 0.413	p = 0.603	p = 0.290
Interaction with Dem. Trifecta	1.936 (0.917)	1.522 (0.851)	2.520 (1.026)
	$p = 0.040$	$p = 0.080$	$p = 0.018$
Num. Obs.	1249	1249	1249
R^2	0.189	0.187	0.201
Adj. R^2	0.133	0.134	0.140

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2000 to 2024. The treatment variable "SIG Contribution" refers to the mean of special interest group contributions for the previous two years, in millions of USD. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, income per capita, Non-Hispanic White and Black ratio, estimated household firearm rate, and the other side SIG's contribution amount, unless removed due to multicollinearity. The "Less Covariates" model only includes logged incarceration rate, unemployment rate, and real per capita personal income as covariates. The "Added Covariates" includes our baseline covariates, as well as poverty rate, per capita ethanol consumption from beer, police staffing, and Hispanic population. Standard errors are clustered at the state level. State and year fixed effects are included in all models.

B. Constituent Sentiment and Gun Policy

The second section of our analysis concerns how policymakers respond to constituent gun policy sentiment in the form of changes in gun laws. 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

Our baseline TWFE (Table 16) models the association between gun sentiment and changes in gun policy. Specifically, we observe that there is a positive relationship between the majority party's gun sentiment and changes in gun policy, as well as a negative association between the minority party's gun sentiment and changes in gun policy. This evidence establishes that gun laws are changing following the support of the party in power in the state government.

However, our IV estimation (Table 16) does 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. These estimates are not

statistically significantly different from zero. Thus, we do not see any evidence that politicians are responding to either their own party's or the opposing party's constituent sentiment.

Table 16: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024

	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

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

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 ran our analysis, focusing on Republican, Democrat, or any trifectas, show in Table 17, Table 18, and Table 19, respectively. Across all analyses, our IV estimation does 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 as a response to constituent pressure.

Table 17: Impact of Estimated Gun Sentiment on Change in Gun Law Score (Republican Trifecta), 2008–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.620 (0.275) $p = 0.029$	-0.693 (1.044) $p = 0.507$	-0.485 (0.258) $p = 0.066$	0.950 (0.910) $p = 0.297$
Interaction with Trifecta	0.016 (0.418) $p = 0.969$	0.214 (1.773) $p = 0.904$	-0.547 (0.412) $p = 0.190$	-1.199 (1.962) $p = 0.541$
Num. Obs.	850	850	850	850
R^2	0.194	0.163	0.195	0.161
Adj. R^2	0.113	0.078	0.113	0.076
Weak Instrument F-Stat		87.31		58.65

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 18: Impact of Estimated Gun Sentiment on Change in Gun Law Score (Democratic Trifecta), 2008–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.393 (0.261) $p = 0.139$	-0.171 (0.874) $p = 0.845$	-0.471 (0.234) $p = 0.050$	-0.119 (0.777) $p = 0.878$
Interaction with Trifecta	1.103 (0.769) $p = 0.158$	-1.681 (2.880) $p = 0.560$	-0.530 (0.517) $p = 0.310$	2.184 (2.374) $p = 0.358$
Num. Obs.	850	850	850	850
R^2	0.199	0.149	0.195	0.152
Adj. R^2	0.118	0.062	0.114	0.066
Weak Instrument F-Stat		39.55		79.54

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 19: Impact of Estimated Gun Sentiment on Change in Gun Law Score (Any Trifecta), 2008–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.488 (0.237) $p = 0.045$	-0.412 (0.869) $p = 0.636$	-0.406 (0.235) $p = 0.090$	0.328 (0.622) $p = 0.598$
Interaction with Trifecta	0.461 (0.275) $p = 0.101$	-0.362 (1.150) $p = 0.753$	-0.548 (0.246) $p = 0.031$	0.564 (1.083) $p = 0.603$
Num. Obs.	850	850	850	850
R^2	0.197	0.163	0.197	0.161
Adj. R^2	0.116	0.078	0.115	0.076
Weak Instrument F-Stat		61.87		73.82

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

3. Robustness Checks for Gun Sentiment Effects

We next assess whether the effects of constituent gun sentiment are robust to alternative specifications.

Alternative Time Frame. Importantly, since the CES questions differ between years, the questions asked between years 2006–2012 are quite limited.[18] Thus, we perform another analysis, restricting the time frame to 2013–2024. This allows us to isolate the effect of changing gun sentiment, rather than simply improvements in the survey itself. Both the TWFE and IV results are insignificant (Table 20), providing evidence that our results are not specific to the time frame chosen in our main analysis.

18. see Appendix B for more details.

Table 20: 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	0.052 (0.359) $p = 0.885$	-1.346 (1.218) $p = 0.269$	-0.038 (0.365) $p = 0.919$	1.265 (1.125) $p = 0.261$
Num. Obs.	600	600	600	600
R^2	0.220	0.194	0.220	0.197
Adj. R^2	0.116	0.085	0.116	0.089
Weak Instrument F-Stat		70.41		66.90

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2013 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2012 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Smoothing of Gun Sentiment. We also hope to verify that large individual changes in gun sentiment are not obscuring our results. We do so by rerunning our analysis instrumenting a 3-year moving average of estimated gun sentiment with 3-year moving average of our shift-share variable (Table 21). The IV results remain consistently insignificant.

Table 21: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2009–2024 (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	0.735 (0.272) $p = 0.009$	-2.055 (1.327) $p = 0.122$	-0.726 (0.279) $p = 0.012$	1.744 (1.171) $p = 0.137$
Num. Obs.	800	750	800	750
R^2	0.203	0.085	0.203	0.113
Adj. R^2	0.121	-0.016	0.120	0.015
Weak Instrument F-Stat		29.41		27.81

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2009 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2008 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party. 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.

Constituent Population Splits. As an alternative specification, we split the data based on relative proportion of constituency, rather than who is in control of the legislature. Thus, "majority party" is defined as the party in the given state–year whose estimated relative proportion is greater than half, and "minority party" is the remaining party. In this instance, instead of exploring how politicians respond to their own party, we can explore how politicians respond to the majority of their constituents, even if the party majority of constituents align with is not the one in control of the state legislature (though it is often the case that these are the same party). These results are displayed in Table 22, and we see similar results to our main specification.

Table 22: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024

	Change in Gun Law (Majority Constituent Sentiment)		Change in Gun Law (Minority Constituent Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.294 (0.115) $p = 0.014$	0.100 (0.477) $p = 0.833$	-0.278 (0.116) $p = 0.021$	-0.155 (0.426) $p = 0.716$
Num. Obs.	850	850	850	850
R^2	0.191	0.189	0.191	0.190
Adj. R^2	0.111	0.109	0.111	0.110
Weak Instrument F-Stat		131.79		157.13

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority Constituents is defined as the party that has the majority relative population in the state–year.

Alternative Instrument. Finally, as an alternative instrument, we redefine our shift to be weighted not by both population and relative proportion within a state, but just by relative proportion. A concern could be that relevance of our instrument is driven by the changes in populous states. By redefining the instrument, in creating our national shifts, we treat every state equally (Table 23). The instrument remains relevant, and we produce similar insignificant results to our main specification.

Table 23: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024 (Alternative IV)

	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) $p = 0.013$	-0.619 (0.854) $p = 0.468$	-0.570 (0.241) $p = 0.022$	0.638 (0.810) $p = 0.431$
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		160.77		141.44

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party. The IV was adjusted fromthe main specification, weighing national gun sentiment only by relative population within the state.

V. Discussion

A. State-Level Mobilization of Gun Interest Groups

Our findings provide systematic evidence that gun interest groups shape state gun policy through financial contributions. Pro-gun and gun safety interest groups invest in state politics in nearly every year and every state, but their money translates into statutory change during periods of unified partisan control. Under Republican trifectas, higher pro-gun contributions are predictive of deregulatory shifts in the Gun Law Index. Under Democratic trifectas, higher gun safety contributions are predictive of regulatory tightening. By contrast, in years of divided government, contributions from both sides are unrelated to changes in state gun laws.

These patterns align with the conditional influence framework we develop. Contributions behave as a legislative subsidy that is activated when aligned actors control the agenda and the veto points. Unified partisan control lowers the number of veto players and concentrates authority in a single coalition. In that setting, additional resources from aligned gun groups help that coalition draft bills, move them through committees, and protect them on the floor,

producing observable shifts in statutory stringency. When control is divided, the same dollars confront veto points held by the opposing party, and the subsidy cannot be converted into law.

The temporal pattern of change we find in the Gun Law Index reinforces this interpretation. For most states, annual changes in the Gun Law Index are small and clustered near zero, punctuated by episodes of sharp movement toward more restrictive or more permissive regimes. Those punctuations occur disproportionately in years when one party holds unified control and attracts substantial contributions from its aligned side of the gun policy conflict. Once these shifts are enacted, policy tends to remain stable, even as money continues to flow. Unified control thus creates windows in which organized firearm interests can reset the statutory baseline, after which institutional friction and policy feedback make reversal difficult.

Finally, the effects we document are partisan but symmetric. Pro-gun contributions move policy under Republican trifectas, not under Democratic control. Gun safety contributions move policy under Democratic trifectas, not under Republican control. There is little evidence that either side can reliably legislate through the other party or through divided government. State legislatures in this domain do not behave like open markets in which money always buys influence. They behave as partisan institutions in which organized interests gain leverage when their preferred party controls all veto points.

B. Special Interests Shape Gun Policy Independent of Public Opinion

If organized gun interests reshape policy during unified control, a natural question is whether constituent preferences map on to special interest preferences, and whether constituent preferences exert a parallel influence. Our results show that they do not; estimated constituent gun sentiment does not causally predict changes in gun law. Having addressed endogeneity and common shocks using a shift-share instrumental variable approach, this observation

holds for majority and minority party constituents, under alternative definitions of partisan majority, and when we focus on years of unified partisan control.

The contrast with contribution effects is stark. Within a given institutional regime, gun laws shift in response to organized firearm interests but not in parallel fashion to shifts in constituent sentiment. This is true even though gun policy is a highly salient issue and survey support for specific gun safety measures remains high. Our design is sensitive enough to detect the contribution effects that appear under trifectas, yet it does not uncover comparable effects for constituent sentiment.

These results do not imply that public opinion is irrelevant. Citizens help determine which party gains unified control, and that choice is central to the policy trajectories we observe. What the analysis shows is that, conditional on partisan control and institutional structure, marginal changes in constituent sentiment do not produce measurable changes in statutory stringency, whereas marginal changes in organized giving do. In the terms of our theoretical framework, institutional openings created by unified partisan control are exploited primarily by organized interests, not by voters, when it comes to moving gun policy away from the median voter.

1. Implications of Our Research

Our results clarify who is represented when institutions create opportunities for policy shifts. Financial resources from organized gun interests matter most when the institutional structure minimizes veto points and concentrates agenda control. Under unified partisan control, organized investments, measured here through campaign contributions, translate into statutory change: pro-gun contributions under Republican trifectas drive deregulatory moves, while gun safety contributions under Democratic trifectas are consistent with regulatory tightening. Under divided government, the same groups spend heavily but do not move law. This pattern shows that money in politics is neither uniformly powerful nor uniformly irrelevant: its policy returns are conditional on institutional arrangements that determine whether legislative subsidy and agenda control can be converted into enacted statute.

This same institutional pattern shapes what empirical designs tend to detect. Contribution effects are often modest when influence is assessed through roll-call votes, but can be substantial when influence operates through agenda setting, committee work, and other less visible stages of lawmaking that are plausibly subsidized by organized money (Ansolabehere et al. 2003; Baumgartner et al. 2009; Hall and Deardorff 2006; Hall and Wayman 1990). Our results imply that estimates pooling across unified and divided governments will attenuate toward zero by averaging high return windows of unified control with low return periods of divided government.

These findings also bear directly on democratic responsiveness. Prior work documents that policy is more congruent with the preferences of affluent and organized actors than with those of ordinary citizens (Gilens 2012). Our analysis shows that unequal responsiveness is concentrated in the same institutional settings in which responsiveness to marginal shifts in constituent sentiment is weakest, namely periods of unified control that reduce barriers to statutory change. Policy is periodically reset during windows of unified control to align with organized interests, then tends to persist through subsequent periods of divided government and policy feedback. Analyses that ignore this institutional variation, or that rely only on static congruence between mean opinion and law, risk missing the dynamic process through which divergence between policy and broadly moderate public attitudes is produced and sustained over time.

In practice, state gun policy moves with party control, not with year-to-year changes in constituent sentiment. This pattern suggests that on gun policy, accountability functions in a coarse way. Voters influence outcomes mainly by determining which party governs, not by inducing systematic adjustment of statute to match changes in constituent sentiment with a given partisan regime. National networks of firearm interest groups, by contrast, are able to translate financial resources into durable statutory change whenever a friendly party gains unified control. On a policy area with direct implications for public safety, state law therefore

appears to map more closely to the preferences of organized firearm interests than to those of the mass public conditional on who controls government.

2. Limitations of Our Research

We establish that organized gun interests reshape state gun laws through financial contributions. We also provide robust causal evidence that constituent gun sentiment does not produce comparable policy shifts. These findings speak to the puzzle of why state gun policies polarize and diverge from the public's broadly moderate attitudes on gun control measures. Two limitations qualify how far the results should be generalized.

First, our analysis does not explain the mechanisms through which contributions affect individual policymakers. We work at the level of state-year changes in statutory stringency and aggregate contributions. The design therefore speaks to how institutional context conditions the relationship between organized money, public sentiment, and enacted law, rather than to how contributions reshape the ideological positions, roll call behavior, or internal legislative activity of particular officeholders.

Second, the scope of our analysis is limited to a high salience policy domain. The analysis focuses on firearm statutes in the fifty states from 2000 to 2024, a period and policy domain in which gun regulation is highly salient and firearm interests are well organized. The logic we identify should be most applicable to similarly salient and organized policy areas. We are cautious about extrapolating to low salience domains, to policy areas with weaker interest group infrastructures, or to national institutions.

Future work can address these limitations by linking contributions and constituent sentiments to individual-level behavior in roll call votes, amendments, and agenda setting in state legislatures.

3. Conclusion

Taken together, our analysis shows that state gun laws are shaped by organized interests' contributions under unified partisan control, while constituent preferences exert no detectable

effect on statutory change. Contributions from pro-gun groups are converted into deregulatory moves under Republican trifectas. Contributions from gun safety groups are converted into regulatory tightening under Democratic trifectas. Under divided government, neither side reliably moves statute. Estimated year-to-year shifts in constituent gun sentiment do not generate comparable shifts in law.

The representation gap we document reveals a paradox of democratic accountability. Institutions that are designed to translate constituent preferences into policy instead give organized gun interests their greatest leverage precisely when those institutions have the greatest alignment and fewest barriers to enacting new laws. When unified partisan control opens windows for statutory change, it is organized money, not constituent sentiment, that drives movement in state gun laws. On an issue with direct consequences for public safety, the path from preferences to policy in the states runs disproportionately through well-organized, intensely motivated interests rather than through the broadly moderate views of constituents. Understanding when and how organized interests override constituent preferences is critical not only for explaining the representation gap in American gun policy, but for evaluating whether state governments remain responsive to their citizens on highly salient issues in a political environment in which the power imbalance between well-resourced organized interests and ordinary Americans is widening.

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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 special interest group 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 24. 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 available 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 fifty states, as we are focusing on state government response to pressures.

Table 24: Gun Law 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	Allows 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 special interest groups 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 special interest group 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 created 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.

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 in 1/20/2009.
- Arkansas 1996-1998: In 1996, the standing Governor was convicted of fraud, so the Lieutenant Governor (Republican) was sworn in on 7/15/96.
- 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 reflect 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.

12. Control of State Government

From the data on Governor and State Legislature, we constructed variables denoting control of state legislature. We use a "Control of State Government" variable, which is on a 0–3, denoting the number of governing bodies (governor, upper legislature, lower legislature), that are in control of the respective party. We also create a trifecta variable for each party, which is an indicator for when every governing body in the state–year is controlled by the respective party.

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 that are related to gun control, we want to estimate a latent "gun sentiment". We do so 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: This means that we assume that 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:

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

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)

- 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:

$$P(Y_{ij} \geq k|\theta_i) = \frac{\exp\left[a_j(\theta_i - b_{jk})\right]}{1 + \exp\left[a_j(\theta_i - b_{jk})\right]} \tag{9}$$

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

We then fit the IRT model, using survey weights in the estimation process to get closer to nationally representative estimates of gun sentiment. We do so using the Expectation-Maximization algorithm, starting with observed response patterns, calculating the expected gun sentiment for each respondent and updating the item parameters to maximize likelihood of the observed data until convergence.

Finally, we use maximum likelihood estimation to estimate the individual gun sentiment scores θ_i. These scores are on a standardized scale with a mean of zero and a standard deviation of one relative to the weighted sample distribution.

Table 25: 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:

$$\begin{aligned} Y_{ist} = \beta_1 \text{Party}_i + \beta_2 \text{State}_s + \beta_3 \text{Year}_t + \\ \beta_4 (\text{Party} \times \text{Year})_{it} + \beta_5 (\text{Party} \times \text{State})_{is} + \mathbf{X}_i \gamma + \varepsilon_{ist}, \end{aligned} \tag{10}$$

where:

- Y_{ist} is the estimated sentiment for gun control for the individual i in state t 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
- $\mathbf{X}_i$ 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 included in this dataset that were not 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

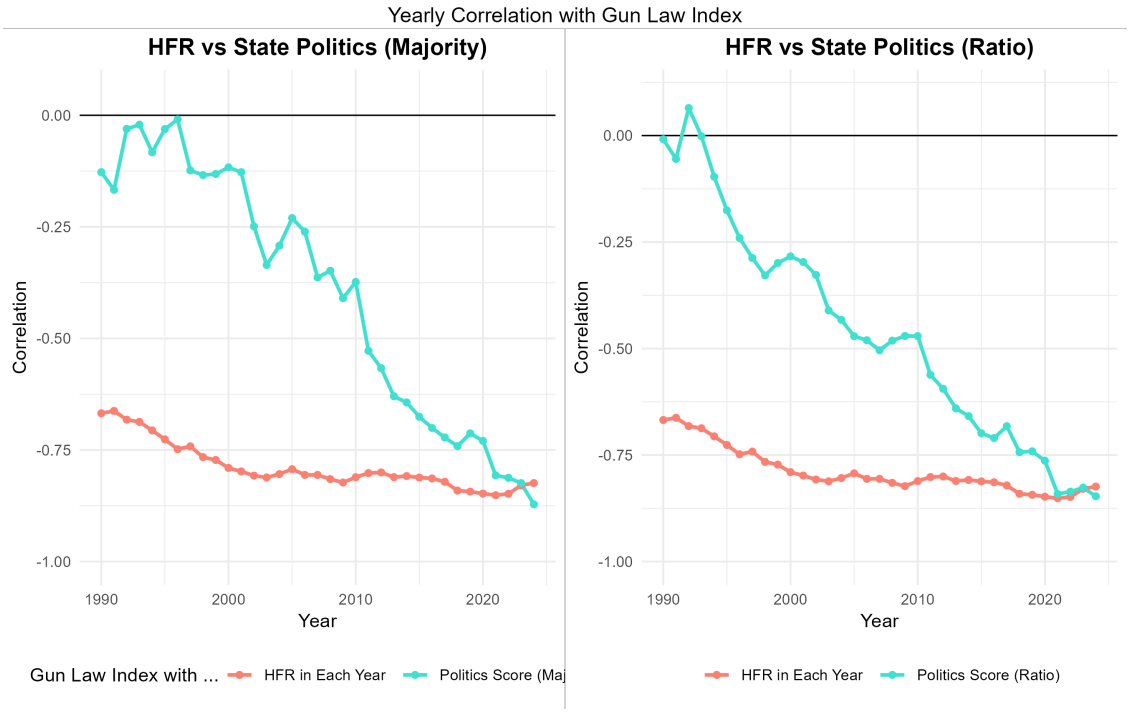


Figure 5: Yearly correlation between the Gun Law Index and state characteristics, 1990–2024. The series plot yearly correlations of the Gun Law Index with HFR (in red) and two variables regarding state politics (in blue): the state political majority score (the left plot) and the ratio score (the right plot).

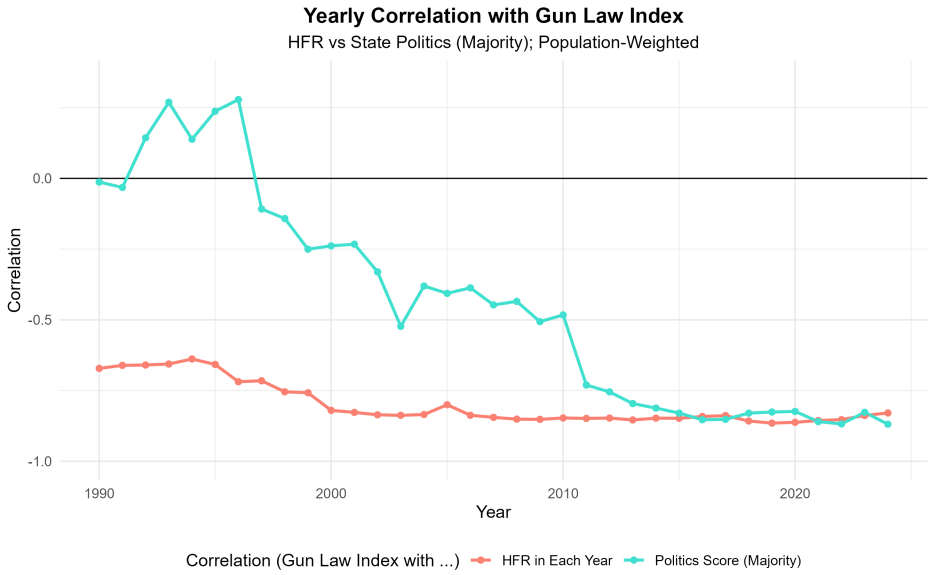


Figure 6: Population-weighted yearly correlation between the Gun Law Index and state characteristics, 1990–2024. The series plot yearly correlations of the Gun Law Index with HFR (in red) and with the state political majority score (in blue), using state population weights.

Table 26: Descriptive Statistics Table: Based on State Partisanship

	State Republican Majority Index (1990–2024)		
Variable	**10 Most Republican** N = 350	**11 Most Democratic** N = 385	**Other 29 States** N = 1,015
Republican Ratio Score	1.9 (0.3)	1.1 (0.3)	1.5 (0.3)
Republican Majority Score			
0	4 (1.1%)	214 (56%)	221 (23%)
1	20 (5.7%)	146 (38%)	261 (27%)
2	63 (18%)	23 (6.0%)	240 (24%)
3	263 (75%)	2 (0.5%)	258 (26%)
Incarceration Rate per 100k	372.4 (127.3)	342.2 (162.3)	404.1 (163.9)
Police Staff per 100k	314.0 (63.6)	291.4 (65.1)	315.9 (78.6)
Poverty Rate	12.2 (2.7)	11.5 (3.3)	12.8 (3.7)
Unemployment Rate	4.8 (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	65.9 (22.6)	82.4 (15.9)	68.8 (18.5)
Income per Capita	17,158.6 (3,295.0)	19,783.7 (4,031.5)	17,742.5 (3,360.3)
Black Resident Rate	7.3 (8.7)	8.5 (8.6)	12.5 (9.6)
White Non-hispanic Resident Rate	78.1 (11.5)	65.5 (20.9)	74.8 (13.3)

*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 27: Descriptive Statistics Table: Based on Household Firearm Rate

Variable	Household Fiream Rate in 1990		
	Top 10 N = 350	**Bottom 10** N = 350	**Other 30 States** 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 28: 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 29: 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	Ohio	2.6571	1.7893	7
6	Arizona	2.6286	1.6780	11
7	Wyoming	2.6286	2.0857	2
8	Florida	2.4286	1.7122	9
9	Kansas	2.4286	1.8885	6
10	South Carolina	2.4286	1.6343	15

*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 30: 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 to 2024.

Table 31: 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 to 2024.

Table 32: 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	363,456	21.41	0.51
2	NV	270,764	35.91	1.23
3	TX	218,803	37.39	2.31
4	WA	134,387	35.94	0.37
5	CO	70,979	34.58	1.20
50	SD	252	59.30	2.94
49	MN	665	42.24	1.09
48	WY	1,040	63.25	2.63
47	AR	1,125	57.52	1.29
46	AL	1,164	53.52	1.63

Table 33: 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	559,322	35.91	1.23
2	WA	298,231	35.94	0.37
3	ME	289,029	41.57	0.66
4	VA	204,780	37.09	1.51
5	OR	155,211	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

3. Gun Law Index and HFR

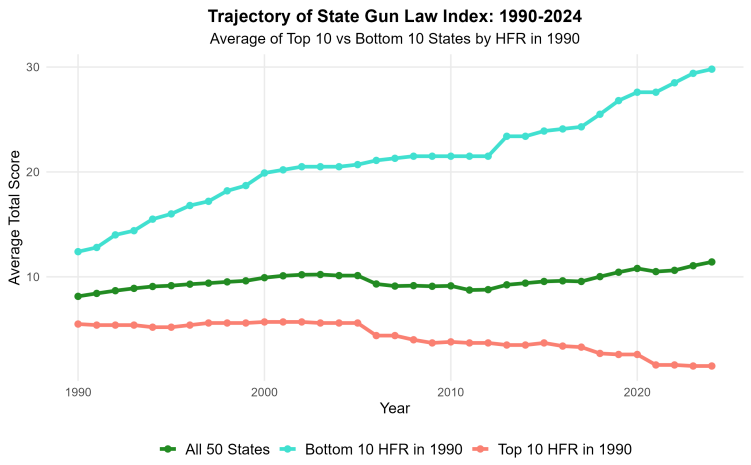


Figure 7: Gun Law Index trajectories by baseline HFR groups, 1990–2024. The figure plots the average Gun Law Index for states in the top 10 (in red), bottom 10 (in blue), and all 50 states (in green) by household firearm rate in 1990.

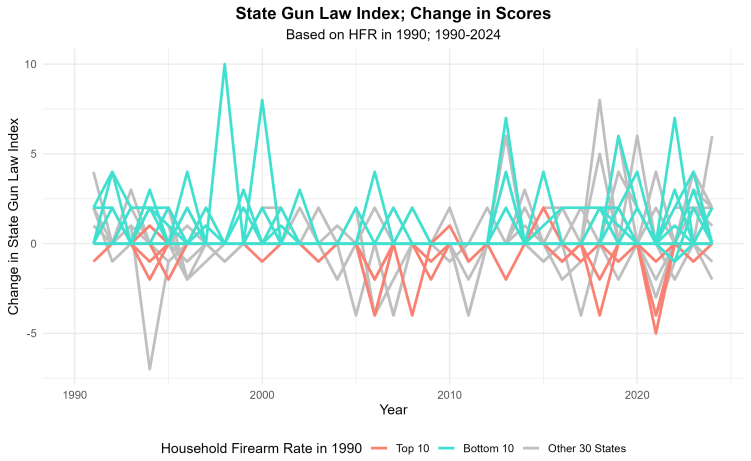


Figure 8: Annual change in the Gun Law Index by baseline HFR, 1990–2024. Each line traces yearly changes in the Gun Law Index for a state, grouped by their 1990 household firearm rate into top 10 (in red), bottom 10 (in blue), and other 30 states (in gray).

4. Organized Interest Contribution

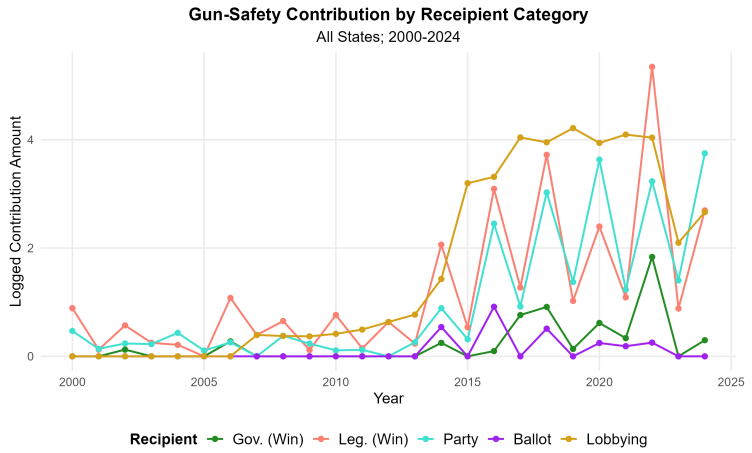


Figure 9: Gun safety SIG contributions by recipient type, 2000–2024. Five lines show logged annual contributions to winning gubernatorial candidates, winning legislative candidates, party committees, ballot measure committees, and lobbying organizations in each state–year.

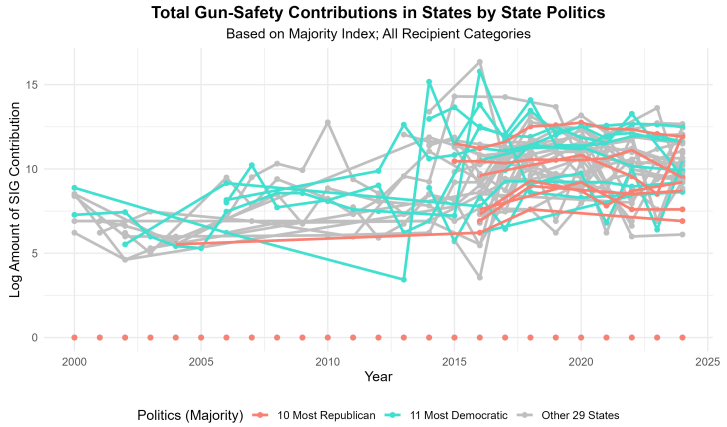


Figure 10: Total gun safety SIG contributions by state political majority score, 2000–2024. Each line shows the annual log contribution in a single state, grouped into the 10 most Republican states (in red), the 11 most Democratic states (in blue), and the remaining 29 states (in gray) based on the majority score.

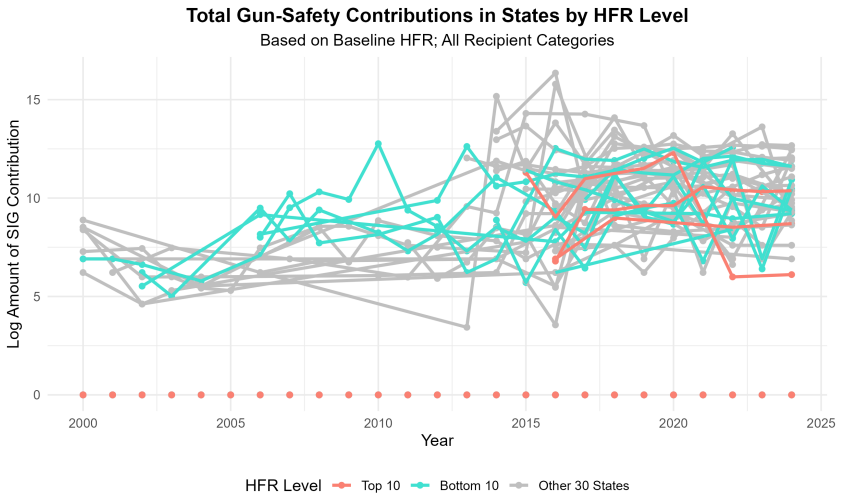


Figure 11: Annual gun safety SIG contributions by baseline household firearm rate, 2000–2024. Each line shows annual log contributions in each state, grouped into the top 10 (in red), bottom 10 (in blue), and remaining 30 states (in gray) by HFR in 1990.

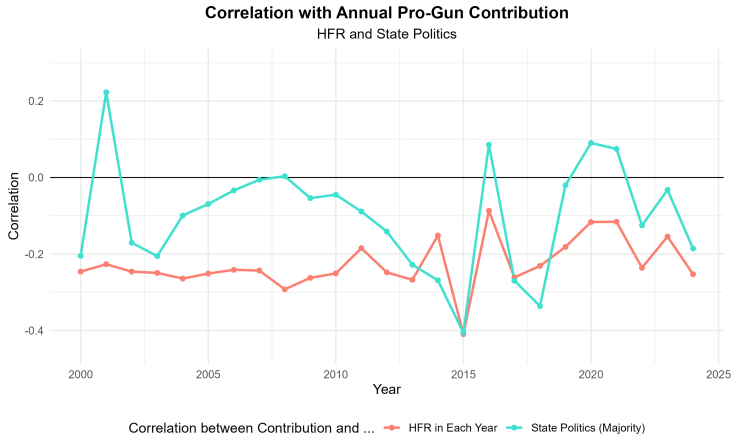


Figure 12: Unweighted yearly correlation between pro-gun SIG contributions and state characteristics, 2000–2024. The figure reports year-specific correlations between log pro-gun contributions and state HFR (in red) and between log pro-gun contributions and the majority politics score (in blue), giving each state equal weight.

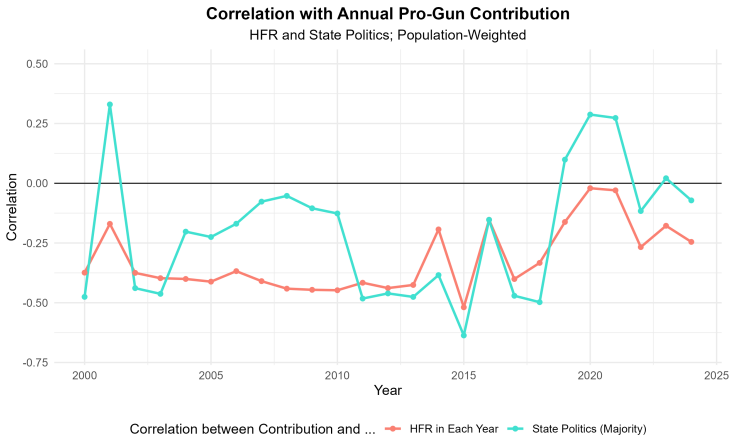


Figure 13: Population-weighted yearly correlation between pro-gun SIG contributions and state characteristics, 2000–2024. The series plot the correlation between log pro-gun contributions and state HFR (in red) and the correlation between log pro-gun contributions and the state political majority score (in blue) in each year, weighting states by population.

5. Constituent Gun Sentiment by States

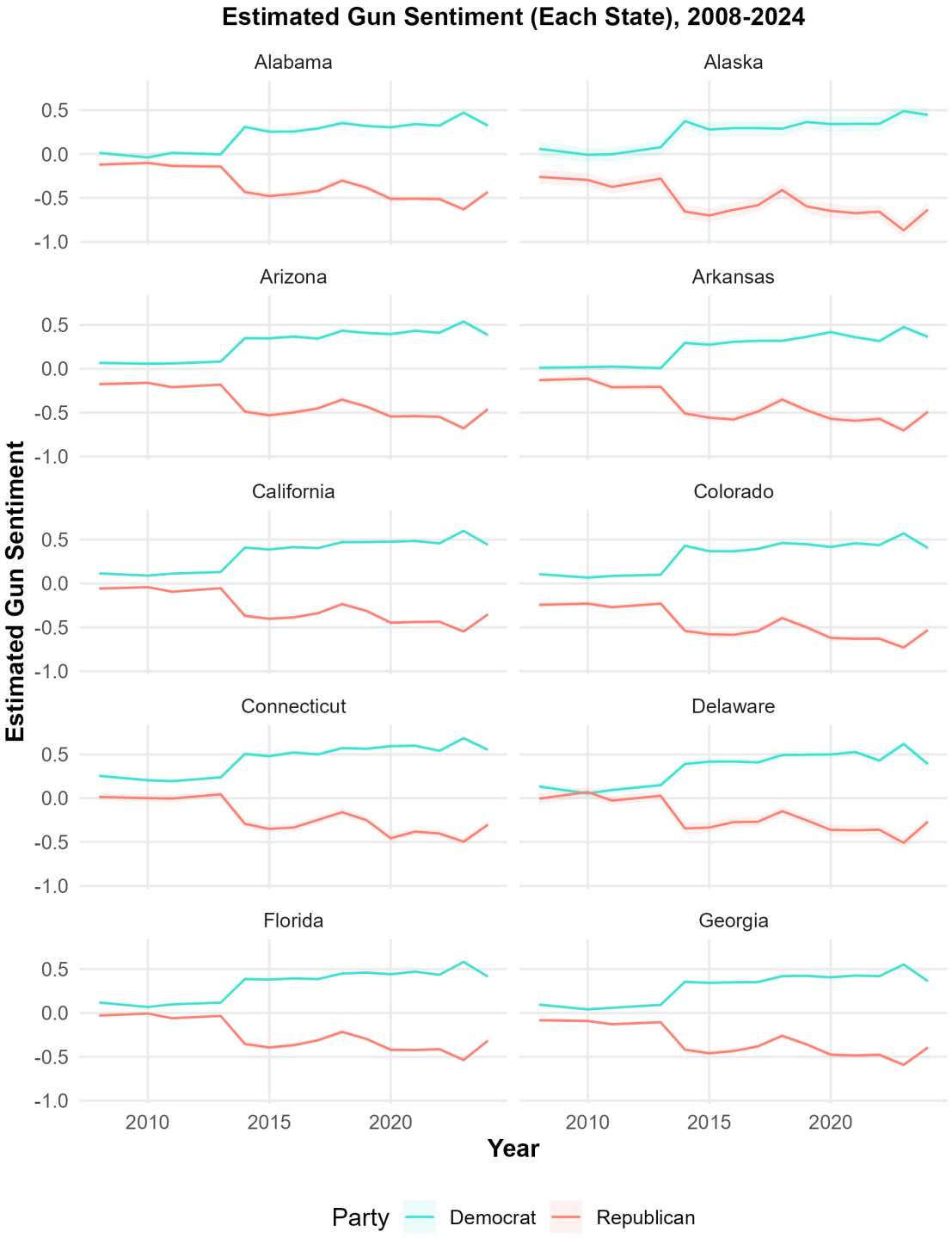


Figure 14: Gun Sentiment Estimates by State, 2008–2024. Each line denotes a party. Shaded areas represent 95% confidence intervals from bootstrap estimation.

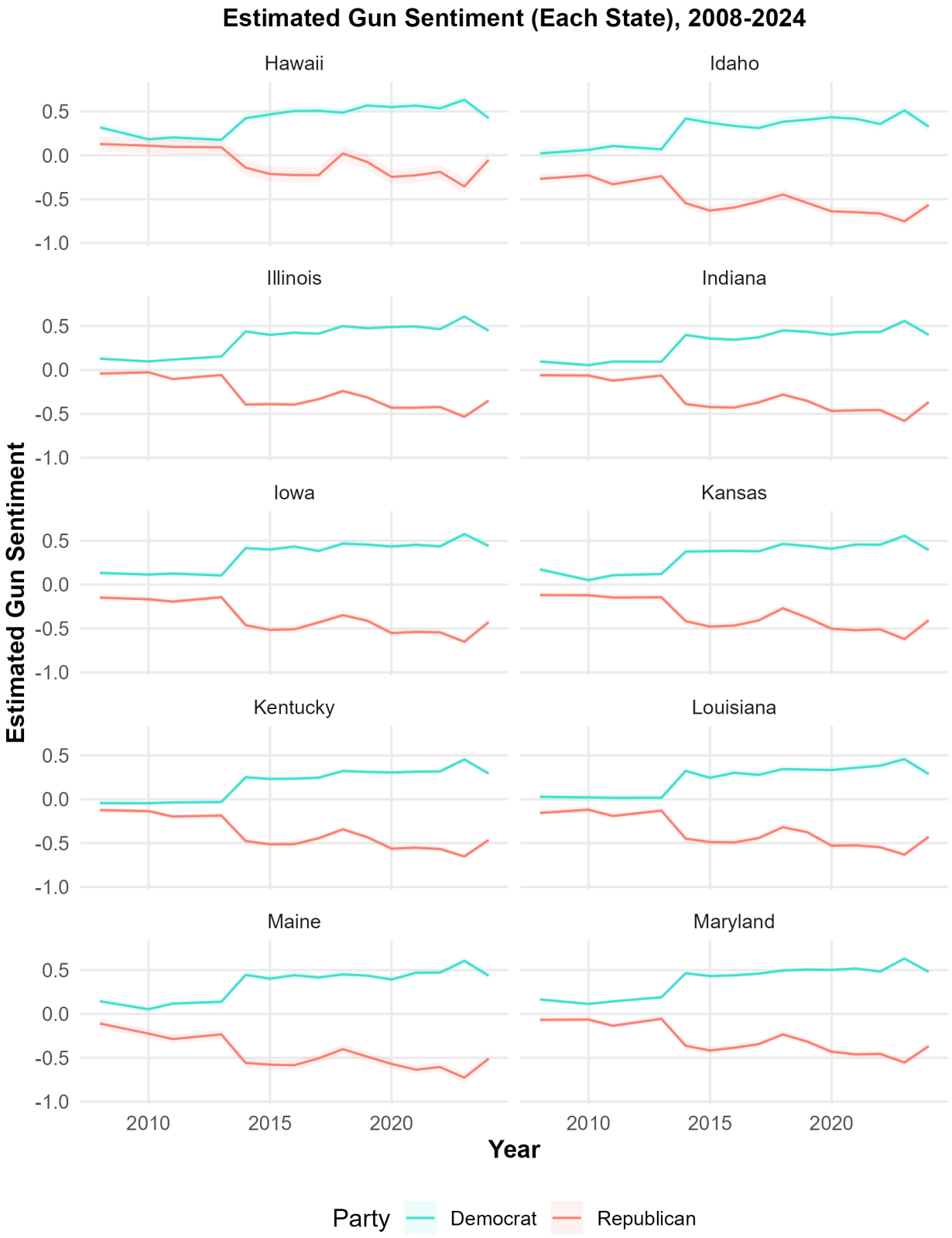


Figure 14: Gun Sentiment Estimates by State, 2008–2024 (Continued). Each line denotes a party. Shaded areas represent 95% confidence intervals from bootstrap estimation.

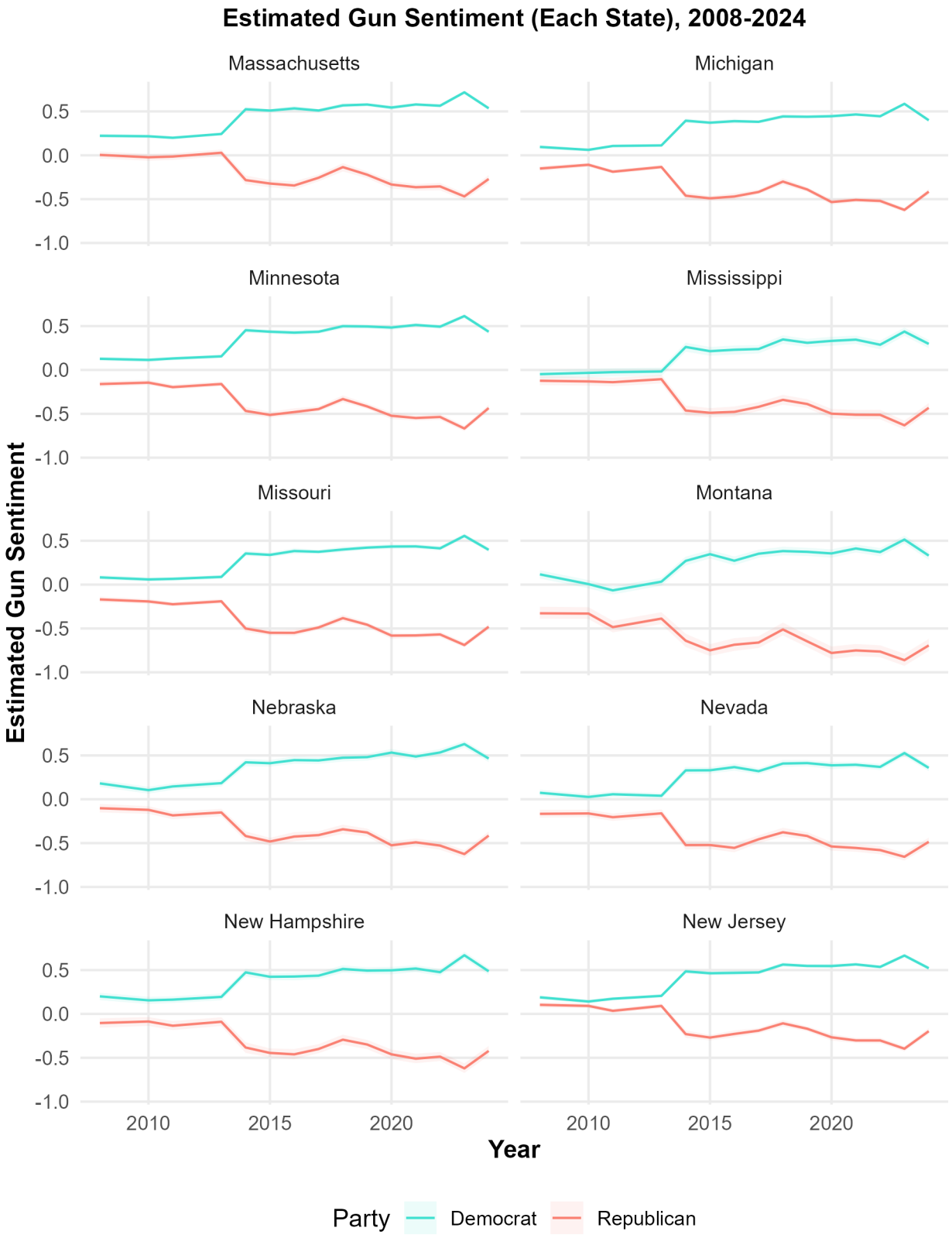


Figure 14: Gun Sentiment Estimates by State, 2008–2024 (Continued). Each line denotes a party. Shaded areas represent 95% confidence intervals from bootstrap estimation.

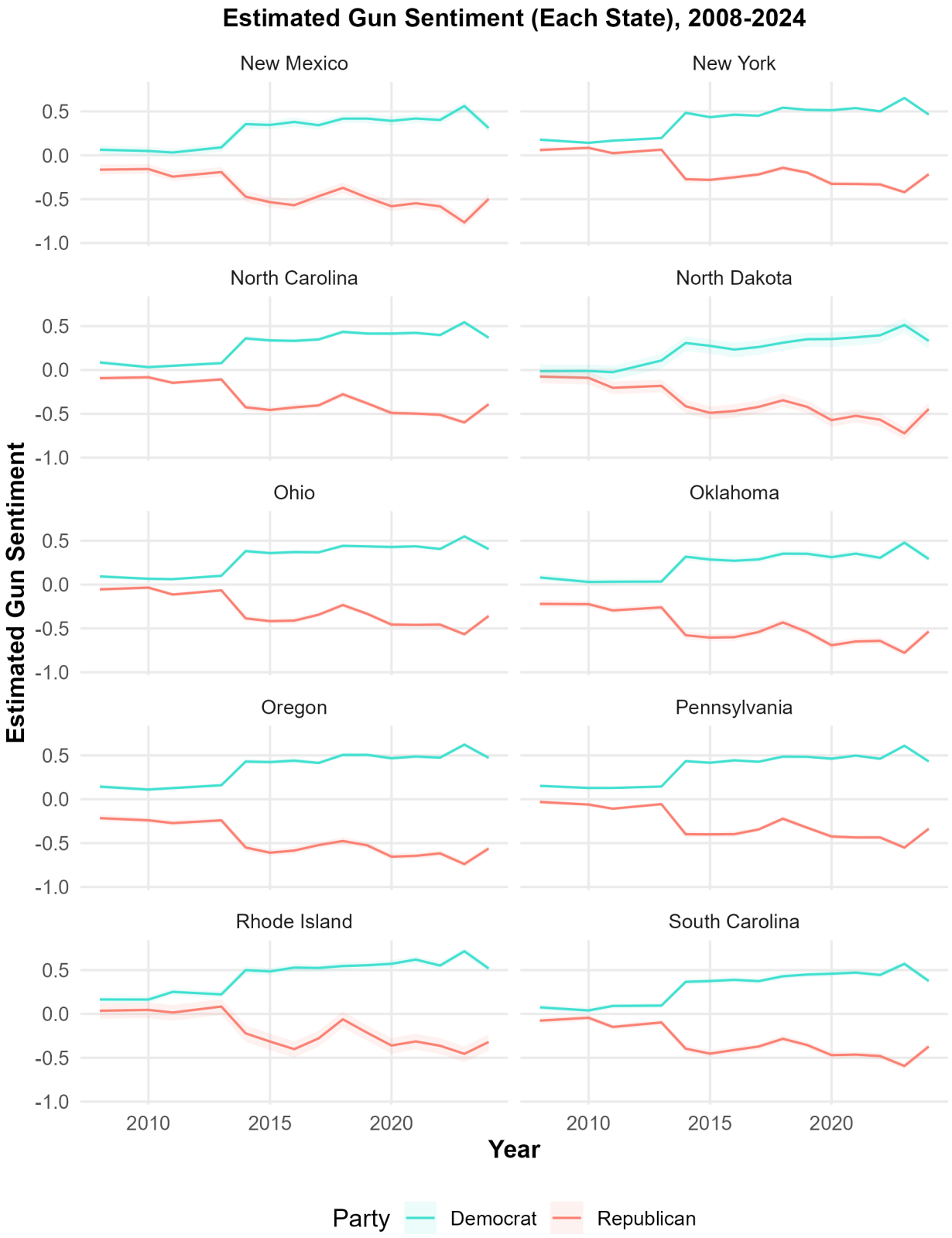


Figure 14: Gun Sentiment Estimates by State, 2008–2024 (Continued). Each line denotes a party. Shaded areas represent 95% confidence intervals from bootstrap estimation.

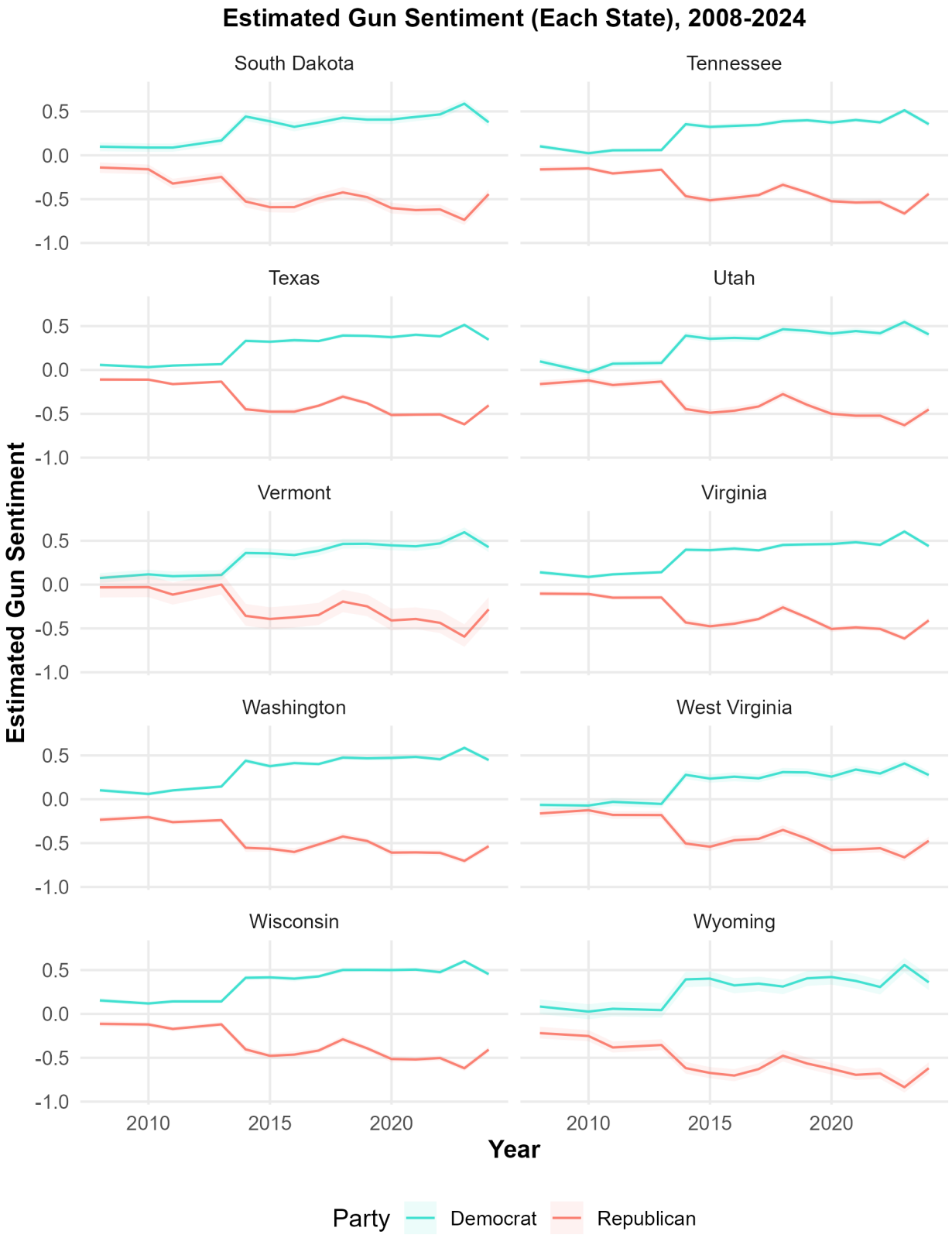


Figure 14: Gun Sentiment Estimates by State, 2008–2024 (Continued). Each line denotes a party. Shaded areas represent 95% confidence intervals from bootstrap estimation.

Appendix D — IV Estimation Strategy

We implement a shift-share instrument 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:

$$Z_{spt} = \text{Shift}_{-s,pt} \times \text{Share}_{sp} \tag{11}$$

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

$$\text{Shift}_{-s,pt} = \frac{\sum_{j \neq s} (\text{Sent}_{jpt} - \text{Sent}_{jp,t-1}) \cdot P_{jt} \cdot R_{jpt}}{\sum_{j \neq s} P_{jt} \cdot R_{jpt}} \tag{12}$$

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 population of party p in state j in year t

This shift 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. Share_{sp} is defined as

$$\text{Share}_{sp} = P_{s2006} R_{sp2006} \tag{13}$$

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 shift 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:

$$Z_{spt} = \text{Shift}_{-s,pt} \times \text{Share}_{sp} \times \mathbb{1}\{\text{Trifecta}_{spt}\} \tag{14}$$

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 Gun Sentiment Analysis

Table 34: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024

	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) $p = 0.428$
Logged Incarceration Rate	-0.391 (0.433) $p = 0.371$	-1.166 (0.705) $p = 0.099$	-0.439 (0.433) $p = 0.316$	-1.146 (0.660) $p = 0.083$
Unemployment Rate	-0.033 (0.045) $p = 0.467$	-0.029 (0.051) $p = 0.571$	-0.032 (0.046) $p = 0.480$	-0.030 (0.051) $p = 0.561$
Per Capita Ethanol Consumption from Beer	0.239 (0.669) $p = 0.722$	0.650 (0.849) $p = 0.444$	0.254 (0.675) $p = 0.708$	0.651 (0.838) $p = 0.437$
% Living in MSAs	-2.68e-03 (8.44e-03) $p = 0.752$	1.44e-03 (0.013) $p = 0.911$	-2.61e-03 (8.67e-03) $p = 0.765$	1.55e-03 (0.013) $p = 0.904$
Real Per Capita Personal Income	8.13e-05 (6.00e-05) $p = 0.182$	1.13e-04 (6.20e-05) $p = 0.069$	8.31e-05 (6.03e-05) $p = 0.174$	1.12e-04 (6.28e-05) $p = 0.074$
% Black	0.122 (0.133) $p = 0.363$	0.154 (0.190) $p = 0.418$	0.122 (0.135) $p = 0.371$	0.156 (0.191) $p = 0.413$
% White Non-Hispanic	0.077 (0.066) $p = 0.252$	0.025 (0.085) $p = 0.772$	0.075 (0.066) $p = 0.265$	0.024 (0.086) $p = 0.778$
Household Firearm Rate	-22.136 (13.128) $p = 0.098$	-30.417 (16.555) $p = 0.067$	-21.909 (13.299) $p = 0.106$	-31.032 (16.430) $p = 0.059$
Republican Control of State Gov't	-0.012 (0.079) $p = 0.881$	-0.222 (0.193) $p = 0.251$	-0.018 (0.080) $p = 0.822$	-0.224 (0.182) $p = 0.220$
Population	-1.23e-07 (5.65e-08) $p = 0.035$	-2.58e-07 (1.12e-07) $p = 0.022$	-1.25e-07 (5.65e-08) $p = 0.031$	-2.61e-07 (1.10e-07) $p = 0.018$
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

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 35: Impact of Estimated Gun Sentiment on Change in Gun Law Score (Republican Trifecta), 2008–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.620 (0.275) $p = 0.029$	-0.693 (1.044) $p = 0.507$	-0.485 (0.258) $p = 0.066$	0.950 (0.910) $p = 0.297$
Logged Incarceration Rate	-0.370 (0.441) $p = 0.406$	-1.167 (0.721) $p = 0.106$	-0.403 (0.433) $p = 0.357$	-1.158 (0.662) $p = 0.080$
Unemployment Rate	-0.035 (0.045) $p = 0.438$	-0.028 (0.051) $p = 0.582$	-0.037 (0.044) $p = 0.406$	-0.034 (0.047) $p = 0.473$
Per Capita Ethanol Consumption from Beer	0.188 (0.690) $p = 0.787$	0.660 (0.972) $p = 0.498$	0.083 (0.689) $p = 0.904$	0.456 (0.898) $p = 0.612$
% Living in MSAs	-3.10e-03 (8.59e-03) $p = 0.720$	1.66e-03 (0.013) $p = 0.901$	-3.67e-03 (8.79e-03) $p = 0.678$	7.62e-04 (0.013) $p = 0.954$
Real Per Capita Personal Income	8.01e-05 (6.05e-05) $p = 0.191$	1.16e-04 (6.65e-05) $p = 0.082$	8.60e-05 (6.01e-05) $p = 0.158$	1.24e-04 (6.45e-05) $p = 0.055$
% Black	0.127 (0.132) $p = 0.342$	0.154 (0.183) $p = 0.402$	0.140 (0.127) $p = 0.274$	0.185 (0.185) $p = 0.317$
% White Non-Hispanic	0.079 (0.065) $p = 0.230$	0.024 (0.084) $p = 0.772$	0.085 (0.066) $p = 0.205$	0.037 (0.096) $p = 0.697$
Household Firearm Rate	-21.395 (13.287) $p = 0.114$	-31.115 (16.879) $p = 0.066$	-18.995 (13.375) $p = 0.162$	-27.540 (16.991) $p = 0.105$
Republican Control of State Gov't	0.020 (0.115) $p = 0.862$	-0.269 (0.304) $p = 0.377$	-0.016 (0.116) $p = 0.890$	-0.338 (0.271) $p = 0.212$
Population	-1.19e-07 (6.24e-08) $p = 0.062$	-2.53e-07 (1.24e-07) $p = 0.041$	-9.60e-08 (6.28e-08) $p = 0.133$	-2.12e-07 (1.38e-07) $p = 0.126$
Republican Trifecta	-0.085 (0.243) $p = 0.728$	0.186 (0.872) $p = 0.831$	0.088 (0.210) $p = 0.676$	0.503 (0.700) $p = 0.473$
Interaction with Trifecta	0.016 (0.418) $p = 0.969$	0.214 (1.773) $p = 0.904$	-0.547 (0.412) $p = 0.190$	-1.199 (1.962) $p = 0.541$
Num. Obs.	850	850	850	850
R^2	0.194	0.163	0.195	0.161
Adj. R^2	0.113	0.078	0.113	0.076
Weak Instrument F-Stat		87.31		58.65

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 36: Impact of Estimated Gun Sentiment on Change in Gun Law Score (Democratic Trifecta), 2008–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.393 (0.261) $p = 0.139$	-0.171 (0.874) $p = 0.845$	-0.471 (0.234) $p = 0.050$	-0.119 (0.777) $p = 0.878$
Logged Incarceration Rate	-0.299 (0.453) $p = 0.512$	-1.201 (0.768) $p = 0.118$	-0.399 (0.449) $p = 0.379$	-1.051 (0.636) $p = 0.099$
Unemployment Rate	-0.033 (0.045) $p = 0.459$	-0.021 (0.054) $p = 0.706$	-0.031 (0.045) $p = 0.496$	-0.015 (0.057) $p = 0.797$
Per Capita Ethanol Consumption from Beer	0.118 (0.711) $p = 0.869$	0.803 (1.018) $p = 0.431$	0.216 (0.700) $p = 0.759$	0.723 (0.828) $p = 0.383$
% Living in MSAs	-6.19e-03 (8.20e-03) $p = 0.454$	6.15e-03 (0.017) $p = 0.716$	-3.50e-03 (8.57e-03) $p = 0.685$	3.51e-03 (0.014) $p = 0.804$
Real Per Capita Personal Income	7.56e-05 (5.53e-05) $p = 0.178$	1.24e-04 (6.37e-05) $p = 0.052$	7.64e-05 (5.90e-05) $p = 0.201$	1.45e-04 (7.21e-05) $p = 0.044$
% Black	0.141 (0.129) $p = 0.280$	0.107 (0.203) $p = 0.599$	0.125 (0.132) $p = 0.349$	0.093 (0.191) $p = 0.628$
% White Non-Hispanic	0.084 (0.069) $p = 0.228$	9.44e-03 (0.090) $p = 0.917$	0.077 (0.067) $p = 0.259$	5.94e-03 (0.085) $p = 0.944$
Household Firearm Rate	-18.977 (13.742) $p = 0.174$	-35.013 (18.557) $p = 0.060$	-21.578 (13.268) $p = 0.110$	-31.489 (17.317) $p = 0.069$
Republican Control of State Gov't	-0.014 (0.077) $p = 0.860$	-0.114 (0.208) $p = 0.584$	0.015 (0.078) $p = 0.845$	-0.091 (0.175) $p = 0.602$
Population	-9.88e-08 (5.99e-08) $p = 0.105$	-2.79e-07 (1.33e-07) $p = 0.037$	-1.16e-07 (5.67e-08) $p = 0.047$	-2.58e-07 (1.16e-07) $p = 0.026$
Interaction with Trifecta	1.103 (0.769) $p = 0.158$	-1.681 (2.880) $p = 0.560$	-0.530 (0.517) $p = 0.310$	2.184 (2.374) $p = 0.358$
Democratic Trifecta	-0.224 (0.264) $p = 0.401$	0.573 (0.916) $p = 0.532$	-5.48e-03 (0.218) $p = 0.980$	0.619 (0.629) $p = 0.325$
Num. Obs.	850	850	850	850
R^2	0.199	0.149	0.195	0.152
Adj. R^2	0.118	0.062	0.114	0.066
Weak Instrument F-Stat		39.55		79.54

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 37: Impact of Estimated Gun Sentiment on Change in Gun Law Score (Any Trifecta), 2008–2024

	Change in Gun Law (Majority Party Sentiment)		Change in Gun Law (Minority Party Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.488 (0.237) $p = 0.045$	-0.412 (0.869) $p = 0.636$	-0.406 (0.235) $p = 0.090$	0.328 (0.622) $p = 0.598$
Logged Incarceration Rate	-0.237 (0.473) $p = 0.618$	-1.210 (0.795) $p = 0.129$	-0.342 (0.455) $p = 0.456$	-1.162 (0.700) $p = 0.097$
Unemployment Rate	-0.034 (0.043) $p = 0.442$	-0.027 (0.052) $p = 0.605$	-0.035 (0.043) $p = 0.415$	-0.024 (0.053) $p = 0.648$
Per Capita Ethanol Consumption from Beer	8.31e-03 (0.713) $p = 0.991$	0.811 (1.179) $p = 0.491$	8.39e-03 (0.714) $p = 0.991$	0.881 (0.979) $p = 0.369$
% Living in MSAs	-5.55e-03 (8.28e-03) $p = 0.506$	3.41e-03 (0.015) $p = 0.819$	-4.93e-03 (8.68e-03) $p = 0.572$	3.58e-03 (0.015) $p = 0.806$
Real Per Capita Personal Income	8.21e-05 (5.72e-05) $p = 0.158$	1.11e-04 (6.66e-05) $p = 0.097$	7.87e-05 (5.77e-05) $p = 0.179$	1.15e-04 (6.39e-05) $p = 0.072$
% Black	0.136 (0.124) $p = 0.278$	0.136 (0.191) $p = 0.476$	0.145 (0.123) $p = 0.244$	0.123 (0.196) $p = 0.529$
% White Non-Hispanic	0.086 (0.067) $p = 0.205$	0.020 (0.084) $p = 0.813$	0.089 (0.066) $p = 0.188$	0.013 (0.088) $p = 0.880$
Household Firearm Rate	-19.480 (13.414) $p = 0.153$	-32.067 (17.818) $p = 0.072$	-18.135 (13.301) $p = 0.179$	-34.275 (18.926) $p = 0.071$
Republican Control of State Gov't	0.070 (0.082) $p = 0.403$	-0.264 (0.272) $p = 0.333$	0.053 (0.080) $p = 0.512$	-0.271 (0.254) $p = 0.285$
Population	-8.49e-08 (6.49e-08) $p = 0.197$	-2.74e-07 (1.41e-07) $p = 0.051$	-8.32e-08 (6.31e-08) $p = 0.193$	-2.88e-07 (1.49e-07) $p = 0.053$
Interaction with Trifecta	0.461 (0.275) $p = 0.101$	-0.362 (1.150) $p = 0.753$	-0.548 (0.246) $p = 0.031$	0.564 (1.083) $p = 0.603$
Trifecta	0.035 (0.084) $p = 0.675$	0.012 (0.103) $p = 0.908$	0.022 (0.082) $p = 0.792$	0.022 (0.092) $p = 0.810$
Num. Obs.	850	850	850	850
R^2	0.197	0.163	0.197	0.161
Adj. R^2	0.116	0.078	0.115	0.076
Weak Instrument F-Stat		61.87		73.82

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 38: 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	0.052 (0.359) $p = 0.885$	-1.346 (1.218) $p = 0.269$	-0.038 (0.365) $p = 0.919$	1.265 (1.125) $p = 0.261$
Logged Incarceration Rate	0.038 (0.574) $p = 0.948$	-0.407 (0.743) $p = 0.584$	0.032 (0.574) $p = 0.955$	-0.358 (0.714) $p = 0.616$
Unemployment Rate	-0.034 (0.060) $p = 0.577$	-0.045 (0.064) $p = 0.478$	-0.034 (0.060) $p = 0.576$	-0.045 (0.064) $p = 0.485$
Per Capita Ethanol Consumption from Beer	0.160 (1.013) $p = 0.875$	0.467 (1.147) $p = 0.684$	0.164 (1.010) $p = 0.871$	0.406 (1.134) $p = 0.721$
% Living in MSAs	-0.023 (9.59e-03) $p = 0.022$	-0.023 (0.011) $p = 0.039$	-0.023 (9.61e-03) $p = 0.022$	-0.023 (0.011) $p = 0.040$
Real Per Capita Personal Income	1.02e-04 (7.99e-05) $p = 0.206$	1.35e-04 (7.88e-05) $p = 0.088$	1.03e-04 (8.00e-05) $p = 0.204$	1.29e-04 (7.86e-05) $p = 0.103$
% Black	0.259 (0.178) $p = 0.153$	0.370 (0.216) $p = 0.087$	0.260 (0.179) $p = 0.154$	0.364 (0.211) $p = 0.085$
% White Non-Hispanic	0.152 (0.094) $p = 0.113$	0.134 (0.105) $p = 0.202$	0.152 (0.094) $p = 0.112$	0.129 (0.105) $p = 0.220$
Household Firearm Rate	-44.669 (20.073) $p = 0.031$	-40.015 (25.584) $p = 0.118$	-44.640 (20.076) $p = 0.031$	-39.640 (25.411) $p = 0.119$
Republican Control of State Gov't	-0.166 (0.147) $p = 0.264$	-0.457 (0.349) $p = 0.190$	-0.169 (0.148) $p = 0.260$	-0.443 (0.325) $p = 0.174$
Population	-2.39e-07 (1.09e-07) $p = 0.033$	-3.23e-07 (1.63e-07) $p = 0.047$	-2.40e-07 (1.09e-07) $p = 0.032$	-3.22e-07 (1.60e-07) $p = 0.045$
Num. Obs.	600	600	600	600
R^2	0.220	0.194	0.220	0.197
Adj. R^2	0.116	0.085	0.116	0.089
Weak Instrument F-Stat		70.41		66.90

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2013 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2012 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party.

Table 39: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2009–2024 (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	0.735 (0.272) $p = 0.009$	-2.055 (1.327) $p = 0.122$	-0.726 (0.279) $p = 0.012$	1.744 (1.171) $p = 0.137$
Logged Incarceration Rate	-0.317 (0.445) $p = 0.480$	-2.160 (1.200) $p = 0.072$	-0.351 (0.440) $p = 0.429$	-1.904 (1.045) $p = 0.069$
Unemployment Rate	-0.037 (0.046) $p = 0.431$	-0.061 (0.059) $p = 0.299$	-0.037 (0.046) $p = 0.429$	-0.059 (0.057) $p = 0.305$
Per Capita Ethanol Consumption from Beer	0.181 (0.735) $p = 0.806$	1.186 (1.319) $p = 0.369$	0.191 (0.739) $p = 0.797$	1.037 (1.223) $p = 0.397$
% Living in MSAs	-5.53e-03 (8.18e-03) $p = 0.502$	-4.37e-03 (0.016) $p = 0.789$	-5.54e-03 (8.39e-03) $p = 0.512$	-4.42e-03 (0.015) $p = 0.767$
Real Per Capita Personal Income	5.91e-05 (6.32e-05) $p = 0.354$	1.75e-04 (8.14e-05) $p = 0.032$	6.15e-05 (6.27e-05) $p = 0.331$	1.57e-04 (7.71e-05) $p = 0.041$
% Black	0.064 (0.139) $p = 0.646$	0.295 (0.279) $p = 0.291$	0.062 (0.139) $p = 0.659$	0.278 (0.262) $p = 0.288$
% White Non-Hispanic	0.053 (0.067) $p = 0.432$	-0.025 (0.116) $p = 0.830$	0.052 (0.068) $p = 0.447$	-0.013 (0.109) $p = 0.903$
Household Firearm Rate	-20.863 (14.910) $p = 0.168$	-35.780 (24.650) $p = 0.147$	-20.214 (15.180) $p = 0.189$	-36.493 (22.851) $p = 0.111$
Republican Control of State Gov't	-2.96e-03 (0.080) $p = 0.971$	-0.440 (0.257) $p = 0.087$	-6.47e-03 (0.080) $p = 0.936$	-0.386 (0.232) $p = 0.097$
Population	-1.17e-07 (6.03e-08) $p = 0.058$	-4.85e-07 (2.18e-07) $p = 0.027$	-1.18e-07 (6.04e-08) $p = 0.056$	-4.46e-07 (1.95e-07) $p = 0.022$
Num. Obs.	800	750	800	750
R^2	0.203	0.085	0.203	0.113
Adj. R^2	0.121	-0.016	0.120	0.015
Weak Instrument F-Stat		29.41		27.81

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2009 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2008 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party. 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 40: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024

	Change in Gun Law (Majority Constituent Sentiment)		Change in Gun Law (Minority Constituent Sentiment)	
	TWFE	IV	TWFE	IV
Estimated Gun Sentiment	0.294 (0.115) $p = 0.014$	0.100 (0.477) $p = 0.833$	-0.278 (0.116) $p = 0.021$	-0.155 (0.426) $p = 0.716$
Logged Incarceration Rate	-0.524 (0.423) $p = 0.221$	-0.688 (0.539) $p = 0.203$	-0.551 (0.423) $p = 0.199$	-0.649 (0.504) $p = 0.198$
Unemployment Rate	-0.036 (0.045) $p = 0.430$	-0.033 (0.046) $p = 0.483$	-0.035 (0.045) $p = 0.440$	-0.033 (0.046) $p = 0.471$
Per Capita Ethanol Consumption from Beer	0.306 (0.676) $p = 0.653$	0.395 (0.765) $p = 0.605$	0.315 (0.680) $p = 0.645$	0.371 (0.751) $p = 0.621$
% Living in MSAs	4.99e-04 (8.40e-03) $p = 0.953$	-2.55e-04 (9.60e-03) $p = 0.979$	4.21e-04 (8.54e-03) $p = 0.961$	-5.25e-05 (9.33e-03) $p = 0.996$
Real Per Capita Personal Income	9.11e-05 (5.88e-05) $p = 0.128$	9.49e-05 (5.86e-05) $p = 0.106$	9.19e-05 (5.91e-05) $p = 0.126$	9.41e-05 (5.87e-05) $p = 0.109$
% Black	0.117 (0.145) $p = 0.426$	0.131 (0.168) $p = 0.437$	0.117 (0.146) $p = 0.427$	0.126 (0.166) $p = 0.446$
% White Non-Hispanic	0.059 (0.069) $p = 0.393$	0.054 (0.073) $p = 0.463$	0.058 (0.069) $p = 0.399$	0.055 (0.074) $p = 0.455$
Household Firearm Rate	-25.195 (12.896) $p = 0.056$	-25.868 (14.364) $p = 0.072$	-25.036 (12.977) $p = 0.060$	-25.560 (14.214) $p = 0.073$
Republican Control of State Gov't	-0.105 (0.078) $p = 0.187$	-0.112 (0.089) $p = 0.209$	-0.106 (0.078) $p = 0.183$	-0.110 (0.086) $p = 0.204$
Population	-1.90e-07 (5.85e-08) $p = 0.002$	-1.90e-07 (6.05e-08) $p = 0.002$	-1.90e-07 (5.85e-08) $p = 0.002$	-1.89e-07 (6.07e-08) $p = 0.002$
Num. Obs.	850	850	850	850
R^2	0.191	0.189	0.191	0.190
Adj. R^2	0.111	0.109	0.111	0.110
Weak Instrument F-Stat		131.79		157.13

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority Constituents is defined as the party that has the majority relative population in the state–year.

Table 41: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024 (Alternative IV)

	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) $p = 0.013$	-0.619 (0.854) $p = 0.468$	-0.570 (0.241) $p = 0.022$	0.638 (0.810) $p = 0.431$
Logged Incarceration Rate	-0.391 (0.433) $p = 0.371$	-1.166 (0.712) $p = 0.102$	-0.439 (0.433) $p = 0.316$	-1.146 (0.666) $p = 0.086$
Unemployment Rate	-0.033 (0.045) $p = 0.467$	-0.029 (0.051) $p = 0.571$	-0.032 (0.046) $p = 0.480$	-0.030 (0.051) $p = 0.561$
Per Capita Ethanol Consumption from Beer	0.239 (0.669) $p = 0.722$	0.650 (0.854) $p = 0.446$	0.254 (0.675) $p = 0.708$	0.652 (0.842) $p = 0.439$
% Living in MSAs	-2.68e-03 (8.44e-03) $p = 0.752$	1.45e-03 (0.013) $p = 0.911$	-2.61e-03 (8.67e-03) $p = 0.765$	1.55e-03 (0.013) $p = 0.904$
Real Per Capita Personal Income	8.13e-05 (6.00e-05) $p = 0.182$	1.13e-04 (6.19e-05) $p = 0.068$	8.31e-05 (6.03e-05) $p = 0.174$	1.12e-04 (6.26e-05) $p = 0.073$
% Black	0.122 (0.133) $p = 0.363$	0.154 (0.191) $p = 0.419$	0.122 (0.135) $p = 0.371$	0.156 (0.191) $p = 0.413$
% White Non-Hispanic	0.077 (0.066) $p = 0.252$	0.024 (0.084) $p = 0.772$	0.075 (0.066) $p = 0.265$	0.024 (0.086) $p = 0.778$
Household Firearm Rate	-22.136 (13.128) $p = 0.098$	-30.425 (16.601) $p = 0.067$	-21.909 (13.299) $p = 0.106$	-31.037 (16.484) $p = 0.060$
Republican Control of State Gov't	-0.012 (0.079) $p = 0.881$	-0.222 (0.193) $p = 0.252$	-0.018 (0.080) $p = 0.822$	-0.224 (0.183) $p = 0.221$
Population	-1.23e-07 (5.65e-08) $p = 0.035$	-2.58e-07 (1.13e-07) $p = 0.023$	-1.25e-07 (5.65e-08) $p = 0.031$	-2.61e-07 (1.11e-07) $p = 0.019$
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		160.77		141.44

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party. The IV was adjusted fromthe main specification, weighing national gun sentiment only by relative population within the state.

Table 42: Impact of Estimated Gun Sentiment on Change in Gun Law Score, 2008–2024 (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	0.601 (0.232) $p = 0.013$	-0.618 (0.848) $p = 0.466$	-0.570 (0.241) $p = 0.022$	0.637 (0.804) $p = 0.428$
Logged Incarceration Rate	-0.391 (0.433) $p = 0.371$	-1.166 (0.705) $p = 0.099$	-0.439 (0.433) $p = 0.316$	-1.146 (0.660) $p = 0.083$
Unemployment Rate	-0.033 (0.045) $p = 0.467$	-0.029 (0.051) $p = 0.571$	-0.032 (0.046) $p = 0.480$	-0.030 (0.051) $p = 0.561$
Per Capita Ethanol Consumption from Beer	0.239 (0.669) $p = 0.722$	0.650 (0.849) $p = 0.444$	0.254 (0.675) $p = 0.708$	0.652 (0.838) $p = 0.437$
% Living in MSAs	-2.68e-03 (8.44e-03) $p = 0.752$	1.44e-03 (0.013) $p = 0.911$	-2.61e-03 (8.67e-03) $p = 0.765$	1.55e-03 (0.013) $p = 0.904$
Real Per Capita Personal Income	8.13e-05 (6.00e-05) $p = 0.182$	1.13e-04 (6.20e-05) $p = 0.069$	8.31e-05 (6.03e-05) $p = 0.174$	1.12e-04 (6.28e-05) $p = 0.074$
% Black	0.122 (0.133) $p = 0.363$	0.154 (0.190) $p = 0.418$	0.122 (0.135) $p = 0.371$	0.156 (0.191) $p = 0.413$
% White Non-Hispanic	0.077 (0.066) $p = 0.252$	0.025 (0.085) $p = 0.772$	0.075 (0.066) $p = 0.265$	0.024 (0.086) $p = 0.778$
Household Firearm Rate	-22.136 (13.128) $p = 0.098$	-30.416 (16.555) $p = 0.067$	-21.909 (13.299) $p = 0.106$	-31.031 (16.430) $p = 0.059$
Republican Control of State Gov't	-0.012 (0.079) $p = 0.881$	-0.222 (0.193) $p = 0.251$	-0.018 (0.080) $p = 0.822$	-0.224 (0.182) $p = 0.220$
Population	-1.23e-07 (5.65e-08) $p = 0.035$	-2.58e-07 (1.12e-07) $p = 0.022$	-1.25e-07 (5.65e-08) $p = 0.031$	-2.61e-07 (1.10e-07) $p = 0.018$
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		140.39

*Outcome variables are change in the internal Gun Law Index, developed from RAND of the fifty states from 2008 to 2024. Baseline covariates include logged incarceration rate, unemployment rate, MSA resident rate, ethanol consumption from beer, income per capita, state population, Non-hispanic White and Black ratio, estimated household firearm rate, and Republican control of state government. Standard errors are clustered at the state level. State and year fixed effects are included in all models. Treatment and control variables are lagged, so they span the fifty states from years 2007 to 2023. Beer consumption data for 2023 was not available, so imputed 2022 values were used. Majority party is defined as the party in the state–year that holds control of the government in at least two of the three governing bodies (governor, upper legislature, lower legislature). If there was a split government, the party with a higher relative population in the state–year is the majority party. Estimated Gun Sentiment was created using an MRP approach with state random effects.