Guns, Environment, and Abortion: How Single-Minded Voters Shape Politicians' Decisions*

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Abstract

We study how electoral incentives affect policy choices on secondary issues, which only minorities of voters care intensely about. We develop a model in which office and policy motivated politicians choose to support or oppose regulations on these issues. We derive conditions under which politicians flip-flop, voting according to their policy preferences at the beginning of their terms, but in line with the preferences of single-issue minorities as they approach re-election. To assess the evidence, we study U.S. senators' votes on gun control, environment, and reproductive rights. In line with our model's predictions, election proximity has a pro-gun effect on Democratic senators and a pro-environment effect on Republican senators. These effects only arise for non-retiring senators, who represent states where the single-issue minority is of intermediate size. Also in line with our theory, election proximity has no impact on senators' decisions on reproductive rights, because of the presence of single-issue minorities on both sides.

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1 Introduction

Passion often runs high in politics. Within an electorate, some individuals feel so passionate about a particular issue that they are willing to cast their votes based on a candidate's stance on that issue alone. For instance, some voters may be concerned mostly with politicians' stance on reproductive rights, others with their position on gun control, environmental regulations, or gay rights.

Single-issue voters often seem to have disproportionate power relative to their size. A striking example is provided by gun rights supporters in the United States. In the wake of the murder of twenty children and six staff at Sandy Hook Elementary School in December 2012, all opinion polls showed that 90% of Americans were in favor of an expansion of background checks on gun purchases. However, the 10% who opposed these gun controls got its way in April 2013, when the Senate failed to pass the Manchin-Toomey amendment to strengthen background checks. Even after the more recent mass-shootings in Las Vegas in October 2017 (which left 58 people dead and hundreds wounded) and at a high school in Florida in February 2018 (in which 17 people were killed and more than two dozen others were wounded), new gun controls have little chance of success in Congress, notwithstanding support from the vast majority of Americans.

In this paper, we examine how single-minded minorities can shape politicians' decisions on the issues that are salient to them. We focus on three issues: gun control, environment, and reproductive rights. There are two main reasons for this. First, these are prototypical secondary issues, which only minorities of voters care intensely about. For example, based on Gallup surveys carried out between February and December 2017, less than 0.5% of respondents ranked abortion as the most important problem facing the country; the corresponding shares for gun control and environment are less than 2% and 3%, respectively.[1] Second, there are key differences between these issues. Two of them are dominated by a strong minority on one side: in the case of gun control, gun-rights supporters belonging to organizations like the National Riffle Association (NRA) or Gun Owners of America (GOA) dominate an apathetic majority who favors tighter regulations;[2] in the case of the environment, there is a minority of "green" voters belonging to organizations like Greenpeace or the National Wildlife Federation, but no

[1] By comparison, more than 20% considered Dissatisfaction with government/Poor leadership as the most important problem; the shares for Health and Immigration were around 10% and 8%.

[2] As pointed out by Goss (2006), there is a "missing movement" for gun control in America: in terms of number of members and intensity of their preferences, gun-control groups like the Brady Campaign to Prevent Gun Violence pale in comparison to gun-rights groups.

single-issue "brown" minority.[3] By contrast, in the case of reproductive rights, there are two opposite single-issue minorities of similar size and intensity: some individuals are strongly pro-choice and belong to organizations such as the National Abortion and Reproductive Rights Action League (NARAL); others are strongly pro-life and belong to organizations such as the National Right to Life (NRLC).

We focus on one channel through which single-issue voters can shape politicians' choices: the intensity of their policy preferences. The broad idea is that politicians only respond to the interests of voters who make them accountable on a policy issue. Going back to the example of gun regulations, after the Senate voted against the Manchin-Toomey amendment on background checks, President Obama asked: "The American people are trying to figure out: How can something have 90% support and yet not happen?". His answer was that the 90% who support gun controls lack the passion and focus of the 10% who oppose them: "Ultimately, you outnumber those who argued the other way. But they make sure to stay focused on this one issue during election time."[4]

An alternative channel through which vocal minorities could affect policy choices is money. Politicians may be willing to support policies favored by special interests in exchange for their financial support. However, relatively little money is actually paid to politicians on secondary policy issues such as gun control, environment, and reproductive rights. The amount of lobbying expenditures and campaign contributions related to these issues pales in comparison to what is spent on other policy issues, such as Finance/Insurance, Health, or Construction.[5]

[3]Many voters dislike environmental regulations. For example, a Gallup poll in 2017 asked whether environmental protection should be given priority even at the risk of curbing economic growth, or if economic growth should be given priority even if the environment suffers a bit; 35% of respondents stated that economic growth should be given priority. However, voters who are opposed to environmental regulations tend to be against taxation and regulation more generally, rather than being focused on the environment.

[4]Single-mindedness is key to understand the power of the National Rifle Associations (NRA). "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" (see "Why is the NRA so powerful? How the gun lobby leverages modest resources into outsized influence", *Slate*, June 29, 2012).

[5]The data on lobbying expenditures and campaigns contributions come from the Center for Responsive Politics. As shown in Figures A-1-A-3 in the Appendix, spending on the three secondary issues of interest represents a tiny fraction of the spending on other policy issues, both in terms of lobbying expenditures and campaign contributions. For example, expenditures related to reproductive rights are only 0.5% of those on Finance/Insurance and Health, and less than 5% those on Construction;

We develop a simple theoretical model to study how single-issue minorities affect politicians' choices on secondary issues. Politicians serve two-period terms, at the end of which they face re-election. During their mandates, they are called to vote in favor or against regulations on gun control, environment, and reproductive rights. They care about remaining in office, but also have their own policy preferences, which may reflect their party line on these issues. The three policy issues are only salient to minorities of pro-issue or anti-issue voters.

We derive conditions under which politicians will change their voting behavior during their terms in office. In our model, politicians who face a tradeoff between policy preferences and re-election motives may "flip flop", voting according to their preferences at the beginning of their terms and in line with the preferences of a single-issue minority when they are close to facing re-election. Election proximity should have no impact on the voting behavior of politicians who share the same preferences as the single-issue minority or who are not seeking re-election.

Our model predicts that the effects should be heterogeneous across secondary issues. This is because the relative strength of the single-issue minorities, which depends on their size and preference intensity, varies across issues. As argued above, in the case of gun regulations, the pro-gun minority is stronger than the anti-gun minority. In the case of environmental regulations, the pro-environment minority is stronger than its anti-environment counterpart. Finally, in the case of regulations on reproductive rights, there are two equally strong minorities of single-issue voters, one pro-life and one pro-choice. Election proximity should thus have a pro-gun (pro-environment) effect on the voting behavior of politicians who are in favor of (against) gun regulations (environmental regulations); it should instead have no impact on politicians' voting behavior on reproductive rights.

To assess the evidence, we examine the determinants of U.S. senators' votes on regulations on gun rights, the environment, and reproductive rights. The staggered structure of the U.S. Senate — in which senators serve six-year terms and one third of them is up for re-election every two years — provides a quasi-experimental setting to verify whether election proximity affects the decisions of incumbent politicians. For any given vote, we can compare the behavior of senators who belong to three different

expenditures on gun regulations and environmental regulations are respectively 2% and 3.5% compared to expenditures on Finance/Insurance or Health, and 19% and 31% compared to expenditures on Construction. Looking at campaign contributions to U.S. congressmen, spending on the three single-issues represents around 1.5% of the spending on Finance/Insurance, 3% of spending on Health, and 7% of spending on Construction.

"generations," i.e. face elections at different times.[6] We can also study whether election proximity affects the stance of individual senators over time, exploiting the fact that senators cast multiple votes on the same issue during their terms in office.

We have assembled a novel dataset that allows us to link senators' voting behavior on the three policy issues of interest to a wealth of characteristics of the legislators and their constituencies. To identify the relevant votes to be included in the analysis, we rely on lists of votes assembled by single-issue organizations.

Our empirical analysis provides strong support for the predictions of our theoretical model. First, we show that senators flip-flop on gun control and environment — the two issues dominated by a strong single-issue minority: election proximity increases the likelihood that Democratic senators vote pro-gun and that Republican senators vote pro-environment. In the case of reproductive rights, election proximity has not effect on the behavior of senators: Democratic senators vote pro-choice, while Republican senators vote pro-life, in line with their own preferences and with the interests of the single-issue minority on the same side. Second, we find that Democratic (Republican) senators flip flop on gun (environmental) regulations only if they are seeking re-election; retiring senators always vote according to their preferences. Finally, election proximity has a pro-gun (pro-environment) effect on Democratic (Republican) senators only when the pro-gun (pro-environment) group in their state is of intermediate size.

These findings contribute to the debate about the shortcomings of voting as a way to keep politicians accountable. It has been argued that, in representative democracies, voters are limited in their ability to make politicians accountable for their policy choices. This is because citizens have only one vote to punish or reward politicians on a bundle of issues (Besley and Coate, 2008). Electoral accountability has thus no bite, especially for policy issues that are of secondary importance to most voters. Contrary to this argument, List and Sturm (2006) emphasize the role of electoral incentives in shaping U.S. governors' choices on state-level environmental regulations, which are of secondary importance to most voters. They argue that electoral incentives still matter in the presence of single-issue voters, who base their voting decisions solely on the policies

[6]This 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). Rather than focusing on senators' choices on specific policy issues, most of these papers 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 various measures of their constituencies' preferences and examine how election proximity affects the gap between the two.

related to their specific issue of interest. What remained to be seen is whether electoral accountability driven by single-issue voters is a widespread phenomenon, which spans other policy issues and other levels of policymaking. This is exactly what our results suggest. Our theoretical model and empirical findings show that electoral incentives are a key determinant of politicians' national choices on gun control, environment, and reproductive rights. However, rather than responding to the median voter, politicians are accountable to different single-issue minorities of voters on different policy issues. Because they see the policy space as unidimensional, single-issue minorities give voting back some edge in keeping politicians in check.

The rest of the paper is organized as follows. Section 2 reviews the related literature. In Section 3, we present our theoretical model. In Section 4, we describe the data and variables used in our empirical analysis. Section 5 presents our empirical results. The last section concludes.

2 Related literature

Our paper is related to several strands of literature. First it builds on the political agency literature, which studies the determinants of a government's responsiveness to its citizens. Starting from the seminal contribution by Barro (1973), this literature includes the influential studies by Besley and Case (1995) and Besley and Burgess (2002), among many others.

Within this literature, the above-mentioned paper by List and Sturm (2006) is the closest to ours. They develop a theoretical model in which politicians decide on the level of public spending and environmental regulation. Voters are uncertain about the preferences of politicians on the secondary policy issue, so incumbents engage in reputation building. They show that re-election motives can lead politicians to manipulate environmental policy to attract single-issue voters. To test their model's predictions, they use data on environmental expenditures across U.S. states, exploiting the fact that some governors face binding term limits.[7] Our paper goes beyond List and Sturm (2006) by highlighting that the influence of single-issue voters is not limited to environmental policy at the state level. We show that single-issue voters shape the behavior of politi-

[7]Other studies exploiting the existence of gubernatorial term limits in some U.S. states include Besley and Case (1995) and Alt *et al.* (2011). Ferraz and Finan (2011) study the impact of term limits on corruption practices in Brazilian municipalities. Conconi *et al.* (2014a) exploit the existence of different types of executive term limits across countries to study the impact of electoral accountability on inter-state conflicts.

cians at the federal level (U.S. senators) and on several issues (environment, but also gun control and reproductive rights). In addition, our theoretical model and identification strategy differ from List and Sturm (2006)'s. In our model, there is no uncertainty about the preferences of politicians and thus no scope for reputation building.[8] In terms of identification strategy, the main challenge with exploiting the existence of term limits is the possibility of selection effects (Ferraz and Finan, 2011): politicians who serve a second term may differ along some unobserved characteristics from those who do not get re-elected (e.g. political ability, campaigning effort, contributions received by lobby groups), and these characteristics may also affect their policy choices. Our identification strategy does not suffer from this concern: to generate variation in electoral incentives, we exploit the staggered structure of the U.S. Senate, which allows to examine how proximity to elections affects the choices of individual politicians during their terms in office.

The influence of single-issue voters on politicians' choices has also been examined by Bombardini and Trebbi (2011) and Berry and Gersen (2011). Bombardini and Trebbi (2011) show how special interest groups can shape policy-making by donating money and pledging the votes of their members. Berry and Gersen (2011) emphasize that single-issue voters are more likely to turn out in elections and exploit variation in the timing of elections (on or off-cycle) to study the effect of turnout on implemented policies.

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 and Sibert, 1988; Rogoff, 1990). Our paper shows that proximity to election can lead office-motivated politicians to support the interests of vocal minorities on secondary policy issues.

Our paper is also related to the literature examining the determinants of the voting behavior of U.S. congressmen. The pioneering contribution by Peltzman (1985) studies senators' voting patterns on federal tax and spending. Recent contributions include Mian *et al.* (2010), who examines legislators' votes on two bills introduced in the aftermath of the recent financial crisis, and Conconi *et al.* (2014b), who study how term length

[8]In light of our empirical findings, this difference may not be innocuous. The theoretical model by List and Sturm (2006) can explain why politicians may override their private preferences to retain office, e.g. why Democratic (Republican) senators seeking re-election in a state with a large pro-gun (pro-environment) group may oppose gun regulations (support environmental regulations). However, as it stands, it cannot provide a rationale for the fact that senators flip flop on secondary issues *during* their terms in office.

and election proximity affect politicians' support for trade liberalization.

Finally, our paper contributes to the literatures on the political economy of the three issues we consider. Starting from gun control, several papers focus on the effectiveness of gun control policies on crime, often reaching conflicting conclusions (see. e.g., Lott and Mustard 1997 and Lott 1998 vs. Duggan 2001 and Duggan *et al.* 2011). Another strand of this literature examines gun trafficking in 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; Langbein, 1993; Kahane, 1999; Lipford, 2000). Ours is the first paper to consider a large set of gun-related votes and examine how re-election motives affect politicians' choices.

Concerning the political economy of enviromental policy, several studies examine the role of lobby groups (e.g. Aidt, 1998; Conconi, 2003). Others focus on the role of ideology (Nelson, 2002), race (Mohai and Kreshner, 2002) and gender (Fredriksson and Wang, 2011). Herrnstadt and Muehlegger (2014) show that U.S. congressmen's votes on environmental regulations are affected by weather conditions in their consitituencies.

In the literature on the political economy of reproductive rights, Tatalovitch and Schier (1993) study abortion bills in the House of Representatives, finding that the strongest predictors are ideology and religion. Swers (1998) examines how the gender of legislators affect their voting behavior on bills related to women's issue. Washington (2008) shows that parenting daughters, increases legislators' propensity to vote liberally, particularly on reproductive rights issues.

3 Theoretical Framework

3.1 Setup

In this section, we develop a simple model of politicians' choices to help structure our empirical analysis. We build on standard probabilistic voting models (e.g. Enelow and Hinich, 1982; Lindbeck and Weibull, 1987; Dixit and Londregan, 1995; Grossman and Helpman, 1996, Persson and Tabellini, 2001, and Stromberg, 2004).

We focus on the decisions of an incumbent politician, who serves a mandate lasting two periods, with elections taking place at the end of the second period. In each period, the politician is called to vote on three policy issues: gun control regulations,

environmental regulations, and regulations on reproductive rights. As discussed in the introduction, a key feature of these policy issues is their "secondary" nature, i.e. the fact that the majority of the electorate does not care intensely about them. To reflect our empirical analysis, we will consider the three issues separately (i.e. in each period, the incumbent votes on one piece of legislation related to each policy issue).

The politician can vote in favor (1) or against (0) a proposed law (e.g. supporting or opposing background checks on sales at gun shows, limits on carbon dioxide emissions for coal plants, or an extension of the gestation age limit for abortions). We denote with s_t her vote on the bill in period t, and with s the vector of choices for all periods.

Voters care about the incumbent's choices.[9] In particular, their utility in period t is

$$W_j^t(s) = -\alpha_j(|s_j - s_t|), \tag{1}$$

where s_j is the bliss point of group j's voters. The parameter α_j captures the importance of the policy issue for j voters relative to a "primary" policy issue, which we do not explicitly include in this version of the model.[10] Utility is additive across periods and there is no discounting.

For each policy issue, we suppose that there are three groups of voters: $j \in \{a, p, M\}$. The groups differ in size, with M representing the majority group and a and p representing the anti-issue and the pro-issue minorities. Denoting the size of group j by n_j, we assume: (i) $n_M > \max\{n_a, n_p\}$, and (ii) $\sum_j n_j = 1$. The two minorities differ in the direction of their policy preferences, with $s_a = 0$, $s_p = 1$. We do not take a stance on the direction of the preferences of the majority: depending on the case under consideration, s_M might be 0 or 1.

Voters also differ in the intensity of their policy preferences, with the minorities caring more about the issue than the majority of the electorate ($\alpha_M < 1 < \min\{\alpha_p, \alpha_a\}$). Given the secondary nature of the policy issues, it is natural to assume that α_M, the intensity of majority voters preferences, is orders of magnitude smaller than α_a and α_p, the intensity

[9]There is a large empirical literature highlighting that congress members' voting records affect their re-election probabilities (e.g. the references cited in Snyder and Ting, 2005, p. 2). The literature proposes several explanations of why voters care about congress members' voting records. Snyder and Ting (2003) argue that voters have to care about congress members' voting behavior in order to limit the influence of interest groups. Also voters care about congress members' preferences, and their voting behavior is informative about those preferences (Snyder and Ting 2002, 2003). Yet another reason is that voters are unable to evaluate the effect of congressmen's behavior on the outcome they care about, and are thus limited to focus on the voting behavior itself (Arnold, 1990).

[10]We have worked out the details of an extended version of the model including a primary policy issue, and the results are qualitatively similar.

of minority voters' preferences. For the sake of expositional clarity, we will work under the assumption that $\alpha_M = 0$.

Besides the incumbent's vote on these laws, voters care about other characteristics of the politician. The total utility of voter i in group j under the incumbent politician is

$$W_j = \sum_t W_j^t(s) + \sigma_{ij} + \mu, \tag{2}$$

with $\sigma_{ij} \sim U[-\frac{1}{2\phi_j}, \frac{1}{2\phi_j}]$ and $\mu \sim U[-\frac{1}{2\gamma}, \frac{1}{2\gamma}]$. The parameter σ_{ij} represents an individual's ideological preference in favor of the incumbent, while μ represents her general popularity.[11,12] To make sure that there is no doubt about the forces underlying our results, we assume that $\phi_j = \phi \ \forall j$.

At the end of the politician's mandate, voters decide whether to re-elect her or vote for a challenger. However, not all voters know what the politician did during her mandate. As in Stromberg (2004), we let the variable $\xi_{ij}^t = 1$ if voter i in group j knows what the incumbent has done in period t, and $\xi_{ij}^t = 0$ otherwise. The decision of re-electing the politician is based on a simple rule: each voter i in group j casts the ballot in favor of the incumbent politician if her utility under this politician has met some minimum standard $\bar{u}_j$:[13]

$$\sum_t \xi_{ij}^t W_j^t(s) + \sigma_{ij} + \mu \geq \bar{u}_j. \tag{3}$$

For each individual i in group j, the politician assigns a probability χ_j^t that the voter knows what she has done in period t. Following the principle of recency (Mullainathan 2002), we assume that voters are, on average, better informed about more recent events, i.e. $\chi_j^1 < \chi_j^2$. This is in line with theoretical studies emphasizing that voters suffer from a

[11] As usual in probabilistic voting models, there is an implicit assumption that, for any incumbent, there are always voters that can be swung at the margin, i.e. the support of σ_{ij} is large enough. However, one could imagine situations in which, due to strong ideological divergences, some minority voters may never vote for an incumbent, even if she adopts a stance they like. Our results continue to hold (at least qualitatively) if we introduce such "partisan voters" in the model.

[12] We could allow for a group-specific bias against or in favor of the incumbent by introducing a non-stochastic shifter, say, ψ_j in the distribution of σ_{ij}, i.e. $\sigma_{ij} \sim U[-\frac{1}{2\phi_j} - \psi_j, \frac{1}{2\phi_j} - \psi_j]$. This could capture differences in the average popularity of the incumbent with different groups of voters. Introducing such bias would not affect our results, since the incentives of the incumbent would not change at the margin.

[13] Our results do not rely on this specific retrospective voting rule. We can easily rewrite our model as a forward-looking voting model, in which two candidates credibly commit to a policy platform. In such a specification, $\bar{u}_j$ would simply be replaced by voter i's utility when the challenger wins the election.

recency bias, following the so-called "what have you done for me lately?" principle (e.g. Fiorina, 1981; Weingast *et al.*, 1981; Ferejohn, 1986; Shepsle *et al.*, 2009). Empirical and experimental evidence provides support for the existence of such bias (e.g. Lewis-Beck and Stegmaier, 2000; Huber *et al.*, 2012; Healy and Lenz, 2014).[14] For the sake of expositional simplicity, we assume that $\chi_j^t = \chi^t \ \forall j$.

For any given μ, we can compute π_j, the fraction of each group voting for the incumbent politician, and then derive the probability of her re-election:

$$\Pi(s) = \Pr_{\mu}\left(\sum_j n_j \pi_j \geq \frac{1}{2}\right) = \frac{1}{2} + \gamma \sum_j n_j \left(\sum_t \chi^t W_j^t(s) - \bar{u}_j\right). \tag{4}$$

This expression illustrates the costs and benefits in terms of re-election prospects of a pro-issue vote in any given period. For instance, consider the case of a politician pondering two possible strategies: voting anti issue in both periods – $(s_1, s_2) = (0, 0)$, and voting anti issue only in period 1 – $(s_1, s_2) = (0, 1)$. The change in her probability of re-election is proportional to $n_a \alpha_a \chi^2 - n_p \alpha_p \chi^2$. Indeed, $n_j \alpha_j \chi^2$ is the mass of group-j voters that can be swung by a change in the politician's voting behavior in period 2. Thus, when $n_a \alpha_a < n_p \alpha_p$, the incumbent attracts more votes by appealing to the pro-issue minority than by appealing to the anti-issue minority.

Besides her re-election prospects, the incumbent cares about the ballot she casts. Her utility is:

$$U(s) = \Pi(s) + \theta \omega(s), \tag{5}$$

where $\omega(s)$ represents the politician's policy preferences (e.g. Levitt, 1996; Ansolabehere *et al.*, 2001; Washington, 2008) and $\theta(\geq 0)$ captures the importance of policy preferences relative to re-election motives. Alternatively, $\omega(s)$ can be interpreted as the preferences of the politician's party (e.g. Levitt, 1996; Snyder and Groseclose, 2000; Ansolabehere *et al.*, 2001).

The incumbent politician can be either in favor or against a given policy issue. We assume that an anti-policy politician has the following preferences:

$$\omega_a(0, 0) > \omega_a(0, 1) = \omega_a(1, 0) > \omega_a(1, 1), \tag{6}$$

[14] Instead of such an informational recency bias, we could assume that voters have a preference for the present. By discounting the policy decision in period 1, they would end up weighting more the policy decision in period 2. The effect on the re-election rule would be equivalent to the informational recency bias.

while a pro-policy politician has the following preferences:

$$\omega_p(1,1) > \omega_p(1,0) = \omega_p(0,1) > \omega_p(0,0). \tag{7}$$

Our results are robust to incumbents having a preference for the present. They would then prefer to implement less preferred policies in the second period. In particular, an anti-policy politician would prefer $s = (0,1)$ than $s = (1,0)$, i.e., $\omega_a(0,1) > \omega_a(1,0)$, while a pro-policy politician would prefer s=$(1,0)$ than s=$(0,1)$, i.e., $\omega_p(0,1) > \omega_p(1,0)$. In the next subsection, it will become clear that this assumption has the same effect on equilibrium behavior than the assumption that voters suffers from a recency bias (informational or not).

3.2 Results

To state our results, it is useful to introduce one additional piece of notation to capture the difference in intensity-weighted size of the two minority groups:

$$\triangle^h \equiv n_p\alpha_p - n_a\alpha_a,$$

where the super-script h refers to the issue at hand: gun-control ($h = gun$), environment ($h = env$), and reproductive rights ($h = repr$).

In what follows, we characterize the behavior of the incumbent on each issue h. All proofs are in the Appendix. We start by characterizing the behavior of an anti-issue incumbent:

Proposition 1 *The behavior of an anti-issue incumbent on issue h is uniquely defined:*
(i) For $\triangle^h \geq \max\{\frac{\theta(\omega_a(0,1)-\omega_a(1,1))}{\chi^1\gamma}, \frac{\theta(\omega_a(0,0)-\omega_a(1,1))}{(\chi^1+\chi^2)\gamma}\}$, $(s_1^*, s_2^*) = (1,1)$;
(ii) For $\triangle^h \leq \min\{\frac{\theta(\omega_a(0,0)-\omega_a(0,1))}{\chi^2\gamma}, \frac{\theta(\omega_a(0,0)-\omega_a(1,1))}{(\chi^1+\chi^2)\gamma}\}$, $(s_1^*, s_2^*) = (0,0)$;
(iii) For $\triangle^h \in \left(\frac{\theta(\omega_a(0,0)-\omega_a(0,1))}{\chi^2\gamma}, \frac{\theta(\omega_a(0,1)-\omega_a(1,1))}{\chi^1\gamma}\right)$, $(s_1^*, s_2^*) = (0,1)$.

This means that election proximity can only have a *pro-issue effect* on an anti-issue incumbent. The intuition for this result is simple: an anti-issue politician would like to vote "nay" in both periods to satisfy her policy preferences/her party's line. However, if the pro-issue minority is stronger than the anti-issue minority ($\triangle^h > 0$), voting "nay" is costly in terms of re-election prospects, since it swings away many pro-issue voters and attracts few anti-issue voters. In this case, the politician faces a tradeoff between voting according to her preferences and maximizing the probability of being re-elected.

The assumption that voters suffers from a recency bias implies that second-period policy choices have a bigger impact on re-election chances. As a result, an anti-issue politician may vote "nay" in the first period (in line with her policy preferences/her party line), and "yea" in the second period (in line with the preference of the stronger single-issue minority).

Proposition 1 also implies that an anti-issue incumbent will only flip-flop if $\triangle^h$ is of intermediate size. This result is again intuitive: when the pro-issue minority is much stronger than the anti-issue minority (case (i)), the anti-issue incumbent finds it worthwhile to support its interests in both periods; when instead the anti-issue minority is much stronger than the pro-issue minority (case (ii)), the anti-issue incumbent can afford voting according to her preferences in both periods; it is only when $\triangle^h$ is positive but not too large (case (iii)), that the anti-issue politician will switch from voting "nay" in the first period to voting "yea" in the second.

The behavior of a pro-issue incumbent can be characterized in a similar way:

Proposition 2 *The behavior of a pro-issue incumbent on issue h is uniquely defined:*
(i) For $\triangle^h \geq \max\{\frac{\theta(\omega_p(1,0)-\omega_p(1,1))}{\chi^2\gamma}, \frac{\theta(\omega_p(0,0)-\omega_p(1,1))}{(\chi^1+\chi^2)\gamma}\}$, $(s_1^*, s_2^*) = (1,1)$*;*
(ii) For $\triangle^h \leq \min\{\frac{\theta(\omega_p(0,0)-\omega_p(1,0))}{\gamma\chi^1}, \frac{\theta(\omega_p(0,0)-\omega_p(1,1))}{(\chi^1+\chi^2)\gamma}\}$, $(s_1^*, s_2^*) = (0,0)$*;*
(iii) For $\triangle^h \in \left(\frac{\theta(\omega_p(0,0)-\omega_p(1,0))}{\chi^1\gamma}, \frac{\theta(\omega_p(1,0)-\omega_p(1,1))}{\chi^2\gamma}\right)$, $(s_1^*, s_2^*) = (1,0)$.

This means that election proximity can only have an *anti-issue effect* on a pro-issue incumbent. As in the case of an anti-issue incumbent, flip-flopping only happens when $\triangle^h$ is of intermediate size (case (iii)). This is because, if the pro-issue minority is strong enough, the pro-issue politician will be able to vote "yea" in both periods (case (i)). If instead the anti-issue minority is strong enough, the pro-issue politician will choose "nay" in both periods (case (ii)).

Finally, we consider the behavior of an incumbent who is not seeking re-election. This case can be captured by a parameter θ large enough so that the incumbent's re-election incentives are swamped by the party line (and/or her policy preferences):

Proposition 3 *There is always a* θ *sufficiently large such that* $(s_1^*, s_2^*) = (0,0)$ *is the equilibrium for an anti-issue incumbent, and* $(s_1^*, s_2^*) = (1,1)$ *is the equilibrium for a pro-issue incumbent.*

3.3 Testable predictions

To map the above propositions into empirical predictions, we will examine the impact of election proximity on the voting behavior of U.S. senators on regulations concerning gun control, environment, and reproductive rights. As discussed before, 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, allows to compare the voting behavior of different generations of senators, depending on how close they are to facing re-election.

In terms of voters' preferences, we will work under the following assumptions, justified above: (i) the pro-gun minority is substantially larger than the minority in favor of gun regulations (i.e. $\triangle^{gun} < 0$) ; (ii) the pro-environment minority is substantially larger than the anti-environment minority (i.e. $\triangle^{env} > 0$); and (iii) there are no substantial size or intensity differences between the pro-life and pro-choice minorities (i.e. $\triangle^{repr} \simeq 0$).

With respect to senators' preferences, we will assume that they reflect their party line on each issue: Democratic senators are thus pro gun control, pro environment, and pro choice, while Republican senators are pro gun rights, opposed to environmental regulations, and pro life. This assumption is in line with previous studies on U.S. congressmen's votes on these policy issues and supported by our own empirical findings on the role of party affiliation.

We can then state our three testable predictions as follows:

Prediction 1. Election proximity should increase the likelihood that Democratic senators vote pro-gun and that Republican senators vote pro-environment; it should have no effect on the voting behavior of Democrats and Republicans voting on reproductive rights.

Prediction 2. Election proximity should only have a pro-gun (pro-environment) effect on the voting behavior of Democratic (Republican) senators when they are seeking re-election.

Prediction 3. Election proximity should only have a pro-gun (pro-environment) effect on the voting behavior of Democratic (Republican) senators when the pro-gun (pro-environment) minority in their state is of intermediate size.

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' voting behavior on each policy issue to a wealth of characteristics of the legislators and their constituencies. In this section we describe our data, starting from our dependent variables. Table A-1 in the Appendix provides descriptive statistics for all the variables used in our regressions.

4.1 U.S. Senators' votes

For each of the three secondary policy issues, we have collected data on Senate roll-call votes. Our dependent variable, $Vote_{ijvt}$, is equal to 1 when senator i from state j in year t casts a pro-gun, pro-environment, or pro-choice vote v.

In order to identify the relevant votes to be included in the analysis, we rely on the lists of votes assembled by single-issue organizations. As a result, the first year in the sample period varies according to each organization's voting records. For all three issues, the end year is 2012, the last year for which we can construct all the control variables.

Votes on gun regulations are collected by Gun Owners of America (GOA), a non-profit organization aimed at preserving and defending 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.[15] In our empirical analysis, we will study the determinants of GOA-supported votes, i.e. for which it wanted congressmen to vote "yea."[16] These include two different types: votes to strengthen the rights of gun owners, and votes to reject gun-control legislation that threatens these rights. An example of the first type is the vote cast 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.[17] The sample of

[15]The NRA publishes information on gun ratings of politicians, but does not keep track of key gun votes in Congress.

[16]These votes fit the kind of decisions faced by politicians in our theoretical model, for two reasons, capturing votes that really matter for the pro-gun minority: senators' decisions on votes supported by GOA are a strong predictor of their ratings by gun-rights organizations (see Bouton *et al.*, 2014). Moreover, they concern gun regulations on which there is a clear party divide: based on the definition of bipartisan cosponsorship from Harbridge and Malhotra (2011), none of these votes was bipartisan.

[17]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.

GOA votes covers the period 1994-2012. One of the advantages of using this source is that we can directly identify votes that are supported by gun-rights groups: GOA lists all the votes it supported, i.e. for which it wanted congressmen to vote "yea."These include two different types: votes to strengthen the rights of gun owners, and votes to reject gun-control legislation that threatens these rights. 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.[18]

Votes on environmental regulations are collected by the League of Conservation Voters (LCV), a non-profit organization to raise awareness on environmental issues. Since 1971 LCV keeps track of relevant roll-call votes, which are selected by a panel of experts from environmental and conservation organizations. The votes are classified under different issues: Lands/Forests, Dirty Energy, Clean Energy, Air, Water, Wildlife, Transportation, Toxics/Public Right to Know, Drilling and Other. LCV specifies if each vote is pro or anti environment. An example of a pro-environment vote is a vote in favor of the amendment proposed by Senator Bernard Sanders (I-VT) to eliminate $35 billion in subsidies to the oil and gas industry, redirecting $10 billion of the savings to the Energy Efficiency and Conservation Block Grant Program, a grant program that allows communities to invest in projects that reduce energy usage. An example of anti-environment vote was on the Congressional Review Act (CRA) resolution of disapproval sponsored by Senator James Inhofe (R-OK) in 2012, not to apply the Mercury and Air Toxics Standard to Power Plants. The sample of LCV votes covers the period 1971-2012.

Votes on reproductive rights were collected by the National Right to Life Committee (NRLC), the oldest and largest pro-life organization in the U.S. NRLC specifies if a vote is pro life or pro choice. An example of the former is the vote in 2006 on the Child Custody Protection Act sponsored by Senator John Ensign (R-NV) to prohibit the transportation of a minor girl across state lines to obtain an abortion. An example of the latter is the vote in 1996 on the amendment sponsored by Senator Patty Murray (D-WA.) to require military medical facilities to provide abortion on request to military personnel and dependents. The sample of NRLC votes covers the period 1997-2012.

We exclude from our analysis votes that are not directly related to regulations about

[18]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.

the three policy issues of interest. One example for the case of gun regulations, is the vote cast in 2001 on the amendment to the Federal Election Campaign Act of 1971 proposed by Senator John McCain (D-AR). Though not directly related to gun regulations, this vote is included in the list of GOA because it would "severely curtail the ability of outside groups such as GOA to communicate the actions of incumbent politicians to members and supporters prior to an election." In the case of environment, we exclude votes that are classified under the category "Other". An example is the vote on the amendment on Regulatory Rollbacks proposed by Senator Olympia Snowe (R-ME) in 2011. Though not directly related to the environment, this vote was of interest to the LCV because it would "create several unnecessary new processes to complicate economic analyses of proposed rules" and "require a lengthy periodic review process for rules at select agencies, including the EPA, and impose mandatory budget cuts if reviews are not conducted or are incomplete." Finally, an example of votes on the NRLC list that we exclude from our analysis is on the Assisted Suicide Funding Restriction Act of 1997, which is related to euthanasia rather than reproductive rights. Overall, our dataset includes 14 votes on gun regulations, 397 votes on environmental regulations, and 51 votes on reproductive rights regulations.

4.2 Characteristics of legislators

Our primary interest is to examine the impact of election proximity on the voting behavior of U.S. senators. As discussed above, senators serve six-year terms, with one third of them up for re-election every two years. We define those senators who are serving the last two years of their terms as belonging to the third generation; the second generation captures those senators in the middle two years of their terms, while the first generation includes senators in the first two years.[19] We use the indicator variables $SenateG_{it}$, $G \in \{1, 2, 3\}$ to capture the generation to which senator i belongs in year t.

To control for party affiliation, we use the dummy variable $Republican_{it}$, which is equal to one if senator i belongs to the Republican party.[20]

We also control for the role of demographic characteristics by including the variables $Female_i$ and Age_{it} in our analysis.

[19] We use the term generation instead of class, since the class facing re-election changes each election. For example, Class I senators faced re-election in 2012, while class II senators did in 2008.

[20] We allow this variable to be time varying, since a few senators in our sample (Ben Nighthorse Campbell, Jim Jeffords, Richard Shelby and Arlen Specter) switched from one party to the other. Other senators switched from one of the parties to being independent (e.g. Joe Lieberman and Bernard Sanders) and are coded according to the party they caucus with.

To verify the role of electoral incentives, we construct the dummy variable $Retiring_{it}$, which takes value 1 during the six years of a senator's last mandate. The data come from Overby and Bell (2004), augmented using information from the website rollcall.com. Retiring senators are those who voluntarily departed (for personal reasons or to pursue other office), excluding those who were expelled or defeated in primary or general elections.

4.3 Characteristics of constituencies

We control for several characteristics of senators' constituencies, which might affect how they vote on the three policy issues. In all our regressions, we include the variable $Education_{jt}$, which is equal to the share of the population of state j in year t with a college degree. To construct this variable, we use the Current Population Survey (CPS) for years 1994-2006 and the American Community Survey (ACS) for years 2007-2012.

Below we describe the set of additional controls that we include for each particular issue.

Gun control

To proxy for the size of the pro-gun minority, we follow Duggan (2001) and use state-level data on subscriptions to gun magazines. These data come from audit reports of circulation from the Alliance for Audited Media. *American Rifleman* and *American Hunter* are the two leading gun magazines in the United States.[21] The variable *Gun magazine subscriptions*$_{jt}$ is the number of subscriptions to *American Rifleman* and *American Hunter* per 1,000 inhabitants in state j and year t.[22]

Figure 1 shows that there is significant variation in per capita subscriptions across states. Somewhat surprisingly, per capita subscriptions to gun magazines are higher in some Democratic-leaning states (e.g. Oregon, Washington) than in some Republican-leaning states (e.g. Texas, Georgia).[23] This is partly due to the fact that subscriptions

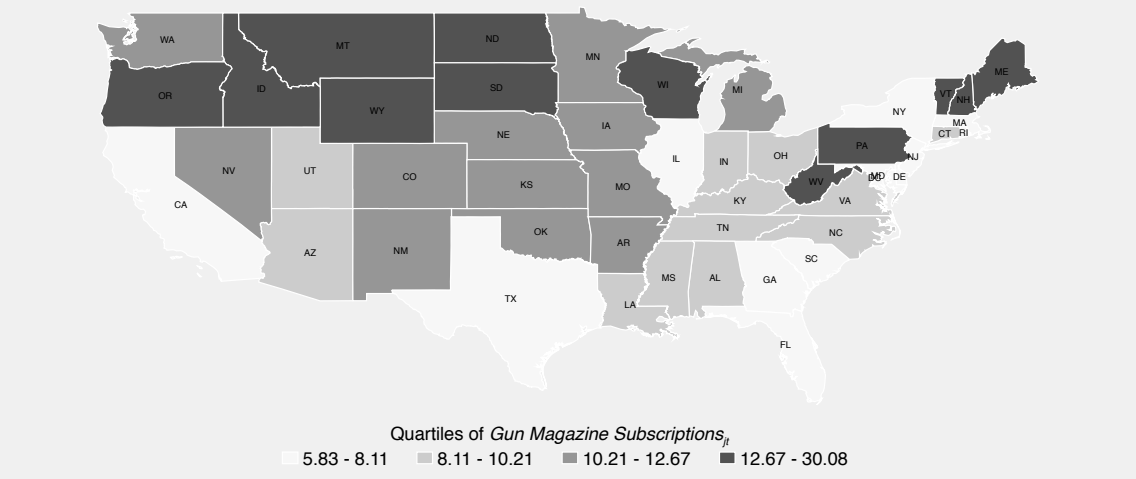
[21] *American Rifleman* is the default magazine that individuals receive when joining the NRA. In 2010, *American Rifleman* had 53% of the total circulation of NRA magazines, followed by *American Hunter* with 30% and *America's 1st Freedom* with 17%. It was also the leading magazine in 49 of the U.S. states (the exception was Wisconsin, in which *American Hunter* was the leading one).

[22] Our results are unaffected if we use subscriptions only to *American Rifleman* or *American Hunter* to proxy for the size of the pro-gun minority.

[23] For each of the four Presidential elections that have occurred during our sample period, we have computed the share of votes for the Republican candidate in each state. The correlation between this variable and *Gun magazine subscriptions*$_{jt}$ is 0.27.

to gun magazines tend to be higher in rural states.[24]

Figure 1
Subscriptions to gun magazines



The figure shows quartiles of the average number of subscriptions to *American Rifleman* and *American Hunter* magazines per 1,000 inhabitants for the 48 contiguous U.S. states, over the period covered by GOA votes (1994-2012).

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).[25]

Environment

Previous studies show that environmental concerns are more prominent in urban areas (e.g. Dunlap and Allen 1976; Anderson, 2011). Following these studies, we define the variable *Share Urban Population*$_{jt}$ as the percentage of urban population in state j and year t. This is constructed using data from the Decennial U.S. Census, linearly interpolated for in-between years. We also control for the extent of air pollution in a state. To this purpose, we use the variable *Carbon Emissions*$_{jt}$ from the Environmental Protection Agency (EPA), which gives CO_2 emissions (in million metric tons) from fossil fuel combustion per 10,000 inhabitants in state j and year t.

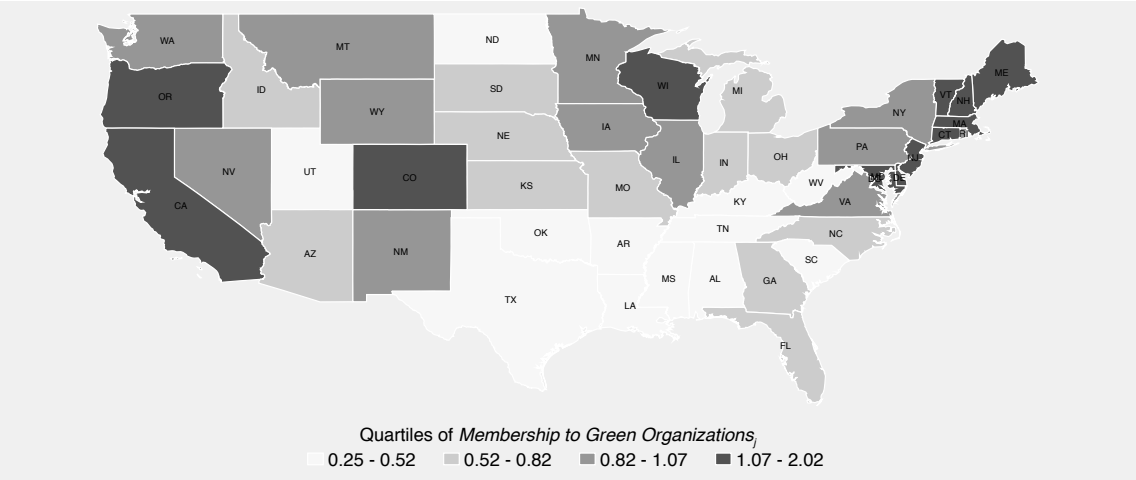
[24]Using information from the U.S. Census Bureau, we find that the correlation between the share of each state's population living in rural areas and per capita subscriptions to gun magazines is 0.39.

[25]We can also construct the variable *Gun production*$_{jt}$, using information from the Bureau of Alcohol, Tobacco, Firearms and Explosives. Unfortunately, this is only available for the period 1998-2010, so including it in our analysis would drastically reduce the size of the sample.

To proxy for the size of the pro-environment minority in U.S. states, we use data from List and Sturm (2006) on the share of population in the three largest environmental organizations (Greenpeace, Sierra Club, and National Wildlife Federation). Unfortunately, the data is only available for one year (1987). However, Figure 2 shows that the variable *Membership in Green Organizations*$_j$ varies significantly across U.S. states.

Figure 2

Membership in green organizations



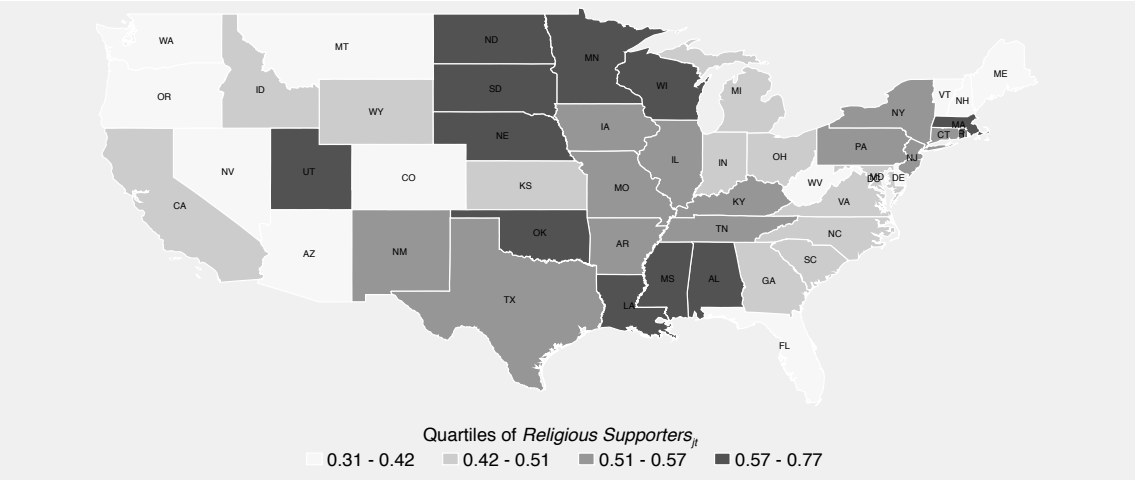
The figure shows quartiles of the percentage of the population with membership to Greenpeace, Sierra Club and the National Wildlife Federation in 1987 for the 48 contiguous U.S. states. The data come from List and Sturm (2006).

Reproductive Rights

When studying senators' votes on reproductive rights regulations, we include the variable *Religious Supporters*$_{jt}$ to capture religious attitudes towards abortion. *Religious Supporters*$_{jt}$ indicates the share of religious adherents to any church in state j and year t, and comes from the Association of Religion Data Archives (ARDA).[26] The data are available for years 1990, 2000 and 2010, so we linearly interpolate between 1990 and 2010, and use the last year available for 2011 and 2012. Figure 3 illustrates variation in *Religious Supporters*$_{jt}$ across states.

[26] Adherents are defined as all members, including full members, their children, and the estimated number of other participants who are not considered members (e.g. those regularly attending services).

Figure 3
Religious supporters



The figure shows quartiles of the variable *Religious Supporters*$_{jt}$ for the 48 contiguous U.S. states, over the period covered by NRLC votes (1997-2012).

We have also constructed the variable *Abortions*$_{jt}$, which is the number of reported abortions per 1,000 inhabitants in state j and year t. Data for the this variables comes from different sources: Henshaw and Van Vort (1990) for the years 1987-1988; Henshaw and Van Vort (1994) for the years 1991-1992; Henshaw (1998), for the years 1995-1996; Jones and Kooistra (2011) for 2000, 2005, 2007 and 2008; Jones and Jerman (2014) for the years 2010-2011; and Jones and Jerman (2017) for the years 2013-2014. We use linear interpolation to complete missing years.[27]

5 Empirical methodology and results

We follow two complementary strategies to identify the effect of election proximity on senators' voting behavior. First, we exploit variation in the voting behavior of *different senators*, depending on which generation they belonged to at the time of the vote. Second, we exploit changes in the voting behavior of the *individual senators* over time.

[27]The number of abortions reported in a given state is meant to capture the pro-choice/pro-life preferences of citizens. However, it might also be influenced by state-level legislation on abortion. In our regressions on U.S. Senate votes on reproductive rights, we will report parsimonious specifications in which we omit the variable *Abortions*$_{jt}$ and we will always include state fixed effects to account for time-invariant state characteristics that might affect senators' votes.

5.1 The impact of election proximity, party differences

To assess the validity of Prediction 1, we estimate the following linear probability model:

$$\begin{aligned} \text{Vote}_{ijvt} &= \lambda_0 + \lambda_1 \text{ Senate3}_{it} \times \text{Democrat}_{it} \\ &\quad +\lambda_2 \text{ Senate12}_{it} \times \text{Republican}_{it} + \lambda_3 \text{ Senate3}_{it} \times \text{Republican}_{it} \\ &\quad \lambda_5 \mathbf{X}_{it} + \lambda_3 \mathbf{W}_{jt} + \delta_j + \delta_t + \epsilon_{ijvt}. \end{aligned} \tag{8}$$

The dependent variable is $Vote_{ijvt}$, which is equal to 1 if senator i from state j votes pro issue (i.e. pro gun, pro environment or pro choice) on vote v in year t. The main regressor 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, i.e. $Senate12_{it}$.[28] When estimating model (8), we cluster standard errors at the senator level.

According to the first prediction of our theoretical model, whether or not senators "flip flop" should depend on the issue under consideration and on their party affiliation. In the case of gun regulations, election proximity should increase the probability that Democratic senators vote pro gun; λ_1 should thus be positive and significant, while λ_2 should not be significantly different from λ_3 for gun-related votes. When it comes to environmental regulations, election proximity should instead increase the probability that Republican senators vote pro environment; λ_1 should thus be insignificant, while λ_2 and λ_3 should be negative and significant, with λ_3 significantly smaller than λ_2. Finally, election proximity should have no impact on senators' voting behavior on reproductive rights, because of the presence of intense minorities on both sides of the issue; λ_1 should thus be insignificant, and λ_2 should not be significantly different from λ_3.

The matrix $\mathbf{X}_{it}$ includes additional controls for legislators (e.g. party affiliation, gender, age), and $\mathbf{W}_{jt}$ is a matrix of state-specific characteristics (e.g. crime rate, education). In our benchmark specifications, we also include two sets of fixed effects: δ_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 variables (e.g. share of Democratic senators in Congress). In alternative specifications, we replace the year dummies with vote dummies or add interactions between state and year dummies. Notice that, when we include these interactions, we

[28] The results are virtually identical if we only include first-generation senators in the omitted category: $Senate3_{it}$ remains positive and significant and $Senate2_{it}$ is not statistically significant.

identify the effect of election proximity based on differences in the voting behavior of senators from the same state in the same year. This allows us to account for changes in state-level preferences on a given issue due to a local shock (e.g. a shooting rampage).

We also study the impact of election proximity by exploiting only variation in the voting behavior of individual senators over time. In this case, we replace state dummies with senator dummies (δ_i):

$$\begin{aligned} Vote_{ijvt} &= \lambda_0 + \lambda_1 \text{ Senate3}_{it} \times \text{Democrat}_{it} \\ &\quad +\lambda_2 \text{ Senate12}_{it} \times \text{Republican}_{it} + \lambda_3 \text{ Senate3}_{it} \times \text{Republican}_{it} \\ &\quad \lambda_4 \mathbf{X}_{it} + \lambda_3 \mathbf{W}_{jt} + \delta_i + \delta_t + \epsilon_{ijvt} \end{aligned} \tag{9}$$

When estimating model (9), we identify the effect of election proximity by exploiting changes in the voting behavior of individual senators over time. This identification strategy relies on the fact that senators usually serve for long periods of time and cast several votes on each policy issue while belonging to different generations. The interpretation (and expected signs) of the key variables of interest are the same as for model (8). In these regressions, we cluster standard errors at the senator level.

Tables 1-3 present the results of estimating models (8) and (9) for each of the three policy issues. The various specifications reported in each table differ in terms of the regressors and fixed effects that we include, or the econometric methodology that we employ, but they all provide strong support for the first prediction of our model. Focusing first on our key regressors, we see that the estimated coefficients λ_1, λ_2 and λ_3 match the expected sign and significance.

The estimates in Table 1 confirm that Democratic senators are more likely to vote pro gun as they approach re-election (the coefficient of the interaction variable $Senate3_{it}$ $\times$ $Democrat_{it}$ is always positive and significant). By contrast, Republican senators do not change their voting behavior during their terms (the test at the bottom of the table is never significant). These results are in line with our prediction that the presence of a strong minority of gun-rights activists can make Democrats vote against their own preferences when they are close to re-election. Senator Tom Harking (D-IA) provides an example of a Democrat who flip-flopped on gun control: he cast 11 votes on gun-related legislation (4 in the 105^{th} Congress, 4 in the 106^{th}, 1 in the 109^{th}, 1 in 110^{th}, and 3 in 111^{th}) and only voted pro gun once during the 110^{th} Congress (in 2008), the only time in which a vote occurred when he belonged to the third generation of senators.

In terms of magnitude, the effect is very stable across specifications. When comparing

across different senators, Democrats are between 6.7 and 8.4 percentage points more likely to vote pro gun in the last two years of their mandates. This effect is slightly larger (i.e. around 10 percentage points) when we only exploit variation in the voting behavior of individual senators over time. As expected, Republican senators are significantly more likely to vote pro gun, but their behavior does not change as they get closer to re-election.

Table 1

The impact of election proximity on votes on gun regulations, party differences

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ $Democrat_{it}$	0.069*	0.070*	0.067*	0.084**	0.101**	0.101**	0.097**
	(0.037)	(0.037)	(0.037)	(0.040)	(0.043)	(0.042)	(0.042)
$Senate3_{it}\times$ $Republican_{it}$	0.461***	0.459***	0.459***	0.470***	0.269***	0.263***	0.260***
	(0.047)	(0.046)	(0.047)	(0.064)	(0.085)	(0.093)	(0.093)
$Senate12_{it}\times$ $Republican_{it}$	0.430***	0.431***	0.431***	0.442***	0.238***	0.237**	0.234**
	(0.042)	(0.043)	(0.044)	(0.061)	(0.084)	(0.092)	(0.092)
$Male_i$	0.079	0.081	0.082	0.054			
	(0.054)	(0.052)	(0.053)	(0.060)			
Age_{it}	-0.003*	-0.003*	-0.003*	-0.003			
	(0.002)	(0.002)	(0.002)	(0.002)			
Gun Magazine $Subscriptions_{jt}$		0.010	0.009			-0.015	-0.016
		(0.014)	(0.014)			(0.014)	(0.014)
Violent Crime $Rate_{jt}$		0.000*	0.000*			0.001***	0.001***
		(0.000)	(0.000)			(0.000)	(0.000)
$Education_{jt}$		-0.008	-0.008			-0.019*	-0.019*
		(0.010)	(0.010)			(0.011)	(0.011)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	1,363	1,363	1,363	1,363	1,363	1,363	1,363
R-squared	0.588	0.590	0.644	0.692	0.226	0.233	0.352
Test $Senate3_{it}\times$ $Republican_{it}$ = $Senate12_{it}\times$ $Republican_{it}$ (p-value)	0.122	0.147	0.148	0.315	0.212	0.294	0.296

Columns show coefficients of a linear probability model. Robust standard errors in parentheses, adjusted for clustering at the state level in columns 1-4 and senator level in columns 5-7. 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 sample covers the period 1994-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Concerning the auxiliary controls, the results of Table 1 indicate that older legislators are less likely to vote pro gun. Our specifications always include state fixed effects, which makes it hard to identify the role of constituency characteristics. Nevertheless, the coefficients of the variables $Education_{jt}$ and $Violent\ Crime\ Rate_{jt}$ suggest that an increase in the education of their electorate increases senators' support for gun regulations, while

an increase in crime rate in their constituency has the opposite effect.[29]

Table 2

The impact of election proximity on votes on environmental regulations, party differences

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ $Democrat_{it}$	-0.003	-0.003	-0.002	-0.005	-0.002	-0.002	-0.002
	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)
$Senate3_{it}\times$ $Republican_{it}$	-0.365***	-0.370***	-0.370***	-0.372***	-0.247***	-0.247***	-0.249***
	(0.023)	(0.023)	(0.023)	(0.027)	(0.062)	(0.063)	(0.062)
$Senate12_{it}\times$ $Republican_{it}$	-0.389***	-0.393***	-0.393***	-0.392***	-0.259***	-0.260***	-0.263***
	(0.023)	(0.023)	(0.023)	(0.028)	(0.061)	(0.063)	(0.062)
$Male_i$	-0.071**	-0.066**	-0.067**	-0.046			
	(0.031)	(0.031)	(0.031)	(0.031)			
Age_{it}	-0.002**	-0.002**	-0.002**	-0.001			
	(0.001)	(0.001)	(0.001)	(0.001)			
Carbon $Emissions_{jt}$		-0.017*	-0.016*			-0.010	-0.010
		(0.009)	(0.009)			(0.008)	(0.008)
Urban $Population_{jt}$		-0.000	-0.000			-0.001	-0.001
		(0.004)	(0.004)			(0.004)	(0.004)
$Education_{jt}$		-0.011**	-0.011**			-0.003	-0.003
		(0.005)	(0.005)			(0.003)	(0.003)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	37,277	37,277	37,277	37,277	37,277	37,277	37,277
R-squared	0.360	0.361	0.423	0.437	0.022	0.022	0.125
Test $Senate3_{it}\times$ $Republican_{it}$ = $Senate12_{it}\times$ $Republican_{it}$ (p-value)	0.005	0.006	0.006	0.045	0.106	0.109	0.095

The table reports coefficients of a linear probability model. Robust standard errors in parentheses, adjusted for clustering at the state level in columns 1-4 and senator level in columns 5-7. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro environment on vote v in year t. The sample covers the period 1971-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 2 reports the results for votes on environmental regulations. As expected, Democratic senators do not change their voting behavior over time (the coefficient of the interaction $Senate3_{it} \times Democrat_{it}$ is never significant). By contrast, Republican senators are more likely to vote pro environment when they are close to re-election: the estimated coefficient λ_2 and λ_3 are both negative and significants (i.e. Republican senators are less environmentally friendly than Democratic senators), but the coefficient of the interaction term $Senate3_{it} \times Republican_{it}$ is significantly smaller in absolute terms

[29]If we exclude the state fixed effects from the specification in column 2, the coefficient of the variable $Education_{jt}$ remains negative and significant (at the 1% level), the coefficient of *Gun Magazine* $Subscriptions_{jt}$ becomes positive and significant (at the 1% level), while the coefficient of *Violent Crime* $Rate_{jt}$ is not significant.

than the coefficient of $Senate12 \times Republican_{it}$ in most specifications (see the test at the bottom of the table). These results are in line with the first prediction of our model: when it comes to environmental regulations, only Republican senators face a tradeoff between their preferences or those of their party (which lead them to vote against regulations at the beginning of their terms) and their re-election motives (which lead them to vote in line with the preferences of the green single-issue minority at the end of their terms).

The estimates of Table 2 imply that election proximity increases the probability of Republican senators voting pro environment by around 2 to 2.4 percentage points (when comparing across senators) and by between 1.2 and 1.4 percentage points (when exploiting only within-senator variation). Senator Wayne Allard (R-CO) provides an example of flip flopping on environmental regulations: he voted pro environment only 10 times out of 108, and this happened during the 105th Congress (when he belonged to the third generation), and in the 109^{th} and 110^{th} Congress (when he belonged to the second and third generation, respectively).

Concerning the other controls, the results of Table 2 indicate that male legislators are less likely to vote in favor of environmental regulations, in line with earlier findings in the literature on the political economy of environmental policy (Fredriksson and Wang, 2011). Of the constituency characteristics, the estimated coefficients of the variables $Education_{jt}$ and $Carbon\ Emissions_{jt}$ are negative and significant in the specifications of columns 2 and 3, suggesting that representatives of states that become more educated and experience an increase in pollution are less likely to support environmental regulations.[30]

When it comes to votes on reproductive rights, the evidence in Table 3 is again very supportive of the first prediction of our theoretical model. In the case of regulations related to reproductive rights, no politician should face a tradeoff between policy preferences and re-election motives, due to the presence of strong pro-choice and pro-life minorities. We would thus expect senators of both parties to vote according to their policy preferences throughout their terms. Indeed, the results in Table 3 show that Republicans are less likely to vote pro choice than Democrats (the coefficients of the interactions $Senate3_{it} \times Republican_{it}$ and $Senate12 \times Republican_{it}$ are negative and sig-

[30]These results exploit only within-state variation. If we exclude the state fixed effects from the specification in column 2, the coefficient of $Education_{jt}$ becomes positive and significant (at the 1% level), while the coefficient of the variable $Carbon\ Emissions_{jt}$ remains negative and significant (at the 5% level); the coefficient of $Urban_{jt}$ is not significant.

nificant), but election proximity has no significant impact on their voting behavior (in all specifications, the coefficient of $Senate3_{it} \times Democrat_{it}$ is very small and insignificant, and the test at the bottom of the table is also insignificant).

Table 3

The impact of election proximity on votes on reproductive rights, party differences

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it} \times Democrat_{it}$	-0.030	-0.030	-0.030	-0.033	0.002	0.003	0.003
	(0.021)	(0.021)	(0.021)	(0.025)	(0.012)	(0.012)	(0.012)
$Senate3_{it} \times Republican_{it}$	-0.735***	-0.738***	-0.738***	-0.743***	-0.055	-0.050	-0.053
	(0.053)	(0.051)	(0.051)	(0.063)	(0.064)	(0.063)	(0.067)
$Senate12_{it} \times Republican_{it}$	-0.737***	-0.739***	-0.739***	-0.738***	-0.049	-0.043	-0.047
	(0.051)	(0.050)	(0.050)	(0.060)	(0.058)	(0.057)	(0.061)
$Male_i$	-0.114***	-0.113***	-0.112***	-0.106**			
	(0.040)	(0.040)	(0.041)	(0.052)			
Age_{it}	0.002	0.002	0.002	0.003			
	(0.002)	(0.002)	(0.002)	(0.003)			
Religious $Supporters_{jt}$		0.424	0.421			0.261	0.261
		(0.369)	(0.373)			(0.313)	(0.316)
$Abortions_{jt}$		-0.001	-0.001			0.002*	0.002*
		(0.001)	(0.001)			(0.001)	(0.001)
$Education_{jt}$		-0.009*	-0.009*			0.001	0.001
		(0.005)	(0.005)			(0.003)	(0.003)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	4,995	4,995	4,995	4,995	4,995	4,995	4,995
R-squared	0.730	0.731	0.747	0.770	0.020	0.020	0.098
Test $Senate3_{it} \times Republican_{it}$ = $Senate12_{it} \times Republican_{it}$ (p-value)	0.888	0.944	0.963	0.721	0.574	0.565	0.550

The table reports coefficients of a linear probability model. Robust standard errors in parentheses, adjusted for clustering at the state level in columns 1-4 and senator level in columns 5-7. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro environment on vote v in year t. The sample covers the period 1997-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Regarding the auxiliary regressors, only the coefficient of the variable $Male_i$ is significant. Its negative sign indicates that male senators are less likely to vote pro choice, confirming previous findings in the literature on reproductive rights (Swers, 1998). Of the constituency characteristics, only $Education_{jt}$ has a significant (negative) effect in the specification of column 2.[31]

[31]If we exclude the state fixed effects from the same specification, the coefficient of $Education_{jt}$ becomes positive and significant (at the 1% level), the coefficient of $Religious\ Supporters_{jt}$ becomes negative and significant (at the 10% level), while the coefficient of $Abortions_{jt}$ remains insignificant.

Summing up, the results of Tables 1-3 confirm that election proximity has a pro-gun effect on Democratic senators and a pro-environment effect on Republican senators. As expected, senators' voting behavior on reproductive rights is instead unaffected by election proximity. These results are identified by comparing the behavior of different senators voting on the same legislation, as well as the behavior of individual senators voting on different legislations.

In our analysis so far, we have allowed the party affiliation variable to be time varying, given that a few senators in our sample changed from one party to the other (Ben Nighthorse Campbell, Jim Jeffords, Richard Shelby and Arlen Specter), while others switched from one of the parties to being independent (e.g. Joe Lieberman and Bernard Sanders). In Tables A-2-A-4 in the Appendix, we have verified that the results of Tables 1-3 continue to hold if we drop from our sample the senators who switched parties. Compared to our benchmark regression, the main difference is that we can no longer identify differences in parties' stances on gun control, environment and reproductive rights in the specifications that include senator fixed effects (columns 5-7). However, the results confirm the first prediction of our theoretical model: only Democratic senators flip flop on gun control, becoming more pro gun as they approach re-election; only Republican senators flip flop on the environment, becoming "greener" as they approach re-election; and election proximity has no significant effect on the voting behavior of senators from either party when it comes to votes on reproductive rights.[32]

5.2 Re-election motives

Having found strong support for the first prediction of our model, we consider the second prediction, using variation in the voting behavior of retiring vs. non-retiring senators to verify whether re-election motives are the reason behind the flip-flopping documented in Table 1 (for Democrats voting on gun control) and Table 2 (for Republicans voting on environment).

To assess the validity of Prediction 2, we verify that flip-flopping only arises for senators who are seeking re-election, but not for those retiring. We focus on Democrats voting on gun control regulations and Republicans voting on environmental regulations

[32]The results reported in columns 5-7 of Table A-3 are a bit weaker than the corresponding results in our benchmark regressions (the coefficient of the interaction term $Senate3_{it} \times Republican_{it}$ is not significant at conventional levels). However, the results reported in columns 1-4 confirm that election proximity makes Republican senators more likely to support environmental regulations. Moreover, when focusing on senators who are seeking re-election, even the within-senator specifications provide strong support for Prediction 1 (see Table A-6).

and estimate the following linear probability model:

$$\begin{aligned} Vote_{ijvt} &= \lambda_0 + \lambda_1 \text{ Senate3}_{it} \times \text{Not Retiring}_{it} \\ &\quad +\lambda_2 \text{ Senate12}_{it} \times \text{Retiring}_{it} + \lambda_3 \text{ Senate3}_{it} \times \text{Retiring}_{it} \\ &\quad \lambda_5 \mathbf{X}_{it} + \lambda_3 \mathbf{W}_{jt} + \delta_j + \delta_t + \epsilon_{ijvt} \end{aligned} \tag{10}$$

Our theoretical model suggests that λ_1 should be positive and significant, as non-retiring Democratic (Republican) senators become more pro gun (environment), while λ_2 should not be significantly different from λ_3.

Table 4

The impact of election proximity on Democrats voting on gun regulations, seeking re-election vs retiring

Dep. variable:	Vote$_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Senate3$_{it}$× Not Retiring$_{it}$	0.097**	0.097***	0.097***	0.086*	0.113***	0.118***	0.118***
	(0.037)	(0.035)	(0.035)	(0.044)	(0.042)	(0.040)	(0.040)
Senate3$_{it}$× Retiring$_{it}$	-0.161	-0.185	-0.184	-0.000	-0.128	-0.199	-0.198
	(0.154)	(0.154)	(0.155)	(0.037)	(0.259)	(0.252)	(0.253)
Senate12$_{it}$× Retiring$_{it}$	-0.011	-0.052	-0.049	-0.077	-0.062	-0.077	-0.074
	(0.095)	(0.093)	(0.094)	(0.050)	(0.193)	(0.187)	(0.188)
Male$_i$	0.037	0.049	0.049	0.089			
	(0.072)	(0.075)	(0.076)	(0.129)			
Age$_{it}$	-0.004*	-0.003*	-0.003*	-0.003			
	(0.002)	(0.002)	(0.002)	(0.003)			
Gun Magazine Subscriptions$_{jt}$		-0.001	-0.001			-0.052**	-0.051**
		(0.030)	(0.030)			(0.025)	(0.025)
Violent Crime Rate$_{jt}$		0.000	0.000			0.001***	0.001***
		(0.000)	(0.000)			(0.000)	(0.000)
Education$_{jt}$		-0.037**	-0.037**			-0.051**	-0.051**
		(0.018)	(0.018)			(0.020)	(0.020)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	668	668	668	668	668	668	668
R-squared	0.526	0.535	0.552	0.733	0.302	0.332	0.359
Test Senate3$_{it}$× Retiring$_{it}$ = Senate12$_{it}$× Retiring$_{it}$ (p-value)	0.224	0.288	0.288	0.134	0.703	0.481	0.478

The table reports coefficients of a linear probability model. Robust standard errors in parentheses, adjusted for clustering at the state level in columns 1-4 and senator level in columns 5-7. 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 sample covers the period 1994-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table 4 presents the results of the regressions on gun votes for Democratic senators. Independently of the chosen specification, we find strong support for our second predic-

tion, as non-retiring Democrats facing re-election are about 10 percentage points more likely to vote pro gun than non-retiring Democratic senators in early generations (i.e. the omitted category).

As for the other control variables, there is systematic evidence that the level of education of senators' constituencies increases their support for gun regulations. Crime and magazine subscriptions are instead only significant in the specifications that include senator dummies.

Table 5

The impact of election proximity on Republicans voting on environmental regulations, seeking re-election vs retiring

Dep. variable:	Vote_{ijvt}						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\text{Senate3}_{it}\times$ Not Retiring_{it}	0.028***	0.028***	0.028***	0.024*	0.027***	0.027***	0.028***
	(0.010)	(0.010)	(0.010)	(0.012)	(0.009)	(0.009)	(0.009)
$\text{Senate3}_{it}\times$ Retiring_{it}	-0.040	-0.039	-0.037	-0.011	-0.007	-0.005	-0.004
	(0.024)	(0.024)	(0.023)	(0.048)	(0.023)	(0.023)	(0.024)
$\text{Senate12}_{it}\times$ Retiring_{it}	-0.030	-0.030	-0.030	0.005	-0.017	-0.015	-0.017
	(0.020)	(0.020)	(0.020)	(0.038)	(0.018)	(0.018)	(0.018)
Male_{i}	-0.069*	-0.067	-0.069	-0.066			
	(0.040)	(0.040)	(0.041)	(0.045)			
Age_{it}	-0.002*	-0.002*	-0.002*	-0.001			
	(0.001)	(0.001)	(0.001)	(0.001)			
$\text{Carbon Emissions}_{jt}$		-0.016	-0.015			-0.011	-0.011
		(0.010)	(0.009)			(0.012)	(0.012)
$\text{Urban Population}_{jt}$		0.001	0.002			-0.003	-0.002
		(0.003)	(0.003)			(0.004)	(0.004)
Education_{jt}		-0.011**	-0.011**			-0.003	-0.003
		(0.005)	(0.005)			(0.003)	(0.003)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	17,514	17,514	17,514	17,514	17,514	17,514	17,514
R-squared	0.259	0.260	0.396	0.354	0.039	0.039	0.223
Test $\text{Senate3}_{it}\times$ Retiring_{it} = $\text{Senate12}_{it}\times$ Retiring_{it} (p-value)	0.526	0.552	0.694	0.462	0.557	0.530	0.453

The table reports coefficients of a linear probability model. Robust standard errors in parentheses, adjusted for clustering at the state level in columns 1-4 and senator level in columns 5-7. The dependent variable $Vote_{ijvt}$ is coded as 1 when senator i from state j voted pro environment on vote v in year t. The sample covers the period 1971-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Moving to the behavior of Republican senators on environmental policy, the results of Table 5 show that only Republican senators seeking re-election become "greener" at the end of their terms. In terms of magnitude, non-retiring Republicans in the third generation are about 3 percentage points more likely to vote pro environment than

non-retiring Republicans in early generations (i.e. the omitted category).

The results of Tables 4 and 5 are robust to dropping from our sample senators who switched party. The results of this robustness checks are reported in Tables A-5 and A-6 in the Appendix. As they approach the end of their term, Democratic senators become more pro gun and Republican senators become more pro environment, but only if if they are seeking re-election.

5.3 Heterogeneous effects across states

In line with the first two predictions of our model, the results presented in the two sections above show that election proximity affects the voting behavior of incumbent politicians on secondary policy issues. As expected, Democratic (Republican) senators who are seeking re-election are more likely to vote pro gun (pro environment) at the end of their terms, while no senator flip flops on reproductive rights votes.

In this section, we assess the validity of the third prediction of our model: Democratic (Republican) senators should only flip flop on gun control (environment) when the size of the pro-gun (green) minority in their constituency is neither too small nor too large.

We consider first gun votes. When looking at Democratic senators in our sample, we find that many are elected in states that are traditionally Democratic leaning, which have low levels of per capita subscriptions to gun magazines (e.g. California and New Jersey). However, others are elected in Democratic leaning states (e.g. Oregon or Vermont) and traditionally Republican leaning states (e.g. Montana and North Dakota) with high per capita subscriptions to gun magazines.[33] Moreover, as shown in Figure 1, there is considerable spatial variation in per capita subscriptions to gun magazines during our sample period.

According to the third prediction of our model, Democratic senators should only flip-flop on gun regulations when the size of the pro-gun minority in their constituency is of intermediate size; in the alternative scenarios in which the pro-gun minority is smaller (larger), they should always vote anti gun (pro gun). We would then expect an inverted U-shaped relationship between the probability that a Democratic senator flip flops and per capita subscriptions to gun magazines in his or her state. To verify this, we restrict again our sample to Democratic senators and interact the variable $Senate3_{it}$ with $Gun\ magazine\ subscriptions_{jt}$ and its square term. Our theory suggests that the estimate for

[33]Only five states did not have a Democratic senator during our sample period: Idaho, Kansas, Mississippi, Utah and Wyoming.

the linear term should be positive, while the square term should have a negative sign.

The results reported in Table 6 strongly support the third prediction of our model: the coefficient for the linear term is positive and significant, while the coefficient for the square term is negative and significant. The test at the bottom of the table indicates that $Senate3_{it}$ and the two interaction terms are jointly significant at 5%.

Table 6

The impact of election proximity on Democrats voting on gun regulations, by size of the pro-gun minority

Dep. variable:	$Vote_{ijvt}$		
	(1)	(2)	(3)
$Senate3_{it}$	-0.140	-0.133	-0.132
	(0.144)	(0.146)	(0.147)
$Senate3_{it}\times$ Gun Magazine $Subscriptions_{jt}$	0.047*	0.047*	0.047*
	(0.024)	(0.025)	(0.025)
$Senate3_{it}\times$ Gun Magazine $Subscriptions^2_{jt}$	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)
Gun Magazine $Subscriptions_{jt}$	0.122**	0.134**	0.135**
	(0.059)	(0.061)	(0.061)
Gun Magazine $Subscriptions^2_{jt}$	-0.003**	-0.004***	-0.004***
	(0.001)	(0.002)	(0.002)
$Male_i$	0.040	0.047	0.047
	(0.074)	(0.076)	(0.078)
Age_{it}	-0.005**	-0.005**	-0.005**
	(0.003)	(0.002)	(0.002)
Violent Crime $Rate_{jt}$		0.001*	0.001*
		(0.000)	(0.000)
$Education_{jt}$		-0.028	-0.028
		(0.022)	(0.022)
Year dummies	yes	yes	no
State dummies	yes	yes	yes
Vote dummies	no	no	yes
Observations	668	668	668
R-squared	0.525	0.536	0.552
Joint test for $Senate3_{it}$ and interactions (p-value)	0.032	0.023	0.024

Notes: The table reports coefficients of a linear probability model. 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 variable *Gun magazine subscriptions*$_{jt}$ is the sum of subscriptions to *American Rifleman* and *American Hunter* per 1,000 inhabitants. The sample covers the period 1994-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

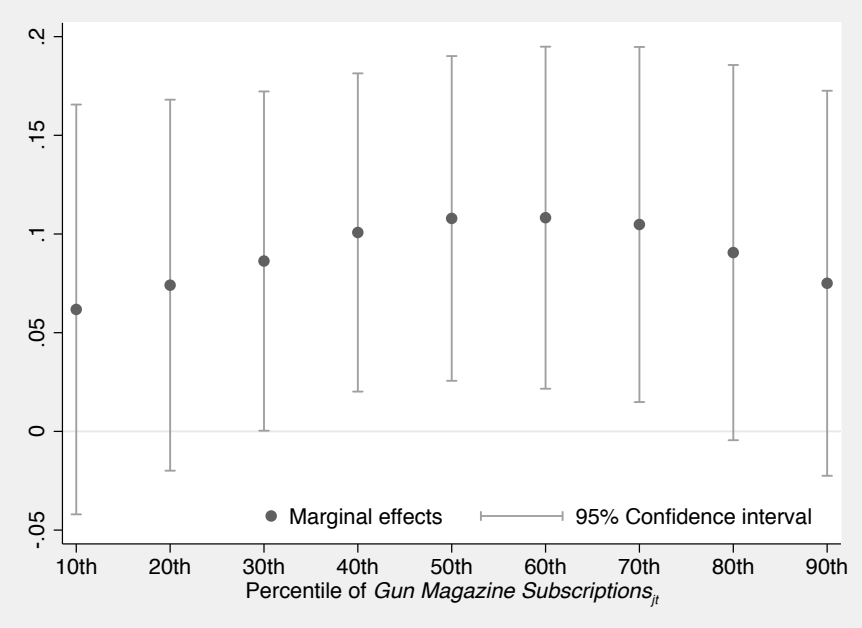
We provide a graphical representation of these results in Figure 4, based on the specification of column 2 of Table 6.[34] This figure shows the marginal effects for Democratic senators belonging to $Senate3_{it}$ for different percentiles of the distribution of gun magazine subscriptions. This allows us to illustrate how the impact of election proximity on senators' voting behavior varies with the size of the pro-gun minority in their constituency. Notice that the marginal effects are not significant for the lowest and highest percentiles of gun magazine subscriptions, confirming that election proximity has a

[34]The qualitative results are similar if we use any other specification of Table 6.

pro-gun effect on Democratic senators only when the size of the pro-gun group in their constituency is of intermediate size.

Figure 4

The impact of election proximity on Democrats voting on gun regulations, by size of the pro-gun minority



The figure shows average marginal effects for $Senate3_{it}$, for various percentiles of *Gun magazine subscriptions*$_{jt}$ (based on the estimates of column 3 in Table 6). Error bars are ±95% confidence intervals.

We next examine whether the impact of election proximity on Republicans' voting behavior on environment depends on the size green voters in their constituency. To this purpose, we use data from List and Sturm (2006) on state-level membership in the three largest environmental organizations (Greenpeace, Friends of the Earth, and the Sierra Club). We then interact the dummy $Senate3_{it}$ with the variable *Membership in Green Organizations*$_j$ and its square term. The results are reported in Table 7. In line with Prediction 3 of our model, the coefficient for the linear interaction term is positive and significant, while the coefficient for the square term is negative and significant. The test at the bottom of the table indicates that $Senate3_{it}$ and the two interaction terms are jointly significant at 1%.

Table 7

The impact of election proximity on Republicans voting on environmental regulations, by size of the green minority

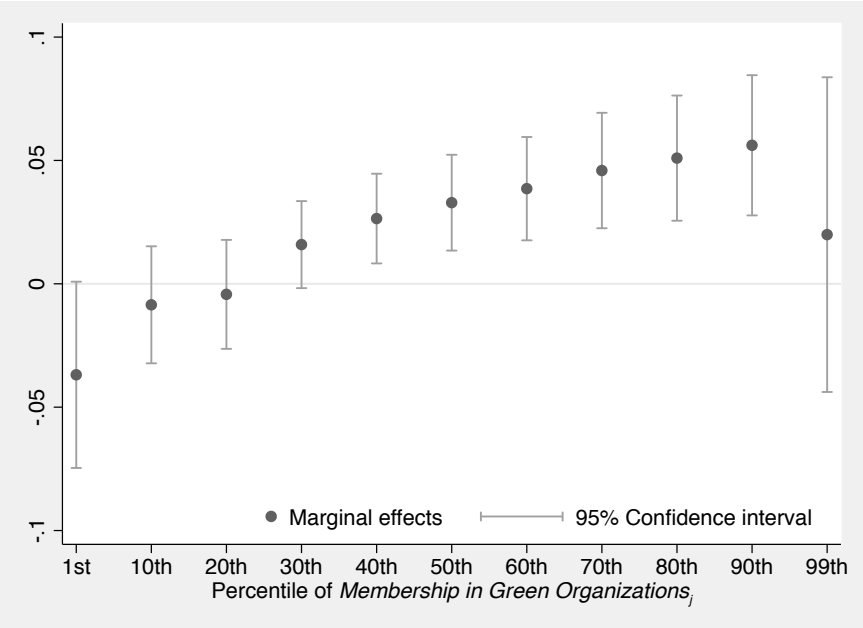
Dep. variable:		Vote_{ijvt}	
	(1)	(2)	(3)
Senate3_{it}	-0.078**	-0.085**	-0.090**
	(0.032)	(0.033)	(0.034)
$\text{Senate3}_{it}\times$ Membership in Green Organizations_j	0.191***	0.211***	0.226***
	(0.069)	(0.069)	(0.071)
$\text{Senate3}_{it}\times$ Membership in Green Organizations_j^2	-0.069**	-0.079**	-0.087***
	(0.030)	(0.031)	(0.032)
Membership in Green Organizations_j	0.377**	0.472**	0.470**
	(0.160)	(0.197)	(0.198)
Membership in Green Organizations_j^2	-0.009	-0.008	-0.007
	(0.073)	(0.094)	(0.095)
Male_i	-0.165**	-0.166***	-0.169***
	(0.066)	(0.053)	(0.053)
Age_{it}	-0.002*	-0.002*	-0.002*
	(0.001)	(0.001)	(0.001)
Carbon Emissions_{jt}		-0.023***	-0.023***
		(0.006)	(0.006)
Urban Population_{jt}		0.002	0.002
		(0.002)	(0.002)
Education_{jt}		-0.020***	-0.020***
		(0.005)	(0.005)
Year dummies	yes	yes	no
State dummies	yes	yes	yes
Vote dummies	no	no	yes
Observations	16,855	16,855	16,855
R-squared	0.172	0.191	0.326
Joint test for Senate3_{it} and interactions (p-value)	0.006	0.003	0.002

Notes: The table reports coefficients of a linear probability model. 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 environment on vote v in year t. The sample covers the period 1971-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Figure 5 shows the marginal effects for Republican senators belonging to $Senate3_{it}$ for different percentiles of membership in green groups, based on the specification of column 2 of Table 7. The marginal effects are only significant for intermediate percentiles, although the effect only becomes smaller and insignificant for the top percentiles of membership in green groups. The results confirm that election proximity has a "greening" effect on the voting behavior of Republican senators, but only when the green minority in their constituency is of intermediate size.

Figure 5

The impact of election proximity on Republicans voting on environmental regulations, by size of the green minority



The figure shows average marginal effects for $Senate3_{it}$, for various percentiles of $Membership\ in\ Green\ Organizations_j$ (based on the estimates of column 3 in Table 7). Error bars are ±95% confidence intervals.

We have verified that the heterogeneous effect of election proximity across constituencies are not driven by senators who switched party. As it can be seen from Tables A-7 and A-8, even when dropping these senators, we find that the size of the single-issue minority has a clear non-monotonic effect on the probability that Democrats become more pro gun and Republicans become more pro environment as they approach re-election.

6 Conclusions

In this paper, we have shown that minorities of single-issue voters can shape politicians' choices on the issues that are salient to them. The key idea is that, when it comes to secondary issues like gun control, environment and reproductive rights, office-motivated politicians are only accountable to minorities of voters who care intensely about these issues, knowing that the rest of the electorate will decide whether or not to re-elect them based on their stance on other policy issues.

To capture this idea, we have described a simple model in which office and policy motivated politicians are called to support or oppose regulations on gun control, envi-

ronment and reproductive rights during their terms in office. In this model, politicians might flip-flop, voting according to their preferences at the beginning of their terms and in line with the preferences of single-issue minorities at the end of their terms. Election proximity should affect politicians' choices on gun control and environment, policy issues dominated by strong minorities on one side (pro-gun and pro-environment). In particular, as they approach re-election, Democratic (Republican) politicians should become more pro gun (pro environment); these effects should only arise for senators who are seeking re-election and who represent states in which the single-issue minority is of intermediate size. Election proximity should have no impact on the choices of Republican (Democratic) politicians on gun control (environment), since they do not face a conflict between their policy preferences (or those of their party) and their re-election motives. Similarly, Republican and Democratic politicians should not flip flop on reproductive rights, a secondary issue characterized by strong minorities on both sides (pro-choice and pro-life).

To assess the validity of these predictions, we have studied the voting behavior of U.S. senators on legislation related to gun control, environment, and reproductive rights. 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, allows to compare the voting behavior of different generations of senators, depending on how close they are to facing re-election. We obtain three main results. First, as they approach re-election, Democratic senators are more likely to vote pro gun, while Republican senators are more likely to vote in favor of environmental regulations. As expected, election proximity has no effect on senators' voting behavior on reproductive rights. Second, Democratic (Republican) senators flip flop on gun control (environment), but only if they are seeking re-election (i.e. not retiring). Finally, we find evidence of heterogeneous effects across states: election proximity only affects the voting behavior of Democratic (Republican) senators when the pro-gun (pro-environment) group in their constituency is neither too small nor too large. Our results are robust to including a rich set of controls for legislators and their constituencies, and exploiting variation both across and within senators.

These findings highlight that politicians systematically respond to the interests of different single-issue voters on different secondary policy issues. The influence of these voters across several issues gives credence to the argument that multidimensionality of the policy space does not necessarily impair electoral accountability. Because single-issue voters see the policy space as unidimensional, they can use voting to punish and reward

politicians for specific policies, thereby keeping them in check. Instead of a tyranny of the majority, democracies may thus be afflicted by a tyranny of the single-minded.

Our analysis suggests that U.S. congressmen's choices on secondary issues may often diverge from what the majority of American citizens want. As stressed in the introduction, a clear example of this gap is the failure of the Senate to pass even mild gun regulations, which are supported by the overwhelming majority of the electorate. One might expect to see policy outcomes that reflect the preferences of the median voter in the sixteen U.S. states that allow for direct initiatives.[35] However, there are at least three reasons to believe that the outcome of such initiatives may not always coincide with the preferences of the majority of voters. First, there may be a 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 single-issue voters may be more willing to incur such costs.[36] Second, direct initiatives are likely to suffer from a bias in turnout, if single-issue voters are more willing to incur the costs of voting (e.g. spending time to register, rearranging work schedules, getting to the polls, and gathering information on the candidates). Finally, initiatives often suffer from framing effects.[37]

An important avenue for future research is to understand how voters' preference intensity affects the role of lobby groups. The existing literature has emphasized various channels through which lobbies may affect policy outcomes, e.g. by offering campaign contributions to incumbent politicians (Grossman and Helpman, 1994), pledging the votes of their members (Bombardini and Trebbi, 2011), and making it easier for special interests to have access to politicians and providing issue-specific information to politicians (Blanes-i-Vidal *et al.*, 2012; Bertrand *et al.*, 2014). Our results suggests that the power of single-issue lobby groups rests in the intensity of their members' preferences.[38] These organizations can play a key role, allowing single-issue voters to keep politicians

[35]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.

[36]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, since it usually requires hiring specialized firms to run opinion polls before drafting the petition and to collect the required number of signatures.

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

[38]This is, for example, what was argued about the NRA in a recent article on the *New York Times* ("The True Source of the N.R.A.'s Clout: Mobilization, Not Donations," February 24, 2018).

accountable: they provide information to their members about politicians' choices on their key issue of interest; and they remind politicians that their members are willing to cast their votes based on this issue alone.

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Appendix

A-1 Theoretical Appendix

First, it is useful to prove the following four lemmas.

Lemma 1 *The strategy* $(s_1^*, s_2^*) = (0,1)$ *is an equilibrium iff*

$$\begin{aligned} \gamma\chi^2\left(n_p\alpha_p - n_a\alpha_a\right) &\geq \theta\left(\omega\left(0,0\right) - \omega\left(0,1\right)\right), \\ n_p\alpha_p - n_a\alpha_a &\geq 0, \text{ and} \\ \theta\left(\omega\left(0,1\right) - \omega\left(1,1\right)\right) &\geq \gamma\chi^1\left(n_p\alpha_p - n_a\alpha_a\right). \end{aligned}$$

These conditions cannot be satisfied for a pro-issue incumbent.

Proof. We have that $U\left(0,1\right) \geq U\left(0,0\right)$ iff

$$\frac{1}{2} + \gamma\sum_j n_j\left(\sum_t \chi^t W_j^t\left(0,1\right) - \bar{u}_j\right) + \theta\left(\omega\left(0,1\right)\right) \geq \frac{1}{2} + \gamma\sum_j n_j\left(\sum_t \chi^t W_j^t\left(0,0\right) - \bar{u}_j\right) + \theta\left(\omega\left(0,0\right)\right).$$

This boils down to

$$\gamma\left(-n_p\alpha_p\chi^1 - n_a\alpha_a\chi^2\right) + \theta\left(\omega\left(0,1\right)\right) \geq \gamma\left(-n_p\alpha_p\chi_p^1 - n_p\alpha_p\chi_p^2\right) + \theta\left(\omega\left(0,0\right)\right)$$

and thus

$$\gamma\chi^2\left(n_p\alpha_p - n_a\alpha_a\right) \geq \theta\left(\omega\left(0,0\right) - \omega\left(0,1\right)\right).$$

Similarly, we have that $U\left(0,1\right) \geq U\left(1,0\right)$ iff

$$\gamma\left(-n_p\alpha_p\chi^1 - n_a\alpha_a\chi^2\right) + \theta\left(\omega\left(0,1\right)\right) \geq \gamma\left(-n_p\alpha_p\chi^2 - n_a\alpha_a\chi^1\right) + \theta\left(\omega\left(1,0\right)\right),$$

which boils down to

$$\gamma\left(\chi^2 - \chi^1\right)\left(n_p\alpha_p - n_a\alpha_a\right) \geq \theta\left(\omega\left(1,0\right) - \omega\left(0,1\right)\right).$$

Since, $\omega\left(1,0\right) = \omega\left(0,1\right)$ and $(\chi^2 > \chi^1)$, this is satisfied iff

$$n_p\alpha_p > n_a\alpha_a.$$

Finally, $U(0,1) \geq U(1,1)$ iff

$$\gamma\left(-n_p\alpha_p\chi^1 - n_a\alpha_a\chi^2\right) + \theta\left(\omega(0,1)\right) \geq \gamma\left(-n_a\alpha_a\chi^1 - n_a\alpha_a\chi^2\right) + \theta\left(\omega(1,1)\right),$$

which simplifies to

$$\theta\left(\omega(0,1) - \omega(1,1)\right) \geq \gamma\chi^1\left(n_p\alpha_p - n_a\alpha_a\right).$$

To prove that these conditions cannot be satisfied for a pro-issue incumbent, first note that $\theta\left(\omega_p(0,1) - \omega_p(1,1)\right) < 0$. This directly implies that $\theta\left(\omega(0,1) - \omega(1,1)\right) \geq \gamma\chi^1\left(n_p\alpha_p - n_a\alpha_a\right)$ is not compatible with $n_p\alpha_p - n_a\alpha_a \geq 0$.

Lemma 2 *The strategy* $(s_1^*, s_2^*) = (1,0)$ *is an equilibrium iff*

$$\begin{aligned}
\gamma\chi^1\left(n_p\alpha_p - n_a\alpha_a\right) &\geq \theta\left(\omega(0,0) - \omega(1,0)\right), \\
n_p\alpha_p - n_a\alpha_a &\leq 0, \text{ and} \\
\theta\left(\omega(1,0) - \omega(1,1)\right) &\geq \gamma\chi^2\left(n_p\alpha_p - n_a\alpha_a\right).
\end{aligned}$$

These conditions cannot be satisfied for an anti-issue incumbent.

Proof. Similar to the proof of Lemma 1.

Lemma 3 *The strategy* $(s_1^*, s_2^*) = (0,0)$ *is an equilibrium iff*

$$\begin{aligned}
\theta\left(\omega(0,0) - \omega(0,1)\right) &\geq \gamma\chi^2\left(n_p\alpha_p - n_a\alpha_a\right), \\
\theta\left(\omega(0,0) - \omega(1,0)\right) &\geq \gamma\chi^1\left(n_p\alpha_p - n_a\alpha_a\right), \text{ and} \\
\theta\left(\omega(0,0) - \omega(1,1)\right) &\geq \gamma\left(\chi^1 + \chi^2\right)\left(n_p\alpha_p - n_a\alpha_a\right).
\end{aligned}$$

Proof. Similar to the proof of Lemma 1.

Lemma 4 *The strategy* $(s_1^*, s_2^*) = (1,1)$ *is an equilibrium iff*

$$\begin{aligned}
\gamma\chi^1\left(n_a\alpha_a - n_p\alpha_p\right) &\leq \theta\left(\omega(1,1) - \omega(0,1)\right), \\
\gamma\chi^2\left(n_p\alpha_p - n_a\alpha_a\right) &\geq \theta\left(\omega(1,0) - \omega(1,1)\right), \text{ and} \\
\theta\left(\omega(0,0) - \omega(1,1)\right) &\leq \gamma\left(\chi^1 + \chi^2\right)\left(n_p\alpha_p - n_a\alpha_a\right).
\end{aligned}$$

Proof. Similar to the proof of Lemma 1.

We can now move to the proofs of our main results.

Proof of Proposition 1.
For the anti-issue incumbent, we have

$$\begin{aligned}\omega_a(0,0)-\omega_a(1,1) &> \omega_a(0,0)-\omega_a(0,1)>0, \text{ and}\\ \omega_a(0,1)-\omega_a(1,1) &= \omega_a(1,0)-\omega_a(1,1)>0.\end{aligned}$$

Thus, from Lemma 3, we obtain that $(0,0)$ is an equilibrium iff

$$\theta\left(\omega_a(0,0)-\omega_a(0,1)\right) \geq \gamma\chi^2\left(n_p\alpha_p-n_a\alpha_a\right), \text{ and} \tag{A-1}$$
$$\theta\left(\omega_a(0,0)-\omega_a(1,1)\right) \geq \gamma\left(\chi^1+\chi^2\right)\left(n_p\alpha_p-n_a\alpha_a\right). \tag{A-2}$$

From Lemma 1, we obtain that $(0,1)$ is an equilibrium iff

$$\gamma\chi^2\left(n_p\alpha_p-n_a\alpha_a\right) \geq \theta\left(\omega_a(0,0)-\omega_a(0,1)\right), \text{ and} \tag{A-3}$$
$$\theta\left(\omega(0,1)-\omega(1,1)\right) \geq \gamma\chi^1\left(n_p\alpha_p-n_a\alpha_a\right). \tag{A-4}$$

From Lemma 2, we have that $(1,0)$ is never an equilibrium. Indeed, $\gamma\chi^1\left(n_p\alpha_p-n_a\alpha_a\right) \geq \theta\left(\omega_a(0,0)-\omega_a(1,0)\right)$ cannot be satisfied when $n_p\alpha_p-n_a\alpha_a\leq 0$.
From Lemma 4, we obtain that $(1,1)$ is an equilibrium iff

$$\gamma\chi^1\left(n_p\alpha_p-n_a\alpha_a\right) \geq \theta\left(\omega_a(0,1)-\omega_a(1,1)\right), \text{ and} \tag{A-5}$$
$$\gamma\left(\chi^1+\chi^2\right)\left(n_p\alpha_p-n_a\alpha_a\right) \geq \theta\left(\omega_a(0,0)-\omega_a(1,1)\right). \tag{A-6}$$

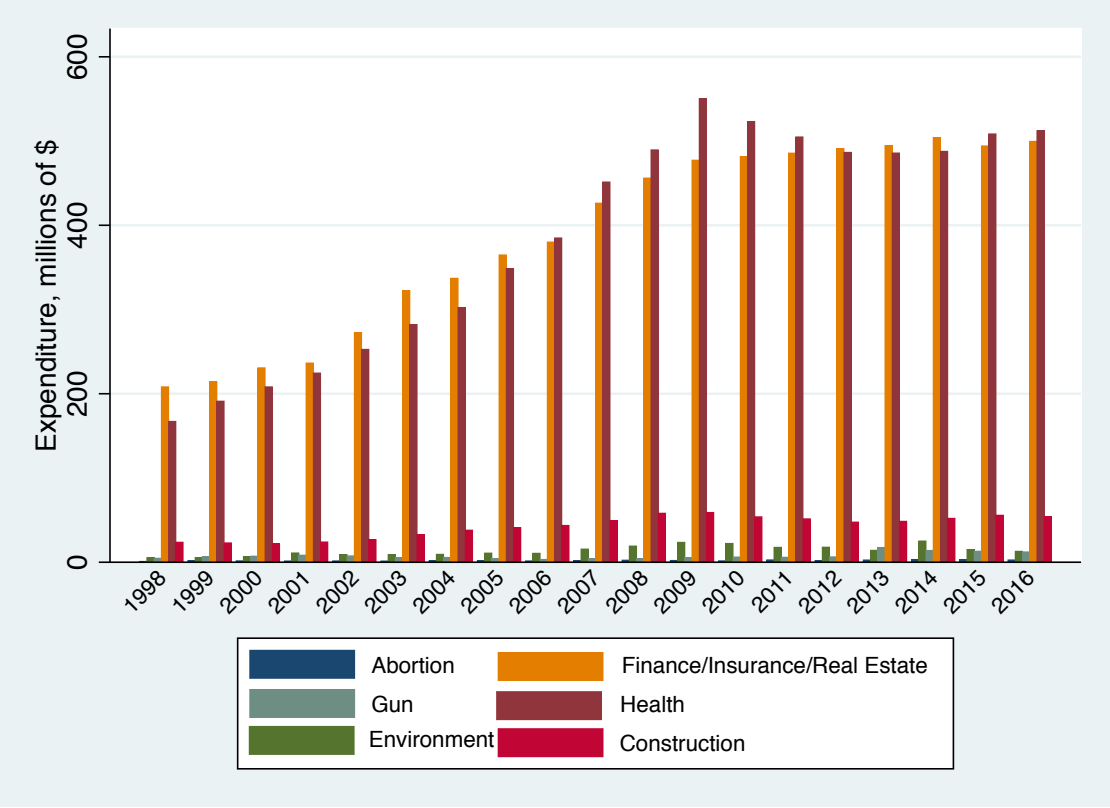
We thus have that the behavior of an anti-issue incumbent is always uniquely defined. Indeed, condition (A-1) contradicts condition (A-3), condition (A-4) contradicts condition (A-5), and condition (A-2) contradicts condition (A-6).
For $\left(n_p\alpha_p-n_a\alpha_a\right)=\triangle^h\geq\max\{\frac{\theta(\omega_a(0,1)-\omega_a(1,1))}{\gamma\chi^1},\frac{\theta(\omega_a(0,0)-\omega_a(1,1))}{\gamma(\chi^1+\chi^2)}\}$, $(1,1)$ is the equilibrium. For $\triangle^h\leq\max\{\frac{\theta(\omega_a(0,0)-\omega_a(0,1))}{\gamma\chi^2},\frac{\theta(\omega_a(0,0)-\omega_a(1,1))}{\gamma(\chi^1+\chi^2)}\}$, $(0,0)$ is the equilibrium. Flip-flopping occurs for intermediate values of $\triangle^h$, i.e. when $\triangle^h\in\left(\frac{\theta(\omega_a(0,0)-\omega_a(0,1))}{\gamma\chi^2},\frac{\theta(\omega(0,1)-\omega(1,1))}{\gamma\chi^1}\right)$.

Proof of Proposition 2. Similar to the proof of Proposition 1.

Proof of Proposition 3. Follows immediately from equation (5).

A-2 Empirical Appendix

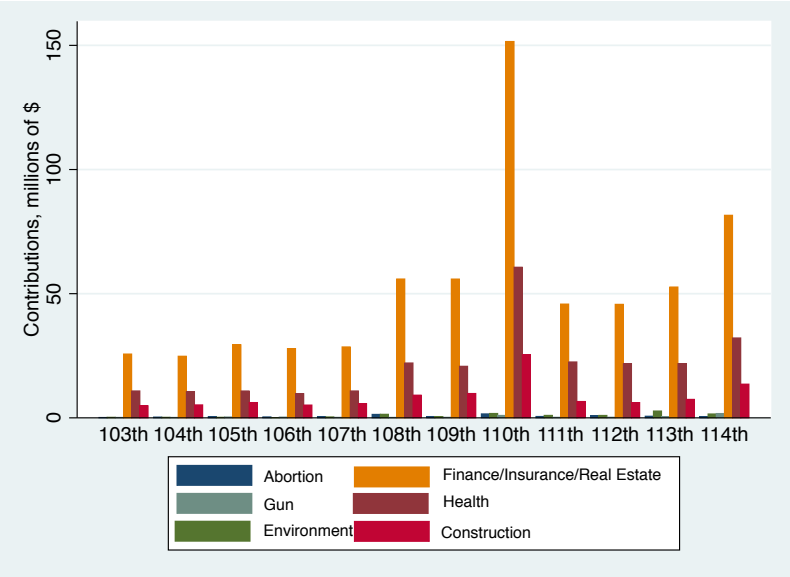
Figure A-1
Lobbying expenditures on different policy issues



The figure reports yearly lobbying expenditures on six different policy issues. Data are available from 1998, following the Lobbying Disclosure Act (1995). The data come from the Center for Responsive Politics (`http://www.opensecrets.org`).

Figure A-2

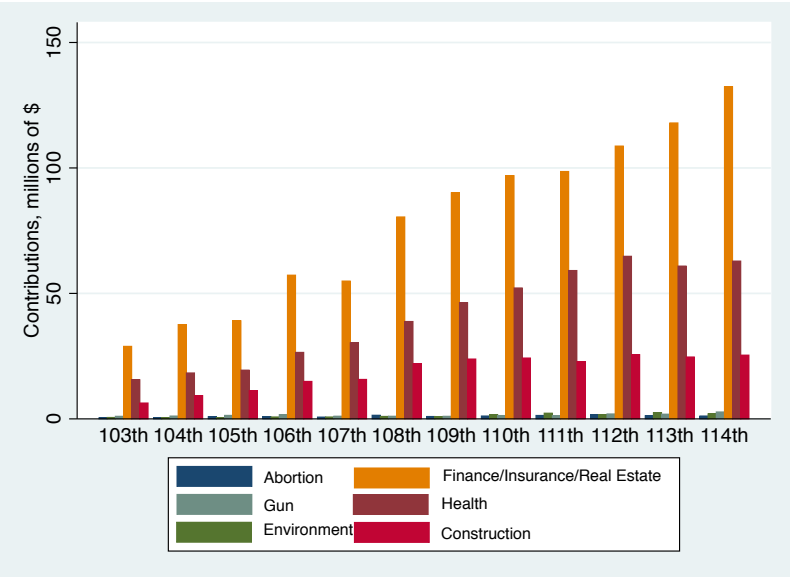
Campaign contributions received by Senate members for different policy issues



The figure reports campaign contributions to U.S. Senators on six different policy issues during the 103^{rd}-114^{th} Congresses. The data come from the Center for Responsive Politics (`http://www.opensecrets.org`) and include both contributions from political action committees (PACs) and from individuals, mapped to industries based on the name of the PAC or the occupation/employer of the individual donor.

Figure A-3

Campaign contributions received by House members for different policy issues



The figure reports campaign contributions to U.S. House representatives on six different policy issues during the 103^{rd}-114^{th} Congresses. The data come from the Center for Responsive Politics (`http://www.opensecrets.org`) and include both contributions from political action committees (PACs) and from individuals, mapped to industries based on the name of the PAC or the occupation/employer of the individual donor.

Table A-1
Descriptive Statistics

Panel A: Gun control					
	mean	sd. dev.	min.	max.	N
$\text{Vote}_{ijvt} = 1$ if senator voted pro-gun	0.58	0.49	0.00	1.00	1363
Senate3_{it}	0.34	0.47	0.00	1.00	1363
Republican_{it}	0.51	0.50	0.00	1.00	1363
Male_{i}	0.88	0.33	0.00	1.00	1363
Age_{it}	60.91	10.04	39.00	97.00	1363
Gun Magazine $\text{Subscriptions}_{jt}$	10.68	5.12	3.38	32.71	1363
Violent Crime Rate_{jt}	426.18	195.21	66.90	961.40	1363
Education_{jt}	25.45	4.79	15.90	40.40	1363
Panel B: Environment					
	mean	sd. dev.	min.	max.	N
$\text{Vote}_{ijvt} = 1$ if senator voted pro-environment	0.50	0.50	0.00	1.00	37277
Senate3_{it}	0.33	0.47	0.00	1.00	37277
Republican_{it}	0.47	0.50	0.00	1.00	37277
Male_{i}	0.93	0.25	0.00	1.00	37277
Age_{it}	58.38	10.37	31.00	100.00	37277
Membership in Green $\text{Organizations}_{jt}$	0.85	0.36	0.25	2.02	35830
Carbon Emissions_{jt}	2.44	1.72	0.56	13.25	37277
Urban Population_{jt}	69.40	14.67	32.20	95.12	37277
Education_{jt}	20.16	6.32	7.11	39.30	37277
Panel C: Abortion					
	mean	sd. dev.	min.	max.	N
$\text{Vote}_{ijvt} = 1$ if senator voted pro-choice	0.49	0.50	0.00	1.00	4995
Senate3_{it}	0.34	0.47	0.00	1.00	4995
Republican_{it}	0.51	0.50	0.00	1.00	4995
Male_{i}	0.87	0.34	0.00	1.00	4995
Age_{it}	60.88	10.03	39.00	100.00	4995
Abortions_{jt}	24.70	40.04	0.07	237.39	4995
Religious Supporters_{jt}	0.50	0.10	0.28	0.79	4995
Education_{jt}	25.74	4.87	14.60	40.40	4995

See Section 4 for definitions and sources. Panel A reports descriptive statistics for all variables included in regressions on gun control (Tables 1, 4 and 6). Panel B reports descriptive statistics for all variables included in regressions on environment (Tables 2, 5 and 7). Panel C reports descriptive statistics for all variables included in regressions on abortion (Table 3). In Panel B, the variable *Membership in Green Organizations*$_j$ is not available for Alaska and Hawaii.

Table A-2

The impact of election proximity on votes on gun regulations, party differences, dropping party switchers

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ $Democrat_{it}$	0.063*	0.064*	0.062	0.076*	0.101**	0.101**	0.097**
	(0.037)	(0.037)	(0.037)	(0.041)	(0.043)	(0.042)	(0.042)
$Senate3_{it}\times$ $Republican_{it}$	0.475***	0.472***	0.472***	0.484***	0.032	0.028	0.028
	(0.048)	(0.048)	(0.048)	(0.064)	(0.026)	(0.026)	(0.026)
$Senate12_{it}\times$ $Republican_{it}$	0.442***	0.442***	0.442***	0.458***			
	(0.043)	(0.044)	(0.044)	(0.061)			
$Male_i$	0.073	0.075	0.075	0.049			
	(0.054)	(0.052)	(0.053)	(0.060)			
Age_{it}	-0.003	-0.003*	-0.003*	-0.003			
	(0.002)	(0.002)	(0.002)	(0.003)			
Gun Magazine $Subscriptions_{jt}$		0.011	0.011			-0.016	-0.017
		(0.014)	(0.014)			(0.014)	(0.014)
Violent Crime $Rate_{jt}$		0.000	0.000			0.001***	0.001***
		(0.000)	(0.000)			(0.000)	(0.000)
$Education_{jt}$		-0.010	-0.010			-0.021*	-0.020*
		(0.011)	(0.011)			(0.011)	(0.011)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	1,332	1,332	1,332	1,332	1,332	1,332	1,332
R-squared	0.593	0.596	0.645	0.699	0.228	0.235	0.347
Test $Senate3_{it}\times$ $Republican_{it}$ = $Senate12_{it}\times$ $Republican_{it}$ (p-value)	0.113	0.142	0.143	0.367			

The table reports coefficients of a linear probability model. 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. The sample covers the period 1994-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table A-3

The impact of election proximity on votes on environmental regulations party differences', dropping party switchers

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ $Democrat_{it}$	-0.003	-0.003	-0.002	-0.004	-0.002	-0.002	-0.002
	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.007)
$Senate3_{it}\times$ $Republican_{it}$	-0.368***	-0.372***	-0.372***	-0.373***	0.012	0.012	0.013
	(0.023)	(0.022)	(0.023)	(0.027)	(0.008)	(0.008)	(0.008)
$Senate12_{it}\times$ $Republican_{it}$	-0.391***	-0.396***	-0.396***	-0.393***			
	(0.023)	(0.023)	(0.023)	(0.028)			
$Male_i$	-0.072**	-0.068**	-0.068**	-0.044			
	(0.031)	(0.031)	(0.031)	(0.031)			
Age_{it}	-0.002**	-0.002**	-0.002**	-0.001			
	(0.001)	(0.001)	(0.001)	(0.001)			
Carbon $Emissions_{jt}$		-0.017*	-0.017*			-0.011	-0.011
		(0.009)	(0.009)			(0.008)	(0.008)
Urban $Population_{jt}$		0.001	0.001			0.000	0.000
		(0.004)	(0.004)			(0.004)	(0.004)
$Education_{jt}$		-0.012**	-0.012**			-0.003	-0.003
		(0.005)	(0.005)			(0.003)	(0.003)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	36,561	36,561	36,561	36,561	36,561	36,561	36,561
R-squared	0.360	0.362	0.423	0.439	0.020	0.021	0.124
Test $Senate3_{it}\times$ $Republican_{it}$ = $Senate12_{it}\times$ $Republican_{it}$ (p-value)	0.007	0.008	0.007	0.049			

The table reports coefficients of a linear probability model. 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 environment on vote v in year t. The sample covers the period 1971-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table A-4

The impact of election proximity on votes on reproductive rights, party differences, dropping party switchers

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ $Democrat_{it}$	-0.028	-0.028	-0.028	-0.030	-0.008	-0.006	-0.007
	(0.023)	(0.023)	(0.022)	(0.027)	(0.014)	(0.014)	(0.014)
$Senate3_{it}\times$ $Republican_{it}$	-0.757***	-0.759***	-0.759***	-0.769***	0.001	0.000	0.000
	(0.051)	(0.050)	(0.051)	(0.062)	(0.010)	(0.010)	(0.010)
$Senate12_{it}\times$ $Republican_{it}$	-0.753***	-0.754***	-0.754***	-0.753***			
	(0.052)	(0.051)	(0.051)	(0.061)			
$Male_i$	-0.098**	-0.097**	-0.097**	-0.090*			
	(0.038)	(0.038)	(0.038)	(0.050)			
Age_{it}	0.000	0.000	0.000	0.000			
	(0.001)	(0.001)	(0.001)	(0.002)			
$Abortions_{jt}$		-0.000	-0.000			0.002**	0.003**
		(0.001)	(0.001)			(0.001)	(0.001)
Religious $Supporters_{jt}$		0.282	0.278			0.286	0.285
		(0.361)	(0.366)			(0.272)	(0.276)
$Education_{jt}$		-0.004	-0.004			0.002	0.002
		(0.005)	(0.005)			(0.003)	(0.003)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	4,517	4,517	4,517	4,517	4,517	4,517	4,517
R-squared	0.741	0.742	0.759	0.778	0.018	0.019	0.098
Test $Senate3_{it}\times$ $Republican_{it}$ = $Senate12_{it}\times$ $Republican_{it}$ (p-value)	0.750	0.718	0.702	0.333			

The table reports coefficients of a linear probability model. 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 environment on vote v in year t. The sample covers the period 1997-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table A-5

The impact of election proximity on Democrats voting on gun regulations, seeking re-election vs retiring, dropping party switchers

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ Not $Retiring_{it}$	0.097**	0.097***	0.097**	0.085*	0.113***	0.118***	0.118***
	(0.037)	(0.036)	(0.036)	(0.045)	(0.042)	(0.040)	(0.040)
$Senate3_{it}\times$ $Retiring_{it}$	-0.174	-0.204	-0.203	-0.002	-0.128	-0.198	-0.197
	(0.162)	(0.163)	(0.164)	(0.042)	(0.259)	(0.252)	(0.253)
$Senate12_{it}\times$ $Retiring_{it}$	-0.015	-0.057	-0.054	-0.078	-0.062	-0.077	-0.074
	(0.096)	(0.095)	(0.096)	(0.051)	(0.193)	(0.187)	(0.188)
$Male_i$	0.039	0.051	0.051	0.090			
	(0.072)	(0.075)	(0.076)	(0.129)			
Age_{it}	-0.004*	-0.003	-0.003	-0.003			
	(0.002)	(0.002)	(0.002)	(0.003)			
Gun Magazine $Subscriptions_{jt}$		-0.001	-0.001			-0.052**	-0.051**
		(0.030)	(0.030)			(0.025)	(0.025)
Violent Crime $Rate_{jt}$		0.000	0.000			0.001***	0.001***
		(0.000)	(0.000)			(0.000)	(0.000)
$Education_{jt}$		-0.038**	-0.038**			-0.051**	-0.051**
		(0.018)	(0.018)			(0.020)	(0.020)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	663	663	663	663	663	663	663
R-squared	0.521	0.531	0.548	0.729	0.300	0.330	0.357
Test $Senate3_{it}\times$ $Retiring_{it}$ = $Senate12_{it}\times$ $Retiring_{it}$ (p-value)	0.211	0.256	0.257	0.175	0.703	0.482	0.479

The table reports coefficients of a linear probability model. 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 environment on vote v in year t. The sample covers the period 1997-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table A-6

The impact of election proximity on Republicans voting on environmental regulations, seeking re-election vs retiring, dropping party switchers

Dep. variable:	$Vote_{ijvt}$						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$Senate3_{it}\times$ Not $Retiring_{it}$	0.028***	0.028***	0.029***	0.028**	0.027***	0.027***	0.027***
	(0.010)	(0.010)	(0.010)	(0.013)	(0.009)	(0.009)	(0.009)
$Senate3_{it}\times$ $Retiring_{it}$	-0.035	-0.033	-0.030	-0.004	-0.007	-0.004	-0.004
	(0.025)	(0.024)	(0.024)	(0.042)	(0.024)	(0.024)	(0.024)
$Senate12_{it}\times$ $Retiring_{it}$	-0.024	-0.025	-0.025	0.011	-0.017	-0.015	-0.017
	(0.020)	(0.021)	(0.021)	(0.035)	(0.019)	(0.019)	(0.019)
$Male_i$	-0.070*	-0.068*	-0.070*	-0.058			
	(0.040)	(0.039)	(0.041)	(0.042)			
Age_{it}	-0.002**	-0.002**	-0.002**	-0.003			
	(0.001)	(0.001)	(0.001)	(0.002)			
Carbon $Emissions_{jt}$		-0.014	-0.014			-0.010	-0.011
		(0.010)	(0.010)			(0.012)	(0.012)
Urban $Population_{jt}$		0.002	0.002			-0.003	-0.002
		(0.003)	(0.003)			(0.004)	(0.004)
$Education_{jt}$		-0.013***	-0.013**			-0.003	-0.003
		(0.005)	(0.005)			(0.003)	(0.003)
Year dummies	yes	yes	no	yes	yes	yes	no
State dummies	yes	yes	yes	yes	no	no	no
Vote dummies	no	no	yes	no	no	no	yes
State × Year dummies	no	no	no	yes	no	no	no
Senator dummies	no	no	no	no	yes	yes	yes
Observations	16,944	16,944	16,944	16,944	16,944	16,944	16,944
R-squared	0.257	0.259	0.397	0.355	0.040	0.040	0.226
Test $Senate3_{it}\times$ $Retiring_{it}$ = $Senate12_{it}\times$ $Retiring_{it}$ (p-value)	0.555	0.603	0.756	0.488	0.562	0.529	0.448

The table reports coefficients of a linear probability model. 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 environment on vote v in year t. The sample covers the period 1997-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table A-7

The impact of election proximity on Democrats, by size of the pro-gun minority, dropping party switchers

Dep. variable:	Vote$_{ijvt}$		
	(1)	(2)	(3)
Senate3$_{it}$	-0.131	-0.124	-0.122
	(0.145)	(0.147)	(0.148)
Senate3$_{it}$× Gun Magazine Subscriptions$_{jt}$	0.045*	0.046*	0.045*
	(0.024)	(0.025)	(0.025)
Senate3$_{it}$× Gun Magazine Subscriptions$^2_{jt}$	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)
Gun Magazine Subscriptions$_{jt}$	0.122**	0.133**	0.135**
	(0.059)	(0.061)	(0.061)
Gun Magazine Subscriptions$^2_{jt}$	-0.003**	-0.004***	-0.004***
	(0.001)	(0.002)	(0.002)
Male$_i$	0.042	0.049	0.050
	(0.074)	(0.076)	(0.078)
Age$_{it}$	-0.006**	-0.006**	-0.006**
	(0.003)	(0.002)	(0.002)
Violent Crime Rate$_{jt}$		0.001*	0.001*
		(0.000)	(0.000)
Education$_{jt}$		-0.028	-0.028
		(0.022)	(0.022)
Year dummies	yes	yes	no
State dummies	yes	yes	yes
Vote dummies	no	no	yes
Observations	663	663	663
R-squared	0.521	0.531	0.548
Joint test for Senate3$_{it}$ and interactions (p-value)	0.036	0.026	0.026

The table reports coefficients of a linear probability model. 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 variable *Gun magazine subscriptions*$_{jt}$ is the sum of subscriptions to *American Rifleman* and *American Hunter* per 1,000 inhabitants. The sample covers the period 1994-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.

Table A-8

The impact of election proximity on Republicans voting on environmental regulations, by size of the green minority, dropping party switchers

Dep. variable:	Vote_{ijvt}		
	(1)	(2)	(3)
Senate3_{it}	-0.110***	-0.114***	-0.120***
	(0.035)	(0.036)	(0.038)
$\text{Senate3}_{it}\times$ Membership in Green Organizations$_j$	0.281***	0.291***	0.309***
	(0.079)	(0.081)	(0.086)
$\text{Senate3}_{it}\times$ Membership in Green Organizations$_j^2$	-0.119***	-0.122***	-0.133***
	(0.040)	(0.042)	(0.044)
Membership in Green Organizations$_j$	0.382**	0.484**	0.478**
	(0.171)	(0.210)	(0.211)
Membership in Green Organizations$_j^2$	-0.014	-0.021	-0.018
	(0.084)	(0.104)	(0.104)
Male_i	-0.169**	-0.171***	-0.174***
	(0.066)	(0.054)	(0.054)
Age_{it}	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)
Carbon Emissions$_{jt}$		-0.023***	-0.023***
		(0.006)	(0.006)
Urban Population$_{jt}$		0.002	0.002
		(0.002)	(0.002)
Education$_{jt}$		-0.019***	-0.019***
		(0.005)	(0.005)
Year dummies	yes	yes	no
State dummies	yes	yes	yes
Vote dummies	no	no	yes
Observations	16,285	16,285	16,285
R-squared	0.171	0.188	0.326
Joint test for Senate3_{it} and interactions (p-value)	0.000	0.000	0.000

The table reports coefficients of a linear probability model. 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 variable *Gun magazine subscriptions*$_{jt}$ is the sum of subscriptions to *American Rifleman* and *American Hunter* per 1,000 inhabitants. The sample covers the period 1994-2012. ***, ** and * indicate statistical significance at the 1%, 5% and 10%, respectively.