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Guns and Votes*

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Abstract

Why are U.S. congressmen reluctant to support gun control regulations, despite the fact that most Americans are in favor of them? We argue that re-election motives can help explain why politicians often take a pro-gun stance against the interests of the majority of the electorate. We describe a model in which an incumbent politician must decide on a primary issue, which is more important to a majority of voters, and a secondary issue, which a minority cares more intensely about. We derive conditions under which the politician, when approaching re-election, will pander towards the interests of the minority on the secondary issue. To assess the evidence, we exploit the staggered structure of the U.S. Senate—in which one third of members face re-election every two years—and examine senators' voting behavior on gun control. In line with the model's predictions, we obtain three main results: senators are more likely to vote pro gun when they are closer to facing re-election; this behavior is driven by Democratic senators, who "flip flop" on gun ontrol; election proximity has no impact on the voting behavior of senators who are retiring or hold safe seats.

JEL classifications: D72, I18.

Keywords: Elections, pandering, vocal minority, gun-control regulations.

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1 Introduction

For decades there has been a heated debate about gun control in the United States. On one side, gun control supporters argue that stricter regulations are needed to reduce violence.[1] On the other side, gun rights advocates argue that gun controls violate Second Amendment rights and are unlikely to be effective at reducing violent crimes.[2]

Opinion polls reveal that most Americans support stricter gun regulations. While most citizens oppose an all-out ban on guns, they clearly favor a series of less extreme gun-control measures. The extent of support varies across measures: for example, in an ABC News-Washington Post poll carried out in January 2013, 88% of respondents favored background checks on firearms purchased at gun shows, 76% supported checks on buyers of ammunition, 71% backed a new federal database to track gun sales, and 58% favored a ban on high-capacity magazines. Support for gun regulations also varies over time: for example, according to Gallup polls between 1999 and 2012, support for background checks at gun shows increased from 83% to 92%. Admittedly, poll results depend crucially on the way in which the question is framed. When they are asked about specific gun regulations, most respondents—in the country as a whole as well as in individual states—are in favor. When instead they are asked to choose between gun controls and gun rights, respondents tend to be equally split.[3] Overall, however, a vast majority of the electorate has long been in favor of a range of gun regulations.[4]

Why are then U.S. congressmen often reluctant to support even mild gun control measures, against the interests of the majority of their electorate? For example, a poll carried out between April 11 and 14, 2013 showed that 86% of respondents supported

[1] During the past 30 years, there have been 67 mass shootings, in which four or more people were killed by a gunman not involved in a conventional crime ("Mass shootings are up; gun murders down," *The Economist*, September 21, 2013). More than 75% of the guns possessed by the shooters were obtained legally and included dozens of assault weapons and semiautomatic handguns ("Broken hearted," *The Economist*, December 15, 2012). Gun control supporters argue that stricter regulations are needed to end what President Barack Obama called the "epidemic of gun violence shaking the nation."

[2] Gun rights advocates argue that gun regulations may actually increase violence, if criminals are deterred when potential victims are more likely to possess a firearm.

[3] A survey carried out in January 2013 by the Pew Research Center shows that 85% of Americans supported background checks for private and gun show sales; in all but two states (Delaware and North Dakota), a majority of respondents were in favor of background checks; in 42 states, support was at least 70%. The poll also shows that 80% of Americans supported laws to prevent people with mental illness from purchasing guns; in all but one state (Delaware), a majority of respondents were in favor of these laws; in 40 states, support was at least 70%. The same Pew Survey asked the question "What do you think is more important – to protect the right of Americans to own guns, or to control gun ownership?"; 51% of respondents said that it is more important to control gun ownership, 45% said it is more important to protect gun rights, and 5% were unsure or did not reply.

[4] Broad public support for stricter regulations has long been emphasized in the literature on the political economy of gun control in the United States (Schuman and Presser, 1978).

a law requiring background checks on people buying guns at gun shows or online (ABC News-Washington Post). Despite overwhelming public support for these restrictions, less than a week later many senators voted against an amendment to require background checks for commercial gun sales. As pointed out by President Obama after the vote: "The American people are trying to figure out: How can something have 90% support and yet not happen?"

In this paper, we provide an explanation for this puzzle. We argue that understanding politicians' stance on gun control requires taking into account not only the direction of voters' preferences, but also their *intensity*. As stressed by Goss (2006, p. 6), "American gun owners are intense, well organized, and willing to vote for or against candidates purely on the basis of their position on gun control". They represent a "highly motivated, intense minority" who tends "will usually prevail in a political contest over a larger, relatively apathetic majority." This can lead office-motivated politicians to pander toward the interests of pro-gun voters.[5]

To formalize this idea, we describe a simple probabilistic voting model in which an incumbent politician has to vote on a primary and a secondary policy issue. The former is an issue that a majority of the electorate cares relatively more about, such as the level of public spending. The latter is an issue that a minority of voters cares more intensely about, which is meant to capture gun control.[6] Minority voters may also be better informed about the incumbent's choices on the secondary policy issue.

We consider first a one-period model and show that, if the asymmetry in the intensity of preferences is strong enough, re-election incentives can induce politicians to pander towards the interests of the minority on the secondary policy issue. In terms of gun-control regulations, our analysis implies that office-motivated politicians might take a pro-gun stance, against the interests of the majority of voters.[7] Politicians' own policy preferences can also shape their voting behavior. Some politicians face a tradeoff between voting according to their preferences and maximizing their chances of retaining office.

[5]Similar arguments are often raised by the media: "Why aren't the polling numbers on gun control swaying more members of Congress? Many of the poll numbers don't capture the nuances of public opinion. For example, there is a significant difference in the level of passion of voters on the two sides of the issue. While members of the National Rifle Association or conservative gun owners home in on this issue, gun-control proponents may not register that sort of excitement" ("How Democrats got gun control polling wrong," *National Journal*, April 18, 2013).

[6]In the recent national survey conducted by the Pew Research Center in January 2013 among 1,502 adults, gun control ranks relatively low on the public's priority list: just 37% of respondents rate it as a top priority, 18th out of 21 policy goals tested. Similarly, in the latest survey from Gallup, also conducted in January 2013, just 4% of respondents listed guns when asked for the most important issue facing the country.

[7]We also show that, from a utilitarian viewpoint, the social welfare effects of such pandering are ambiguous.

To derive testable predictions about politicians' voting behavior on gun control regulations, we extend the model to a setting with two-period terms, where incumbents' choices in the second period—when they are closer to facing re-election—have a larger impact on voters' decisions. We show that election proximity can have a pro-gun effect on the behavior of politicians, who might support gun regulations in the first period, but oppose them in the second period. The only politicians to "flip flop" should be those who are in favor of gun regulations and are concerned with re-election; they face a tradeoff between their policy preferences and their re-election motives. Politicians who are against gun regulations and/or not concerned about re-election should not change their behavior during their term in office.

To assess the validity of these predictions, we exploit the staggered structure of the U.S. Senate, in which senators serve six-year terms and a third of them is up for re-election every two years. This provides a quasi-experimental setting to verify whether election proximity affects the voting behavior of incumbent politicians on gun-related legislation: for any given vote, it is possible to compare the behavior of senators belonging to three different "generations", i.e. facing elections at different times. Exploiting the fact that many senators cast multiple votes on gun-related legislation, we can also study whether election proximity affects the stance of individual legislators during their terms in office.

To select the votes in our sample, we rely on Gun Owners of America (GOA), a non-profit lobbying organization formed in 1975 to preserve and defend the Second Amendment rights of gun owners. Since 1994, GOA has been keeping track of key gun votes in Congress, indicating whether or not they support them.[8] We examine the voting behavior of U.S. senators on these votes for nine consecutive congresses (103rd to 111th).

We compare first the voting behavior of different generations of senators. We find that the last generation is significantly more likely to vote pro gun than the previous two. The effect is sizable: senators who are in the last two years of their mandates are between 3.3 and 9.6 percentage points more likely to vote in favor of pro-gun policies than senators in the first four years, depending on the specification. These changes imply an increase of between 5.3 and 17.6 percent in the predicted probability of voting pro gun. Inter-generational differences are robust to using different econometric methodologies and samples of votes, and including a wealth of controls to account for characteristics of legislators (e.g. party affiliation, gender, age, contributions received from gun-rights and gun-control lobbies), states (e.g. subscriptions to gun magazines, violent crime rate), and

[8]The National Rifle Association (NRA), the most well-known pro-gun lobby, publishes information on gun ratings of politicians, but does not keep track of key gun votes in Congress.

votes (e.g. margin of passage or rejection) that might affect senators' voting behavior. The pro-gun effect of election proximity continues to hold when, rather than exploiting variation in the voting behavior of different senators, we study the behavior of individual senators over time. Thus individual senators flip flop on gun control, supporting gun regulations earlier in their terms, but opposing them when they approach re-election.

We next show that election proximity has no effect on the voting behavior of Republican senators. This result is consistent with the predictions of our model: Democratic senators face a tradeoff between voting in line with their own gun-control preferences (or with the party line) and maximizing their re-election prospects. Their probability of voting pro gun increases by between 15.3 and 18.9 percent when they are in the last two years of their mandate. By contrast, Republican senators can afford taking a pro-gun stance throughout their mandate, since their policy preferences are aligned with their re-election motives.[9] Democratic senators

To verify whether the pro-gun effect of election proximity is driven by electoral incentives, we focus on the voting behavior of two kinds of senators: those who have announced their retirement (and thus do not care about their re-election chances) and those who have been elected with very large margins of victory (and thus have little chance of losing their seat). We find that inter-generational differences disappear for senators who are not seeking re-election or hold safe seats. These results are in line with the predictions of our model: legislators who are not concerned about losing office—either because they have decided to step down or because they are very likely to be re-elected—should vote according to their preferences throughout their mandates.[10]

Our paper suggests that electoral incentives are an important determinant of policy choices on secondary policy issues. Financial pressure by deep-pocketed lobby groups can in principle explain the lack of congruence between the policies chosen by incumbent legislators and the preferences of the median voter. Indeed, our empirical results show that senators who receive larger amounts of campaign contributions from gun-rights lobbies are more likely to take a pro-gun stance. However, contributions by lobby groups do not account for the pro-gun effect of election proximity on senators' voting behavior

[9]Democratic senators, particularly if elected in pro-gun constituencies, are often afraid of supporting gun control policies. For example, pointing to Heidi Heitkam—a Democratic senator from North Dakota—Larry Sabato, director of the University of Virginia's Center for Politics, said: "You think she's going to vote for gun control and have a prayer for re-election?" ("Gun control efforts are expected to be revived in Congress," *Times Union*, December 15, 2012).

[10]Consistently with this argument, NRA spokesman Andrew Arulanandam recently noted that "gun owners and hunters fear that a second Obama administration with no future political campaigns to worry about will try to destroy this great American freedom" ("Gun industry thrives during Obama's first term," *Huffington Post*, October 19, 2012).

on gun control.

The remainder of the paper is organized as follows. Section 2 briefly reviews the related literature. Section 3 presents the theoretical model. Section 4 describes the dataset and variables used in our empirical analysis. Section 5 discusses our empirical strategy, while Section 6 presents the results. Section 7 concludes, pointing to avenues for future research.

2 Related literature

Our paper is related to several strands of the literature.

The idea that electoral incentives may affect politicians' choices on secondary policy issues has already been emphasized by List and Sturm (2006). They develop a theoretical model where politicians use secondary policies to attract single-issue voters, and test their predictions using data on environmental policy across U.S. states. They argue that term-limited governors implement policies closer to their ideal points, while those who are up for re-election will moderate their policies in order to win re-election. Our paper differs from List and Sturm (2006) in three ways. First, in their infinite horizon model voters are uncertain about the preferences of politicians on the secondary policy issue, so incumbents engage in reputation building. Our model focuses instead on the tension between a minority who cares intensely about the secondary policy issue, and a majority to whom this issue is less salient. We show that this tension can lead politicians to pander towards the minority's interests, particularly when they approach re-election. Second, they verify the effect of re-election incentives on secondary policy issues by exploiting gubernatorial term limits across U.S. states. Our empirical strategy exploits instead the staggered structure of the U.S. Senate. Finally, List and Sturm examine the impact of electoral incentives on environmental policy choices, while we focus on gun-control policies.

Our analysis builds on a large body of work that has studied political obstacles to reforms. One of the seminal contributions in this area is the paper by Fernandez and Rodrik (1991), which shows that ex-ante uncertainty about the gains and losses can lead a rational electorate to oppose a reform ex ante, even if the reform would be supported by a majority ex post. Several other papers have examined the political viability of economic reforms in the presence of distributional effects and uncertainty. For example, Alesina and Drazen (1991) show how a stabilization can be delayed due to a "war of attrition" between two groups, each of which is uncertain about the costs being incurred by the other. Dewatripont and Roland (1995) introduce instead aggregate uncertainty

in the framework of Fernandez and Rodrik (1991) to analyze the optimal sequencing of economic reforms. Our paper shows that office-motivated legislators may oppose reforms that are supported by a majority of the electorate, if a minority opposes them with greater intensity.

Our empirical findings are reminiscent of the predictions of theoretical models of political business cycles. These emphasize the importance of electoral calendars when politicians are office motivated: close to elections, incumbent politicians manipulate fiscal and monetary policies to signal their competence (Rogoff, 1988; Rogoff and Sibert, 1990). Our paper shows that proximity to election can lead office-motivated politicians to pander toward the interests of vocal minorities on secondary policy issues.

Our paper also contributes to the literature examining the determinants of the voting behavior of U.S. congressmen. The pioneering contribution by Peltzman (1985) examines senators' voting patterns on federal tax and spending. Recent contributions include Washington (2008), who investigates the effect of parenting daughters on the likelihood that House members will vote for reproductive rights, and Mian *et al.* (2010), who study legislators' votes on two bills introduced in the aftermath of the recent financial crisis. Closest to our analysis is the paper by Conconi *et al.* (2012), which exploits inter-cameral differences in term length and the staggered structure of the Senate to show that electoral incentives deter legislators from supporting trade liberalization reforms.

Finally, the paper contributes to the empirical literature on gun control. Various papers focus on the effectiveness of gun control policies on crime, often reaching conflicting conclusions. In two influential studies, Lott and Mustard (1997) and Lott (1998) conclude that Carrying Concealed Weapons (CCW) laws have reduced violent crime. This finding has been disputed by Duggan (2001), among others.[11] A recent paper by Duggan *et al.* (2011) examines the localized effect of gun shows, which allow vendors to sell firearms without background checks in some U.S. states, showing that these events do not increase homicides (within three weeks, in or near the zip code where shows take place). Another strand of the literature examines gun trafficking within the United States (e.g. Webster *et al.*, 2009; Knight, 2013) or internationally (DellaVigna and La Ferrara, 2010; Dube *et al.*, 2013). Few studies have examined U.S. legislators' voting behavior on gun control, focusing on specific bills and on the role of lobbies' contributions and constituencies' characteristics (e.g. Langbein and Lotwis, 1990; Kahane, 1999;

[11]The argument of Lott and Mustard (1997) and Lott (1998) is that CCW laws deterred crime by increasing the likelihood that potential victims would be carrying a firearm. Using information on the geographic circulation of firearms magazines as a proxy for gun ownership, Duggan (2001) finds no evidence that CCW laws led to increases in the rate of gun ownership or in the frequency with which gun owners carried their guns.

Lipford, 2000). This is the first paper to consider a large set of gun-related votes and study the role of electoral incentives.

3 Theory

In this section, we describe a simple theoretical model to i) formalize the idea that re-election motives can lead politicians to pander towards the interests of an intense minority on gun regulations and to ii) guide our empirical analysis of U.S. senators' votes on gun regulations.

The section is divided into two parts. First, we introduce a one-period model to show that politicians may pander towards the interests of a minority of voters on an issue like gun control, which is of secondary importance to the rest of the electorate. Second, we extend the model to two periods and examine how proximity to elections affects incumbents' policy choices on the secondary issue. All proofs are relegated to the appendices.

3.1 One-period model

3.1.1 Setup

We describe a standard one-period probabilistic voting model (e.g. Enelow and Hinich, 1982; Lindbeck and Weibull, 1987; Dixit and Londregan, 1995; Grossman and Helpman, 1996; Stromberg, 2004). To keep the model as simple as possible, we adopt a formulation similar to the one of Persson and Tabellini (2001) and include heterogeneity in preference intensities as in Enelow and Hinich (1982) and heterogeneity in voters' information as in Stromberg (2004).

As discussed in the introduction, two facts emerge from opinion polls about the preferences of U.S. citizens on gun control: first, there has long been broad support for a range of gun regulations; second, most citizens do not consider gun control to be an issue of primary importance.[12] Our theoretical model captures these two facts in a stylized

[12]For example, in a national survey carried out by the Pew Research Center in January 2013, 85% of respondents favored making private gun sales and sales at gun shows subject to background checks and 90% of respondents favored laws to prevent mentally ill people from buying guns. The same Pew survey of January 2013 reveals that gun control ranks low on the public's priority list (18th out of 21 policies). An alternative way to look at gun-control preferences of U.S. citizens is to look at data on direct initiatives on gun control. It should be noted, however, that only sixteen U.S. states allow ordinary citizens to place new legislation on a ballot for approval or rejection. Moreover, as discussed in Section 7, citizens' initiatives are likely to suffer from pro-gun biases—with respect to the type of propositions that end up on the ballot and voters' turnout.

way. There are two groups of voters in the electorate: anti-gun voters, who represent a majority of the electorate and care relatively less about gun regulations than other policy issues; and pro-gun voters, who represent a minority of the electorate and care relatively more about gun regulations than other policy issues.

More precisely, we focus on the behavior of an incumbent who is up for re-election.[13] During her term in office, the incumbent has to vote "yea" (1) or "nay" (0) on two policy issues: a primary policy issue (p), and a secondary policy issue (s). The choice $p \in \{0, 1\}$ concerns a policy that a majority of the electorate cares relatively more about (e.g. public spending). The key focus of our analysis is on the incumbent's voting behavior on the secondary policy issue, which captures gun regulations. The choice $s \in \{0, 1\}$ can be interpreted as a vote in favor ($s = 0$) or against ($s = 1$) stricter regulations (e.g. supporting or opposing background checks on sales at gun shows). Re-election requires a majority of the votes, and the incumbent's re-election prospect depends on how she voted in both the primary and secondary issues. The incumbent has her own policy preferences: she cares about the ballot she casts (see below for details).

There are two groups, $j = M, m$, in a population of size 1. Group j constitutes a fraction n_j of the electorate. The two groups of voters are of different *size*, with M representing the majority group:

Assumption 1 $n_M > n_m$.

Each group is homogeneous in terms of preferences. In particular, we assume that the utility of a group-j voter for platform $q = (p, s)$ is:

$$W_j(q) = -|p_j - p| - \alpha_j |s_j - s|, \tag{1}$$

where $q_j = (p_j, s_j)$ is the bliss point of any j voter. We assume that the two groups differ in the relative *intensity* of their preferences over p and s:

Assumption 2 $\alpha_M < 1 < \alpha_m$.

Thus the majority cares relatively more about the primary issue, while the opposite is true for the minority. Finally, we assume that voters in the two groups differ with respect to the *direction* of their preferences on gun regulations:

Assumption 3 *The bliss point of group M voters is $q_M = (0, 0)$, the one of group m voters is $q_m = (0, 1)$.*

[13] We do not analyze the behavior of a challenger competing against the incumbent when the latter is up for re-election. However, in our framework, it is easy to formally introduce a challenger and analyze her behavior. All our results continue to hold in this alternative specification.

We refer to voters in group M as the *anti-gun* voters and to voters in group m as the *pro-gun* voters. Assumption 3 is convenient because it ensures that incumbents will always choose $p = 0$. Note that our results continue to hold if the two groups of voters have different preferences on the primary policy issue, i.e. $q_M = (0, 0)$ and $q_m = (1, 1)$, or $q_M = (1, 0)$ and $q_m = (0, 1)$.

Following Stromberg (2004), only some voters know what the incumbent did during her mandate. Let the variable $\xi_{ij} = 1$ if voter i in group j knows what the incumbent has done, and $\xi_{ij} = 0$ otherwise. All voters follow the simple voting rule to cast the ballot for the incumbent if the utility under the incumbent has met some minimum standard $\bar{u}_j$, and otherwise the challenger is voted for.[14] Therefore, a voter i in group j votes to re-elect the incumbent if

$$\xi_{ij} W_j(q) - \sigma_{ij} - \mu \geq \bar{u}_j,$$

where $\sigma_{ij} \sim U[-\frac{1}{2\phi_j}, \frac{1}{2\phi_j}]$ is an individual-specific parameter measuring the ideological bias against the incumbent of voter i in group j, and $\mu \sim U[-\frac{1}{2\gamma}, \frac{1}{2\gamma}]$ measures the average (relative) popularity of the incumbent in the population as a whole (from the candidates' viewpoint). For each individual i in group j, the incumbent assigns a probability χ_j that the voter knows what the incumbent has done during his mandate.[15]

To narrow down the number of cases to be discussed, we impose one crucial parameter restriction:

Assumption 4 $n_M \alpha_M \phi_M \chi_M < n_m \alpha_m \phi_m \chi_m$.

Given that $n_M > n_m$, this assumption requires that the minority compensates for its smaller size by having more intense preferences (and possibly being better informed and more homogeneous). Assumption 4 captures the idea that pro-gun voters are "intense, well organized, and willing to vote for or against candidates purely on the basis of their position on gun control" (Goss, 2006, p. 6).

For any given μ, we can compute the fraction of group j voting for the incumbent:

$$\pi_j(q; \mu) = \frac{1}{2} + \phi_j (\chi_j W_j(q) - \bar{u}_j - \mu). \tag{2}$$

[14] See Stromberg (2004, p. 8) for a justification of such voting rule.

[15] See Appendix A4 for an extension of the model in which χ_m is a function of the information provided by a lobby representing the interests of pro-gun voters.

Using this expression, we can compute the probability of re-election of the incumbent:

$$\Pi(q) = \Pr_{\mu}\left(\sum_j n_j \pi_j \geq \frac{1}{2}\right) = \frac{1}{2} + \frac{\gamma}{\phi}\sum_j n_j \phi_j \left(\chi_j W_j(q) - \bar{u}_j\right), \tag{3}$$

where $\phi = \sum_j n_j \phi_j$.

We can now define the utility of the incumbent:

$$U(q) = \Pi(q) + \theta\omega(q), \tag{4}$$

where $\omega(q)$ captures the incumbent's policy preferences. $\theta \geq 0$ is the relative importance of those policy preferences for the incumbent.[16] This assumes that the incumbent cares about how she votes on any policy issue (e.g. Levitt, 1996; Ansolabehere *et al.*, 2001; Washington, 2008). Alternatively, $\omega(q)$ can be interpreted as the preferences of the incumbent's party. In this case, $\theta \geq 0$ is the relative importance of the party (e.g. Levitt, 1996; Snyder and Groseclose, 2000; Ansolabehere *et al.*, 2001).

We consider two different types of incumbents. An *anti-gun incumbent* has policy preferences similar to voters in the anti-gun group:

$$\omega(0,0) > \omega(0,1) \geq \omega(1,0) > \omega(1,1). \tag{5}$$

A *pro-gun incumbent* has policy preferences similar to voters in the pro-gun group:

$$\omega(1,0) < \omega(0,0) \leq \omega(1,1) < \omega(0,1). \tag{6}$$

If we interpret $\omega(q)$ as the importance of the party line, given the historical positions of U.S. parties on gun control, anti-gun and pro-gun incumbents can be thought of Democratic and Republican politicians, respectively.

3.1.2 Equilibrium analysis

In this subsection, we show two main results. First, anti-gun incumbents might choose to oppose gun restrictions to increase their probability of re-election. These politicians face a tradeoff between doing what they think is right (or what their party leaders want), and maximizing their chances of retaining office. As a result, they *might* pander towards the

[16] By varying the size of θ we can capture different political situations. For instance, $\theta \to \infty$ captures the case of an incumbent who is retiring. Such an incumbent does not care at all about re-election incentives, but cares only about voting according to her policy preferences. $\theta = 0$ captures the case of an incumbent who does not care at all about the ballot she casts as long as she gets re-elected.

interests of the pro-gun minority, against the interests of most voters. Second, pro-gun politicians do not face a tradeoff between their policy preferences and their re-election incentives. As a result, they *always* support the policy preferred by the pro-gun minority, against the interests of the majority of the electorate.

We focus on politicians' votes on gun regulations, s (given Assumption 3, it is always optimal for an incumbent to choose $p = 0$ on the primary issue). We only present the analysis of the behavior of anti-gun incumbents; as mentioned above, the behavior of pro-gun incumbents is straightforward.

First, we can prove that there are situations in which an anti-gun incumbent panders to the interests of the minority of voter on the issue they care relatively more about:

Proposition 1 *For an anti-gun incumbent, the strategy* $q^* = (0, 1)$ *is an equilibrium if and only if*

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega\left(0,0\right) - \omega\left(0,1\right)\right).$$

For $\theta = 0$*, this is always true.*

Proof: see Appendix A1.

To understand the intuition of this result, it is easier to start with the case in which the incumbent cares only about her probability of re-election, i.e. $\theta = 0$. When choosing between "yea" and "nay", the incumbent has to weigh the effect of her choice on her probability of being re-elected. For the primary policy issue, it is obvious that the only reasonable choice is to vote "nay" since all voters prefer that outcome. For gun regulations, voting "yea" instead of "nay" would convince some pro-gun voters to vote for her, and some anti-gun voters not to vote for her. In expectation, the net gain in re-election prospects depends on the sign of $n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M$. Notice that the effect is always positive since, by Assumption 4, $n_m\phi_m\chi_m\alpha_m > n_M\phi_M\chi_M\alpha_M$. Therefore, the incumbent panders to the interests of the minority, opposing gun regulations. When $\theta > 0$, the difference $n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M$ has to be large enough to compensate the policy preference of the anti-gun incumbent in favor of voting "nay", i.e. $\theta\left(\omega\left(0,0\right) - \omega\left(0,1\right)\right) > 0$.

In Appendix A1, we show that an anti-gun incumbent does not always pander to the pro-gun group on gun regulations (Proposition 5). In Appendix A3, we analyze the social optimality (from a utilitarian welfare standpoint) of incumbents' choices. The bottom line is that, depending on the values of the parameters, pandering to the pro-gun minority may or may not be socially efficient. We also identify the two reasons

underlying socially inefficient choices by the incumbent in our model: i) differences in how the two groups are informed about the incumbent's actions, and ii) differences in the homogeneity of the two groups.

3.2 Two-period model

The one-period model described in the previous section shows that electoral incentives can lead incumbent politicians to pander towards the interests of a minority of voters on an issue like gun control, which the rest of the electorate cares less intensely about. In particular, Proposition 1 shows that politicians may vote against their own policy preferences and against the interests of the majority of the electorate to maximize the chances of retaining office.

In this section, we extend the model to a setting with two-period terms, where politicians' choices in the second period have a greater impact on their re-election chances. This allows us to derive predictions about the impact of election proximity on the voting behavior of incumbent politicians. In our empirical analysis, we will assess the validity of these predictions by exploiting the staggered structure of the U.S. Senate.

3.2.1 Setup

The model is very similar to the one introduced in the previous section. Hence, we only highlight the differences.

There are now two periods. In each period, the incumbent has to cast a vote. To simplify the exposition, we only present the results for the case in which she chooses $q^s = (s_1, s_2)$, where s_1 and s_2 capture votes on gun regulations in the two periods. The incumbent's voting behavior on the primary policy issue is trivial, i.e. she always chooses $p_1 = p_2 = 0$.

The utility of a voter belonging to group-j is a weighted sum of her utility in both periods. In particular, for platform q^s, the utility is

$$W_j\left(q^s\right) = -\delta\alpha_j|s_j - s_1| - \alpha_j|s_j - s_2|. \tag{7}$$

We assume that $\delta \in (0, 1)$, implying that the probability that an incumbent retains office depends more on her policy choice in the second period, when she is closer to facing re-election. This assumption is in line with theoretical studies emphasizing that voters suffer from a recency bias, following the "what have you done for me lately?" principle (e.g. Fiorina, 1981; Weingast *et al.*, 1981; Ferejohn, 1986). Empirical and

experimental evidence provides support for the existence of such bias (e.g. Lewis-Beck and Stegmaier, 2000; Huber *et al.*, 2012).[17]

Finally, we need to adapt the assumption about the preferences of the two types of incumbents $\omega(q^s)$. Indeed, as long as incumbents do not suffer from a recency bias, there is no reason for them to differentiate $q = (1,0)$ and $(0,1)$ anymore. Therefore, we have

$$\omega(0,0) > \omega(0,1) = \omega(1,0) > \omega(1,1) \tag{8}$$

for an anti-gun incumbent, and

$$\omega(1,1) > \omega(1,0) = \omega(0,1) > \omega(0,0) \tag{9}$$

for a pro-gun incumbent.

3.2.2 Equilibrium analysis

We analyze the behavior of both anti-gun and pro-gun incumbents when they vote in the two periods. First, we show that when an anti-gun incumbent votes on gun regulations, there are situations in which she votes differently in the two periods. In particular, she may pander to pro-gun voters in the second period, but not in the first one:

Proposition 2 *For an anti-gun incumbent, the strategy $q^{s*} = (0,1)$ is an equilibrium if and only if*

$$\begin{aligned} \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) &\geq \theta\left(\omega(0,0) - \omega(0,1)\right) \\ \theta\left(\omega(0,1) - \omega(1,1)\right) &\geq \frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right), \end{aligned}$$

which is never true if $\theta = 0$. The strategy $q^{s*} = (1,0)$ is never an equilibrium.

Proof: see Appendix A2.

Three features of the model are crucial for this result to hold: i) the incumbent has policy preferences ($\theta > 0$); ii) incumbent's re-election prospects are more affected by

[17] One may argue that a lobby, representing the interests of its members, may compensate for any recency bias by providing its members with precise information about what the incumbent did during her mandate before they go to the polls. In Appendix A4, we extend the model to allow for such informational lobbying. We show that the lobby's optimal information effort is affected by voters' recency bias—even though the lobby does not suffer from such a bias—and that our results might be amplified by the existence of such lobbying. See Sarafadis (2007) for a detailed analysis of the strategic release of information in settings with agents having memory imperfections.

her policy choices in the second period ($\delta < 1$); and iii) the difference in preference intensities is sufficiently strong relative to the difference in group size ($n_m\phi_m\chi_m\alpha_m > n_M\phi_M\chi_M\alpha_M$). The intuition is as follows: the anti-gun incumbent would like to vote "nay" in both periods to satisfy her policy preferences. Unfortunately, this is costly in terms of re-election prospects, since it would swing away many pro-gun voters and attract the votes of fewer anti-gun voters. The anti-gun incumbent votes according to her policy preferences in the first period, when her choice has a smaller impact on her re-election prospects. In the second period, she votes according to the interests of the vocal minority, to maximize her chances of retaining office.

In Appendix A2 (Proposition 6) we show that, when the conditions in Proposition 2 are not satisfied, there are situations in which an anti-gun incumbent votes similarly on gun regulations in the two periods, i.e. either $q^{s*} = (0, 0)$ or $q^{s*} = (1, 1)$. We also show that an equilibrium always exists, and it is generically unique (Proposition 7).

We can also investigate whether there are situations in which a pro-gun incumbent votes differently on gun regulations in the two periods. The following proposition shows that this never happens:

Proposition 3 *For a pro-gun incumbent, neither $q^{s*} = (0, 1)$ nor $q^{s*} = (1, 0)$ are equilibrium strategies.*

Proof: see Appendix A2.

The intuition is as follows: a pro-gun incumbent would like to vote "yea" in both periods to satisfy her policy preferences. This is also the best strategy in terms of her re-election prospects, since it would attract many pro-gun voters and swing away fewer anti-gun voters ($n_m\phi_m\chi_m\alpha_m > n_M\phi_M\chi_M\alpha_M$). The pro-gun incumbent can thus afford opposing gun regulations in both periods.

Finally, we can show that an incumbent who cares mostly about her policy preferences does not flip flop, i.e. votes in the same way in the two periods. This is because re-election incentives are swamped by policy preferences. The following result follows directly from (4) , (8), and (9):

Proposition 4 *There is always a θ sufficiently large such that $q^{s*} = (0, 0)$ is an equilibrium for an anti-gun incumbent, and $q^{s*} = (1, 1)$ is an equilibrium for a pro-gun incumbent.*

As pointed out in Appendix A3, an incumbent who is flip flopping cannot be adopting a socially optimal policy. Importantly, this neither means that an anti-gun incumbent

always behaves inefficiently, nor that a pro-gun incumbent always behaves efficiently (from a utilitarian welfare standpoint). Moreover, voting in the same way in the two periods may actually be a worse policy than flip flopping. For instance, this is the case if an incumbent votes "yea" in both periods (which is always true for the pro-gun incumbent), when the social optimum is to vote "nay" in both periods.

Together, Propositions 2, and 3 support two testable hypotheses:

H1: Anti-gun incumbents are more likely to oppose gun regulations in the second period.

H2: Pro-gun incumbents oppose gun regulations in both periods.

Proposition 4 supports a third testable hypothesis:

H3: If re-election incentives are small enough, incumbents vote in the same way in both periods.

4 Data

To assess the validity of the model's predictions, we have assembled a novel dataset that allows us to link U.S. senators's voting behavior on gun control to a wealth of characteristics of the legislators and their constituencies. In this section we describe our data, starting from our dependent variable. Tables B-1 and B-2 in Appendix B1 provide definitions and descriptive statistics for all the variables used in our regressions.

4.1 Roll-call votes on gun-related legislation

We examine the voting behavior of U.S. Senators on gun-related legislation. To select the votes in our sample, we rely on the list of gun votes assembled by Gun Owners of America (GOA), a lobby whose main goal is to protect and defend the Second Amendment rights of gun owners. Since 1994, GOA has been keeping track of key votes in the U.S. Congress. Based on legislators' decisions on these votes, GOA rates politicians on their gun positions. For the years 1994–1996, we obtain key votes from GOA's newsletters, which published voting records for senators on key legislation. For subsequent years, we obtain the list of votes from GOA's website.

One of the key advantages of using this source is that GOA indicates which votes it supports (i.e. votes for which it wanted congressmen to vote "yea").[18] These include two different types: votes to strengthen the rights of gun owners, and votes to reject gun-control legislation. An example of the first type is the vote cast in the Senate on July 22, 2009 to pass an amendment introduced by Senator John Thune (R-SD) allowing individuals to carry concealed firearms across state lines. An example of the second type is the vote on May 12, 1999 to table an amendment introduced by Senator Frank Lautenberg (D-NJ) to ban the private sales of firearms at gun shows unless buyers submitted to background registration checks.[19]

GOA also lists votes it did not support (i.e. for which it wanted congressmen to vote "nay"). Many of these votes are actually not directly gun related, e.g. votes on the nomination or confirmation of judges who have expressed anti-gun positions. Others involve relatively uncontroversial gun-control measures, which passed by a large margin, with the support of (and often even sponsored by) Republican senators. Examples include the amendments voted in 1999, which passed by a large margin (78-20 and 79-21, respectively): the amendment introduced by Senators Orrin Hatch (R-UT) and Herb Kohl (D-WI) to force gun sellers to include trigger locks with every handgun sold; and the amendment introduced by Senators Gordon Smith (R, OR) and James Jeffords (R-VT) to subject pawn shop and repair shop transactions to the same registration and background check requirements as purchases from dealers.

In our empirical analysis, we focus on votes supported by GOA (Table B-5 in Appendix B2 provides a list of these votes). This category of votes captures well the decisions faced by incumbent politicians in our theoretical model, since it concerns gun regulations that find wide support in the electorate, but are opposed by gun-rights advocates. The second category, on the other hand, is not as congruent with our theoretical model since it often includes votes that are not directly gun related or that involve relatively uncontroversial gun-control measures, which even gun-rights supporters seem to favor.[20]

[18] As mentioned earlier, the NRA does not keep track of key gun votes in Congress. In robustness checks, we include votes from Project Vote Smart, which includes only votes that receive considerable media attention and are passed or defeated by a close margin (see discussion at the end of Section 6).

[19] In the U.S. Congress, a request to "table" a pending motion is a procedure to suspend consideration of the motion. A vote to table gun-control legislation is thus classified as a pro-gun vote by GOA.

[20] In Appendix B2, we show that a "yea" on a vote supported by GOA is not analogous to a "nay" on a vote that GOA did not support. The first category of votes carries more weight in the ratings generated by GOA and the NRA than a "nay" on the second category of votes. We also show that election proximity has a pro-gun effect on senators' decisions only on GOA-supported votes.

4.2 Legislators' characteristics

Our primary interest is to examine the impact of election proximity on the voting records of U.S. senators. As discussed above, senators serve six-year terms, and one third of them are up for re-election every two years (together with the entire House of Representatives). We define those senators facing election within two years as belonging to the third generation; those who face elections next belong to the second generation, while the first generation includes senators facing elections no sooner than in four years. The main regressors of interest for our analysis are thus the indicator variables $SenateG_{it}$, $G = \{1, 2, 3\}$, capturing the generation to which senator i belongs in year t.

We also include information on senators' party affiliation, which is known to be a strong predictor of a politician's support for gun rights, with Republicans being systematically more pro gun than Democrats (e.g. Lipford, 2000). To assess the role played by a senator's ideological position, we employ the dummy variable $Republican_i$, which is equal to one if senator i belongs to the Republican party.[21] We also control for the role of demographic characteristics, by including the variables $Female_i$ and Age_{it} in our analysis.

Contributions from lobbies may also affect senators' voting behavior. To account for this, we gather data for campaign contributions from gun-rights and gun-control lobbies from the Center for Responsive Politics. $Gun\text{-}rights\ contributions_{it}$ and $Gun\text{-}control\ contributions_{it}$ record campaign contributions received by senator i in year t from gun-rights and gun-control lobbies (in thousands US$), respectively.[22]

We construct the dummy variable $Retiring_{it}$, which takes the value of 1 for the mandate in which a senator decides to retire. These data come from Overby and Bell (2004), augmented using information from the Roll Call website.[23]

In some specifications we include the variable $Margin\ of\ victory_{it}$, which measures the difference in votes between the winner (senator i) and the runner-up in the last election. Based on this information, we construct the dummy variable $Safe\ Seat_{it}$, which takes the value of 1 if senator i obtained more than three times the votes of his or her closest

[21] There are only three senators in our sample that switch from or to the Republican party: Ben Nighthorse Campbell, Jim Jeffords and Arlen Specter. Four senators switched from one of the parties to being independent: senators Joe Lieberman and Bernard Sanders are coded as Democrats, while independent senators Robert Smith and James Jeffords are coded as Republicans.

[22] The Center for Responsive Politics provides information on the contributions received by individual politicians for each Congress. In our analysis, we assign to each year of a Congress the total amount of contributions received in that Congress.

[23] Following Overby and Bell (2004), we classify as retiring those senators who voluntarily departed (for personal reasons or to pursue other office), but exclude those who were expelled or defeated in either primary or general elections.

competitor in the last election.[24] Finally, the variable $Tenure_{it}$ measures the number of congresses a senator has served.

4.3 States' characteristics

We include a set of variables to control for differences across senators' constituencies.

Following Duggan (2001), we include data for gun magazine subscriptions by state, which come from audit reports of circulation from the Alliance for Audited Media. We use data from the American Rifleman magazine, which is the magazine with the largest circulation in the U.S. The variable *Gun magazine subscriptions*$_{jt}$ is the number of subscriptions to American Rifleman per 1,000 inhabitants in state j and year t.

The variable *Crime rate*$_{jt}$ is the number of violent crimes (murder and non-negligent manslaughter, forcible rape, robbery, and aggravated assault) per 1 million inhabitants in state j and year t, from the Federal Bureau of Investigation (FBI).

The variable *Education*$_{jt}$ indicates the proportion of the population of state j in year t with a college degree. The sources are the Current Population Survey (CPS) for the years 1994-2006 and the American Community Survey (ACS) for years 2007–2010.[25]

In some specifications we also include the dummy variable *Swing state*$_{jt}$, which is equal to 1 if in state j the margin of victory in the last presidential election was less than 5%.

4.4 Votes' characteristics

Snyder (1992) argues that interest groups choose a disproportionate number of close votes, exaggerating the degree of extremism and bipolarity in Congress. This does not seem to be a concern for our sample of votes, since GOA includes many votes that passed or were rejected by a wide margin (the margin of passage or rejection ranges between 2 and 91 votes, with a median of 24). Nevertheless, in robustness checks, we include the dummy variable *Close vote*$_v$, which takes the value of 1 if the vote is closer than the median margin of passage or rejection for all votes in our sample.

In some specifications, we also control for the direction of the vote by including the dummy variable *Accept*$_v$, which is equal to 1 if vote v is to accept pro-gun legislation

[24] More precisely, *Margin of victory*$_{it} = \frac{v_i - v_r}{v_i + v_r}$, where v_i and v_r denote respectively the votes received by the incumbent and the runner-up.

[25] We also constructed the variable *Gun production*$_{jt}$ from the Bureau of Alcohol, Tobacco, Firearms and Explosives. Unfortunately, it is only available for the period 1998-2010 so that its inclusion in our estimation would force us to dramatically reduce the size of the sample. Thus, we do not include it in the reported specifications. When we tried including it, it was never significant and the other qualitative results were unchanged.

(rather than to reject gun-control legislation).

5 Empirical strategy

5.1 Empirical predictions

We exploit the staggered structure of the U.S. Senate to assess the validity of our model's predictions. For the purposes of our empirical analysis, the first testable hypothesis of our theoretical model can be restated as follows:

Prediction 1 *Senators who are closer to re-election should be more likely to vote pro gun.*

Given the historical positions of U.S. political parties on gun control, the second hypothesis can be restated as follows:

Prediction 2 *Election proximity should have a larger pro-gun effect on the voting behavior of Democratic senators.*

Finally, the last hypothesis that we derived from our theoretical model leads us to a third testable prediction:

Prediction 3 *The pro-gun effect of election proximity should not arise for senators who are retiring or hold safe seats.*

5.2 Identification

We follow two complementary strategies to identify the effect of election proximity of senators' votes on gun control. First, we exploit variation in the voting behavior of *different senators*, depending on which generation they belonged to at the time of the vote.[26] We estimate the following probabilistic model:[27]

$$Pr(Vote_{ijvt} = 1) = \Phi(\beta_0 + \beta_1 Senate3_{it} + \beta_2 \mathbf{X}_{it} + \beta_3 \mathbf{W}_{jt} + \beta_4 \mathbf{Z}_v + \mu_j + \delta_t + \epsilon_{ijvt}) \quad (10)$$

[26] Our empirical strategy builds on a vast literature that examines the impact of election proximity on legislative behavior (e.g. Amacher and Boyes, 1978; Thomas, 1985; Glazer and Robbins, 1985; Levitt, 1996; Bernhard and Sala, 2006). Some papers in this tradition analyze how election proximity affects senators' ideological positions, captured by summary indexes of their voting record on a broad set of issues (e.g. ADA scores, D-Nominate and W-Nominate scores). Other studies compare senators' voting scores to measure their constituencies' preferences and examine how election proximity affects the gap between the two. Conconi *et al.* (2012) investigate the effect of election proximity on senators' support for trade liberalization.

[27] In Appendix B3, we present the results of a linear probability model.

where $\Phi(\cdot)$ is the cumulative normal distribution. The dependent variable $Vote_{ijvt}$ is equal to 1 if senator i from state j votes pro gun on vote v in year t. In our main sample, this occurs when a senator votes "yea" on a GOA-supported vote (either to introduce pro-gun legislation or to reject gun-control measures).

The main variable of interest is $Senate3_{it}$, the dummy variable for the third generation of senators, identifying legislators who are closest to facing re-election. For ease of exposition, we combine the first and second generations of senators into one omitted category.[28] Our theoretical model suggests that there should be inter-generational differences in senators' voting behavior. In particular, if election proximity makes legislators more likely to take a pro-gun stance, as suggested by the first prediction of our model, the coefficient of the variable $Senate3_{it}$ should be positive and significant.

The matrix $\mathbf{X}_{it}$ includes additional controls for legislators (e.g. party affiliation, gender, age), $\mathbf{W}_{jt}$ is a matrix of state-specific characteristics (e.g. crime rate, education), and $\mathbf{Z}_v$ includes vote-specific controls (e.g. whether the vote was close).

In our benchmark specifications, we include two sets of fixed effects: μ_j are state dummies, capturing time-invariant characteristics of constituencies that may affect senators' voting behavior (e.g. rural); δ_t are year dummies, which allow us to account for year-specific characteristics (e.g. share of Democratic senators in Congress). In alternative specifications, we either replace the year dummies with vote dummies or add an interaction between state and year dummies. Notice that when we include state times year dummies, we identify the effect of election proximity based on differences in the voting behavior of senators from the same state in the same year.[29] In all specifications, we cluster standard errors at the state level.

Our first identification strategy relies on the staggered structure of the Senate. This guarantees that, whenever a vote is cast in the Senate, a third of its members are close to facing re-election, i.e. belong to the third generation. However, one might be concerned that the timing of the votes could be correlated with characteristics of senators who belong to the third generation. In particular, GOA-supported votes may be more likely to occur when many pro-gun senators are close to re-election. If this is the case, a positive correlation between belonging to the third generation and voting pro gun may be driven by selection effects rather than the impact of election proximity.

Our second empirical strategy, in which we compare the voting behavior of *individual senators* over time, deals with this concern. In this case, if we find evidence of inter-

[28] The results are virtually identical when including $Senate2_{it}$ in the regression. In Appendix B3, we include $Senate2_{it}$ and find that it is never statistically different from $Senate1_{it}$, the omitted category.

[29] For simplicity, when discussing the regression results, we will drop all i, j, t and v sub-indexes.

generational differences in senators' voting behavior, they cannot be driven by selection effects. We estimate the following specification:

$$Vote_{ijvt} = \lambda_0 + \lambda_1 Senate3_{it} + \lambda_2 \mathbf{X}_{it} + \lambda_3 \mathbf{W}_{jt} + \lambda_4 \mathbf{Z}_{vt} + \omega_i + \eta_t + \epsilon_{ijvt}, \tag{11}$$

in which we include senator fixed effects, year fixed effects, and time-varying controls for legislators and their constituencies. In this estimation, the effect of election proximity is identified by comparing the voting behavior of the same senator over time, when he or she belonged to different generations.[30] We allow for correlation over votes of the same legislator by clustering standard errors at the senator level.

6 Empirical results

6.1 Inter-generational differences

Table 1 presents our benchmark regressions, in which we verify the pro-gun effect of election proximity, comparing the voting behavior of senators who are closest to the end of their term when casting their vote (for whom the dummy variable $Senate3_{it}$ is equal to 1) with that of senators who are further away from re-election. The various specifications differ in terms of regressors, included fixed effects or sample of votes. In column (1) we report the results of a parsimonious specification in which we only include our key regressor of interest and year and state effects, while in column (2) we include additional controls for senators and their constituencies. In column (3) we replace year fixed effects with vote fixed effects (i.e. there are some years with more than one vote). In column (4) we include *Year*×*State* dummies, identifying the effect of election proximity only based on differences in the voting behavior of senators representing the same state. Finally, in columns (5)-(8) we reproduce the same specifications as in columns (1)-(4), but restricting the analysis to votes that are directly gun-related (e.g. excluding votes to reject regulations on lobbying activities).

Focusing first on our key regressor, we see that the estimated coefficient for $Senate3_{it}$ is always positive and statistically significant. The corresponding marginal effects—reported at the bottom of the table—imply that senators in the last two years of their term are between 3.3 and 9.6 percentage points more likely to vote pro gun, compared to senators in their first four years. The analogous increases in the predicted probability, also reported at the bottom of the table, range between 5.3 and 17.6 percentage points.

[30] To estimate these regressions, we implement a linear probability model, since the estimates of a probit model would suffer from the incidental parameters problem.

Table 1: The pro-gun effect of election proximity, comparing across senators

Dep. variable:	Vote_{ijvt}							
	All				Directly gun-related			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Senate3_{it}	0.310***	0.262***	0.315***	0.338**	0.382**	0.334***	0.440***	0.377**
	(0.106)	(0.091)	(0.114)	(0.149)	(0.152)	(0.109)	(0.126)	(0.174)
Republican_i		2.438***	3.012***	2.341***		2.285***	2.825***	2.114***
		(0.306)	(0.441)	(0.350)		(0.309)	(0.441)	(0.346)
Male_i		0.307	0.416	0.345		0.417	0.530	0.492
		(0.284)	(0.382)	(0.492)		(0.420)	(0.522)	(0.630)
Age_{it}		-0.027***	-0.036***	-0.036***		-0.026***	-0.033**	-0.031**
		(0.009)	(0.013)	(0.012)		(0.010)	(0.013)	(0.013)
$\text{Gun-control contributions}_{it}$		-0.168***	-0.306***	-0.179*		-0.151***	-0.297***	-0.147
		(0.053)	(0.104)	(0.097)		(0.058)	(0.100)	(0.095)
$\text{Gun-rights contributions}_{it}$		0.026**	0.063***	0.028		0.022	0.056**	0.021
		(0.012)	(0.023)	(0.027)		(0.017)	(0.026)	(0.028)
$\text{Gun magazine subscriptions}_{jt}$		0.152	0.135			0.184	0.230	
		(0.145)	(0.222)			(0.183)	(0.266)	
$\text{Violent crime rate}_{jt}$		0.009	0.015			0.007	0.005	
		(0.011)	(0.013)			(0.014)	(0.017)	
Education_{jt}		-0.050	-0.065			-0.064	-0.075	
		(0.047)	(0.067)			(0.061)	(0.078)	
Senate3 (marginal effects)	0.065***	0.039***	0.033***	0.084**	0.078**	0.050***	0.047***	0.096**
	(0.022)	(0.014)	(0.012)	(0.037)	(0.031)	(0.016)	(0.013)	(0.044)
Predicted probability	0.622	0.620	0.620	0.547	0.622	0.621	0.621	0.546
Year dummies	yes	yes	no	yes	yes	yes	no	yes
State dummies	yes	yes	yes	yes	yes	yes	yes	yes
Vote dummies	no	no	yes	no	no	no	yes	no
Year×State dummies	no	no	no	yes	no	no	no	yes
Observations	1,675	1,675	1,675	785	1,281	1,281	1,281	616
Pseudo R-squared	0.435	0.595	0.716	0.365	0.446	0.594	0.711	0.347

Notes: The table reports coefficients of a probit model, with robust standard errors in parentheses, adjusted for clustering at the state level. The dependent variable $vote_{ijvt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Notice that these results capture the impact of election proximity on the voting behavior of *all* senators, independently of their party affiliation, whether or not they seek re-election, and how safe their seats are. In Tables 3 and 4 we will show that the effect is much larger when focusing on senators who belong to the Democratic party, seek re-election, or do not hold safe seats.

Regarding the other regressors, we find—as expected—that Republican senators are much more likely to vote pro gun. Age has a negative effect, while gun-rights (respectively gun-control) contributions exhibit a positive (respectively negative) effect, in some specifications. States' characteristics are never significant because their limited variation is captured by the state dummies.[31]

As discussed in the previous section, we can also identify the role of election proximity by exploiting changes in the voting behavior of the same senator over time, when he or she belonged to different generations. Notice that in these specifications we cannot include senators' time-invariant characteristics like gender (since these are already accounted for by the senators' fixed effects) and age (since we always include year dummies). However, we are able to keep party affiliation since there are three senators that changed party during our period of study.[32]

The results of six specifications estimated using this alternative methodology are reported in Table 2. The estimated coefficients for *Senate3* are always positive and statistically significant. Since these are the estimates of a linear probability model, they provide an immediate quantification of the effects of the regressors on the likelihood of voting pro gun. They indicate that the probability that an individual senator supports pro-gun policies increases between 3.7 and 6.4 percentage points, which is very similar to the marginal effects obtained in Table 1, when comparing the voting behavior of different senators. Notice that these results are solely identified by senators flip flopping on gun control, i.e. changing their voting behavior throughout their terms.[33]

Concerning the other controls, one difference with Table 1 is that contributions from lobbies no longer have a significant impact on senators' voting behavior, suggesting that there is little variation in the amount of money received by individual senators during

[31] If we remove the state dummies from the specifications in columns (2)-(4) and (6)-(8), gun magazine subscription (respectively education) present a highly significant and positive (respectively negative) estimates, while the crime rate remains insignificant.

[32] Our results remain unchanged if we either remove these senators or exclude party affiliation from the regressions. The qualitative results are also unaffected if we use a conditional logit model to examine the voting behavior of individual senators. We report the results of the linear probability model, which are easier to interpret and compare with the other specifications.

[33] An example of flip flopping is provided by Ernest Hollings (D-SC): he voted anti gun in 1995 (on 1 vote, when he belonged to the 2nd generation), pro gun in 1998 (on 4 votes, when he belonged to the 3rd generation), and anti gun in 1999 (on 4 votes, when he belonged to the 1st generation).

their mandates. In addition, an increase in violent crime rate in a senator's constituency has a positive effect on his or her support for pro-gun policies.

Table 2: The pro-gun effect of election proximity, comparing within senators

Dep. variable:	Vote_{ijvt}					
	All			Directly gun-related		
	(1)	(2)	(3)	(4)	(5)	(6)
Senate3_{it}	0.041**	0.041**	0.037*	0.062**	0.064**	0.062**
	(0.019)	(0.020)	(0.020)	(0.024)	(0.030)	(0.030)
Republican_{i}		0.240**	0.238**		0.184**	0.183**
		(0.098)	(0.098)		(0.084)	(0.084)
$\text{Gun-rights contributions}_{it}$		-0.000	0.000		-0.001	-0.001
		(0.000)	(0.000)		(0.002)	(0.002)
$\text{Gun-control contributions}_{it}$		0.006	0.006		0.006	0.006
		(0.007)	(0.007)		(0.008)	(0.008)
$\text{Gun magazine subscriptions}_{jt}$		0.006	0.007		-0.014	-0.015
		(0.020)	(0.020)		(0.023)	(0.023)
$\text{Violent crime rate}_{jt}$		0.006***	0.006***		0.006**	0.006**
		(0.002)	(0.002)		(0.002)	(0.002)
Education_{jt}		-0.012	-0.011		-0.018	-0.018
		(0.009)	(0.009)		(0.011)	(0.011)
Senator dummies	yes	yes	yes	yes	yes	yes
Year dummies	yes	yes	no	yes	yes	no
Vote dummies	no	no	yes	no	no	yes
Observations	1,745	1,745	1,745	1,363	1,363	1,363
R-squared	0.194	0.204	0.324	0.223	0.230	0.350

Notes: The table reports coefficients of a linear probability model, with robust standard errors in parentheses, adjusted for clustering at the senator level. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

In conclusion, we find that election proximity has a robust pro-gun effect on senators' voting behavior. This result is identified both by comparing the behavior of different senators voting on the same legislation and the behavior of individual senators across different votes. Inter-generational differences in senators' voting behavior are also robust to the inclusion of several control variables for the legislators and their constituencies.

6.2 Party differences

The empirical results presented so far provide clear support for the first prediction of our theoretical model: third-generation senators are more likely to vote in favor of pro-gun policies. We now move to assess the validity of the second prediction of our model, i.e. that inter-generational differences should be stronger for members of the Democratic

party. As in the previous section, we carry out this exercise on the samples of all votes and directly gun-related votes, including year dummies and either state or senator dummies.

Table 3: The pro-gun effect of election proximity: party differences

Dep. variable:	$Vote_{ijvt}$			
	All	Directly gun-related	All	Directly gun-related
	(1)	(2)	(3)	(4)
$Senate3_{it}$	0.291**	0.388**	0.076*	0.098**
	(0.139)	(0.153)	(0.039)	(0.045)
$Republican_{it}$	2.459***	2.320***	0.282***	0.228**
	(0.292)	(0.283)	(0.105)	(0.092)
$Senate3_{it} \times Republican_i$	-0.086	-0.139	-0.061	-0.074
	(0.215)	(0.293)	(0.043)	(0.053)
$Male_i$	0.298	0.401		
	(0.281)	(0.416)		
Age_{it}	-0.027***	-0.027***		
	(0.009)	(0.010)		
Gun-rights $contributions_{it}$	0.028**	0.025	-0.000	0.000
	(0.013)	(0.018)	(0.000)	(0.002)
Gun-control $contributions_{it}$	-0.177***	-0.166**	0.003	0.002
	(0.060)	(0.069)	(0.008)	(0.008)
Gun magazine $subscriptions_{jt}$	0.157	0.193	0.008	-0.011
	(0.144)	(0.182)	(0.020)	(0.023)
Violent crime $rate_{jt}$	0.009	0.007	0.006***	0.005**
	(0.011)	(0.014)	(0.002)	(0.002)
$Education_{jt}$	-0.052	-0.067	-0.013	-0.019*
	(0.046)	(0.060)	(0.009)	(0.011)
Test Senate3+Senate3×Republican=0 (p-value)[a]	0.121	0.244	0.408	0.459
Senate3 (marginal effects)[b]	0.060**	0.075**		
	(0.029)	(0.031)		
Predicted probability[b]	0.392	0.396		
Year dummies	yes	yes	yes	yes
State dummies	yes	yes	no	no
Senator dummies	no	no	yes	yes
Observations	1,675	1,281	1,745	1,363
R-squared[c]	0.595	0.594	0.205	0.232

Notes: Columns (1)-(2) report coefficients of a probit model, with robust standard errors in parentheses, adjusted for clustering at the state level. Columns (3)-(4) report coefficients of a linear probability model, with robust standard errors in parentheses, adjusted for clustering at the senator level. The dependent variable $Vote_{ijt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively. [a] χ^2-test in columns (1)-(2), F-test in columns (3)-(4). [b] Computed for Democratic senators. [c] Pseudo R-squared in columns (1)-(2).

To allow for different effects of electoral calendars between parties, in Table 3 we introduce an interaction term between *Senate3* and *Republican*. In this setup, the estimated coefficient for *Senate3* captures the effect of election proximity on Democratic

senators, while the corresponding effect for Republican senators is found by summing up this coefficient with the interaction term (see the χ^2 tests at the bottom of the table). Columns (1) and (2) include state dummies, and therefore, as in Table 1, quantify the effect of electoral proximity across senators. In columns (3) and (4) we include senator dummies, allowing us to quantify the effect of electoral proximity within senators (as in Table 2). When focusing on either all GOA votes (columns (1) and (3)), or directly gun-related votes (columns (2) and (4)), we find that election proximity has no impact on the stance of Republican senators. In fact, the test at the bottom of the table reveals that Republican senators are not more likely to vote pro gun in the last two years of their mandate, compared to the previous four years. By contrast, we find a strong pro-gun effect of election proximity for Democratic senators (i.e. the coefficient of the variable *Senate3* is positive and significant).

These findings are in line with the second prediction of our model: Democrats face a tradeoff between voting in line with their gun-control preferences and maximizing their re-election prospects. By contrast, Republicans' policy preferences are aligned with their re-election motives, so they can afford voting pro gun throughout their mandate.

The results of Table 3 indicate that inter-generational differences are only driven by changes in the voting behavior of Democratic senators. This implies that, for these legislators, the impact of election proximity is much larger than what found in Tables 1-2 for senators at large. The marginal effects in Table 3 imply that, in the last two years of their terms, Democratic senators are between 15.3 and 20.4 percent more likely to vote pro gun, an effect more than twice as large as the one found for the "average" senator in Table 1 (columns (2) and (6)) or Table 2 (columns (2) and (5)).

6.3 Retiring senators and safe seats

In order to verify whether the pro-gun effect of election proximity is driven by re-election motives, in line with the third prediction of our theoretical model, we follow two complementary strategies. First, we exploit information on retiring senators, i.e. senators not seeking re-election. These legislators should be immune to electoral incentives and thus vote according to their preferences throughout their terms. Second, we focus on senators holding safe seats, whose voting behavior should also be unaffected by election proximity.

In columns (1) and (2) of Table 4 we interact *Senate3* with the dummy variable *Retiring*. We find that retiring senators do not change their voting behavior in the last two years of their mandate (the χ^2 tests at the bottom of the table are not significant).

The estimated coefficients for *Senate3* are significant and larger than the corresponding ones in Table 1. The marginal effects at the bottom of the table indicate that senators running for re-election are between 7.1 and 9.1 percent more likely to take a pro-gun stance at the end of their terms.

Table 4: Retiring senators and safe seats

Dep. variable:	$Vote_{ijvt}$			
	All	Directly gun-related	All	Directly gun-related
	(1)	(2)	(3)	(4)
$Senate3_{it}$	0.297***	0.387***	0.274***	0.345***
	(0.100)	(0.116)	(0.091)	(0.112)
$Republican_{it}$	2.404***	2.241***	2.501***	2.357***
	(0.307)	(0.314)	(0.292)	(0.291)
$Retiring_{it}$	-0.116	-0.051		
	(0.252)	(0.283)		
$Senate3_{it} \times Retiring_{it}$	-0.337	-0.607		
	(0.312)	(0.477)		
Safe $Seat_{it}$			0.983***	0.868**
			(0.334)	(0.413)
$Senate3_{it} \times$ Safe $Seat_{it}$			-0.126	0.467
			(0.472)	(0.606)
$Male_i$	0.337	0.454	0.268	0.378
	(0.273)	(0.401)	(0.322)	(0.462)
Age_{it}	-0.024**	-0.023**	-0.028***	-0.027***
	(0.010)	(0.011)	(0.009)	(0.010)
Gun-rights $contributions_{it}$	0.023*	0.019	0.026**	0.022
	(0.013)	(0.017)	(0.013)	(0.017)
Gun-control $contributions_{it}$	-0.159***	-0.130**	-0.156***	-0.136**
	(0.051)	(0.053)	(0.052)	(0.057)
Gun magazine $subscriptions_{jt}$	0.144	0.159	0.096	0.087
	(0.146)	(0.181)	(0.139)	(0.195)
Violent crime $rate_{jt}$	0.010	0.008	0.010	0.010
	(0.011)	(0.013)	(0.011)	(0.014)
$Education_{jt}$	-0.052	-0.071	-0.049	-0.055
	(0.047)	(0.060)	(0.047)	(0.063)
Test Senate3+Senate3×Retiring=0 (p-value)	0.889	0.621		
Test Senate3+Senate3×Safe Seat=0 (p-value)			0.753	0.172
Senate3 (marginal effects)[a]	0.044***	0.057***	0.040***	0.051***
	(0.015)	(0.017)	(0.013)	(0.016)
Predicted probability[a]	0.623	0.624	0.613	0.614
Year dummies	yes	yes	yes	yes
State dummies	yes	yes	yes	yes
Observations	1,675	1,281	1,675	1,281
Pseudo R-squared	0.596	0.596	0.600	0.599

Notes: The table reports coefficients of a probit model, with robust standard errors in parentheses, adjusted for clustering at the state level. The dependent variable $Vote_{ijt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively. [a] Computed for senators not retiring in columns (1)-(2), and for senators not holding safe seats in columns (3)-(4).

In columns (3) and (4) we perform a similar exercise, interacting *Senate3* with the dummy variable *Safe Seat*, which takes the value of 1 when the senator obtained more than three times the votes of his or her closest competitor in his or her last election.[34] As predicted by our model, χ^2 tests at the bottom of the table show that senators holding safe seats do not change their voting behavior on gun control when they approach re-election. By contrast, the positive and significant coefficient of *Senate3* show that senators who do not hold safe seats are more likely to cast a pro-gun vote when they are closer to facing re-election. In terms of magnitude, our results indicate that election proximity increases the probability of a pro-gun vote for senators seeking re-election by 6.5 or 8.3 percent, depending on the specification.

6.4 Additional robustness checks

In what follows we discuss the results of a series of additional estimations to verify the robustness of our main finding on the impact of election proximity on senators' voting behavior. The results of these regressions can be found in Appendix B3.

First, in Table B-6 we reproduce the same specifications of Table 1 using a linear probability model. Our results are unaffected when employing this alternative methodology, and the point estimates for *Senate3* are very similar to the marginal effects computed using a probit model. The only differences are the loss of significance of the contributions from lobby groups and the crime rate being now significant for the sample of all votes.

Second, in Table B-7 we add two sets of additional votes to our original sample. In columns (1) to (4) we include two key votes on gun control that were cast in 1993, the year before GOA started collecting congressional votes. The first vote on November 17 1993, was on an amendment "Prohibiting the Possession of Semi-Automatic Assault Weapons" (S Amdt 1152), which introduced restrictions on the manufacture, transfer, and possession of certain semiautomatic assault weapons and large capacity ammunition feeding devices. The second, on November 20, is the "Brady Handgun Violence Prevention Act Federal" (H.R. 1025), which instituted federal background checks on firearm purchasers in the United States. The bill was named after James Brady, who was shot during an attempted assassination of President Ronald Reagan on March 30, 1981 (see Lipford, 2000 for more details). We code these votes as anti gun, i.e. $Vote_{ijt} = 0$ if

[34] In the vast majority of the elections in our sample, the third candidate gets far fewer votes than the first two. We also tried with more demanding thresholds, and our results were even stronger. The coefficient of *Safe Seat* is positive and significant. This might be driven by the fact that Republican senators are more likely to hold safe seats (see Table B-2).

senator i from state j votes "yea".

In columns (5)-(8), we include all gun-related key votes listed by Project Vote Smart, a non-profit organization dedicated to disseminate information about candidates and elected officials. The advantage of using these votes is that Project Vote Smart is not a pro-gun lobby, and therefore it only includes directly gun-related votes. However, since they focus only on key votes, the list of available votes is small: only fourteen votes between 1993 and 2010.[35] Moreover, Project Vote Smart does not specify the direction of the vote, i.e. whether it is pro or anti gun. In all columns of Table B-7 we find that the coefficient on *Senate3* is positive and statistically significant. Even though the size of the coefficient decreases in the Vote Smart sample (columns (5)-(8)), the marginal effects are comparable to those found in Table 1.

Finally, in Table B-8 we include additional controls to account for other potential drivers of senators' voting behavior on gun control. In columns (1) and (5), we include the state-specific variable *Swing state*$_{j,t}$, which identifies battleground states (i.e. states in which no Presidential candidate had an overwhelming majority in the previous election). In columns (2) and (6), we include two senator-specific variables: *Margin of victory*$_{i,t}$, which captures the gap in votes between senator i and the runner-up in the last election; and *Tenure*$_{i,t}$, which accounts for senators' length of service. In columns (3) and (7), we add two vote-specific controls: the dummy variable *Close vote*$_v$, which takes the value of 1 if the vote was closer than the median margin of passage or rejection for all votes in our sample; and the dummy variable *Accept*$_v$, which identifies votes to accept pro-gun legislation (rather than to reject gun-control legislation). Finally, in columns (4) and (8), all variables are included together. The results of Table B-8 show that including these additional controls does not affect our main result concerning the pro-gun effect of election proximity, as *Senate3* remains positive and highly significant. The other regressors are also unaffected. Among the new controls, only the estimated coefficients for *Close vote*$_v$ and *Accept*$_v$ are statistically significant in some specifications.

[35]Project Vote Smart lists 5 criteria to select votes. Among those, whether the vote received media attention and its margin of passage/rejection. We exclude votes that were also listed as key crime votes, since senators can have opposite views on guns and crime. There is only one vote in our sample that meets this criteria: "Charging Teens as Adults for Crimes Involving a Firearm" (S Amdt 1117). This anti-gun/anti-crime bill was co-sponsored by senator Carol Moseley Braun (D-IL) and senator Christopher Bond (R-MO).

7 Conclusions

In this paper, we argue that electoral incentives can help explain why U.S. congressmen are often reluctant to support even mild gun-control regulations, notwithstanding the fact that most Americans are in favor of these measures. Politicians may prefer to support the interests of a vocal minority of voters on issues that are of secondary importance to the rest of the electorate. In the case of gun control, although a majority of the voters favors stricter regulations, a minority opposes them with greater intensity.

To capture this idea, we have described a probabilistic voting model in which an incumbent politician has to vote on two issues: a primary issue, which a majority of the electorate cares relatively more about (e.g the level of public spending), and a secondary issue, which a minority cares more intensely about (e.g. gun control). Minority voters may also be better informed about the incumbent's choices on the secondary policy issue. In this setting, if the asymmetry in the intensity of preferences is strong enough, an office-motivated politician will pander toward the interests of the minority on the secondary policy issue.

A multi-period extension of our basic model delivers testable predictions about the impact of election proximity on politicians' voting behavior on gun regulations. To assess the validity of these predictions, we have studied the voting behavior of U.S. senators on gun-related legislation since the early 1990's. The staggered structure of the U.S. Senate, in which members serve six-year terms and one third is up for re-election every two years, has allowed us to compare the voting behavior of three generations of senators.

In line with the predictions of our model, we have obtained three main results. First, senators who are closer to facing re-election are more likely to vote pro gun. Second, election proximity has an impact only on the voting behavior of Democratic senators, who flip flop on gun regulations during their terms in office. Finally, election proximity has no effect on the voting behavior of senators who are retiring or hold safe seats. Our results are robust to focusing on different subsets of gun votes, using alternative econometric methodologies to identify the impact of election proximity, and including a rich set of controls for legislators and their constituencies.

Our findings can help to understand why the U.S. Congress is unlikely to introduce stricter regulations on gun control. For example, on April 17 2013, the Manchin-Toomey amendment to expand background checks for gun buyers failed to get the 60 votes needed to overcome a filibuster in the U.S. Senate, despite the fact that opinion polls taken around that time showed that Americans were overwhelmingly in favor of this regulation. On the same day, President Obama called on voters to put pressure on their

representatives to pass gun-control reforms: "Ultimately, you outnumber those who argued the other way. But they're better organized. They're better financed. They've been at it longer. And they make sure to stay focused on this one issue during election time. And that's the reason why you can have something that 90 percent of Americans support and you can't get it through the Senate or the House of Representatives."[36]

Our analysis suggests that in representative democracies policy choices may often diverge from what the majority of the electorate wants. This is because citizens have only one vote to make representatives accountable on a bundle of issues. Besley and Coate (2008) argue that direct initiatives allow to unbundle policy issues, thus improving the congruence between citizens' preferences and policy outcomes. Therefore one might expect to see stricter gun regulations in the sixteen U.S. states that allow for direct initiatives.[37] However, there are at least three reasons to believe that the outcome of initiatives on gun control may not always coincide with the preferences of the majority of voters. First, there may be a pro-gun bias in terms of which propositions end up on the ballot. This is because organizing initiatives is very costly in terms of both time and money, and citizens who strongly oppose gun regulations may be more willing to incur such costs.[38] In addition, gun-rights lobbies can provide them with the means to successfully organize initiatives.[39] Second, gun-related initiatives are likely to suffer from a pro-gun bias in voters' turnout, if citizens who are against gun regulations are more willing to incur the costs of voting (e.g. spending time to register, rearranging

[36]Before the defeat of gun-control amendments in April 2013, it was noted that "large majorities back expanding background checks to cover all purchases. (...) And yet, as Newtown disappeared further in the political rearview mirror, the same politics that had turned guns into a dormant issue on the national political stage for much of the 1990s and 2000s began to take hold. Senate Democrats up for re-election in Republican-leaning states in 2014—think Montana, North Carolina, Alaska, Arkansas and Louisiana—were loathe to vote on things like the assault weapons ban." ("Newtown didn't change the politics of guns," *Washington Post*, March 22, 2013)

[37]The direct initiative process allows ordinary citizens to draft a petition in the form of a legislative bill or constitutional amendment. If the petition receives sufficient popular support, the measure is then placed directly on a ballot, without the need to first submit it to the legislature.

[38]Organizing an initiative is a complex legal process, involving several steps: 1) preliminary filing of a proposed petition with a designated state official; 2) review of the petition for conformance with statutory requirements and, in several states, a review of the language of the proposal; 3) preparation of a ballot title and summary; 4) circulation of the petition to obtain the required number of signatures of registered voters, usually a percentage of the votes cast for a statewide office in the preceding general election; and 5) submission of the petition to the state officials, who must verify the number of signatures. Organizing a successful initiative is also financially very costly, e.g. it usually requires hiring specialized firms to run opinion polls before drafting the petition and to collect the required number of signatures.

[39]An example of a pro-gun initiative is I-591, which was filed in the state of Washington on May 23, 2013 by Protect Our Gun Rights (a group organized by several gun-rights organizations). If approved by voters, initiative I-591 would prevent the government from confiscating firearms without due process and from implementing background checks deemed more stringent than those at the federal level.

work schedules, getting to the polls, and gathering information on the candidates).[40] Finally, opponents of initiatives to introduce even mild gun regulations can be very effective at framing them as a threat to citizens' fundamental rights and freedoms.[41] Notwithstanding these issues, several ballot propositions did result in the introduction of stricter gun regulations.[42]

Our paper calls for more theoretical and empirical work to understand the policy choices of elected representatives when voters are heterogeneous in the direction and intensity of their preferences over different policy issues. In this setting, re-election motives can lead politicians to follow the interests of a minority of the electorate on issues that are of secondary importance to the majority. Recent studies by Conconi *et al.* (2012, 2013) show that electoral incentives affect politicians' voting behavior on trade and environmental policy. It would be interesting to study other secondary policies for which there may be intense minorities on both side of the issue (e.g. abortion).

Another important avenue for future research is to explore the role of lobbies on secondary policy issues. Financial contributions from gun-rights groups do not account for the pro-gun effect of election proximity on senators' voting behavior. However, gun-rights organizations such as the NRA or GOA can still play a key role, by conveying information to politicians about the intensity of their members' preferences. The intensity of preferences of pro-gun voters can explain why "the NRA is considered by many the most powerful lobbying group in the country, despite relatively modest financial resources and just 4 million members. (...) The NRA focuses almost exclusively on gun control, which enables its leaders to doggedly pursue their legislative ends. Perhaps more important, many NRA members are as single-minded as the organization itself. Polls often show that more Americans favor tightening gun control laws than relaxing them, but gun rights advocates are much more likely to be single-issue voters than those on the other side of the question. As a result, the NRA can reliably deliver votes."[43]

[40] This bias should be less severe when votes on initiatives are held together with Presidential elections, which exhibit the highest turnout. Interestingly, all the ballot measures that led to the introduction of stricter gun regulations were voted at the same time as Presidential elections.

[41] See "Gun safety versus gun control," *The Economist*, January 24, 2013.

[42] For example, in 1990 84,5% voters in Florida supported a constitutional amendment to introduce a mandatory period of three days between retail purchase and delivery of any handgun. Similarly, in 1998 72% of voters in Florida supported constitutional amendment to introduce a three-day delay between retail purchase and delivery of any handgun. Background checks for transfers of firearms were also introduced in Oregon through an initiative in 2000.

[43] "Why is the NRA so powerful? How the gun lobby leverages modest resources into outsized influence" (*Slate*, June 29, 2012).

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Appendix A1: One-period model

Proof of Proposition 1

From (3) and (4) , we have that $U(0,1) \geq U(0,0)$ if and only if

$$\frac{1}{2}+\frac{\gamma}{\phi}\sum_j n_j\phi_j\left(\chi_j W_j(0,1)-\bar{u}\right)+\theta\omega(0,1) \geq \frac{1}{2}+\frac{\gamma}{\phi}\sum_j n_j\phi_j\left(\chi_j W_j(0,0)-\bar{u}\right)+\theta\omega(0,0).$$

From (1), this boils down to

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,0)-\omega(0,1)\right).$$

From (3) and (4) we have that $U(0,1) \geq U(1,0)$ if and only if

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M + n_M\phi_M\chi_M + n_m\phi_m\chi_m\right) \geq \theta\left(\omega(1,0)-\omega(0,1)\right).$$

which is always satisfied since $\omega(1,0)-\omega(0,1) < 0$ for an anti-gun incumbent, and $n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M > 0$.

From (3) and (4) , we have that $U(0,1) \geq U(1,1)$ if and only if

$$\frac{\gamma}{\phi}\left(n_M\phi_M\chi_M + n_m\phi_m\chi_m\right) \geq \theta\left(\omega(1,1)-\omega(0,1)\right).$$

which is always satisfied since $\omega(1,1)-\omega(0,1) < 0$ for an anti-gun incumbent. ■

It is possible that an anti-gun incumbent does not pander to pro-gun voters on gun regulations. This happens when $\theta > 0$ and either $\omega(0,0)$ is sufficiently larger than $\omega(0,1)$, and/or when α_m is not sufficiently larger than α_M:

Proposition 5 *For an anti-gun incumbent, the strategy $q^* = (0,0)$ is an equilibrium if and only if*

$$\theta\left(\omega(0,0)-\omega(0,1)\right) \geq \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right).$$

For $\theta = 0$, this is never true.

Proof: From (3) and (4) , we have that $U(0,0) \geq U(0,1)$ if and only if

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \leq \theta\left(\omega(0,0)-\omega(0,1)\right).$$

From (3) and (4) , we have that $U(0,0) \geq U(1,0)$ if and only if

$$\frac{\gamma}{\phi}\left(n_M\phi_M\chi_M + n_m\phi_m\chi_m\right) \geq \theta\left(\omega(1,0)-\omega(0,0)\right).$$

which is always satisfied since $\omega(1,0) - \omega(0,0) < 0$ for an anti-gun incumbent.
From (3) and (4), we have that $U(0,0) \geq U(1,1)$ if and only if

$$\frac{\gamma}{\phi}\left(n_M\phi_M\chi_M + n_m\phi_m\chi_m + n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m\right) \geq \theta\left(\omega(1,1) - \omega(0,0)\right).$$

From (5), we have that

$$\omega(0,0) - \omega(1,1) > \omega(0,0) - \omega(0,1).$$

Since $n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M > 0$ and $(n_M\phi_M\chi_M + n_m\phi_m\chi_m) > 0$, we have that

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M - (n_M\phi_M\chi_M + n_m\phi_m\chi_m)\right) < \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right),$$

and thus

$$\theta\left(\omega(0,0) - \omega(0,1)\right) \geq \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right)$$

necessarily implies

$$\theta\left(\omega(0,0) - \omega(1,1)\right) \geq \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M - (n_M\phi_M\chi_M + n_m\phi_m\chi_m)\right).$$

■

Together, Propositions 1 and 5 show that an equilibrium always exists. Since it is never optimal for an incumbent to choose $p = 1$, we have that there is no other equilibrium in this one-period game.

Appendix A2: Two-period model

Proof of Proposition 2

The strategy $q^{s*} = (0,1)$ is an equilibrium: From (3), (4), we have that $U(0,1) \geq U(0,0)$ if and only if

$$\frac{1}{2} + \frac{\gamma}{\phi}\sum_j n_j\phi_j\left(\chi_j W_j(0,1) - \bar{u}\right) + \theta\omega(0,1) \geq \frac{1}{2} + \frac{\gamma}{\phi}\sum_j n_j\phi_j\left(\chi_j W_j(0,0) - \bar{u}\right) + \theta\omega(0,0).$$

From (1), this boils down to

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,0) - \omega(0,1)\right).$$

From (3) and (4) , we have that $U(0,1) \geq U(1,0)$ if and only if

$$\gamma\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M + \delta\left(n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m\right)\right) \geq \theta\left(\omega(1,0) - \omega(0,1)\right).$$

which is always satisfied since $\omega(1,0) - \omega(0,1) = 0$, $n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M > 0$, and $\delta < 1$.
From (3) and (4) , we have that $U(0,1) \geq U(1,1)$ if and only if

$$\theta\left(\omega(0,1) - \omega(1,1)\right) \geq \frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right).$$

The strategy $q^{s*} = (1,0)$ is never an equilibrium: From (3), (4) , we have that $U(1,0) \geq U(0,1)$ if and only if

$$\theta\left(\omega(1,0) - \omega(0,1)\right) \geq \frac{\gamma}{\phi}(1-\delta)\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right).$$

which is never satisfied since $\omega(1,0) - \omega(0,1) = 0$ for a majority incumbent, $n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M > 0$, and $\delta < 1$. ■

Proof of Proposition 3

The strategy $q^{s*} = (0,1)$ is never an equilibrium: From (3) and (4) , we have that $U(0,1) \geq U(1,1)$ if and only if

$$\frac{\gamma}{\phi}\delta\left(n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m\right) \geq \theta\left(\omega(1,1) - \omega(0,1)\right).$$

which is never satisfied since $n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m < 0$ and $\omega(1,1) - \omega(0,1) > 0$ for a pro-gun incumbent.

The strategy $q^{s*} = (1,0)$ is never an equilibrium: From (3) and (4) , we have that $U(1,0) \geq U(1,1)$ if and only if

$$\frac{\gamma}{\phi}\left(n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m\right) \geq \theta\left(\omega(1,1) - \omega(1,0)\right).$$

which is never satisfied since $n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m < 0$, and $\omega(1,1) - \omega(1,0) > 0$ for a pro-gun incumbent. ■

When the conditions in Proposition 2 are not satisfied, there are situations in which an anti-gun incumbent who votes on gun regulations votes similarly in the two periods:

Proposition 6 *For an anti-gun incumbent, the strategy $q^{s*} = (0,0)$ is an equilibrium if*

and only if

$$\begin{aligned}\theta\left(\omega\left(0,0\right)-\omega\left(0,1\right)\right) &\geq \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right),\\ \theta\left(\omega\left(0,0\right)-\omega\left(1,1\right)\right) &\geq \frac{\gamma}{\phi}\left(1+\delta\right)\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right),\end{aligned}$$

which is never true if $\theta = 0$. *The strategy* $q^{s*} = (1,1)$ *is an equilibrium if and only if*

$$\begin{aligned}\frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) &\geq \theta\left(\omega\left(0,1\right)-\omega\left(1,1\right)\right),\\ \frac{\gamma}{\phi}\left(1+\delta\right)\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) &\geq \theta\left(\omega\left(0,0\right)-\omega\left(1,1\right)\right).\end{aligned}$$

Proof: **The strategy** $q^{s*} = (0,0)$ **is an equilibrium:** From (3), (4), we have that $U(0,0) \geq U(0,1)$ if and only if

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \leq \theta\left(\omega\left(0,0\right)-\omega\left(0,1\right)\right).$$

From (3) and (4), we have that $U(0,0) \geq U(1,0)$ if and only if

$$\frac{\gamma}{\phi}\left(\delta\left(n_M\phi_M\chi_M\alpha_M - n_m\phi_m\chi_m\alpha_m\right)\right) \geq \theta\left(\omega\left(1,0\right)-\omega(0,0)\right).$$

From (8), we have that

$$\omega\left(0,0\right)-\omega\left(1,0\right) = \omega\left(0,0\right)-\omega\left(0,1\right)$$

Since $\delta < 1$, we have that

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) > \frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right),$$

and thus that

$$\theta\left(\omega\left(0,0\right)-\omega\left(0,1\right)\right) \geq \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right)$$

necessarily implies

$$\theta\left(\omega\left(0,0\right)-\omega\left(1,0\right)\right) \geq \frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right).$$

From (3) and (4), we have that $U(0,0) \geq U(1,1)$ if and only if

$$\theta\left(\omega\left(0,0\right)-\omega\left(1,1\right)\right) \geq \frac{\gamma}{\phi}\left(1+\delta\right)\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right).$$

The strategy $q^{s*} = (1,1)$ **is an equilibrium**:

From (3), (4) , we have that $U(1,1) \geq U(0,1)$ if and only if

$$\frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,1) - \omega(1,1)\right).$$

From (3), (4) , we have that $U(1,1) \geq U(0,0)$ if and only if

$$\frac{\gamma}{\phi}(1+\delta)\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,0) - \omega(1,1)\right).$$

From (3), (4) , we have that $U(1,1) \geq U(1,0)$ if and only if

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(1,0) - \omega(1,1)\right).$$

From (8) , we have that

$$\omega(0,1) - \omega(1,1) = \omega(1,0) - \omega(1,1)$$

Since $\delta < 1$, we have that

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) > \frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right),$$

and thus that

$$\frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,1) - \omega(1,1)\right)$$

necessarily implies

$$\frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(1,0) - \omega(1,1)\right).$$

■

The intuition is straightforward: either the policy preferences of the incumbent are so strong that she votes "nay" in both periods ($\theta\left(\omega(0,0) - \omega(0,1)\right) \geq \frac{\gamma}{\phi}\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right)$), or the policy preferences of the incumbents are swamped by the re-election incentives (i.e. $\frac{\gamma}{\phi}\delta\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,1) - \omega(1,1)\right)$ and $\frac{\gamma}{\phi}(1+\delta)\left(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M\right) \geq \theta\left(\omega(0,0) - \omega(1,1)\right)$).

Together, Propositions 2 and 6 prove that three types of equilibria may exist. The following proposition shows that i) an equilibrium always exists, and ii) it is generically unique:

Proposition 7 *For an anti-gun incumbent, a unique equilibrium generically exists.*

Proof: From Propositions 2 and 6 it is straightforward to see that $q^{s*} = (0,1)$ never coexists with $q^{s*} = (1,1)$ and $q^{s*} = (0,0)$. We prove existence in two steps. First, note

that if $\theta(\omega(0,1)-\omega(1,1)) \geq \frac{\gamma}{\phi}\delta(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M)$, then $q^{s*}=(0,1)$ is an equilibrium if and only if $\frac{\gamma}{\phi}(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) \geq \theta(\omega(0,0)-\omega(0,1))$. When $\frac{\gamma}{\phi}(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) < \theta(\omega(0,0)-\omega(0,1))$, then $q^{s*}=(0,0)$ must be an equilibrium. Indeed, from $\theta(\omega(0,1)-\omega(1,1)) \geq \frac{\gamma}{\phi}\delta(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M)$ and $\frac{\gamma}{\phi}(\omega(0,0)-\omega(0,1))$, we get

$$\begin{aligned}\theta(\omega(0,1)-\omega(1,1)) + \theta(\omega(0,0)-\omega(0,1)) \quad &\geq \quad \frac{\gamma}{\phi}\delta(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) + \\ &\quad \frac{\gamma}{\phi}(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M),\end{aligned}$$

which boils down to

$$\theta(\omega(0,0)-\omega(1,1)) \geq \frac{\gamma}{\phi}(1+\delta)(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M).$$

Second, note that if $\theta(\omega(0,1)-\omega(1,1)) < \frac{\gamma}{\phi}\delta(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M)$, then $q^{s*}=(1,1)$ is an equilibrium if and only if

$$\frac{\gamma}{\phi}(1+\delta)(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) \geq \theta(\omega(0,0)-\omega(1,1)).$$

When $\frac{\gamma}{\phi}(1+\delta)(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) < \theta(\omega(0,0)-\omega(1,1))$, then $q^{s*}=(0,0)$ must be an equilibrium. Indeed, from $\theta(\omega(0,1)-\omega(1,1)) < \frac{\gamma}{\phi}\delta(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M)$ and $\frac{\gamma}{\phi}(1+\delta)(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) < \theta(\omega(0,0)-\omega(1,1))$, we get

$$\begin{aligned}&\theta(\omega(0,1)-\omega(1,1)) + \frac{\gamma}{\phi}(1+\delta)(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) < \\ &\frac{\gamma}{\phi}\delta(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) + \theta(\omega(0,0)-\omega(1,1))\end{aligned}$$

which boils down to

$$\frac{\gamma}{\phi}(n_m\phi_m\chi_m\alpha_m - n_M\phi_M\chi_M\alpha_M) < \theta(\omega(0,0)-\omega(0,1)).$$

■

Appendix A3: social welfare implications

In this appendix, we discuss the implications of our theoretical results from a utilitarian welfare standpoint. The utilitarian social welfare is given by the sum of the utility of all

citizens:[44]

$$U^{SW}(q) = \sum_j n_j W_j(q) \tag{A.1}$$

We will say that a policy is socially efficient if it corresponds to the utilitarian optimum.[45]

The utilitarian optimum is influenced both by the number of citizens with given preferences, and by the intensity of those preferences. For instance, for gun regulations, the weight of the anti-gun group is $n_M\alpha_M$ whereas the weight of the pro-gun group is $n_m\alpha_m$. On any issue, the optimal policy is the one preferred by the group with the highest weight.

One-period model

In the one-period model, the utilitarian social welfare is

$$U^{SW}(p,s) = -n_M\left(|p_M - p| + \alpha_M|s_M - s|\right) - n_m(|p_m - p| + \alpha_m|s_m - s|) \tag{A.2}$$

The following proposition characterizes the utilitarian optimum:

Proposition 8 *When $n_M\alpha_M \geq n_m\alpha_m$, $q = (0,0)$ is socially efficient. When $n_m\alpha_m \geq n_M\alpha_M$, $q = (0,1)$ is socially efficient. Neither $q = (1,1)$, nor $q = (1,0)$ are socially efficient policies.*

Proof: First, note that $p = 1$ is never socially optimal since all voters prefer $p = 0$. Therefore, we only have to compare $q = (0,0)$ and $q = (0,1)$. From A.2, we have that $U^{SW}(0,0) \geq U^{SW}(0,1)$ if and only if $n_M\alpha_M \geq n_m\alpha_m$. We also have that $U^{SW}(0,1) \geq U^{SW}(0,0)$ if and only if $n_M\alpha_M \leq n_m\alpha_m$. ■

Comparing Propositions 1 and 2 with Proposition 8, we directly notice that the policy platform implemented by an anti-gun incumbent may not be socially efficient. For instance, when $\chi_m\phi_m$ is sufficiently larger than $\chi_M\phi_M$, it is possible that $q^* = (0,1)$ is the strategy adopted by an anti-gun incumbent even if $q = (0,0)$ is the socially efficient platform. Similarly, for $\chi_m\phi_m$ sufficiently smaller than $\chi_M\phi_M$, it is possible that $q^* = (0,0)$ is the strategy adopted by an anti-gun incumbent even if $q = (0,1)$ is the socially efficient platform.

This comparison highlights the two reasons underlying socially inefficient choices by the incumbent in our model: i) differences in how the two groups are informed about the incumbent's actions, and ii) differences in the homogeneity of the two groups.

[44]The results in this appendix continue to hold under the assumption that the social welfare function does not take into account the recency bias of citizens, i.e. for $\delta = 1$.

[45]This efficiency concept is subject to the same criticism as any social welfare function: it suffers from problems surrounding interpersonal utility comparisons, as first pointed out by Robbins (1938).

Two-period model

In the two-period model, the utilitarian social welfare is

$$U^{SW}(s_1, s_2) = -n_M\alpha_M\left(\delta|s_M - s_1| + |s_M - s_2|\right) - n_m\alpha_m(\delta|s_m - s_1| + |s_m - s_2|) \quad \text{(A.3)}$$

The following proposition characterizes the utilitarian optimum in the two-period model, and shows that it never involves flip flopping:[46]

Proposition 9 *When $n_M\alpha_M \geq n_m\alpha_m$, $q^s = (0,0)$ is socially efficient. When $n_m\alpha_m \geq n_M\alpha_M$, $q^s = (1,1)$ is socially efficient. Generically, neither $q^s = (0,1)$, nor $q^s = (1,0)$ is socially efficient.*

Proof: From A.3, we have that $U^{SW}(0,1) \geq U^{SW}(0,0)$ if and only if $n_m\alpha_m \geq n_M\alpha_M$, and that $U^{SW}(0,1) \geq U^{SW}(1,1)$ if and only if $n_m\alpha_m \leq n_M\alpha_M$. This proves that, generically, $q^s = (0,1)$ is not a maximizer of the utilitarian social welfare function. We can prove in a similar fashion that, generically, the same is true for $q^s = (1,0)$.

From A.3, we have that i) $U^{SW}(0,0) \leq U^{SW}(1,1)$ if and only if $n_m\alpha_m \geq n_M\alpha_M$, ii) $U^{SW}(1,1) \geq U^{SW}(1,0)$ if and only if $n_m\alpha_m \geq n_M\alpha_M$, and that iii) $U^{SW}(1,1) \geq U^{SW}(0,1)$ if and only if $n_m\alpha_m \geq n_M\alpha_M$. This proves that $q^s = (1,1)$ is the utilitarian optimum when $n_m\alpha_m \geq n_M\alpha_M$. Similarly, we can prove that $q^s = (0,0)$ is the utilitarian optimum when $n_m\alpha_m \geq n_M\alpha_M$. ■

Proposition 9 has an interesting implication in terms of social efficiency: an incumbent who is cycling cannot be adopting an optimal policy. Under our working assumptions, Propositions 2, 3, and 6 show that only an anti-gun incumbent is likely to behave in that specific inefficient way. Yet, this neither means that an anti-gun incumbent will always behave inefficiently, nor that a pro-gun incumbent will always behave efficiently. First, Proposition 6 shows that there are values of the parameters such that an anti-gun incumbent does not cycle. It is easy to show that there are values of the parameters such that she adopts the socially efficient policy, i.e. voting "yea" in both periods when $n_m\alpha_m > n_M\alpha_M$, and "nay" in both periods when $n_m\alpha_m < n_M\alpha_M$. Second, we can show that for all values of the parameters under consideration, a pro-gun incumbent always votes "yea" in both periods. This is so even when voting "yea" in both periods is socially inefficient, i.e. $n_m\alpha_m < n_M\alpha_M$.

The Propositions underlying the testable hypotheses H1-H3 can be proven both for i) $\alpha_M = \alpha_m$ and $\phi_M\chi_M < \phi_m\chi_m$, and ii) $\alpha_M < \alpha_m$ and $\phi_M\chi_M = \phi_m\chi_m$. Therefore, finding empirical support for those three hypotheses does *not* allow us to make any statement regarding the relative efficiency of the policies implemented. In particular, even if observing "cycling" by some incumbents does suggest the existence of social inefficiencies, observing no cycling by other incumbents might be a sign of even more inefficiencies. This would be the case if an incumbent were to vote "yea" in both periods

[46]The only case in which flip flopping can occur is when the two groups have the exact same weight, i.e. $n_M\alpha_M = n_m\alpha_m$. This is a non-generic case, in which all combinations of policies are optimal.

(which is always the case for pro-gun incumbents), whereas the social optimum is to vote "nay" in both periods. From a utilitarian standpoint, such an outcome would be worse than "cycling".

Appendix A4: Informational lobbying

Our two-period model shows that, if voters suffer from a recency bias, the incumbent may flip flop on gun regulations, only pandering toward the interests of the vocal pro-gun minority when she approaches re-election. One might argue that such a recency bias would be compensated by a lobby providing its members information about what the incumbent did during her mandate when they go to the polls. In this appendix, we extend the model to allow for such "informational lobbying".

Our objective is twofold: we want to get some insights about the impact of informational lobbying on the behavior of voters and verify whether cycles in the politician's behavior persist.

Setup

We assume that voters who care intensely about gun regulations are able to overcome the free-riding problem described by Olson (1965) and form a lobby. The lobby maximizes the utility of its members and provides them with information about the incumbent's policy choices. Importantly, the lobby does not suffer from a recency bias:

$$W_l\left(q^s\right) = -\alpha_m\left(\left|s_m - s_1\right| + \left|s_m - s_2\right|\right). \tag{A.4}$$

Following Persson and Tabellini (2001), the objective function of the lobby is

$$\max_e \Pi\left(q\right)\left(W_l(q) - \bar{u}\right) + \bar{u} - \frac{1}{2}e^2. \tag{A.5}$$

The lobby chooses a level of effort e that affects χ_m, the fraction of group m voters who know what the incumbent has done during her mandate. The relation between χ_m and e is as follows: $\chi_m = \bar{\chi}e$, where $\bar{\chi} \in (0,1)$. The higher the effort, e, the higher the fraction of informed voters in group m. We also assume that $\chi_M = \bar{\chi}$.

Solving for the optimal e for a given q^s (under the constraint that $e \geq 0$), we get

$$e^*(q^s) = \begin{cases} \frac{\gamma}{\phi} n_m \phi_m\left(\bar{\chi} W_m\left(q^s\right)\right)\left(W_l\left(q^s\right) - \bar{u}_m\right) & \text{if } > 0 \\ 0 & \text{otherwise} \end{cases}$$

We thus have

$$\begin{aligned} e^*(0,0) &= \frac{\gamma}{\phi} n_m \phi_m \bar{\chi} \alpha_m (1+\delta)(2\alpha_m + \bar{u}_m), \\ e^*(0,1) &= \frac{\gamma}{\phi} n_m \phi_m \bar{\chi} \alpha_m \delta (\alpha_m + \bar{u}_m), \\ e^*(1,0) &= \frac{\gamma}{\phi} n_m \phi_m \bar{\chi} \alpha_m (\alpha_m + \bar{u}_m), \\ e^*(1,1) &= 0. \end{aligned}$$

To avoid corner solutions, we work under the assumption that $\alpha_m + \bar{u}_m > 0$. This ensures that $e^*(q^s) \geq 0 \ \forall q^s$. We can directly observe that $e^*(1,1) < e^*(0,1) < e^*(1,0) < e^*(0,0)$. This means that the lobby makes sure that pro-gun voters know more about the action of the incumbent when she behaves "badly" from the viewpoint of pro-gun voters. Interestingly, the lobby's optimal e is affected by the recency bias even though the lobby's planner does not suffer from such a bias. This is because pro-gun voters are more sensitive to information when q^s is "bad".

The incumbent maximizes her expected utility taking into account the lobby's reaction:

$$\max_{q^s} \frac{1}{2} + \frac{\gamma}{\phi} \left(n_M \phi_M \left(\bar{\chi} W_M(q^s) - \bar{u}_M \right) + n_m \phi_m \left(\bar{\chi} e^*(q^s) W_m(q^s) \right) - \bar{u}_m \right) + \theta \omega(q^s).$$

Equilibrium analysis

In order to verify how informational lobbying affects our results concerning the cycling behavior of the incumbent, we consider a situation in which $q^{s*} = (0,1)$ is **not** an equilibrium without lobbying but may be an equilibrium with lobbying. In particular, suppose that

$$\alpha_M = \alpha_m = 1, \ \phi_M = \phi_m, \ n_M > n_m \text{ and } \chi_M = \bar{\chi} = \chi_m. \tag{A.6}$$

The last part is equivalent to assuming that $e = 1 \ \forall q$. For the sake of expositional clarity, we also assume that $\theta = 0$.[47] Under the assumption in (A.6), it is easy to show that any incumbent chooses $q^{s*} = (0,0)$, i.e. the platform preferred by anti-gun voters. The following proposition shows that this is not necessarily the case when informational lobbying is allowed (i.e. $\chi_m = \bar{\chi} e^*(q^s)$):

Proposition 10 *The strategy $q^{s*} = (0,1)$ is an equilibrium if and only if*

$$\frac{1}{(1+\delta)(1+\bar{u})} \leq \frac{(n_m)^2}{n_M} \bar{\chi} \gamma \ \leq \ \frac{1}{\delta(1+\bar{u})}.$$

There are values of the parameters such that these conditions are simultaneously satisfied.

[47] That assumption alone is enough to prevent the existence of an equilibrium in which $q^{s*} = (0,1)$.

Proof: The first part of the proof is very similar to the proof of Proposition 4. We therefore omit the details of how we obtain the following three conditions, that are necessary and sufficient conditions for $q^{s*} = (0,1)$ to be an equilibrium:

$$\begin{aligned}
\frac{(n_m)^2}{n_M}\bar{\chi}\gamma &\geq \frac{1}{(1+\delta)^2(2+\bar{u}) - \delta^2(1+\bar{u})}, \\
\frac{(n_m)^2}{n_M}\bar{\chi}\gamma &\leq \frac{1}{\delta(1+\bar{u})}, \\
\frac{(n_m)^2}{n_M}\bar{\chi}\gamma &\geq \frac{1}{(1+\delta)(1+\bar{u})}.
\end{aligned}$$

Given that

$$\left(1+\delta+\delta^2\right)(1+\bar{u}) < \left(1+2\delta+\delta^2\right)(2+\bar{u})$$

is always satisfied (from $\delta > 0$ and $1+\bar{u} > 0$), we have that

$$\frac{1}{(1+\delta)^2(2+\bar{u}) - \delta^2(1+\bar{u})} < \frac{1}{(1+\delta)(1+\bar{u})}.$$

Therefore, we only have to check that

$$\frac{1}{\delta(1+\bar{u})} \geq \frac{(n_m)^2}{n_M}\bar{\chi}\gamma \geq \frac{1}{(1+\delta)(1+\bar{u})}$$

is possible. This requires

$$(1+\delta)(1+\bar{u}) > \delta(1+\bar{u}),$$

which is always true. It remains to check that $\frac{(n_m)^2}{n_M}\bar{\chi}\gamma$ can belong to $[\frac{1}{(1+\delta)(1+\bar{u})}, \frac{1}{\delta(1+\bar{u})}]$. There is no constraint on the parameters' values that excludes such a possibility. This is so even when both $\frac{1}{\delta(1+\bar{u})}$ and $\frac{1}{(1+\delta)(1+\bar{u})}$ are larger than 1. Indeed, given $\bar{\chi} \in (0,1)$, this requires $\frac{(n_m)^2}{n_M}\gamma > 1$, which is satisfied if $n_m > 1$, or $\frac{(n_m)^2}{n_M} < 1$ and $\gamma > 1$. ■

The intuition for this result is as follows. First, note that the additional information provided by the lobby decreases the probability of re-election of the incumbent. Second, remember that the lobby provides more information when the platform is "bad" than when it is good, i.e. $e^*(1,1) < e^*(0,1) < e^*(1,0) < e^*(0,0)$. Obviously, this gives incentives for the incumbent to move away from "bad" platforms (i.e. $(0,0)$ and $(1,0)$) toward "good" platforms (i.e. $(0,1)$ and $(1,1)$). The proposition shows that this effect might be strong enough so that the incumbent neither adopts $(0,0)$ nor $(1,0)$, but not so strong that she adopts $(1,1)$.

Thus, even under the presence of a pro-gun lobby that does not suffer from a recency bias, we can have $q^{s*} = (0,1)$ as an equilibrium.

Appendix B1: variables and descriptive statistics

Table B-1: Definition of variables and sources

Variable	Definition	Source
Vote_{ijvt}	Dummy equal to 1 if senator i from state j votes "yea" ("nay") on pro-gun (anti-gun) vote v	GOA (website and newsletters), Voteview and Project Vote Smart
Senate3_{it}	Dummy equal to 1 if senator i is in the last two years of his or her mandate	Congressional Directory
Republican_{i}	Dummy equal to 1 if congressman i is a Republican	Biographical Directory of the U.S. Congress
Male_{i}	Dummy equal to 1 if senator i is male	Biographical Directory of the U.S. Congress
Age_{it}	Age of congressman i in year t	Biographical Directory of the U.S. Congress
Gun-rights $\text{contributions}_{it}$	Contributions in thousands US$ received by senator i in year t from gun-rights lobbies	Center for Responsive Politics
Gun-control $\text{contributions}_{it}$	Contributions in thousands US$ received by senator i in year t from gun-control lobbies	Center for Responsive Politics
Retiring_{it}	Dummy equal to 1 if senator i retires (voluntarily leaves office) at the end of the mandate	Overby and Bell (2004) and http://www.rollcall.com
Margin of victory_{it}	Difference in votes of winner and runner-up in last election	Statistics of the Congressional Elections
Safe Seat_{it}	Dummy equal to 1 if senator i obtained more than three times the votes of his or her runner-up, 0 if appointed	Statistics of the Congressional Elections
Tenure_{it}	Senators' length of service in number of congresses	Biographical Directory of the U.S. Congress
Gun magazine $\text{subscriptions}_{jt}$	Number of subscriptions to American Rifleman per 1,000 inhabitants in state j and year t	American Audited Media
Violent crime rate_{jt}	Number of violent crimes per 1 million inhabitants in state j and year t	Federal Bureau of Investigation (FBI)
Education_{jt}	Proportion of the population of state j with a college degree	CPS (1994-2006) and ACS (2007-2010)
Swing state_{jt}	Dummy equal to 1 if in state j the margin of victory in the last presidential election was less than 5%	Leip (2008)
Close vote_{v}	Dummy equal to 1 if the margin of passage or rejection for vote v was smaller than the median margin	Voteview
Accept_{v}	Dummy equal to 1 if vote v was to accept pro-gun legislation (rather than to reject gun-control legislation)	GOA (website and newsletters) and Voteview

Table B-2: Summary statistics

Variable				
A. Senator-level characteristics		Democrats	Republicans	All
Vote (1= pro gun)		0.300	0.883	0.595
Senate3		0.323	0.348	0.336
Male		0.838	0.928	0.883
Age		60.7	60.8	60.7
Republican		0	1	0.501
Gun Rights contributions		0.270	4.712	2.493
Gun Control contributions		0.414	0.029	0.221
Retiring		0.151	0.139	0.145
Margin of victory		0.219	0.247	0.233
Safe seat		0.059	0.080	0.070
Tenure		7.06	6.21	6.64
B. State-level characteristics	Mean	St. Dev.	Min	Max
Gun magazine subscriptions	6.36	2.78	2.38	22.50
Violent crime rate	44.8	21.8	6.7	121.0
Education	25.0	5.0	11.4	40.4
Swing State	0.227	0.419	0	1
C. Vote-level characteristics				
Close vote	0.50	0.51	0	1
Approve	0.56	0.51	0	1

Notes: See definition of variables in Table B-1. Panel A reports averages of senator-year observations, while Panel B reports averages of state-year observations.

Appendix B2: Sample of votes

As discussed in Section 4, since 1994 Gun Owners of America (GOA) has been keeping track of key votes in the U.S. Congress, classifying them into two categories. The first category includes votes supported by GOA, which are meant to strengthen the rights of gun owners or to reject gun-control legislation. The second category includes votes not supported by GOA, which are often not directly gun-related or concern relatively uncontroversial gun-control measures.

In what follows we show that a vote "yea" on the first category is not analogous to a vote "nay" on the second category. Both GOA and the NRA produce well-known ratings on the pro-gun position of politicians. In particular, GOA produces ratings for all senators by assigning a letter grade from A+ for a "Pro-Gun Leader" to F- for "Philosophically committed anti-gunner". Similarly to GOA, the NRA rates politicians

on a scale from A+ for someone "who has also made a vigorous effort to promote and defend the Second Amendment" to F for a "True enemy of gun owners' rights". However, the NRA only produces ratings for senators who are up for re-election, i.e. in the last two years of their mandate.

We examine the relationship between the ratings constructed by GOA and the NRA and the voting records of senators. To capture whether a senator is considered as a supporter of gun rights, we construct the dummy variable *Pro-gun rating*$_{ijt}$, which takes the value of 1 when a senator receives a letter grade C- or above.[48] We then regress this variable on the senators' voting behavior. In particular, we construct two variables: *Support pro gun*$_{ijt}$, which captures the share of "yeas" in votes supported by GOA; and *Oppose anti-gun*$_{ijt}$, which measures the share of "nays" in votes not supported by GOA.

In the first four columns of Table B-3 we report regressions based on GOA ratings, including different sets of dummy variables. The last column shows the results for NRA ratings, which are based on a much smaller sample since NRA ratings are only available for a shorter period and only for senators who are up for re-election.[49] Notice that the coefficient for the variable *Support pro gun*$_{ijt}$ is always positive and highly significant, indicating that a "yea" on GOA-supported votes increases the probability of being rated as a gun-rights supporter. A "nay" on votes not supported by GOA, on the other hand, has a much smaller impact on senators' gun ratings, and the effect is insignificant in columns (2) and (4), when controlling for the total number of votes that were cast in a Congress. Even in the smaller sample of NRA ratings, the weight attached to a "yea" on GOA-supported votes is significantly larger than a "nay" on votes that GOA did not support. These results suggest that senators' decisions on the first category of votes better capture their stance on gun control.

Confirmation on this asymmetry comes from comparing the impact of election proximity on the two categories of votes . In Table B-4, we compare the voting behavior of senators belonging to different generations on all votes listed by GOA. In the first two columns, we do not distinguish whether or not a vote was supported by GOA. We do so in the remaining two columns. Columns (1) and (3) report the results of parsimonious specifications, in which we only include senators' generations dummies and year and state effects. Additional controls for the senators and their constituencies are included

[48] We choose C- as the pro-gun/anti-gun threshold based on GOA's description of each letter grade: C and C- are given to senators leaning GOA's way occasionally, while D and D- are given to senators usually against GOA's interests. For the NRA ratings, we similarly choose C- as the threshold since a senator is described as "anti-gun candidate" starting with the letter grade D.

[49] This smaller sample does not allow us to include dummy variables for the number of votes cast in a Congress due to collinearity problems.

Table B-3: Gun ratings and votes

Dep. variable:	Pro-gun rating$_{ijt}$				
Source for ratings:	GOA				NRA
	(1)	(2)	(3)	(4)	(5)
Support pro gun$_{ijt}$	4.557***	5.750***	4.166**	8.050**	4.947***
	(1.230)	(1.979)	(2.106)	(3.824)	(1.419)
Oppose anti gun$_{ijt}$	1.428***	1.177	1.546***	0.836	1.771***
	(0.287)	(0.946)	(0.412)	(2.310)	(0.486)
Republican$_i$	2.454***	2.337***	2.419***	2.594**	1.327***
	(0.399)	(0.449)	(0.709)	(1.143)	(0.506)
Male$_i$	1.197**	1.143**	1.116*	1.792**	-0.600
	(0.539)	(0.494)	(0.678)	(0.798)	(0.512)
Age$_{it}$	-0.049***	-0.057***	-0.102***	-0.148***	0.026
	(0.012)	(0.013)	(0.030)	(0.048)	(0.023)
Congress dummies	yes	yes	yes	yes	yes
State dummies	no	no	yes	yes	no
Number of votes dummies	no	yes	no	yes	no
Observations	478	421	305	265	75
Pseudo R-squared	0.721	0.712	0.789	0.807	0.637

Notes: The table reports coefficients of probit regressions, with robust standard errors in parentheses, adjusted for clustering at state level. The dependent variable *Pro-gun rating*$_{ijt}$ is coded 1 when senator i from state j is assigned a letter grade above C- in congressional period t. *Support pro gun*$_{ijt}$ (respectively *Oppose anti gun*$_{ijt}$) is the proportion of votes supported by GOA (resp. not supported by GOA) in which senator i from state j voted "yea" (resp. "nay") during Congress t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

in columns (2) and (4).

The first two columns of Table B-4 provide no evidence of inter-generational differences in senators' voting behavior (i.e. the estimated coefficients for *Senate2* and *Senate3* are statistically insignificant). However, this conclusion is reversed in the last two columns, in which we distinguish whether or not a vote was supported by GOA: election proximity has no impact on senators' voting behavior on votes GOA does not support (the estimated coefficients for *Senate2* and *Senate3* are statistically insignificant), but has a pro-gun effect on GOA-supported votes (the interaction of *Senate3* with *pro-gun vote* is statistically significant and positive, while the estimated coefficient for *Senate2* is insignificant). Notice that the variable *Senate2* is not significant, indicating that the pro-gun effect of election proximity manifests itself in the last two years of a senator's mandate.

Based on these results, in our empirical analysis we focus on the determinants of senators' decisions on GOA-supported votes. In addition, we bundle senators belonging to the first two generations together as the omitted category.

Table B-4: Inter-generational differences (all votes)

Dep. variable:	Vote_{ijvt}			
	(1)	(2)	(3)	(4)
Senate2_{it}	0.016	-0.015	-0.018	-0.016
	(0.076)	(0.061)	(0.098)	(0.082)
Senate3_{it}	0.117	-0.049	0.067	-0.110
	(0.088)	(0.071)	(0.101)	(0.086)
GOA-supported vote_v			0.591***	0.731***
			(0.106)	(0.112)
Senate2_{it} × GOA-supported vote_v			0.134	0.020
			(0.105)	(0.105)
Senate3_{it} × GOA-supported vote_v			0.213**	0.216**
			(0.098)	(0.105)
Republican_i		1.275***		1.325***
		(0.093)		(0.101)
Age_{it}		-0.005		-0.005
		(0.004)		(0.005)
Male_i		0.204*		0.214*
		(0.109)		(0.116)
Gun-rights $\text{contributions}_{it}$		0.017**		0.020***
		(0.007)		(0.007)
Gun-control $\text{contributions}_{it}$		-0.014		-0.011
		(0.017)		(0.018)
Gun magazine $\text{subscriptions}_{jt}$		0.172*		0.183*
		(0.093)		(0.098)
Violent crime rate_{jt}		0.010		0.011
		(0.007)		(0.007)
Education_{jt}		-0.031		-0.034
		(0.023)		(0.024)
Year dummies	yes	yes	yes	yes
State dummies	yes	yes	yes	yes
Observations	6,456	6,456	6,456	6,456
Pseudo R-squared	0.224	0.315	0.251	0.345

Notes: The table reports coefficients of a probit model, with robust standard errors in parentheses, adjusted for clustering at the state level. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. The dummy variable *GOA-supported* $vote_v$ takes the value of 1 if GOA supported vote v. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table B-5: List of GOA pro-gun votes

Date	Vote	GOA description	(yeas, nays)	Result	Directly gun-related?
Nov. 9, 1995	H.J.R.115 by Livingston	The Senate passed a compromise version of the Simpson-Istook provision. The compromise which passed would only limit those non-profit groups with budgets of more than $3 million from both lobbying and receiving federal grants.	49-47	Passed	no
July 21, 1998	Smith amendment No. 3234	Pro-gun Senator Bob Smith (R-NH) introduced an "Anti-Brady" amendment. The Smith amendment would prohibit the FBI from using Brady background checks to tax or register gun owners. Further, the amendment requires the "immediate destruction of all [gun buyer] information, in any form whatsoever."	69-31	Passed	yes
July 21, 1998	Boxer amendment No. 3230	Vote to table an amendment that would prohibit the transfer of guns which are not equipped with a locking device.	61-39	Passed	yes
July 22, 1998	Durbin amendment No. 3260	The Senate defeated a "lock-up-your-safety" amendment introduced by Sen. Dick Durbin (D-IL). Durbin's provision would make it a federal crime to keep a firearm and ammunition on your premises under the following conditions: you know or should know that a juvenile can gain access to your firearm, and a juvenile does obtain access to it and does as little as exhibit it.	69-31	Passed	yes
July 28, 1998	Feinstein amendment No. 3351	Senator Dianne Feinstein (D-CA) offered an anti-gun provision as an amendment to S. 2312. Her language would prohibit the importation of firearm magazines holding over 10 rounds that were manufactured before the 1994 ban was enacted.	54-44	Passed	yes
May 12, 1999	S. 254 amendment No. 331	The Senate tabled (defeated) an amendment introduced by anti-gun Senator Frank Lautenberg (D-NJ). The provision would have banned the private sales of firearms at gun shows unless buyers submitted to background registration checks. Draconian restrictions would have also been imposed on gun show promoters.	51-47	Failed	yes
May 13, 1999	S. 254 amendment No. 343	Feinstein Modified Amendment No. 343, to provide for a ban on importing large capacity ammunition feeding devices, to prohibit the transfer to and possession by juveniles of semiautomatic assault weapons and large capacity ammunition feeding devices, and to enhance criminal penalties for transfers of handguns, ammunition, semiautomatic assault weapons, and large capacity ammunition feeding devices to juveniles.	39-59	Failed	yes
May 13, 1999	S. 254 amendment No. 344	Hatch/Craig Amendment No. 344, to provide for effective gun law enforcement, enhanced penalties, and facilitation of background checks at gun shows.	3-94	Failed	yes
May 14, 1999	S. 254 amendment No. 350	Internet firearms sales. Schumer Amendment No. 350, to amend title 18, United States Code, to regulate the transfer of firearms over the Internet.	50-43	Passed	yes

July 13, 2006	H.R. 5441, amendment No. 4615	The amendment, introduced by Sen. David Vitter (R-LA), provides that no money can be used by federal agents to confiscate firearms during a declared state of emergency. The amendment was added to the Department of Homeland Security appropriations bill (H.R. 5441).	84-16	Passed	yes
Jan. 18, 2007	S. 1, amendment 20.	The Senate narrowly passed the Bennett amendment to strike language in S.1 that would infringe upon the free speech rights of groups like Gun Owners of America. Offered by Sen. Robert Bennett (R-UT), the amendment struck requirements that would have required GOA to monitor and report on its communications with its members, and could easily have led to government demands for GOA's membership list.	55-43	Passed	no
Sept. 6, 2007	H.R. 2764, amendment No. 2774	The Vitter provision stipulates that no U.S. funds can be used by the United Nations – or organizations affiliated with the UN – to restrict or tax our gun rights. Hence, the amendment would give a mildly pro-gun administration the excuse to stop sending US taxpayer funds to the United Nations as soon as they adopt any policy to restrict the Second Amendment rights of Americans.	81-10	Passed	no
Feb. 25, 2008	S. 1200, amendment No. 4070	Vote to adopt an amendment that would prohibit funds in the Indigenous Health Bill (S 1200) from being used to "carry out any anti-firearm program, gun buy-back program, or program to discourage or stigmatize the private ownership of firearms for collecting, hunting, or self-defense."	78-11	Passed	yes
Feb. 26, 2009	S. 160, Point of Order	On February 26, the Senate passed a pro-gun amendment offered by Senator John Ensign (R-NV). The Ensign amendment would completely repeal D.C.'s gun ban. The amendment passed as a rider to S. 160, the D.C. Voting Rights Act. That bill that is designed to give Washington, D.C. full voting privileges in the House of Representatives, thus providing one more anti-gun vote in that chamber (even though D.C. is not a state).	62-36	Passed	yes
April 2, 2009	S.Con.Res. 13, amendment No. 798	Amendment that seeks to reverse a gun prohibition on Amtrak trains. The provision, sponsored by Sen. Roger Wicker (R-MS), passed as part of the annual budget resolution (S. Con. Res. 13). Amtrak regulations prohibit firearms on both checked and carry on baggage, which means that sportsmen who wish to use an Amtrak carrier for a hunting trip cannot take a shotgun even in their checked luggage.	63-35	Passed	yes
May 12, 2009	H.R. 627, amendment No. 1067	The Senate passed a pro-gun amendment – offered by Senator Tom Coburn (R-OK) – that would effectively overturn the gun ban on National Park Service lands. The amendment will in no way change or override state, local or federal law, but will simply allow those laws (enacted by legislation, and not by bureaucrats or judges) to govern firearms possession.	67-29	Passed	yes
July 22, 2009	S. 1390, amendment No. 1618	Vote to pass an amendment allowing individuals who have conceal and carry permits in their home state to carry concealed firearms across state lines.	58-39	Failed	yes
March 25, 2010	H.R. 4872, amendment No. 3700	The U.S. Senate defeated an amendment to repeal the Veterans Disarmament Act on March 25, 2010. During the Clinton Administration, the Department of Veteran Affairs (VA) began sending the names of many of its beneficiaries to the FBI so they could be added to the NICS list, denying these individuals their right to purchase a firearm. To combat this outrage, pro-gun Senator Richard Burr (R-NC) authored S. 669, the Veterans Second Amendment Protection Act, which stipulates that a veteran cannot lose his or her gun rights "without the order or finding of a judge, magistrate, or other judicial authority of competent jurisdiction that such person is a danger to himself or herself or others."	45-53	Failed	yes

Sources: Website and newsletters of Guns Owners of America (GOA).

Appendix B3: Additional robustness checks

Table B-6: The pro-gun effect of election proximity, comparing across senators (linear probability model)

Dep. variable:	$Vote_{ijvt}$							
	All				Directly gun-related			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Senate3_{it}$	0.063***	0.037**	0.034**	0.045*	0.075**	0.048**	0.047**	0.053*
	(0.022)	(0.016)	(0.016)	(0.023)	(0.030)	(0.023)	(0.023)	(0.030)
$Republican_i$		0.450***	0.449***	0.449***		0.412***	0.412***	0.423***
		(0.044)	(0.045)	(0.067)		(0.045)	(0.045)	(0.065)
$Male_i$		0.054	0.052	0.037		0.076	0.077	0.052
		(0.044)	(0.044)	(0.051)		(0.051)	(0.052)	(0.061)
Age_{it}		-0.003*	-0.003*	-0.003		-0.003*	-0.003*	-0.003
		(0.002)	(0.002)	(0.002)		(0.002)	(0.002)	(0.002)
Gun-rights $contributions_{it}$		0.000	0.000	0.000		0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)		(0.002)	(0.002)	(0.003)
Gun-control $contributions_{it}$		-0.006	-0.005	0.001		-0.005	-0.005	0.001
		(0.007)	(0.007)	(0.011)		(0.007)	(0.007)	(0.011)
Gun magazine $subscriptions_{jt}$		0.033	0.033			0.028	0.028	
		(0.021)	(0.021)			(0.025)	(0.025)	
Violent crime $rate_{jt}$		0.004**	0.004**			0.004	0.004	
		(0.002)	(0.002)			(0.002)	(0.002)	
$Education_{jt}$		-0.006	-0.006			-0.006	-0.006	
		(0.008)	(0.008)			(0.010)	(0.010)	
Year dummies	yes	yes	no	yes	yes	yes	no	yes
State dummies	yes	yes	yes	yes	yes	yes	yes	yes
Vote dummies	no	no	yes	no	no	no	yes	no
Year×State dummies	no	no	no	yes	no	no	no	yes
Observations	1,745	1,745	1,745	1,745	1,363	1,363	1,363	1,363
R-squared	0.487	0.591	0.644	0.695	0.502	0.590	0.644	0.692

Notes: The table reports coefficients of a linear probability model, with robust standard errors in parentheses, adjusted for clustering at the state level. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table B-7: The pro-gun effect of election proximity, alternative samples

Dep. variable:	Vote_{ijvt}							
Sample:	All GOA + key votes 1993		GOA gun-related + key votes 1993		All GOA + Votesmart		GOA gun-related + Votesmart	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Senate3_{it}	0.221**	0.183**	0.249**	0.233**	0.210**	0.135*	0.247**	0.183**
	(0.091)	(0.091)	(0.124)	(0.108)	(0.081)	(0.076)	(0.105)	(0.082)
Republican_i		2.226***		2.103***		1.967***		1.888***
		(0.264)		(0.268)		(0.189)		(0.194)
Male_i		0.526**		0.701*		0.457**		0.564**
		(0.266)		(0.374)		(0.217)		(0.270)
Age_{it}		-0.027***		-0.028***		-0.013**		-0.014**
		(0.008)		(0.009)		(0.006)		(0.006)
$\text{Gun-rights contributions}_{it}$		0.020		0.017		0.014		0.013
		(0.014)		(0.016)		(0.011)		(0.012)
$\text{Gun-control contributions}_{it}$		-0.172***		-0.156***		0.011		0.011
		(0.042)		(0.047)		(0.060)		(0.060)
$\text{Gun magazine subscriptions}_{jt}$		0.091		0.060		0.078		0.101
		(0.114)		(0.131)		(0.075)		(0.085)
$\text{Violent crime rate}_{jt}$		0.022***		0.028***		0.014*		0.016*
		(0.009)		(0.010)		(0.008)		(0.009)
Education_{jt}		-0.051		-0.062		-0.060*		-0.071*
		(0.046)		(0.053)		(0.034)		(0.037)
Senate3 (marginal effects)	0.048**	0.028**	0.054**	0.036**	0.050**	0.025*	0.059**	0.034**
	(0.020)	(0.014)	(0.027)	(0.017)	(0.020)	(0.014)	(0.025)	(0.015)
Predicted probability	0.601	0.599	0.598	0.596	0.550	0.549	0.545	0.544
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
State dummies	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,865	1,865	1,467	1,467	2,431	2,431	2,113	2,113
Pseudo R-squared	0.422	0.584	0.425	0.582	0.386	0.524	0.389	0.524

Notes: The table reports coefficients of a probit model, with robust standard errors in parentheses, adjusted for clustering at the state level. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro gun on vote v in year t. ***, ** and * indicate statistical significance at the 99%, 95% and 90%, respectively.

Table B-8: The pro-gun effect of election proximity, additional controls

Dep. variable:	Vote_{ijvt}							
Sample:	All				Directly gun-related			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Senate3_{it}	0.261***	0.289***	0.264***	0.291***	0.334***	0.318***	0.371***	0.365***
	(0.092)	(0.105)	(0.093)	(0.107)	(0.108)	(0.119)	(0.112)	(0.124)
Republican_{i}	2.431***	2.327***	2.471***	2.353***	2.286***	2.223***	2.474***	2.422***
	(0.303)	(0.308)	(0.313)	(0.312)	(0.309)	(0.308)	(0.352)	(0.352)
Male_{i}	0.294	0.353	0.308	0.337	0.419	0.420	0.452	0.457
	(0.281)	(0.330)	(0.286)	(0.329)	(0.421)	(0.446)	(0.457)	(0.491)
Age_{it}	-0.026***	-0.019	-0.027***	-0.019	-0.026***	-0.017	-0.029***	-0.018
	(0.009)	(0.012)	(0.009)	(0.012)	(0.010)	(0.014)	(0.011)	(0.015)
$\text{Gun-rights contributions}_{it}$	0.025**	0.024*	0.026**	0.024*	0.022	0.023	0.027	0.028
	(0.012)	(0.013)	(0.012)	(0.013)	(0.017)	(0.017)	(0.017)	(0.018)
$\text{Gun-control contributions}_{it}$	-0.163***	-0.176***	-0.177***	-0.182***	-0.151**	-0.149**	-0.183***	-0.187***
	(0.054)	(0.057)	(0.054)	(0.057)	(0.059)	(0.060)	(0.062)	(0.065)
$\text{Gun magazine subscriptions}_{jt}$	0.139	0.104	0.146	0.090	0.186	0.127	0.162	0.097
	(0.136)	(0.132)	(0.147)	(0.127)	(0.182)	(0.170)	(0.204)	(0.187)
$\text{Violent crime rate}_{jt}$	0.009	0.006	0.009	0.004	0.008	0.006	0.007	0.007
	(0.011)	(0.013)	(0.011)	(0.013)	(0.014)	(0.015)	(0.015)	(0.016)
Education_{jt}	-0.049	-0.032	-0.050	-0.030	-0.065	-0.054	-0.063	-0.058
	(0.048)	(0.048)	(0.047)	(0.049)	(0.061)	(0.062)	(0.064)	(0.067)
Swing State_{jt}	-0.154			-0.113	0.020			0.062
	(0.185)			(0.175)	(0.284)			(0.318)
$\text{Margin of Victory}_{it}$		0.505		0.523		0.265		0.442
		(0.560)		(0.558)		(0.668)		(0.724)
Tenure_{it}		-0.026		-0.026		-0.029		-0.037
		(0.026)		(0.026)		(0.029)		(0.032)
Close vote_{v}			0.201	0.215			1.162***	1.200***
			(0.169)	(0.169)			(0.228)	(0.230)
Accept_{v}			0.708***	0.696***			1.381***	1.397***
			(0.191)	(0.193)			(0.235)	(0.243)
Senate3 (marginal effects)	0.039***	0.045***	0.039***	0.045***	0.050***	0.049***	0.051***	0.051***
	(0.014)	(0.016)	(0.014)	(0.016)	(0.016)	(0.018)	(0.016)	(0.018)
Predicted probability	0.620	0.631	0.621	0.631	0.621	0.630	0.622	0.631
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
State dummies	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,675	1,570	1,675	1,570	1,281	1,225	1,281	1,225
Pseudo R-squared	0.595	0.577	0.599	0.581	0.594	0.580	0.628	0.617

Notes: Same as in Table B-7.