Signaling Ability Through Policy Change

Benjamin Shaver*

University of Chicago

August 27, 2024

Updated often. Click here for the latest version.

Abstract

I consider a model where a voter is uncertain about an incumbent policymaker's ability to develop a high-quality policy. The incumbent inherits a status quo policy, develops an alternative, and decides whether to replace the status quo with his alternative. The voter observes the incumbent's decision but not the quality of the alternative and decides whether to elect the incumbent or a challenger based on his evaluation of the incumbent's ability. When the voter has a moderate ex-ante preference for the challenger in a low-polarization environment and when the voter has a moderate ex-ante preference for the incumbent in a moderately high-polarization environment, the incumbent engages in ability signaling: he implements the alternative policy even if its quality is lower than what he would implement under complete information about his ability. Hence, ability signaling produces policy churn. I then show that requiring the incumbent to secure the agreement of a second policymaker with whom he is electorally competing to change the status quo ameliorates this distortion at the expense of the emergence of different distortion: the second policymaker blocks alternative policies that would be allowed under complete information. I also show that that when the alternative's quality is revealed relative to the election shapes the incumbent's incentive to engage in ability signaling and that the incumbent sometimes moderates his alternative not for a Downsian logic but to alter the voter's inference about his ability.

*blshaver@uchicago.edu. I am deeply indebted to my dissertation chair, Wiola Dziuda, and dissertation committee, Ethan Bueno de Mesquita, Scott Gehlbach, and Zhaotian Luo, for their help on this project. This paper also benefited from discussion with Kevin Angell, Scott Ashworth, Martin Castillo-Quintana, Álvaro Delgado-Vega, Giorgio Farace, Anthony Fowler, Will Howell, Barton Lee, Hongyi Li, Monika Nalepa, Jon Rogowski, Daniel Sonnenstuhl, and Adam Zelizer. Thank you to the audiences at the University of Chicago, MPSA, and SIOE.

1 Introduction

Voters want to choose policymakers who share their policy goals, work hard, understand which policies need to be undertaken, and can develop high-quality policies. However, these traits are difficult for voters to observe. Policymakers recognize this and often take action to demonstrate their type. This phenomenon has been discussed with respect to politicians' ideology (Fearon, 1999), effort (Austen-Smith and Banks, 1989; Banks and Sundaram, 1993), and understanding of which policies need to be done (Canes-Wrone et al., 2001; Ashworth and Shotts, 2010; Bils, 2023; Kartik et al., 2015); I study how a policymaker's desire to signal his ability to develop high-quality policies affects policymaking.

Suppose an incumbent inherits a status quo policy and decides whether to retain or replace it after developing his highest-quality alternative policy. Assume the incumbent's ability to develop a high-quality policy today—characterized by attributes such as a low cost-benefit ratio or its ability to accomplish goals all agree are good like high GDP—is positively correlated with his ability to develop a high-quality policy tomorrow. The voter observes whether the policymaker changes the status quo and reelects him if the expected quality of policy the incumbent will develop tomorrow is sufficiently high. If the incumbent cares about policy quality and reelection, and if the voter knows the quality of policy the incumbent will develop tomorrow, the incumbent replaces the status quo when the alternative policy's quality exceeds the quality of the status quo. However, if the incumbent values policy quality and winning reelection, but the voter does not know the quality of the policy the incumbent will develop tomorrow, and the voter believes the incumbent changes the status quo if and only if the new policy's quality exceeds the quality of the status quo, changing the status quo may be electorally advantageous as it signals the ability to develop high-quality policies in the future.

In this paper, I explore this simple logic using a formal model. In the model, policies have ideology and quality. An incumbent policymaker, driven by policy goals and the prospect of reelection, decides whether to maintain an inherited policy of publicly known ideology and quality or to change it to a policy with his preferred ideology. Before deciding whether to change the policy, the incumbent privately learns the quality of his alternative policy, which is drawn from a distribution that depends on his ability. Notably, a higher-quality policy is more likely to be developed by a high-ability policymaker. A voter observes the incumbent's decision but not the quality of the alternative policy, and reelects the incumbent if the probability the incumbent is high ability is sufficiently high. Otherwise, she elects the challenger.

I begin by analyzing the benchmark case where the voter knows the incumbent's ability.

Consequently, the incumbent's decision whether or not to change the status quo does not affect the outcome of the election. Hence, the incumbent will change the status quo when his ideological benefit is larger than the net change in quality.

I then solve the model where the incumbent's type is unknown. Sometimes, in equilibrium, the incumbent's decision does not affect the election's outcome. In these cases, the incumbent's equilibrium strategy coincides with his strategy in the benchmark. In the remaining cases, the probability the incumbent wins reelection is strictly greater if he changes the status quo than if he retains it, and in equilibrium, the incumbent changes the status quo for lower realizations of quality than he does in the benchmark. I refer to this additional policy change relative to the benchmark as *ability signaling*.

Whether ability signaling arises in equilibrium is determined by two factors. The first factor is ex-ante political competition, which determines whether the incumbent's decision has the potential to affect the election's outcome. The second factor is polarization, which affects how discerning the incumbent is about the quality of the alternative policy required for him to change the status quo and which affects what the voter learns from the incumbent's decision. In particular, ability signaling arises when the voter has a moderate ex-ante preference for the challenger and low polarization or if the voter has a moderate ex-ante preference for the leader and moderately high polarization.

In the baseline model, I assume the voter does not learn the alternative policy's quality before the election. In reality, whether she does may depend on when the change occurs relative to the election. To account for this, I extend the model to assume there is an exogenous probability that the alternative policy's quality is revealed if the incumbent changes the status quo. As this probability increases, the incumbent has less incentive to change the status quo if he knows he will not be reelected if the quality of his alternative policy is revealed. Hence, as the probability of quality revelation increases, the extent of ability signaling decreases. Yet, even if the quality of his alternative policy is certain to be revealed, he sometimes still engages in ability signaling.

In light of this, one might conjecture that if given the choice of when to develop a policy, the incumbent will wait until the end of his term in case his alternative turns out to be low quality. I show that sometimes, the revelation of information about the quality of his alternative policy can only hurt the incumbent, in which case he waits until the end of his term to develop his alternative policy. But, in other cases, quality revelation helps the incumbent, such as when policy change without quality revelation does not lead to his reelection. Hence, in some situations, the incumbent's behavior is observationally similar to the behavior predicted by the political business cycles literature, an incumbent pursuing policies with short-term benefits at the end of his term to boost electoral prospects (Nordhaus, 1975;

Drazen, 2000). In other cases, his behavior aligns more with the "honeymoon hypothesis," where politicians use their early-term political capital to enact new policies (McCarty, 1997; Beckmann and Godfrey, 2007).

Policymakers are not required to develop policies that match their ideal point; they may choose more moderate or extreme policies. I study the model under the alternative assumption that the incumbent publicly chooses the ideology of his alternative policy before learning its quality. I then show that for some parameters, the incumbent develops a policy that differs from his ideal point. In doing so, the incumbent makes policy change less attractive as the ideological benefit is smaller for himself. As a result, in equilibrium, changing the status quo is a stronger signal of high ability, and retaining the status quo is a weaker signal of low ability. Due to this, the incumbent can sometimes win reelection with a higher probability than if he proposed a policy with his ideal ideology. Notably, unlike other papers where policy has an ideological and quality dimension, the incumbent does not propose a policy that differs from his ideal point for Downsian reasons but to affect the information conveyed by his decision whether to change the status quo (Hirsch and Shotts, 2012, 2018; Hitt et al., 2017).

Since at least the early days of the United States, some have worried that elections produce policy churn (Madison, 1788a; de Tocqueville, 2003). The usual argument is that elections alter who serves as a policymaker, and since different policymakers have different opinions about good policy, variation in who serves leads to variation in policy.[1]. Analysis of the baseline model shows this fear is warranted. Even in the absence of uncertainty about the incumbent's ability, the incumbent's ideological opposition to the status quo incentivizes policy change. Moreover, the model also identifies a new reason to fear elections might lead to policy churn: the desire of a policymaker to signal his ability to develop high-quality policies.

One solution to excessive policy churn is to require a policymaker to secure another policymaker's support to change the status quo. To examine the effect of introducing another policymaker who can prevent policy change, I study an extension of the baseline where the incumbent, or the majority, chooses whether to propose an alternative policy, which is implemented if and only if the challenger, or the minority, agrees to the proposal. Before deciding, the minority observes the quality of the majority's proposed alternative.

Relative to the baseline, when the minority can block policy change, the probability of policy change is weakly lower, and the expected quality of policy conditional on policy

[1]In Federalist 62, James Madison writes, "Every new election in the states, is found to change one half of the representatives. From this change of men must proceed a change of opinions; and from a change of opinions, a change of measures." (Madison, 1788a)

change is weakly higher. This difference arises for two reasons. First, suppose the minority and majority have different ideal points. In that case, the minority may be more amenable to the status quo than the majority, in which case her presence prevents the majority from making some policy changes that would be enacted in the baseline model. Perhaps more interestingly, the second reason is that sometimes the minority blocks proposed changes because doing so is electorally advantageous. In equilibrium, successful policy change may increase the probability the majority wins reelection relative to the case where the status quo is maintained. In these cases, the minority blocks proposed policy changes to increase her probability of winning reelection. In fact, even if the majority and minority have the same ideal point, the minority will sometimes block policy change the incumbent would enact in the baseline. This result captures the strategic, electorally motivated opposition we see in roll-call voting, even on non-ideological issues (Lee, 2009).

Analysis of this extension also reveals that the need to secure the minority's agreement to change the status quo is sometimes electorally beneficial for the majority in that he can win reelection in cases where he was not able to in the baseline model. Because the minority blocks some policy changes that the incumbent would have enacted in the baseline model, securing the minority's agreement is a stronger signal of high ability, and failing to secure the minority's agreement is a weaker signal of low ability.

Summarizing, my model shows that when there is uncertainty about a policymaker's ability to develop high-quality policies and he can change the status quo unilaterally, he engages in ability signaling. This distortion results in policy churn as the incumbent changes the status quo more than he would without uncertainty about his type. Under an institution that requires agreement between two policymakers for the status quo to change, the distortion of ability signaling is ameliorated. However, it is replaced by a different distortion where more policy is blocked than without uncertainty about ability.

1.1 Related Literature

This paper considers how uncertainty about a policymaker's ability to develop high-quality policies affects his policymaking decisions. To do this, I study a game-theoretic model where policy has two dimensions: ideology and quality. In this modeling choice, I build upon a small but growing literature of formal models where policy has an ideological component and a valence component, and where the valence component usually represents the policy's quality (Hirsch and Shotts, 2012, 2015, 2018; Hitt et al., 2017; Londregan, 2000). Many of the papers within this literature build upon the same basic model where a policymaker makes a costly investment in developing the quality of an alternative policy. By doing this, the policymaker makes his alternative policy more attractive to a different player with ideological preferences different from the policymaker's and who must agree to change the status quo to the alternative policy. With one exception, Hitt et al. (2017), policymakers in the existing models have the same ability to develop high-quality policies. In contrast, in my model, some policymakers have more ability than others. Moreover, unlike Hitt et al. (2017), I study a setting with imperfect information about policymakers' abilities.

This paper is also closely related to the literature on electoral accountability when there is uncertainty about a policymaker's type. Previous work focuses on uncertainty about what a policymaker knows about the state of the world (Canes-Wrone et al., 2001; Ashworth and Shotts, 2010; Kartik et al., 2015; Bils, 2023) and about a policymaker's ideal point (Fearon, 1999) among other topics. In all cases, uncertainty leads to distorted policymaking relative to when there is complete information: policymakers pander or anti-pander when there is uncertainty about what they know about the state of the world and moderate when there is uncertainty about their ideal points. I examine a distinct source of uncertainty, uncertainty about a policymaker's ability to craft high-quality policies and show that this leads to distortions in the form of additional policy change that decreases expected policy quality.

Within this literature, my paper is closest to Judd (2017), who studies a model where a policymaker unilaterally chooses whether or not to change the status quo. If the policymaker changes the status quo, he directly reveals his skill, which a voter cares about when choosing whether or not to reelect the policymaker. In my model, the incumbent cannot directly reveal his ability for two reasons. First, when the incumbent changes the status quo, the voter only observes the decision to change; she doesn't observe the incumbent's type. Second, policymakers with ability can sometimes only enact low-quality policies, and policymakers without ability can sometimes enact high-quality policies. Hence, even if the incumbent changes the status quo and the voter observes the quality of the new policy, she will still be uncertain whether the incumbent has high ability. An additional distinction between Judd (2017) and the model in this paper is that in this model, the incumbent has ideological preferences, which incentivize policy change. Since the voter doesn't learn the quality of the new policy, the presence of ideology affects the information the voter learns from the incumbent's choice to retain or change the status quo. This alters the incumbent's incentive to change the status quo.

This paper is also related to the literature on when politicians act. Some studies focus on how policy considerations affect when politicians act (Ostrander, 2016; Binder and Maltzman, 2002; Thrower, 2018).[2] Others focus on the effect of position-taking considerations on

[2]Also see the literature on political business cycles (Nordhaus, 1975; Drazen, 2000).

when politicians act (Huang and Theriault, 2012). I study a distinct consideration: how uncertainty about a policymaker's ability affects when he acts. Gibbs (2024) studies a similar question, although using a model where the policymaker's ability is related to the quality of his information about the right policy rather than his ability to develop high-quality policies.

Finally, in an extension of the baseline model, I study a setting where a majority party and minority party must agree to change the status quo while engaged in zero-sum electoral competition. The behavior of the parties in equilibrium is reminiscent of the strategic, electorally motivated opposition we see in roll-call voting documented by Lee (2009, 2016).

2 Model

There are three players: an incumbent policymaker (I, "he"), a challenger (C, "she"), and a voter (V, "she"). Each policymaker, $j \in \{I, C\}$, is either high ability ($\tau_j = \overline{\theta}$) or low ability ($\tau_j = \underline{\theta}$), and their types are unknown to all players. At the start of the game, the policymakers' types are independently and identically drawn from a Bernoulli distribution such that the prior probability that policymaker j has high ability is $p \in (0, 1)$.

There is a publicly observed status quo, $\pi_{sq} = (x_{sq}, q_{sq})$, which consists of ideology, $x_{sq} \in \mathbb{R}$, and quality, $q_{sq} \geq 0$. The incumbent has the option to maintain this status quo, $\pi = \pi_{sq}$, or replace it with a new policy, π_I, which has an exogenously determined ideology, $\hat{x} \geq 0$, and quality, $q_I \geq 0$. [3] While the incumbent and the voter know $\hat{x}$, only the incumbent knows q_I, which he privately learns before publicly deciding whether to change the status quo. Observing this decision, but without observing q_I, the voter chooses between reelecting the incumbent and replacing him with the challenger, $e \in \{I, C\}$.

The quality of the incumbent's alternative policy, q_I, is drawn from one of two distributions depending on his type. Let $f(q_I)$ be the prior distribution of q_I if the incumbent has high ability, and let $g(q_I)$ be the prior distribution of q_I if the incumbent has low ability. I assume $f(q_I) > 0$ and $g(q_I) > 0$ for $q_I \in [0, \infty)$ and $f(q_I)$ and $g(q_I)$ have the strict monotone likelihood ratio property (MLRP) such that $\frac{f(q_I)}{g(q_I)}$ is strictly increasing in q_I (Milgrom, 1981).[4]

The timing of the model is summarized below:

1. Nature privately draws the policymakers' types and q_I.

2. The incumbent privately learns q_I.

[3] In Section 6, I explore an extension where the incumbent chooses $\hat{x}$.

[4] Assuming $f(q_I)$ and $g(q_I)$ have the strict MLRP ensures there is a unique threshold in the incumbent's strategy such that the voter is indifferent between the incumbent and challenger. With this assumption, the substantive results would be the same but there might be more equilibria. See Section A.2 of the Appendix for more information.

3. The incumbent chooses whether to retain the status quo or change it.

4. The voter observes the incumbent's decision but not q_I.

5. The voter chooses whether to elect the incumbent or the challenger.

Payoffs The incumbent cares about the quality and ideology of policy and winning reelection. His utility from a policy with ideology x and quality q is

$$u_I(x,q) = -(x_I - x)^2 + q + \mathbb{1}_{e=I} r,$$

where x_I is the incumbent's ideal point and r represents office rents. I begin by assuming $\hat{x} = x_I$, that is, the ideology of the incumbent's alternative policy matches his ideal point. But, in Section 6, I allow the incumbent to choose a policy with an ideology that differs from his ideal point.

The voter cares about the quality and ideology of policy and the ability of the policymaker. Her utility from a policy with ideology x and quality q is

$$u_V(x,q) = \mathbb{1}_{e=I}\mathbb{1}_{\tau_I=\overline{\theta}} + \mathbb{1}_{e=C}(\mathbb{1}_{\tau_C=\overline{\theta}} + \eta) - \mathbb{1}_{\pi=\pi_I}\zeta - x^2 + q,$$

where the voter's ideal point is zero, $\zeta \in \mathbb{R}_+$ are the adaptation costs the voter pays if the status quo is changed, and $\eta \in \mathbb{R}$ represents the voter's preference for or against the challenger for reasons other than ability and captures a notion of ex-ante electoral competition. If $\eta > 0$, the incumbent ex-ante *trails* the challenger, and if $\eta < 0$, the incumbent ex-ante *leads* the challenger.

The voter's utility function means her voting decision does not affect her utility from policy.[5] Hence, the voter prefers the incumbent if her posterior belief about the incumbent's ability is higher than $p + \eta$, prefers the challenger if her posterior belief is lower than $p + \eta$, and is indifferent otherwise.

I also make an assumption about the location of the ideology of the status quo relative to the incumbent and voter's ideal points.

Assumption 1. $|x_{sq}| \leq x_I$.

This assumption implies that the incumbent's ideological benefit from policy change is weakly larger than the voter's ideological benefit from policy change.

[5]In Section 8.2, I study a version of the model where the election's outcome affects policy.

Equilibrium

1. The incumbent's strategy is a function $\sigma_I(\cdot) : \mathbb{R}_+ \to \Delta\{\pi, \pi_I\}$;

2. The voter's strategy is a function $\sigma_V(\cdot) : \{\pi, \pi_I\} \to \Delta\{I, C\}$.

A perfect Bayesian equilibrium surviving D1 with minimum policy change, denoted σ and referred to in the paper as an "equilibrium," satisfies the following:

1. Each player's strategy is sequentially rational given his or her beliefs and the other players' strategies;

2. The voter's belief about the incumbent's ability satisfies Bayes' rule on the equilibrium path;

3. The voter's belief about the incumbent's ability satisfies the D1-criterion off the equilibrium path.

4. There is no other equilibrium with lower probability of policy change.

The first two conditions are the usual conditions for a perfect Bayesian equilibrium, and the third is the D1-criterion from Cho and Kreps (1987) which restricts the belief the voter holds when the incumbent chooses an action that is off the equilibrium path. The fourth condition is an equilibrium selection criteria I adopt in light of the existence of multiple equilibria. For much of the parameter space, a unique perfect Bayesian equilibrium satisfies the first three conditions, but elsewhere, multiple perfect Bayesian equilibria surviving D1 exist. Adopting the fourth condition ensures uniqueness except for in some knife-edge cases where the incumbent changes the status for all realizations of q_I. Below, I show that uncertainty about the policymaker's type distorts policymaking in the form of additional policy change. By focusing on the equilibrium with minimum policy change, I focus on the equilibrium where this distortion is minimized. Notably, the comparative statics results derived when I focus on the equilibrium with minimum policy change are the same as the results if I focus on the equilibrium with maximum policy change.

3 Discussion of the Model

Policy Quality I model policy as having two dimensions. The first dimension, the ideology of the policy, represents where the policy falls along the left-right ideological dimension. The second dimension, the quality of the policy, represents aspects of the policy that all players value, such as cost-effectiveness, lack of susceptibility to corruption and fraud, and the extent to which the policy achieves agreed-upon goals like economic growth. In this way, policy quality is similar to a party or a politician's valence (Stokes, 1963). To illustrate these dimensions, consider the example of the Paycheck Protection Program (PPP), established through the CARES Act during the COVID-19 crisis, which provided low-interest loans to business owners to cover payroll. The ideology of the PPP can be represented by a point along the left-right policy dimension, and this ideology differs from the ideology of other policies that might have aimed to support businesses during the COVID-19 crisis. Additionally, there are aspects of the PPP that are separate from ideology that contribute to the quality of the policy. For example, the PPP was highly susceptible to fraud—by some estimates, 10 percent of the money dispersed was for fraudulent claims—due in part to the way applications were screened (Griffin et al., 2023; Brooks, 2023).[6] Relative to a version of the PPP that was drafted in a way that was less susceptible to fraud, this policy has lower quality.

Learning about Quality I assume the incumbent knows the quality of his proposed policy when deciding whether to change the status quo, but the voter does not. This asymmetry reflects that the policymaker is a policy expert, but the voter needs time to observe the policy after its implementation to learn about its quality. The model represents a situation where there is insufficient time for the voter to learn about quality before the election, so if the incumbent changes the status quo, the voter doesn not observe the quality of the new policy. In Section 5, I relax this assumption by allowing the voter to learn the quality of the new policy with some probability, either through experience or learning from some other policy expert.

Ability to Craft High-Quality Policy In the model, the policymaker's type is related to his ability to develop high-quality policy. Policymakers differ in this ability because of their personal characteristics—their intelligence, experience, or knowledge of a particular issue—and because of factors like the quality of the policymaker's staff or his ability to utilize lobbyists and interest groups to help craft the policy.

This ability is related to issue ownership, where particular policymakers or parties are associated with greater competence in an issue area (Petrocik, 1996). One reason a policymaker might own an issue is that he is perceived as able to develop high-quality policies in that area. Existing work typically begins with the assumption that voters know which policymakers own which issues (Krasa and Polborn, 2010; Ascencio and Gibilisco, 2015; Hummel, 2013).

[6]The Small Business Administration used outside lenders to screen applications and to make loans. Because these lenders collected a processing fee but were not liable for the loss on bad loans, they had little incentive to scrutinize applications closely. See Brooks (2023) for more information.

In contrast, in this model, the policymaker can influence the voter's perception of whether he has high ability or not. In the model, the incumbent and the challenger both have the same prior probability of having high ability. Importantly, by varying η, the incumbent may begin the game leading or trailing the follower. Hence, one could allow the voter to have asymmetric priors about the incumbent and challenger, and nothing would change. That is, the voter could believe the incumbent or challenger has some degree of issue ownership over the policy area in question.

Timing In the model, the policymaker learns the quality of his alternative policy and then decides whether to change or retain the status quo. This feature of the model represents how, after drafting a piece of legislation, a policymaker has the choice of whether to implement it. For example, after designing an executive order with his staff, a mayor might choose not to issue it. Or, after some of their members draft a piece of legislation, a party's leadership might decide not to proceed with a vote. This is what happened to the Graham-Cassidy amendment in 2017. Republican Senators Lindsey Graham and Bill Cassidy developed and introduced an amendment that would overhaul or repeal significant pieces of the Affordable Care Act, replacing them with block grants to states (Frostenson, 2017). Although the amendment had support among most Senate Republicans, key votes like Susan Collins and John McCain stated they opposed the bill. In a statement explaining her opposition, Collins wrote:

> "Sweeping reforms to our health care system and to Medicaid can't be done well in a compressed time frame, especially when the actual bill is a moving target... The CBO's analysis on the earlier version of the bill, incomplete though it is due to time constraints, confirms that this bill will have a substantially negative impact on the number of people covered by insurance." (Collins, 2017)

In light of this opposition, Republican leadership in the Senate decided not to put the legislation up for a vote.[7]

Adaptation Costs The cost the voter pays if the status quo is changed represents the cost of adapting to or complying with a new policy. For example, after the passage of the Affordable Care Act, voters incurred a cost to learn about the policy (Am I eligible? What are the benefits of enrollment?) and a cost to comply with the policy (time spent navigating the marketplace and submitting an application). Businesses also faced costs to comply with

[7] At the time, Republicans controlled the House, Senate, and presidency, and hence, if the party had been unified, would have been able to unilaterally change the status quo.

the ACA as many no longer had the choice of whether to offer group health plan coverage to their employees. Even those businesses that are not required still need to follow the rules dictating which businesses must provide insurance to their employees. Ultimately, however, the voter's adaptation cost is not necessary for any results. Its addition is simply helpful for exploring the effects of uncertainty on the incumbent's ability.

4 Analysis

4.1 Benchmark: No Uncertainty about the Incumbent's Type

I begin by considering the benchmark case where there is no uncertainty about the incumbent's type. Denote this game by $\hat{\Gamma}$. When the voter knows whether the incumbent has high ability, her voting decision is unrelated to the incumbent's decision whether to change the status quo. Therefore, the incumbent changes the status quo if and only if the change increases his utility, which is when:

$$q_I \geq \max\{q_{sq} - (x_I - x_{sq})^2, 0\}. \tag{1}$$

As long as the incumbent has some degree of ideological opposition to the status quo, he sometimes changes it to a policy that is of relatively lower quality. Moreover, as the incumbent's ideological opposition to the status quo increases, so does the probability he changes the status quo. Since a likely source of the status quo is the the incumbent's predecessor, I refer to $(x_I - x_{sq})^2$ as *polarization*. However, my results can also be interpreted with $(x_I - x_{sq})^2$ simply representing the incumbent's ideological opposition to the status quo.

4.2 Full Model: Uncertainty about the Incumbent's Type

I now turn to the full model described in Section 2, denoted by Γ. When the voter chooses whether to reelect the incumbent, her strategy is a mapping from the incumbent's decision to a vote choice. Therefore, there are three potential types of equilibria. In the first, the voter's choice does not depend on the incumbent's decision, in which case the incumbent changes the status quo if and only if condition (1) is satisfied, which is the same threshold he uses in $\hat{\Gamma}$.[8] If η is sufficiently large, even if the voter is certain the incumbent is high ability, she elects the challenger, and if η is sufficiently small, the voter elects the incumbent

[8] This includes equilibria where the incumbent chooses one action on the equilibrium path, but the voter's action would be the same if the incumbent chose his action off the equilibrium path.

even if she is certain he is low ability. Hence, this type of equilibrium exists for some at least regions of the parameter space.

In the remaining potential equilibria, the incumbent's probability of reelection depends on whether he changes the status quo. One possibility is that in equilibrium, the incumbent's probability of reelection is strictly greater when he retains the status quo than when he changes it. Suppose such an equilibrium exists. In this equilibrium, the incumbent's utility from retaining the status quo does not depend on q_I. However, his utility from changing the status quo is increasing in q_I. Hence, he must use a threshold strategy where he changes the status quo when q_I is sufficiently large.

The fact that $f(q_I)$ and $g(q_I)$ satisfy strict MLRP means that if the incumbent uses a threshold strategy, changing the status quo signals high ability while retaining the status quo signals the opposite.[9] As a result, there cannot be an equilibrium where the incumbent's probability of reelection is higher when he retains the status quo than when he changes it, so this potential equilibrium does not exist.

In the final potential equilibrium, the incumbent's probability of reelection is strictly greater when he changes the status quo than when he retains it. I refer to this as an *equilibrium with consequential policy change*. The same argument about the incumbent's threshold strategy applies here. Hence, he uses a threshold strategy and changes the status quo when q_I is sufficiently large.

Lemma 1. *In any equilibrium, the incumbent uses a threshold strategy and changes the status quo if and only if $q_I \geq q_{sq} + y^*$, where $y^* \in [-q_{sq}, \infty)$.*

I refer to y^* as the incumbent's *quality threshold*. The higher the incumbent's quality threshold, the more discerning he is about how high quality his alternative policy needs to be to warrant policy change.

In an equilibrium with consequential policy change, the incumbent's desire for reelection is an additional incentive for policy change. This produces distortions relative to the benchmark without uncertainty about the incumbent's type.

Proposition 1. *There are regions of the parameter space where an equilibrium with consequential policy change exists. Moreover, relative to $\hat{\Gamma}$, in any equilibrium with consequential policy change,*

(a) the probability of policy change is strictly higher,

(b) and the expected quality of policy is strictly lower.

[9] This and additional properties of the voter's posterior belief when the incumbent uses a threshold strategy are derived in Section A.2 of the Appendix.

Consider an incumbent in the benchmark model who is indifferent between changing the status quo and retaining it, given the quality of his alternative policy. If there's uncertainty about the incumbent's type and changing the status quo increases his probability of reelection, he has an extra incentive to change the status quo relative to the benchmark. This extra incentive leads to additional policy changes. I refer to this as *ability signaling.*

Definition 1. *Let y^*_Γ be the incumbent's quality threshold in Γ. If $q_{sq} - (x_I - x_{sq})^2 > 0$ and*

$$y^*_\Gamma < -(x_I - x_{sq})^2,$$

the incumbent engages in ability signaling. Moreover,

$$D(y^*_\Gamma) \equiv \begin{cases} 0 & \text{if } q_{sq} - (x_I - x_{sq})^2 \leq 0 \\ -(x_I - x_{sq})^2 - \max\{y^*_\Gamma, 0\} & \text{if } q_{sq} - (x_I - x_{sq})^2 > 0 \end{cases}$$

is the extent of ability signaling.

When the incumbent engages in ability signaling, he sometimes changes the status quo to a lower quality policy than he would be willing to change to without uncertainty about his ability. Essentially, the incumbent trades office rents tomorrow for policy quality today, decreasing the overall expected policy quality.

Proposition 1 demonstrates that equilibria with consequential policy change exist and that the incumbent engages in ability signaling in these equilibria. But under what conditions does this type of equilibrium exist?[10] In the following proposition, I provide precise conditions for the existence of an equilibrium with consequential policy change.

Proposition 2. *Fix π_{sq}. An equilibrium with consequential policy change exists if and only if*

(a) $\eta \in (0, \overline{\eta})$ and $-(x_I - x_{sq})^2 > \overline{y}(q_{sq}, \eta)$;

(b) $\eta = 0$ and $-(x_I - x_{sq})^2 > r - q_{sq}$;

(c) or $\eta \in (\underline{\eta}, 0)$ and $-(x_I - x_{sq})^2 \in (r - q_{sq}, \underline{y}(q_{sq}, \eta))$,

where $\overline{y}(q_{sq}, \eta)$ and $\underline{y}(q_{sq}, \eta)$ solve

$$\frac{(1 - F(q_{sq} + \overline{y}(q_{sq}, \eta)))p}{(1 - F(q_{sq} + \overline{y}(q_{sq}, \eta)))p + (1 - G(q_{sq} + \overline{y}(q_{sq}, \eta)))(1 - p)} = p + \eta$$

$$\frac{F(q_{sq} + \underline{y}(q_{sq}, \eta))p}{F(q_{sq} + \underline{y}(q_{sq}, \eta))p + G(q_{sq} + \underline{y}(q_{sq}, \eta))(1 - p)} = p + \eta$$

[10] In the Section A.2 of the Appendix, I provide a full characterization of all equilibria.

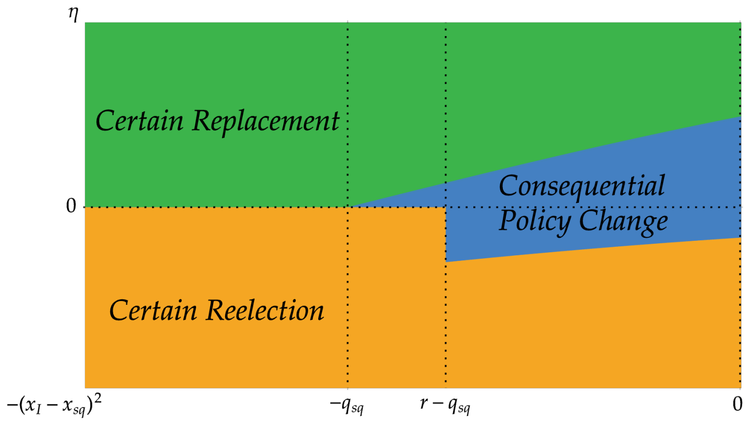

Figure 1: Regions of equilibria with minimum policy change. $q_{sq} = 1$, $r = \frac{1}{4}$, $f(q_I) = e^{-q_I}$, $g(q_I) = 2e^{-2q_I}$, and $p = \frac{1}{2}$.

In any other equilibrium, the incumbent's strategy coincides with his strategy in $\hat{\Gamma}$.

As depicted in Figure 1 where the blue region is the region of the parameter space where equilibria with consequential policy change exist, whether an equilibrium with consequential policy change exists depends on three things: the degree of ex-ante electoral competition (y-axis), polarization (x-axis), and the office rents (on the x-axis). When the incumbent trails, he is never reelected if he retains the status quo, but he may be reelected if he changes it. In this case, existence requires that the incumbent not trail the challenger by too much and for a sufficiently small degree of polarization. When the incumbent trails by too much, the voter always elects the challenger regardless of his strategy. And when there is too much polarization, the incumbent is willing to change the status quo even if the alternative policy is low quality. As a result, the voter does not update positively enough about the incumbent's ability when he changes the status quo to warrant reelection.[11]

When the incumbent leads, he is always reelected if he changes the status quo but may not be reelected when he retains it. In particular, the existence of an equilibrium with consequential policy change requires the incumbent not to lead by too much. Otherwise, the voter always reelects the incumbent regardless of his decision. It also requires a sufficient degree of polarization that when the incumbent retains the status quo, the voter updates

[11] In an equilibrium with consequential policy change when the incumbent trails, the voter reelects the incumbent with probability $\rho^* \in (0, 1]$ if they change the status quo and elects the challenger otherwise. As long as $\overline{y}(q_{sq}, \eta) < -(x_I - x_{sq})^2$, there exists a $\rho^* \in (0, 1]$ such that $\overline{y}(q_{sq}, \eta) < -(x_I - x_{sq})^2 - \rho^* r$, which is the condition for existence of an equilibrium with consequential policy change. See Section A.2 of the Appendix for more information.

negatively enough about the leader that she prefers the challenger. Finally, existence requires there not to be too much polarization. If there is, the incumbent always changes the status quo and is always reelected.

In the remaining regions of the parameter space, there are two other types of equilibria: *equilibria with certain reelection*, where the incumbent is reelected regardless of whether he changes the status quo, and *equilibria with certain replacement*, where the incumbent is replaced whether he changes the status quo.[12]

Proposition 3. *In any equilibrium, the extent of ability signaling is*

(a) weakly increasing in ex-ante electoral competition (i.e. as η approaches zero),

(b) and weakly increasing in the office rents

There is a connection between the degree of ex-ante electoral competition, which increases as η gets closer to zero, and ability signaling.[13] When there is little electoral competition because the voter has a strong preference for or against the incumbent independent of her beliefs about his ability, the election outcome does not depend on the incumbent's policy change decision. But, as ex-ante electoral competition increases—as η gets closer to zero—policy change becomes electorally relevant because the shift in the voter's posterior induced by policy change or policy retention is enough to decide the election. Moreover, the extent of ability signaling in the region of equilibria with consequential policy change is not constant. Instead, it is weakly increasing as η approaches maximum around $\eta = 0$. Hence, when there is a large degree of ex-ante electoral competition, we should see particularly distorted policymaking.

Additionally, there is a connection between the extent of ability signaling and office rents. When the incumbent trails and is never reelected, increasing the office rents does not affect the incumbent's incentive to change the status quo. But, if the incumbent is reelected when he changes the status quo, increasing office rents makes changing the status quo more attractive, and hence the extent of ability signaling increases. Eventually, the office rents increase to the point that changing the status quo no longer conveys a sufficiently strong signal of high ability for the incumbent to be reelected. To maintain equilibrium, the voter

[12] If I do not restrict attention to the equilibrium with minimum policy change, there is a band below the region with consequential policy change when the incumbent trails where two other types of equilibria exist. One is an equilibrium with consequential policy change where the incumbent is only reelected if he changes the status quo. The other is an equilibrium with consequential policy change where the incumbent is reelected if he changes the status quo and with probability $\rho^* \in (0, 1)$ if he retains the status quo. See Section A.2 of the Appendix for more information.

[13] I specify that this result holds for any equilibrium as a continuum of equilibria potentially exists when $\eta = 0$. In all these equilibria, the incumbent changes the status quo for all q_I.

must reelect the incumbent with a lower probability when he changes the status quo. As r goes to infinity, this probability goes to zero. This decrease in the probability of reelection conditional on policy change as the office rents increase maintains the same probability of policy change in equilibrium, and hence, increasing office rents further has no effect on the extent of ability signaling.

When the incumbent leads, increasing the office rents does not affect the probability of policy change when the incumbent is always reelected. However, if he is only reelected when he changes the status quo, increasing office rents makes policy change more attractive, leading to an increase in the extent of ability signaling.

4.3 Implications

Ability Signaling without Elections Although there is a voter and an election in the model, the implications of the model shed light on policymaking by policymakers who are not elected. Suppose the incumbent is the current superintendent in a school district, and the voter is either someone who could hire someone else to replace the current superintendent or someone who will potentially hire the current superintendent for a different job in the future. It seems natural to suppose that, in this case, $\eta = 0$. That is, the voter's decision depends entirely on the incumbent's probability of having high ability relative to the challenger's. Then Proposition 1 shows that in equilibrium, the incumbent always engages in ability signaling in equilibrium if polarization is not too extreme, which also may be reasonable to assume in this context. Ability signaling is consistent with qualitative descriptions of policymaking by superintendents. In particular, Hess (1999) argues that the combination of superintendents' desire to improve their reputations—they care about their reputation for career concerns reasons—and their short time horizons—they seek to quickly move to their next job—leads to policy churn. To bolster their reputations, superintendents are incentivized to "assume the role of the reformer, initiating a great deal of activity" so they are not perceived as ""do nothing" and replaced by a more promising successor" (Hess, 1999, p. 43). The desire to signal ability, leads to education policy churn.

Desire for Reelection Motivates Policymaking Propositions 1 and 2 show that in some regions of the parameter space, uncertainty about the incumbent's ability combined with his desire for reelection leads him to change policy more than he would without uncertainty. This result resonates with empirical work on state legislators that finds that reelection incentives motivate legislators to sponsor more bills, be more productive on committees, and attend more floor votes (Fouirnaies and Hall, 2022). Such effort benefits voters; productive committee work allows a policymaker to mark up legislation with his constituents' interests in mind, and skipping roll call votes makes it more difficult for voters to infer their legislators' positions (Fouirnaies and Hall, 2022, p. 666). In contrast, this model demonstrates how additional effort may harm voters.[14][15]

Proposition 4. *In any equilibrium of* Γ*, the voter's welfare is weakly lower in than in* $\hat{\Gamma}$*.*

Unsurprisingly, increasing the voter's adaptation cost weakly increases the difference between the voter's welfare in the two games.

Excessive Mutability of Laws Since the founding of the United States, some have feared that there's a connection between elections and policy churn. In Federalist 62, James Madison defended six-year Senate terms by arguing:

> "The internal effects of a mutable policy are still more calamitous. It poisons the blessing of liberty itself. It will be of little avail to the people, that the laws are made by men of their own choice...if they be repealed or revised before they are promulgated, or undergo such incessant changes that no man, who knows what the law is to-day, can guess what it will be to-morrow" (Madison, 1788a)

Madison's concern was that political turnover would lead to excessive policy churn because different policymakers had different preferences.[16] There is a sense in which this concern is captured by my model.

Proposition 5. *Fix* π_{sq}*. In any equilibrium, the probability of policy change is weakly increasing in* x_I*.*

That said, my model also identifies an additional reason why elections and policy churn might be connected: the desire of a policymaker to signal the ability to develop high-quality policies.

5 Quality Observability

As Mayor of New York City, Eric Adams has presided over developing a plan for a "Trash Revolution," which includes mandated trash bins, more vigorous enforcement of sanitary

[14]Following others in the literature (Canes-Wrone et al., 2001; Fox and Van Weelden, 2012), I define the voter's welfare only in terms of her utility from policy.

[15]This result holds even if the voter does not have adaptation cost if the incumbent changes the status quo. It is sufficient that the incumbent's ideal point is further from the ideology of the status than the voter's ideal point.

[16]Alexis de Tocqueville shared the same concern, writing, "The mutability of the laws is an evil inherent in democratic government, because it is natural to democracies to raise men to power in very rapid succession." (de Tocqueville, 2003)

laws, and new garbage trucks (Lach, 2024; NYC, 2024). The rollout of this policy began in 2022 and will continue into spring 2025, which is a few months before the next mayoral election. Since the policy was implemented well before the next election, voters may learn the quality by the time they decide whether to reelect Adams or replace him.

In the model, the voter observes whether the incumbent changes the status quo but does not observe q_I after the status quo is changed. However, as illustrated by the example of the Trash Revolution, depending on when a policy is enacted, voters may learn the quality of the policy before the election. What effect does the timing of when policy change occurs in relation to the next election have on the policymaker's incentives? To answer this question, I assume that if the incumbent changes the status quo, q_I is revealed before the election with probability $s \in [0, 1]$, where s is exogenous. We should expect s to be higher for policy change that occurs earlier in the incumbent's term.

Proposition 6. *In any equilibrium, the extent of ability signaling is weakly decreasing in s. However, the incumbent still engages in ability signaling for some parameters when $s = 1$.*

When the incumbent changes the status quo, he does to one of two types of policies. The first is a policy that leads to his reelection even if the quality of the policy is revealed. The second is a policy that leads to his reelection only if the quality is not revealed. When it is unlikely the voter learns the quality of the new policy before the election, the distinction between these two types of policies matters little. But when the probability the quality of the new policy is revealed before the election increases, an incumbent for whom the quality of policy he can enact is too low to win reelection if revealed has less incentive to change the status quo.

However, an incumbent who can change the status quo to a policy that will win reelection, whether the quality is revealed or not, has the same incentive to change the status quo regardless of the probability quality is revealed. This is why the incumbent may still engage in ability signaling in equilibrium if q_I is certain to be revealed. This case is very similar to Judd (2017), in which a policymaker chooses whether to reveal his ability by replacing the status quo with a policy that perfectly repeals the policymaker's ability. In equilibrium, when the status quo has high quality, high-ability incumbents "show off" by implementing policies that are lower quality than the status quo but that reveal the policymaker is of high enough skill to warrant reelection.

The primary implication of this result is that ability signaling will be more pervasive later on in a policymaker's term when it is less likely the quality of the new policy will be revealed before the election.[17] Another implication of this result is that the expected quality

[17] This is similar to results in other models where there is uncertainty about a policymaker such as Canes-

of policy conditional on policy change decreases over the course of a policymaker's term.

Corollary 1. *In any equilibrium, the expected quality of policy is weakly increasing in s.*

One might wonder how the incumbent's ex-ante expected utility depends on the probability the voter learns the quality of his alternative if he changes the status quo.

Proposition 7. *For some parameters, the incumbent's expected utility is decreasing in s. For others, the incumbent's expected utility is increasing in s.*

In some cases, information revelation can only hurt the incumbent. For example, suppose that in equilibrium the incumbent is reelected if he changes the status quo and the quality of the alternative policy is not revealed. But if the quality is revealed, he is sometimes not reelected because the alternative's quality is too low. In this case, information revelation hurts the incumbent and his ex-ante expected utility is decreasing in s.

Yet, in other cases, information revelation helps the incumbent. Suppose that in equilibrium, the incumbent is not reelected if he changes the status quo and the alternative's quality is not revealed. In this case, the only way the incumbent is reelected is if he develops an especially high-quality alternative, changes the status quo, and the quality of the alternative is revealed. In this case, information revelation only helps the incumbent, and his ex-ante expected utility is increasing in s.

Consider a game where the incumbent chooses when to develop his alternative policy during his term and, after learning the quality, immediately chooses whether to change the status quo. The longer he waits in his term, the lower s is. The implication of Proposition 7 is that in some cases, the incumbent will delay development until the end of his term to minimize the probability the voter learns his alternative's quality. But, in other cases, the incumbent will begin development immediately to maximize the probability the voter learns the alternative policy's quality.

In this sketch of a game, the incumbent does not have the ability to delay policy change after learning the quality. As a result, the incumbent cannot signal information about the quality of his alternative through his choice of when to act. Analysis of the game where the incumbent chooses when to develop policy and then when to change the status quo is beyond the scope of this paper, but this preliminary insight suggests interesting trade-offs.[18] An incumbent who learns the quality of his alternative is low will want to delay policy change

Wrone et al. (2001) and Gratton et al. (2015) who find that policymaking distortions are related to the "political horizon."

[18] In a distinct game, Gibbs (2024) explores signaling through the timing of policy implementation and finds that policymakers may delay implementation to prevent the voter from learning the quality of a policy before an election.

until the end of his term, and an incumbent who learns the quality of his alternative is high will want to do the opposite. But, of course, the voter will recognize this, and this incentive to separate will affect the voter's posterior when the quality of the alternative is not revealed.

6 Endogenous Choice of Ideology

The baseline model assumes the ideology of the incumbent's alternative policy is exogenously fixed at his ideal point. In a setting where the incumbent unilaterally changes the status quo, it may be reasonable to assume he will pursue his preferred policy since he does not require the agreement of any other actors. But, as Proposition 2 illustrates, whether policy change is electorally consequential depends on the degree of polarization. In light of this, does the incumbent have any incentive to propose a policy that differs from his ideal point? To answer this question, suppose the incumbent publicly chooses $\hat{x} \in \mathbb{R}$, then privately learns q_I, and then chooses whether to retain the status quo or replace it with $\pi_I = (\hat{x}, q_I)$.

Proposition 8. *When $\eta < 0$, there are parameters such that in any equilibrium, the incumbent proposes $\hat{x} \in \{\underline{\hat{x}}^*, \overline{\hat{x}}^*\}$, where $\underline{\hat{x}}^* = x_I - \epsilon$, $\overline{\hat{x}}^* = x_I + \epsilon$, and $\epsilon > 0$.*

Consider an equilibrium of the baseline game where the incumbent leads but only wins reelection if he changes the status quo. The reason the incumbent is not reelected if he retains is that retaining the status quo is a sufficiently strong signal of low ability. By proposing a policy that differs from his ideal point, the incumbent reduces his incentive to change the status quo because doing so will yield a lower ideological benefit from policy change.[19] That is, by proposing a policy that differs from his ideal point, the incumbent commits to a higher quality threshold. This makes retaining the status quo a relatively weaker signal of low ability. Of course, making such a commitment comes at a cost: successful policy change will yield a lower payoff—holding q_I fixed—but in some cases, the electoral benefit outweighs the ideological cost.[20]

When the incumbent proposes a policy that differs from his ideal point, the particular policy he proposes is chosen to be sufficiently far from his ideal point as to make the voter indifferent between the incumbent and challenger. This means the incumbent is indifferent

[19] The model assumes the incumbent's utility from quality does not depend on the ideology of the policy. That is not necessary for this result. It is sufficient that fixing quality, the incumbent's utility from a policy is lower the farther the ideology of the policy is from his ideal point.

[20] When the incumbent trails, there are also parameters such that there are equilibria where the incumbent chooses a policy that differs from his ideal point. However, the parameters such that this type of equilibrium exists are the same parameters such that a mixed strategy equilibrium exists in the baseline. Moreover, the mixed strategy equilibrium continues to exist. Hence, I focus on the case where the ability to commit to $\hat{x}$ destroys some of the baseline equilibria.

between two policies, one that is sufficiently to the right of his ideal point and one that is sufficiently to the left. Both choices will affect the voter's inference in the same way. However, there are many reasons why the incumbent will choose to break his indifference between the two policies by choosing the policy that is more moderate than his ideal point. If there is a small amount of uncertainty about the incumbent's ideal point, he is incentivized to choose a policy close to the voter's ideal point as in Fearon (1999). Or if the incumbent cares about the longevity of his policy and the challenger has an ideal point that is less than zero, the incumbent has an incentive to choose a policy that is closer to challenger's ideal point since this will reduce the challenger's incentive to change the incumbent's policy in the future. Using these arguments, Proposition 8 can be interpreted as saying the incumbent has an incentive to moderate.

It is illustrative to juxtapose this result with Hirsch and Shotts (2012, 2018); Hitt et al. (2017), who also study models where policy has quality and ideology. In these models, moderation also emerges in equilibrium because a policymaker needs to secure agreement from another player with a different ideal point to change the status quo. That is, moderation emerges from a Downsian logic—by moving the ideology of a policy closer to the other player's ideal point, the policymaker makes his policy more attractive. The moderation that emerges in this model emerges for a reason entirely unrelated to Downsian logic. The policymaker moderates because it affects the information conveyed by his decision to retain or change the status quo.

7 Checks and Balances

The baseline model assumes the incumbent can unilaterally change the status quo, and I show that in such a setting, uncertainty about the incumbent's ability and his desire for reelection leads to distorted policymaking in the form of ability signaling, which leads to policy churn. As shown in Proposition 4, under reasonable assumptions, this policy churn decreases the voter's welfare relative to a setting where there is no uncertainty about the incumbent's ability.

One might conjecture that a way to ameliorate this policy churn is to introduce checks and balances. One form checks and balances could take is requiring the incumbent to secure the agreement of another policymaker to change the status quo. This is a feature of many institutional arrangements. Moreover, it is common for policymakers to interact under the shadow of future electoral competition. For example, the incumbent might be the majority party in Congress that needs the support of the minority party, the challenger, to pass legislation. To study the effect of checks and balances in a setting where there is uncertainty about the incumbent's ability, I study an extended version of the baseline model, denoted Γ^{cb}, where:

1. Nature draws the policymakers' types and q_I.

2. The majority (incumbent) privately learns q_I.

3. **The majority chooses whether to retain the status quo, $\pi = \pi_{sq}$, or propose a change, $\tilde{\pi} = (x_I, q_I)$.**

4. **If the majority proposes a policy change, the minority (challenger) observes q_I and chooses whether to block the change, $\pi = \pi_{sq}$, or accept it, $\pi = \tilde{\pi}$.**

5. **The voter observes the majority's decision and the minority's blocking decision but not q_I.**

6. **The voter chooses whether to elect the majority or the minority.**

In this extension, the majority's utility function is the same as the incumbent's in the baseline model. Given a policy with ideology x and quality q, the minority's utility function is

$$u_C(x, q) = -(x_C - x)^2 + q + \mathbb{1}_{e=C} r,$$

where $x_C \leq 0$ is the minority's ideal point.

I make an assumption about the location of the minority and majority's ideal points relative to the status quo.

Assumption 2. $(x_C - x_I)^2 - (x_C - x_{sq})^2 \geq -(x_I - x_{sq})^2$.

This ensures the minority's ideological benefit from policy change is weakly smaller than the majority's.

I also make an assume

Lemma 2. *In any equilibrium, the minority uses a threshold strategy and changes the status quo if and only if $q_I \geq q_{sq} + z^*$, where $z^* \in [-q_{sq}, \infty)$.*

Suppose an equilibrium exists. In such an equilibrium, and for any proposed policy, the minority's utility from blocking a proposed policy is constant for all q_I. On the other hand, the minority's utility from agreeing to a proposed policy change is increasing in q_I. This implies that in any equilibrium, the minority uses a threshold strategy and accepts proposed policies that are sufficiently high quality. As a result, the voter updates about the majority's ability similarly to how she updates in the baseline model. When the minority agrees to the proposed policy, the voter updates positively about the majority's ability, and when the minority blocks a proposed policy, the voter updates negatively about the majority's ability.

Lemma 3. *In all equilibria,*

(a) the majority proposes a policy for any q_I,

(b) the minority accepts all policies proposed by the majority,

(b) or the probability the majority is reelected when he does not propose a policy is the same the probability he is reelected if he proposes a policy and the minority blocks it.

Suppose that in equilibrium, for some q_I, the majority does not propose a policy, and for other q_I, the majority proposes a policy and the minority blocks the proposal. Furthermore, suppose the majority's probability of reelection differs in these two cases. Then, the majority's utility differs in these two cases. But this means the majority has a profitable deviation.

The implication of Lemma 3 is that there are potentially many equilibria where the majority proposes some policies knowing the minority will block them and does not propose others knowing they would be blocked if they were proposed. But, across these equilibria, the voter responds the same when the majority does not propose a policy and when he does and the minority blocks the policy. In light of this, and to simplify exposition, I focus on equilibria where the majority proposes a policy for any q_I.

One question to ask is how this game compares to the game with unilateral policymaking.

Proposition 9. *Fix an equilibrium of Γ. In any equilibrium in Γ^{cb},*

(a) the probability of policy change is weakly lower,

(b) and the expected quality of policy conditional on policy change is weakly higher.

Two forces explain why, when the majority needs to secure the minority's agreement, there is less policy change. The first is the ideological disagreement between the majority and the minority. Because the minority receives a weakly smaller ideological benefit from policy change, she is more discerning about the quality of policy that must be developed to make policy change worth it. As a result, her presence prevents the majority from making some lower-quality policy changes that the majority would make without the minority's ability to block policy change. In this way, the minority acts as a salutary filter by blocking some low-quality policy changes.

While ideological disagreement between the minority and majority is sufficient to explain why there is less policy change, it is not necessary. To illustrate why this is the case, compare this game to the game where the minority can block the majority's proposed changes and the majority's ability is known, denoted $\hat{\Gamma}^{cb}$.

Proposition 10. *In any equilibrium of* Γ^{cb}*, the probability of policy change is weakly lower than in* $\hat{\Gamma}^{cb}$*.*

Suppose there is no uncertainty about the majority's type, and the minority is essentially indifferent between accepting and blocking a proposed policy change. Now, suppose there is uncertainty about the majority's type. If the minority blocks a proposed change, the voter updates negatively about the majority's ability. Hence, in some cases, the minority has an additional incentive to block a policy change proposed by the majority.

The key implication of Propositions 9 and 10 is that requiring the majority to gain the minority's support to change the status quo reduces policy churn because the majority is not able to engage in ability signaling. However, because the majority and minority are engaged in electoral competition, requiring the minority's agreement introduces an additional and distinct distortion: the minority blocks policy changes she would allow absent uncertainty about the majority's ability.

This implication highlights a fundamental trade-off from introducing checks and balances in policymaking. In the words of James Madison writing in Federalist 73,

> "It may perhaps be said that the power of preventing bad laws includes that of preventing good ones; and may be used to the one purpose as well as to the other." (Madison, 1788b)

However this model offers, to my knowledge, a novel explanation for why a policymaker would block another policymaker's proposed policy.

Another implication of Propositions 9 and 10 is that the minority's behavior is consistent with the strategic, electorally motivated opposition we see in roll-call voting. For one, even if the minority and majority have the same ideological preferences, the minority will sometimes block policies they would allow if there was no uncertainty about the majority's type. This is reminiscent of Lee (2009) uses roll-call votes to show how an enormous amount of disagreement between the democrats and republicans in the Senate arises on issues that lack a clear ideology.

Additionally, the minority's additional obstruction due to uncertainty arises when there is a high degree of ex-ante electoral competition.

Proposition 11. *In any equilibrium, the probability of policy change is decreasing in ex-ante electoral competition (as* η *approaches zero).*

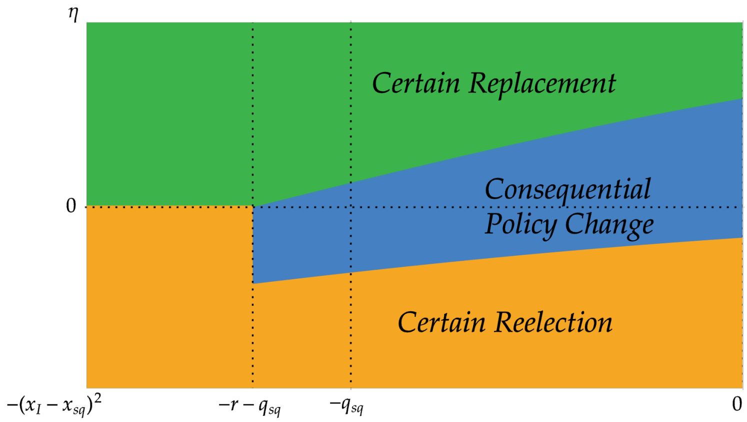

Figure 2: Regions of equilibria for $q_{sq} = 1$, $r = \frac{1}{4}$, $f(q_I) = e^{-q_I}, g(q_I) = 2e^{-2q_I}, p = \frac{1}{2}$, and $x_I = x_C$.

The minority's aversion to policy change for ideological reasons is constant, while her aversion to change for electoral reasons depends on whether or not policy change is electorally relevant.[21] When there a significant degree of ex-ante electoral uncertainty about which policymaker will win the election, policy change is relevant to the election outcome. Hence, the minority has the greatest incentive to block policy change. On the other hand, when there is no uncertainty about the election outcome, the minority has no additional incentive to block the majority beyond her ideological incentive. This result is consistent with Lee (2016), who argues that when there is uncertainty about which party will be in the majority tomorrow, congressional parties have an incentive to take actions that promote their own image and damage the other party's image. This argument is supported by evidence from staffers and legislators in the minority, who clearly perceive blocking the majority as advantageous. For example, she quotes a Senate leadership staffer:

> "In the minority, you don't want to fuel the success of the majority... Too much deal making can perpetuate them in the majority," quoted in Lee (2016).

A final insight from this extension of the baseline model is that the need to secure the minority's agreement to change the status quo may be electorally beneficial for the majority.

Proposition 12. *For some parameters, in the unique equilibrium of Γ^v, the probability the majority is reelected is higher than the probability the incumbent is reelected in the unique equilibrium of Γ.*

[21]This comparative static is the same if I focus on the equilibrium with maximum policy change.

The minority's higher quality threshold means successful policy change is a relatively stronger signal of high ability. The implication of this is that when the majority is behind in Γ^v, he sometimes wins reelection when he successfully changes the status quo in cases where he wouldn't in Γ. This is depicted in Figure 2, where the region of equilibria with consequential policy change is larger relative to the baseline model. [22]

The story is similar when the majority is ahead. The minority's higher quality threshold means unsuccessful policy change is a weaker signal of low ability. The voter recognizes that sometimes policy change does not occur, not because the majority could not develop a high-quality policy, but because the minority wanted to block the majority's proposal. This implies that the region of equilibria with consequential policy change shrinks, which is depicted in Figure 2.

8 Robustness

In the Appendix, I explore whether the model is robust to alternative assumptions.

8.1 Incumbent Knows His Type

If the incumbent knows his type, then conditional on observing q_I, his utility from retaining the status quo is constant in q_I and does not depend on his type. Moreover, conditional on observing q_I, the incumbent's utility from changing the status quo is increasing in q_I and also does not depend on his type. This means that in equilibrium, both types of incumbents use threshold strategy. Furthermore, they use the same threshold.

8.2 Election Outcome Affects Policy

Suppose the election outcome affects policy: if the incumbent is reelected, the policy he chose is implemented, and if the challenger is elected, the status quo is retained regardless of the incumbent's choice. Then, in addition to serving as a way of selecting the policymaker who is more likely to be competent, the election is a referendum on the incumbent's chosen policy.

If the incumbent retains the status quo, the election does not affect policy. This means everything is as in the baseline. If the incumbent changes the status quo, the voter's expected utility from reelecting the incumbent is increasing in the incumbent's quality threshold because a higher threshold means a higher expected quality of policy conditional on policy

[22] The baseline regions are outlined by the solid line. When the green and blue regions overlap, both types of equilibria exist.

change and a higher probability the incumbent has high ability. This is the same as in the baseline, where the voter's expected utility of reelecting the incumbent is increasing in the incumbent's threshold. Hence, there are equilibria with consequential policy change, certain reelection, and certain replacement.

9 Conclusion

I studied a model of policymaking when there is uncertainty about the policymaker's ability to develop high-quality policy. This uncertainty and the policymaker's desire for reelection leads to ability signaling.

Two natural extensions of this model come to mind. First, one could endogenize the status quo by studying a model with two periods of alternative policy change. In the first period, the incumbent chooses whether to implement a policy or retain the status quo, and then the voter chooses whether to retain the incumbent or replace them with a challenger without observing the quality of the incumbent's policy. In the second, the winner of the election chooses whether to retain the status quo inherited from the previous period or to change it after learning the quality of his alternative policy. This is similar to the extension described in Section 8.2, but there are important differences. For one, the voter's decision is more complicated since what the elected politician will do tomorrow depends on the quality of the status quo, and she doesn't observe the quality of the status quo when she votes.

Second, as discussed briefly in Section 5, one could allow the incumbent to choose when if at all, to change the status quo after learning the quality of his alternative policy. In Section 5, I showed that if the incumbent chooses when to develop an alternative policy and then chooses whether to change the status quo, he sometimes delays development until the end of his term, and he sometimes starts development immediately. When the incumbent chooses when to develop a policy and then whether to change the status quo, the timing conveys no information about quality. But if the incumbent decides when, if at all, to change the status quo after learning the alternative policy's quality, things are more complicated. One might think that if the incumbent can only enact a low-quality policy, he waits until the end of his term to change the status quo to minimize the probability the quality is revealed. However, waiting to change the status quo will convey that the quality of policy is low.

References

(2024): "Mayor Adams, Sanitation Commissioner Tisch Unveil First-Ever Official NYC Bin for Trash Pick up, Release Timeline for Residential Containerization of all one to Nine Unit Buildings," `https://www.nyc.gov/office-of-the-mayor/news/530-24/mayor-adams-sanitation-commissioner-tisch-first-ever-official-nyc-bin-trash-pick-up-#/0`.

Ascencio, S. and M. B. Gibilisco (2015): "Endogenous Issue Salience in an Ownership Model of Elections," *Working Paper*.

Ashworth, S. and K. W. Shotts (2010): "Does informative media commentary reduce politicians' incentives to pander?" *Journal of Public Economics*, 94, 838–847.

Austen-Smith, D. and J. Banks (1989): "Electoral accountability and incumbency," in *Models of strategic choice in politics*, ed. by P. Ordeshook, University of Michigan Press Ann Arbor.

Banks, J. S. and R. K. Sundaram (1993): "Adverse selection and moral hazard in a repeated elections model," in *Political Economy: Institutions, Competition, and Representation*, ed. by H. M. J. Barnett, William A. and N. J. Schofield, Cambridge University Press.

Beckmann, M. N. and J. Godfrey (2007): "The policy opportunities in presidential honeymoons," *Political Research Quarterly*, 60, 250–262.

Bils, P. (2023): "Overreacting and Posturing: How Accountability and Ideology Shape Executive Policies," *Quarterly Journal of Political Science*, 18, 153â–182.

Binder, S. A. and F. Maltzman (2002): "Senatorial delay in confirming federal judges, 1947-1998," *American Journal of Political Science*, 190–199.

Brooks, S. (2023): "Uncovering Coivd Loan Cons," *Medium*, `https://www.nbcnews.com/politics/justice-department/biggest-fraud-generation-looting-covid-relief-program-known-ppp-n1279664`.

Canes-Wrone, B., M. C. Herron, and K. W. Shotts (2001): "Leadership and pandering: A theory of executive policymaking," *American Journal of Political Science*, 532–550.

Cho, I.-K. and D. M. Kreps (1987): "Signaling games and stable equilibria," *The Quarterly Journal of Economics*, 102, 179–221.

COLLINS, S. (2017): "Senator Collins Opposes Graham-Cassidy Health Care Bills," https://www.collins.senate.gov/newsroom/senator-collins-opposes-graham-cassidy-health-care-bills.

DE TOCQUEVILLE, A. (2003): *Democracy in America: And two essays on America*, Penguin UK.

DRAZEN, A. (2000): "The political business cycle after 25 years," *NBER Macroeconomics Annual*, 15, 75–117.

FEARON, J. D. (1999): "Electoral accountability and the control of politicians: selecting good types versus sanctioning poor performance," *Democracy, accountability, and representation*, 55–97.

FOUIRNAIES, A. AND A. B. HALL (2022): "How do electoral incentives affect legislator behavior? Evidence from US state legislatures," *American Political Science Review*, 116, 662–676.

FOX, J. AND R. VAN WEELDEN (2012): "Costly transparency," *Journal of Public Economics*, 96, 142–150.

FROSTENSON, S. (2017): "Graham-Cassidy health care bill: What you need to know," *Politico*, https://www.politico.com/interactives/2017/graham-cassidy-health-care-bill-what-you-need-to-know/.

GIBBS, D. (2024): "Hedging, Pandering, and Gambling: a Model of Policy Timing," *Working Paper*.

GRATTON, G., L. GUISO, C. MICHELACCI, AND M. MORELLI (2015): "From weber to kafka: Political activism and the emergence of an inefficient bureaucracy," *The American Economic Review*.

GRIFFIN, J. M., S. KRUGER, AND P. MAHAJAN (2023): "Did FinTech lenders facilitate PPP fraud?" *The Journal of Finance*, 78, 1777–1827.

HESS, F. M. (1999): *Spinning wheels: The politics of urban school reform*, Brookings Institution Press.

HIRSCH, A. V. AND K. W. SHOTTS (2012): "Policy-Specific Information and Informal Agenda Power," *American Journal of Political Science*, 56, 67–83.

——— (2015): "Competitive policy development," *American Economic Review*, 105, 1646–1664.

——— (2018): "Policy-development monopolies: adverse consequences and institutional responses," *The Journal of Politics*, 80, 1339–1354.

Hitt, M. P., C. Volden, and A. E. Wiseman (2017): "Spatial models of legislative effectiveness," *American Journal of Political Science*, 61, 575–590.

Huang, T. and S. M. Theriault (2012): "The Strategic Timing behind Position-taking in the US Congress: A Study of the Comprehensive Immigration Reform Act," *The Journal of Legislative Studies*, 18, 41–62.

Hummel, P. (2013): "Resource allocation when different candidates are stronger on different issues," *Journal of Theoretical Politics*, 25, 128–149.

Judd, G. (2017): "Showing off: promise and peril in unilateral policymaking," *Quarterly Journal of Political Science*, 12, 241–268.

Kartik, N., F. Squintani, K. Tinn, et al. (2015): "Information revelation and pandering in elections," *Working Paper*.

Krasa, S. and M. Polborn (2010): "Competition between specialized candidates," *American Political Science Review*, 104, 745–765.

Lach, E. (2024): "The Ex-N.Y.P.D. Official Trying to Tame New York's Trash," *The New Yorker*, https://www.newyorker.com/magazine/2024/04/15/the-ex-nypd-official-trying-to-tame-new-yorks-trash.

Lee, F. E. (2009): *Beyond ideology: Politics, principles, and partisanship in the US Senate*, University of Chicago Press.

——— (2016): *Insecure majorities: Congress and the perpetual campaign*, University of Chicago Press.

Londregan, J. B. (2000): *Legislative institutions and ideology in Chile*, Cambridge University Press.

Madison, J. (1788a): "The Federalist Papers, No. 62," .

——— (1788b): "The Federalist Papers, No. 73," .

McCarty, N. M. (1997): "Presidential reputation and the veto," *Economics & Politics*, 9, 1–26.

Milgrom, P. R. (1981): "Good news and bad news: Representation theorems and applications," *The Bell Journal of Economics*, 380–391.

Nordhaus, W. D. (1975): "The political business cycle," *The Review of Economic Studies*, 42, 169–190.

Ostrander, I. (2016): "The logic of collective inaction: Senatorial delay in executive nominations," *American Journal of Political Science*, 60, 1063–1076.

Petrocik, J. R. (1996): "Issue ownership in presidential elections, with a 1980 case study," *American Journal of Political Science*, 825–850.

Stokes, D. E. (1963): "Spatial models of party competition," *American Political Science Review*, 57, 368–377.

Thrower, S. (2018): "Policy disruption through regulatory delay in the Trump administration," *Presidential Studies Quarterly*, 48, 517–536.

A Proofs of Claims in Main Text

A.1 Lemma 1

Proof. Suppose a perfect Bayesian equilibrium (PBE) exists where the voter reelects the incumbent with probability $\gamma^* \in [0,1]$ if he retains the status quo and with probability $\lambda^* \in [0,1]$ if he changes it. In this PBE, the incumbent must change the status quo if and only if

$$q_I \geq q_{sq} + y^* \tag{2}$$

where

$$y^* = \begin{cases} -q_{sq} & \text{if } q_{sq} - (x_I - x_{sq})^2 + (\gamma^* - \lambda^*)r < 0 \\ -(x_I - x_{sq})^2 + (\gamma^* - \lambda^*)r & \text{if } q_{sq} - (x_I - x_{sq})^2 + (\gamma^* - \lambda^*)r \geq 0 \end{cases}$$

■

A.2 Propositions 1 and 2

Outline of proof: I prove Lemmas 4 and 5 and then use them to characterize all PBE of $\hat{\Gamma}$ in Propositions 13, 14, and 15 under the assumption that off the equilibrium path,

$$\Pr(\tau_I = \overline{\theta}|\text{deviation off path}) = \frac{pf(0)}{pf(0) + (1-p)g(0)} \equiv \mu.$$

I then show that D1 forces the voter to believe that a deviation by the incumbent comes from an incumbent whose alternative has $q_I = 0$ and as a result is high ability with probability μ in Proposition 16. Propositions 1 and 2 follow from applying equilibrium condition (4) to the equilibria identified in Propositions 13, 14, and 15 .

Lemma 4. *If the incumbent uses a threshold such that he changes the status quo if and only if $q_I \geq q_{sq} + y$, for $y \in [-q_{sq}, \infty)$,*

(a) $\Pr(\tau_I = \overline{\theta}|\pi = \pi_I) > p$ *and* $\Pr(\tau_I = \overline{\theta}|\pi = \pi_I, y)$ *is increasing in* y*,*

(b) and $\Pr(\tau_I = \overline{\theta}|\pi = \pi_{sq}) < p$ *and* $\Pr(\tau_I = \overline{\theta}|\pi = \pi_{sq}, y)$ *is increasing in* y*.*

Proof. Suppose the incumbent uses a threshold such that he change the status quo if and only if $q_I \geq q_{sq} + y$, for $y \in [-q_{sq}, \infty)$.

(a) $\Pr(\tau_I = \overline{\theta}|\pi = \pi_{sq}) = \frac{F(q_{sq}+y)p}{F(q_{sq}+y)p+G(q_{sq}+y)(1-p)} < p$ is less than p if

$$F(q_{sq} + y) < F(q_{sq} + y)p + G(q_{sq} + y)(1 - p).$$

This is immediate due to the well-known propety that MLRP implies first order stochastic dominance (FOSD).

Rearranging, $\Pr(\tau_I = \overline{\theta}|\pi = \pi_{sq}) = \frac{1}{1+\frac{1-p}{p}\frac{G(q_{sq}+y)}{F(q_{sq}+y)}}$. Differentiating the ratio of the CDFs in the denominator:

$$\frac{\partial}{\partial y}\frac{G(q_{sq} + y)}{F(q_{sq} + y)} = \frac{F(q_{sq} + y)g(q_{sq} + y) - G(q_{sq} + y)f(q_{sq} + y)}{F(q_{sq} + y)^2}.$$

This is negative since

$$\begin{aligned} F(q_{sq} + y)g(q_{sq} + y) &< G(q_{sq} + y)f(q_{sq} + y) \\ \Leftrightarrow \frac{f(q_{sq} + y)}{g(q_{sq} + y)} &> \frac{F(q_{sq} + y)}{G(q_{sq} + y)}. \end{aligned}$$

where the last line is due to a well-known property of strict MLRP that $\frac{f(x)}{g(x)} > \frac{F(x)}{G(x)}$.

(b) $\Pr(\tau_I = \overline{\theta}|\pi = \pi_{sq}) = \frac{(1-F(q_{sq}+y))p}{(1-F(q_{sq}+y))p+(1-G(q_{sq}+y))(1-p)} < p$ is less than p if

$$(1 - F(q_{sq} + y)) > p(1 - F(q_{sq} + y)) + (1 - p)(1 - G(q_{sq} + y)),$$

which is immediate due to MLRP implying FOSD.

Rearranging, $\Pr(\tau_I = \overline{\theta}|\pi = \pi_I) = \frac{1}{1+\frac{1-p}{p}\frac{(1-G(q_{sq}+y))}{(1-F(q_{sq}+y))}}$. Differentiating the ratio of the CDFs in the denominator with respect to y,

$$\begin{aligned} &\frac{\partial}{\partial y}\frac{G(q_{sq} + y)}{F(q_{sq} + y)} \\ &\qquad = \frac{-(1 - F(q_{sq} + y))g(q_{sq} + y) - (-(1 - G(q_{sq} + y)f(q_{sq} + y)))}{(1 - F(q_{sq} + y))^2}. \end{aligned}$$

This is negative since

$$\begin{aligned} (1 - G(q_{sq} + y)f(q_{sq} + y)) &< (1 - F(q_{sq} + y))g(q_{sq} + y) \\ \Leftrightarrow \frac{f(x)}{1 - F(x)} &< \frac{g(x)}{1 - G(x)}, \end{aligned}$$

and the second line is the monotone hazard rate property which is implied by MLRP.

■

Lemma 5. *(a) Fix $\eta < 0$. If $\eta < \underline{\eta}$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, y) > p + \eta$ for all y. Otherwise, there exists a unique $\underline{y}(q_{sq}, \eta) \in (-q_{sq}, \infty)$ such that $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, \underline{y}(q_{sq}, \eta)) = p + \eta$ and for all $y > \underline{y}(q_{sq}, \eta)$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, y) > p + \eta$.*

(b) Fix $\eta > 0$. If $\eta \geq \overline{\eta}$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I, y) < p + \eta$ for all y. Otherwise there exists a unique $\overline{y}(q_{sq}, \eta) \in (-q_{sq}, \infty)$ such that for $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I, \overline{y}(q_{sq}, \eta)) = p + \eta$ and for all $y > \overline{y}(q_{sq}, \eta)$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I) > p + \eta$.

Proof. (a) Suppose $\eta < 0$.

$$\lim_{y \to -q_{sq}} \Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, y) = \frac{1}{1 + \frac{1-p}{p} \frac{g(0)}{f(0)}} \equiv \underline{L},$$

and by Lemma 4, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, y)$ is strictly increasing in y. Hence, if

$$\eta > \underline{L} - p \equiv \underline{\eta}, \tag{3}$$

there exists a unique $\underline{y} \in (-q_{sq}, \infty)$ such that $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, \underline{\eta}) = p + \eta$, and for all $y > \underline{y}$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, \underline{y}) > p + \eta$. Moreover, $\underline{y}$ is the y that solves

$$\frac{F(q_{sq} + y)p}{F(q_{sq} + y)p + G(q_{sq} + y)(1 - p)} = p + \eta,$$

and hence $\underline{y}$ is a function of η and q_{sq}.

Otherwise, if $\eta \leq \underline{\eta}$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}, y) > p + \eta$ for all $y \in (-q_{sq}, \infty)$.

(b) Suppose $\eta > 0$. By Lemma 4, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I)$ is strictly increasing in y. Moreover, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I, y)$ is a probability so it is bounded above by one. Hence, there is a least upper bound of $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I, y)$, and this is the limit as $y \to \infty$. Call this least upper bound $\overline{L}$. Hence, if

$$\begin{aligned} & p + \eta < \overline{L} \\ \Leftrightarrow\ & \eta < \overline{L} - p \equiv \overline{\eta}, \end{aligned}$$

there exists $\overline{y}(q_{sq}, \eta)$ such that $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I, y) \geq p + \eta$ for all $y \geq \overline{y}(q_{sq}, \eta)$. Moreover, $\overline{y}$ is the y that solves

$$\frac{(1 - F(q_{sq} + y))p}{(1 - F(q_{sq} + y))p + (1 - G(q_{sq} + y))(1 - p)} = p + \eta,$$

and hence is a function of η and q_{sq}.

Otherwise, if $\eta \geq \overline{\eta}$, $\Pr(\tau_I = \overline{\theta} | \pi = \pi_I, y) < p + \eta$ for all y.

■

An implication of Lemma 5 is that if

$$\eta \in (-\infty, \underline{\eta}) \cup [\overline{\eta}, \infty). \tag{4}$$

neither $\underline{y}(q_{sq}, \eta)$ nor $\overline{y}(q_{sq}, \eta)$ exist. In this case, the incumbent's choice does not affect the election outcome. If (4) is not satisfied, the incumbent's choice may affect the election.

Note, as well, that if (4) is satisfied, $\eta \neq 0$ because $\underline{L} < p$ and $\overline{L} > p$

Proposition 13. *Fix π_{sq} and $\eta < 0$.*

(a) If (4) is satisfied, there is a unique PBE where the incumbent changes the status quo if and only if (7) is satisfied, and is always reelected.

Otherwise, if (4) is not satisfied:

(b) and (8) is satisfied, there is a PBE where the incumbent changes the status quo for all q_I and is always reelected on the equilibrium path. If $\eta > \underline{\eta}$, this is unique, and if $\eta = \underline{\eta}$ a continuum of these equilibria exist.

(c) and $\underline{y}(q_{sq}, \eta) \geq -(x_I - x_{sq})^2 - r$ and (8) is not satisfied, there is a PBE where the incumbent changes the status quo if and only if (9) is satisfied, and is reelected if and only if he changes the status quo.

(d) and $\underline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2$, there is a PBE where the incumbent changes the status quo if and only if (5) is satisfied, and is always reelected.

(e) and $\underline{y}(q_{sq}, \eta) \in (-(x_I - x_{sq})^2 - r, -(x_I - x_{sq})^2)$, there is a PBE unique where the incumbent changes the status quo if and only if (10) is satisfied, and is reelected with probability one if he changes the status quo and with probability $\rho^* \in (0, 1)$ if he retains the status quo.

Proof. Fix π_{sq} and $\eta < 0$. Suppose (4) is satisfied. This implies that in any PBE the incumbent wins reelection whether he retains the status quo or changes it. Hence, the incumbent changes the status quo if and only if

$$q_I \geq q_{sq} - (x_I - x_{sq})^2. \tag{5}$$

If

$$0 \geq q_{sq} - (x_I - x_{sq})^2, \tag{6}$$

retaining the status quo is off the equilibrium path. By assumption, the voter believes the incumbent has high ability with probability μ if the incumbent deviates. Because (4) is satisfied, the incumbent wins reelection if he deviates off the equilibrium path. Hence, the incumbent does not deviate if (5) is satisfied, which holds for $q_I = 0$, and hence for all q_I. This shows (a) in the proposition, in which the incumbent changes the status quo if and only if

$$q_I \geq \max\{q_{sq} - (x_I - x_{sq})^2, 0\}. \tag{7}$$

For the remainder of the proof, suppose (4) is not satisfied which implies $\underline{y}(q_{sq}, \eta)$ exists.

Suppose that in a PBE, the incumbent changes the status quo for all q_I, in which case the voter's posterior equals her prior. Because the incumbent leads, he is always reelected on the equilibrium path. If he deviates off the path and retains the status quo, he is not reelected if $\eta < \underline{\eta}$, and is reelected with probability $\rho \in [0, 1]$ if $\eta = \underline{\eta}$. Hence, for this PBE to exist, it must be that

$$0 \geq q_{sq} - (x_I - x_{sq})^2 - r. \tag{8}$$

When $\eta < \underline{\eta}$, this PBE is unique, and when $\eta = \underline{\eta}$ a continuum of PBE exist. This proves (b) in the proposition.

If $y^* < \underline{y}(q_{sq}, \eta)$ and (8) is not satisfied, the incumbent is reelected if and only if he changes the status quo. Therefore, the incumbent changes the status quo if and only if

$$q_I \geq q_{sq} - (x_I - x_{sq})^2 - r. \tag{9}$$

For this PBE to exist, it must be that $-(x_I - x_{sq})^2 - r < \underline{y}(q_{sq}, \eta)$ and $-(x_I - x_{sq})^2 - r > -q_{sq}$. This proves (c) in the proposition.

If $y^* > \underline{y}(q_{sq}, \eta)$ and (8) is not satisfied, the incumbent is reelected whether he retains or changes the status quo. Therefore, he changes the status quo if and only if (5) is satisfied. For this PBE to exist, it must be that $-(x_I - x_{sq})^2 > \underline{y}(q_{sq}, \eta)$ and $-(x_I - x_{sq})^2 - r > -q_{sq}$. By definition, $\underline{y}(q_{sq}, \eta) > -q_{sq}$. Hence the first condition implies the second. This proves (d) in the proposition.

Finally, suppose $y^* = \underline{y}(q_{sq}, \eta)$ and (8) is not satisfied. Then, the voter reelects the incumbent if he changes the status quo and is indifferent between the incumbent and challenger when the incumbent retains the status quo. Given this indifference, suppose the voter reelects the incumbent with probability ρ when the incumbent retains. For a particular ρ, the incumbent changes the status quo if

$$q_I \geq q_{sq} - (x_I - x_{sq})^2 + (\rho - 1)r. \tag{10}$$

For the voter to be indifferent, it must be that

$$-(x_I - x_{sq})^2 + (\rho - 1)r = \underline{y}(q_{sq}, \eta),$$

which implies that in equilibrium $\rho^* \equiv \frac{\underline{y}(q_{sq},\eta)+(x_I - x_{sq}^2)}{r} + 1$. For such an equilibrium to exist, it must be that $\frac{\underline{y}(q_{sq},\eta)+(x_I - x_{sq}^2)}{r} + 1 \in [0, 1]$. That is,

$$\underline{y}(q_{sq}, \eta) \in [-(x_I - x_{sq})^2 - r, -(x_I - x_{sq})^2].$$

This shows (e) in the proposition. ■

Proposition 14. *Fix π_{sq} and $\eta > 0$.*

(a) If (4) is satisfied, there is PBE where the incumbent changes the status quo if and only if (7) is satisfied, and is never reelected.

Otherwise, if (4) is not satisfied:

(b) and (11) is satisfied, there is a PBE where the incumbent changes the status quo for all q_I and is never reelected on the equilibrium path.

(c) $\overline{y}(q_{sq}, \eta) \geq -(x_I - x_{sq})^2$ and (11) is not satisfied, there is a PBE where the incumbent changes the status quo if and only if (5) is satisfied, and is never reelected.

(d) and $\overline{y}(q_{sq}, \eta) < -(x_I - x_{sq})^2$, there is a PBE where the incumbent changes the status quo if and only if (12) is satisfied, and is reelected with probability $\rho^* \in (0, 1]$ if he changes the status quo.

Proof. Fix π_{sq} and $\eta > 0$. Further, suppose (4) is satisfied. Hence, $\overline{y}(q_{sq}, \eta)$ does not exist. In any PBE the incumbent will not be reelected whether he changes or retains the status quo. Hence, he changes the status quo if and only if (5) is satisfied. If (6) is satisfied, retaining is off the equilibrium path. By assumption, if the incumbent deviates off the equilibrium path, the voter believes the incumbent has high ability with probability μ. Because the incumbent trails, he will not win reelection if he deviates. Hence, the incumbent will not deviate as long as (5) is satisfied, which holds for all q_I. This shows (a) in the proposition.

For the remainder of the proof suppose (4) is not satisfied.

First, consider a PBE where the incumbent changes the status quo for all q_I. On the path, the voter's posterior equals her prior. Off the path, the voter's poster equals μ. Hence, he is not reelected on or off the path. This implies such a PBE exists if

$$0 \geq q_{sq} - (x_I - x_{sq})^2. \tag{11}$$

This proves (b) in the proposition.

If $y^* < \overline{y}(q_{sq}, \eta)$ and (11) is not satisfied, the incumbent is never reelected. Then the incumbent changes the status quo if and only if (5) is satisfied. For this PBE to exist, it must be that $-(x_I - x_{sq})^2 < \overline{y}(q_{sq}, \eta)$ and $-(x_I - x_{sq})^2 > -q_{sq}$. This proves (c) in the proposition.

If $y^* > \overline{y}(q_{sq}, \eta)$ and (11) is not satisfied, the incumbent is reelected with probability one when he changes the status quo but not if he retains it. Then the incumbent changes the status quo if and only if (9) is satisfied. For this PBE to exist, it must be that $-(x_I - x_{sq})^2 - r > \overline{y}(q_{sq}, \eta)$. It also must be that $-(x_I - x_{sq})^2 > -q_{sq}$, which is implied by the first condition.

Finally, suppose $y^* = \overline{y}(q_{sq}, \eta)$ and (11) is not satisfied. In this case, the voter is indifferent between electing the challenger and the incumbent when the incumbent changes the status quo and, hence, can reelects the incumbent with probability $\rho \in [0, 1]$. Given a particular ρ, the incumbent changes the status quo if and only if

$$q_I \geq q_{sq} - (x_I - x_{sq})^2 - \rho r. \tag{12}$$

For the voter to be indifferent, it must be that

$$-(x_I - x_{sq})^2 - \rho r = \overline{y}.$$

which implies that in equilibrium $\rho^* \equiv \frac{-(x_I - x_{sq})^2 - \overline{y}(q_{sq}, \eta)}{r}$. $\rho^* \in [0, 1]$ for

$$\overline{y} \in [-(x_I - x_{sq})^2 - r, -(x_I - x_{sq})^2].$$

Hence, this equilibrium exists for $\overline{y}(q_{sq}, \eta) \in (\kappa - (x_I - x_{sq})^2 - r, \kappa - (x_I - x_{sq})^2)$. This, with the previous paragraph, shows (c) in the proposition. ■

Proposition 15. *Fix π_{sq} and $\eta = 0$.*

(a) If (13) is satisfied, there is an PBE where the incumbent changes the status quo if and only if (9) is satisfied, and is reelected if and only if he changes the status quo;

(b) If (13) is not satisfied satisfied, a continuum of PBE exist where the incumbent changes the status quo for all q_I and is reelected with probability $\rho^* \in [0,1]$.

Proof. Fix π_{sq} and $\eta = 0$. Suppose the incumbent changes and retains the status quo on the equilibrium path. For any $y^* \in (q_{sq}, \infty)$, the incumbent is reelected when he changes the status quo and is not reelected when he retains the status quo. Hence, the incumbent changes the status quo if and only if (9) is satisfied. This is a PBE as long as

$$q_{sq} - (x_I - x_{sq})^2 - r > 0. \tag{13}$$

Now suppose the incumbent changes the status quo for any q_I. Then, in a PBE, the posterior probability the incumbent has high ability equals the prior and the voter reelects the incumbent with probability $\rho \in [0,1]$. Therefore, a ρ^* exists such that the incumbent lacks a profitable deviation from changing the status quo for all q_I if $0 \geq q_{sq} - (x_I - x_{sq})^2 - r$. ∎

Proposition 16. *In any PBE surviving D1,*

$$\Pr(\tau_I = \overline{\theta} | \textit{deviation off path}) = \frac{pf(0)}{pf(0) + (1-p)g(0)}.$$

Proof. By Lemma 1, in any equilibrium the incumbent uses a threshold rule and changes the status quo when q_I is sufficiently large. Hence, the only action that is potentially off the path is retaining the status quo.

Let σ be a PBE surviving D1 in which the incumbent changes the status quo for all q_I. Let $\chi \in \mathbb{R}_+$ be this arbitrary incumbent's type. Define $D(\chi)$ as the set of reelection probabilities for which type χ strictly prefers retaining the status quo over receiving his payoff under σ, and define $D_0(\chi)$ as the set of reelection probabilities for which type χ is indifferent between retaining the status quo and receiving his payoff under σ. D1 requires the voter putting probability zero on a type χ deviating if there exists another type χ' such that $D(\chi) \cup D_0(\chi) \subseteq D(\chi')$ (Cho and Kreps, 1987).

Let $\psi \in [0,1]$ be the probability the voter elects the incumbent under σ and let $\omega \in [0,1]$ be the probability the voter elects the incumbent when he deviates off the equilibrium path. Then, an incumbent of type χ will deviate off the path if

$$\frac{\chi - q_{sq} + \psi r + (x_I - x_{sq})^2}{r} < \omega.$$

Note, the lower bound on the set of ω such that the incumbent deviates is weakly decreasing in χ.

There are three cases to consider. First, suppose $0 > q_{sq} - (x_I - x_{sq})^2 + (1-\psi)r$. Then for any $\omega \in [0,1]$, an incumbent with type $\chi = 0$ will not deviate. The incumbent's utility on the path is increasing in q_I, hence no types deviate.

Next, suppose $0 \in [q_{sq} - (x_I - x_{sq})^2 + \psi r, q_{sq} - (x_I - x_{sq})^2 + (1-\psi)r]$. Therefore,

$$\frac{-q_{sq} + \psi r + (x_I - x_{sq})^2}{r} > 0.$$

Thus, an incumbent of type $\chi = 0$ deviates for some realizations of q_I. Since the incumbent's utility on the path is increasing in q_I, an incumbent of type $\chi = 0$ deviates for the largest interval of ω. By D1, the voter is required to put probability one on the deviation coming from an incumbent with type $\chi = 0$. This induces the following posterior

$$\Pr(\tau_I = \overline{\theta} | \text{deviation off path}) = \frac{pf(0)}{pf(0) + (1-p)g(0)}.$$

Finally, suppose $q_{sq} - (x_I - x_{sq})^2 + \psi r > 0$. Then there exist q_I such that

$$0 > \frac{q_I - q_{sq} + \lambda r + (x_I - x_{sq})^2}{r}.$$

That is, there are types of incumbent that deviate for any ω. But this cannot be an equilibrium. ■

When $\eta < 0$, there are two cases where multiple equilibria exist. The first is when $\underline{y}(q_{sq}, \eta) \in (-(x_I - x_{sq})^2 - r, -(x_I - x_{sq})^2)$, in which case there are three types of equilibria. The equilibrium that survives equilibrium condition (4) is the equilibrium where the incumbent changes the status quo if and only if (5) is satisfied. The second case is when $\eta = \underline{\eta}$ and the incumbent changes the status quo for all q_I. Hence, all equilibria survive condition (4).

When $\eta > 0$, there is always a unique equilibrium satisfying (1)-(3) of the equilibrium conditions.

When $\eta = 0$, there is a unique equilibrium unless $0 > q_{sq} - (x_I - x_{sq})^2 - r$, in which case a continuum of equilibria exist satisfying (1)-(3) of the equilibrium conditions. However, in all of these equilibria the incumbent changes the status quo for any q_I. Hence, condition (4) does not restrict the set of equilibria any further.

The existence result and (a) in Proposition 1 and all of Proposition 2 follow from 13, 14, and 15. Result (b) in Proposition 1 is implied by (a) in Proposition 1.

A.3 Proposition 3

Proof. (a) I first prove a preliminary lemma.

Lemma 6. *$\underline{y}(q_{sq},\eta)$ and $\overline{y}(q_{sq},\eta)$ are increasing in η.*

Proof. $y=\overline{y}(q_{sq},\eta)$ solves

$$\frac{p(1-F(q_{sq}+y))}{p(1-F(q_{sq}+y))+(1-p)(1-G(q_{sq}+y))}=p+\eta. \tag{14}$$

By Lemma 4, the LHS of (14) is increasing in y. Hence, if η increases, $\overline{y}(q_{sq},\eta)$ increases to maintain equality.

Using an identical argument, the same can be shown for $\underline{y}(q_{sq},\eta)$. ∎

I now prove first claim in the proposition.

Suppose (6) is satisfied. Then the incumbent changes the status quo for all q_I in the benchmark. As a result, $D(y^*_\gamma)=0$ for all η.

For the remainder of the proof suppose (6) is not satisfied.

Suppose $\eta<0$. If $\eta<\underline{\eta}$, $\underline{y}(q_{sq},\eta)$ does not exist and $D(y^*_\gamma)=0$. If $\eta\in[\underline{\eta},0)$ and $\underline{y}(q_{sq},\eta)\leq-(x_I-x_{sq})^2$, $D(y^*_\gamma)=0$. If η increases to a sufficient degree that $\underline{y}(q_{sq},\eta)>-(x_I-x_{sq})^2$, $D(y^*_\gamma)=\min\{r,q_{sq}-(x_I-x^2_{sq})\}$.

Now suppose $\eta=0$. Then $D(y^*_\gamma)=\min\{r,q_{sq}-(x_I-x^2_{sq})\}$.

Finally, suppose $\eta>0$. If $\eta<\overline{\eta}$, $\overline{y}(q_{sq},\eta)$ exists. If $\overline{y}(q_{sq},\eta)\leq-(x_I-x_{sq})^2-r$, $D(y^*_\gamma)=\min\{r,q_{sq}-(x_I-x^2_{sq})\}$. If η increases to a sufficient degree that $\eta<\overline{\eta}$ and $\overline{y}(q_{sq},\eta)\in(-(x_I-x_{sq})^2-r,-(x_I-x_{sq})^2)$, the incumbent changes the status quo if and only if $q_I\geq q_{sq}+\overline{y}(q_{sq},\eta)$, which means $D(y^*_\gamma)=-(x_I-x_{sq})^2-\overline{y}(q_{sq},\eta)$. $\overline{y}(q_{sq},\eta)\in(-(x_I-x_{sq})^2-r,-(x_I-x_{sq})^2)$ and the definition of $\overline{y}(q_{sq},\eta)$ imply $D(y^*_\gamma)=-(x_I-x_{sq})^2-\overline{y}(q_{sq},\eta)<\min\{r,q_{sq}-(x_I-x^2_{sq})\}$. Finally, if η increases to a sufficient degree that $\eta<\overline{\eta}$ and $\overline{y}(q_{sq},\eta)>-(x_I-x_{sq})^2$, $D(y^*_\gamma)=0$. This is also the case once $\eta\geq\overline{\eta}$ and $\overline{y}(q_{sq},\eta)$ does not exist.

(b) If (6) is satisfied, the incumbent changes the status quo for all q_I in the benchmark. As a result, $D(y^*_\gamma)=0$ for all η.

If (4) is satisfied neither $\underline{y}(q_{sq},\eta)$ nor $\overline{y}(q_{sq},\eta)$ exist, and hence $D(y^*_\gamma)=0$ for all r.

For the remainder of the proof suppose neither (6) nor (4) are satisfied.

Suppose $\eta > 0$. Then $\overline{y}(q_{sq}, \eta)$ exists. Then Proposition 14 implies $D(y^*_\Gamma)$ is constant in r if $\overline{y}(q_{sq}, \eta) > -(x_I - x_{sq})^2 - r$. If, instead, $\overline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2 - r$, $D(y^*_\Gamma)$ is increasing in r until $\overline{y}(q_{sq}, \eta) > -(x_I - x_{sq})^2 - r$.

Next, consider $\eta = 0$. Then Proposition 15 implies $D(y^*_\Gamma)$ is weakly increasing in r.

Finally, suppose $\eta < 0$. Then $\underline{y}(q_{sq}, \eta)$ exists. Proposition 13 implies $D(y^*_\Gamma)$ is constant in r.

■

A.4 Proof of Proposition 4

Proof. The voter's welfare is maximized when the incumbent changes the status quo if and only if $q_I \geq \max\{q_{sq} - x_{sq}^2 + x_I^2 + \xi, 0\}$. In $\hat{\Gamma}$, the incumbent changes the status quo if and only if $q_I \geq \max\{q_{sq} + (x_I - x_{sq})^2, 0\}$. Therefore, the incumbent changes the status quo too much from the voter's perspective if

$$(x_I - x_{sq})^2 < \xi - x_{sq}^2 + x_I^2, \tag{15}$$

which is satisfied for all parameters due to Assumption 1.

By Proposition 1, in any equilibrium of Γ, the probability of policy change is weakly higher than in $\hat{\Gamma}$. Hence, the voter's welfare is weakly lower. ■

A.5 Proof of Proposition 5

Proof. Fix π_{sq}. Increasing x_I has a direct effect of decreasing the incumbent's quality threshold within a particular type of equilibrium. It remains to consider what happens when decreasing the quality threshold moves the equilibrium from one type to another.

Suppose first that $\eta \in (0, \overline{\eta})$ $\overline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2 - r$, in which case the probability of policy change is

$$p(1 - F(q_{sq} - (x_I - x_{sq})^2 - r)) + (1-p)(1 - G(q_{sq} - (x_I - x_{sq})^2 - r)).$$

This probability is increasing in x_I such that $\overline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2 - r$

Increasing x_I further to x'_I such that $\overline{y}(q_{sq}, \eta) \in (-(x'_I - x_{sq})^2 - r, -(x'_I - x_{sq})^2)$ means the probability of policy change is

$$p(1 - F(q_{sq} + \overline{y}(q_{sq}, \eta))) + (1-p)(1 - G(q_{sq} + \overline{y}(q_{sq}, \eta))).$$

Hence, it is constant in x_I such that $\overline{y}(q_{sq}, \eta) \in (-(x'_I - x_{sq})^2 - r, -(x'_I - x_{sq})^2)$. Additionally the probability of policy change is higher than in the previous case where $\overline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2 - r$.

Finally, if x_I increases to x'_I such that $\overline{y}(q_{sq}, \eta) \geq -(x'_I - x_{sq})^2)$, the probability of policy change is

$$p(1 - F(q_{sq} - (x_I - x'_{sq})^2)) + (1 - p)(1 - G(q_{sq} - (x_I - x'_{sq})^2)),$$

which is increasing in x_I.

Suppose next that $\eta \in (\underline{\eta}, 0)$ and that $\underline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2$. In this case, the probability of policy change is

$$p(1 - F(q_{sq} - (x_I - x_{sq})^2)) + (1 - p)(1 - G(q_{sq} - (x_I - x_{sq})^2)),$$

which is increasing in x_I for all x_I such that $\underline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2$.

Suppose x_I increases to x'_I such that $\underline{y}(q_{sq}, \eta) > -(x_I - x_{sq})^2$. Then the probability of policy change is

$$p(1 - F(q_{sq} - (x_I - x_{sq})^2 - r)) + (1 - p)(1 - G(q_{sq} - (x_I - x_{sq})^2 - r)),$$

which is increasing in x_I. ■

A.6 Proof of Proposition 6

I begin by proving Lemma 7, which I use to provide a characterization of all PBE of the game described in Section 5 under the assumption that off the equilibrium path the voter believes the incumbent is high ability with probability μ. This is done in Propositions 18, 19, and 17. Proposition 6 follows from these propositions.

If the incumbent changes the status quo and the voter observes q_I,

$$\Pr(\tau_I = \overline{\theta} | q_I) = \frac{1}{1 + \frac{1-p}{p} \frac{g(q_I)}{f(q_I)}}.$$

This is increasing in q_I by the definition of strict MLRP. Therefore, if

$$p + \eta \in \left(\frac{1}{1 + \frac{1-p}{p} \frac{g(0)}{f(0)}}, \lim_{q_I \to \infty} \frac{1}{1 + \frac{1-p}{p} \frac{g(q_I)}{f(q_I)}} \right), \tag{16}$$

there exists a $\hat{q}_I$ such that

$$\frac{1}{1+\frac{1-p}{p}\frac{g(\hat{q}_I)}{f(\hat{q}_I)}} = p + \eta.$$

Note this (16) can be rearranged to obtain (4). Define $\hat{y}(\eta) \equiv \hat{q}_I - q_{sq}$.

Lemma 7. *$\overline{y}(q_{sq}, \eta) < \hat{y}(\eta)$ and $\underline{y}(q_{sq}, \eta) > \hat{y}(\eta)$*

Proof. Suppose not for the first part of the lemma, then $\overline{y}(q_{sq}, \eta) \geq \hat{y}(\eta)$. By the definitions of $\overline{y}(q_{sq}, \eta)$ and $\hat{y}(\eta)$,

$$\begin{aligned}
&\frac{p(1-F(q_{sq}+\overline{y}(q_{sq},\eta)))}{p(1-F(q_{sq}+\overline{y}(q_{sq},\eta)))+(1-p)(1-G(q_{sq}+\overline{y}(q_{sq},\eta)))} \\
&\qquad\qquad = \frac{pf(q_{sq}+\hat{y}(\eta))}{pf(q_{sq}+\hat{y}(\eta))+(1-p)g(q_{sq}+\hat{y}(\eta))}.
\end{aligned}$$

Hence,

$$\frac{f(q_{sq}+\hat{y}(\eta))}{g(q_{sq}+\hat{y}(\eta))} = \frac{1-F(q_{sq}+\overline{y}(q_{sq},\eta))}{1-G(q_{sq}+\overline{y}(q_{sq},\eta))}$$

By strict MLRP and since $q_{sq}+\hat{y}(\eta) \leq q_{sq}+\overline{y}(q_{sq},\eta)$

$$\begin{aligned}
\frac{f(q_{sq}+\hat{y}(\eta))}{g(q_{sq}+\hat{y}(\eta))} &\leq \frac{f(q_{sq}+\overline{y}(q_{sq},\eta))}{g(q_{sq}+\overline{y}(q_{sq},\eta))} \\
\implies \frac{f(q_{sq}+\overline{y}(q_{sq},\eta))}{g(q_{sq}+\overline{y}(q_{sq},\eta))} &\geq \frac{1-F(q_{sq}+\overline{y}(q_{sq},\eta))}{1-G(q_{sq}+\overline{y}(q_{sq},\eta))} \\
\Leftrightarrow \frac{f(q_{sq}+\overline{y}(q_{sq},\eta))}{1-F(q_{sq}+\overline{y}(q_{sq},\eta))} &\geq \frac{g(q_{sq}+\overline{y}(q_{sq},\eta))}{1-G(q_{sq}+\overline{y}(q_{sq},\eta))},
\end{aligned}$$

where the last line is a contradiction due to the monotone hazard rate property of MLRP.

Suppose not for the second part of the lemma, then $\underline{y}(q_{sq}, \eta) \leq \hat{y}(\eta)$. Using the definitions of $\underline{y}(q_{sq}, \eta)$ and $\hat{y}(\eta)$, it must be that

$$\frac{F(q_{sq}+\underline{y}(q_{sq},\eta))}{G(q_{sq}+\underline{y}(q_{sq},\eta))} = \frac{f(q_{sq}+\hat{y}(\eta))}{g(q_{sq}+\hat{y}(\eta))}$$

By strict MLRP and since $q_{sq} + \hat{y}(\eta) \geq q_{sq} + \underline{y}(q_{sq}, \eta)$

$$\begin{aligned} & \frac{f(q_{sq} + \hat{y}(\eta))}{g(q_{sq} + \hat{y}(\eta))} \geq \frac{f(q_{sq} + \underline{y}(q_{sq}, \eta))}{g(q_{sq} + \underline{y}(q_{sq}, \eta))} \\ \Longrightarrow \quad & \frac{F(q_{sq} + \underline{y}(q_{sq}, \eta))}{G(q_{sq} + \underline{y}(q_{sq}, \eta))} \geq \frac{f(q_{sq} + \underline{y}(q_{sq}, \eta))}{g(q_{sq} + \underline{y}(q_{sq}, \eta))} \end{aligned}$$

where the last line is a contradiction due to the well known property of strict MLRP that

$$\frac{f(x)}{g(x)} > \frac{F(x)}{G(x)}.$$

■

Proposition 17. *Fix π_{sq} and $\eta < 0$.*

(a) If (4) is satisfied, there is a PBE where the incumbent changes the status quo if and only if (7) is satisfied, and is always reelected.

Otherwise, if (4) is not satisfied:

(b) and $\underline{y}(q_{sq}, \eta) \leq -(x_I - x_{sq})^2$, there is a PBE where the incumbent changes the status quo if and only if (10) is satisfied, and is reelected with probability one if he changes the status quo and with $\rho^* \in (0, 1]$ if he retains the status quo.

(c) and $\underline{y}(q_{sq}, \eta) \geq -(x_I - x_{sq})^2 - r$ and $-(x_I - x_{sq})^2 - (1-s)r \geq \hat{y}(\eta)$, there is a PBE where the incumbent changes the status quo if and only if (17) is satisfied, and is reelected if he changes the status quo.

(d) and $\hat{y}(\eta) > -(x_I - x_{sq})^2 - (1 - s)r$, there is a PBE where the incumbent changes the status quo if and only if (18) is satisfied, and is reelected if he changes the status quo if q_I is not revealed or if $\hat{q}_I(\eta)$ is revealed and $q_I \geq \hat{q}_I(\eta)$.

Proof. Fix π_{sq} and $\eta < 0$. Furthermore, suppose (4) is satisfied, and hence neither $\underline{y}(q_{sq}, \eta)$ nor $\hat{y}(\eta)$ exist. Then the incumbent is reelected whether he changes or retains the status quo. Hence, the incumbent changes the status quo if and only if (5) is satisfied. If $q_{sq} - (x_I - x_{sq})^2 < 0$, retaining is off the equilibrium path. Given the assumption about the off the path beliefs, the incumbent will be reelected if he deviates. Hence, he will not deviate if (5) is satisfied which holds for all q_I. This shows (a).

For the remainder of the proof suppose (4) is not satisfied. Since $\eta < 0$, the incumbent is always reelected if he changes the status quo and q_I is not revealed. Moreover, by a similar argument to the one used in the proof of Proposition 18, the incumbent's expected utility in equilibrium from changing the status quo is increasing in q_I. Hence, it is sufficient to find the realization of q_I such that the incumbent is indifferent as he will change the status quo for any higher realizations of q_I.

Additionally, note that if the incumbent is reelected when he retains the status quo, he is also reelected when he changes the status quo and q_I is revealed. To see this, suppose not. Then there exist $q_I < q_I'$ such that

$$\frac{1}{1+\frac{1-p}{p}\frac{G(q_I)}{F(q_I)}} > p+\eta > \frac{1}{1+\frac{1-p}{p}\frac{g(q_I)}{f(q_I)}}.$$

Hence,

$$\begin{aligned} \frac{g(q_I')}{f(q_I')} &> \frac{G(q_I)}{F(q_I)} \\ \implies \frac{1-G(q_I')}{1-F(q_I')} &> \frac{G(q_I')}{F(q_I')}, \end{aligned}$$

where the second line is a contradiction due to the FOSD property of MLRP.

Now, suppose there is an equilibrium where the incumbent is reelected with probability one whether he changes the status quo or not. In that case, the incumbent changes the status quo if and only if (5) is satisfied. This equilibrium exists if $\underline{y}(\eta) < -(x_I - x_{sq})^2$ and $\hat{y} < \kappa, -(x_I - x_s)^2$, where the first condition implies the second.

Next, suppose there is an equilibrium where the incumbent is reelected with some probability less than one when he retains the status quo. In equilibrium, the incumbent changes the status quo if and only if (10) is satisfied. For the voter to be willing to randomize, it must be that

$$\rho^* = \frac{\overline{y} + (x_I - x_{sq})^2 + r}{r}.$$

For $\rho^* \in [0,1]$, it must be that

$$\underline{y}(q_{sq}, \eta) \in [-(x_I - x_{sq})^2 - r, -(x_I - x_{sq})^2].$$

Summarizing, if $\underline{y} \leq \kappa - (x_I - x_{sq})^2$, there is an equilibrium where the incumbent changes the status quo if and only if (10) is satisfied.

In the remaining equilibria, the incumbent is certain to be reelected when he changes the status quo and q_I is not revealed and is not reelected when the retain. That is, $\underline{y}(q_{sq}, \eta) > y^*$. What happens when q_I is revealed depends on the equilibrium.

First, suppose there is an equilibrium where the incumbent is reelected with probability one if he changes the status quo but is not reelected if he retains. That is, $\underline{y}(q_{sq}, \eta) > y^* \geq \hat{y}$. In equilibrium, the incumbent will change the status quo if (9) is satisfied. Hence, this equilibrium exists if

$$\underline{y}(q_{sq}, \eta) > -(x_I - x_{sq})^2 - r > \hat{y}$$

Now consider a strategy for the incumbent where the change the status quo if and only if $q_I \geq \hat{q}_I$. For this to be an equilibrium, it must be that

$$\hat{y} < (\kappa - (x_I - x_{sq})^2 - r, \kappa - (x_I - x_{sq})^2 - (1 - s)r).$$

Summarizing, if $\overline{y} \geq \kappa - (x_I - x_{sq})^2 - r$, and $\kappa - (x_I - x_{sq})^2 - (1 - s)r \leq \hat{y}$, there is an equilibrium where the incumbent changes the status quo if and only if (17) is satisfied.

Finally, suppose there is an equilibrium where the incumbent is reelected with probability one if they change the status and q_I is not revealed, but there are values of q_I such that if q_I is revealed the incumbent is not reelected. Then the incumbent who is indifferent between retaining and changing observes q_I such that $q_I = q_{sq} + \kappa - (x_I - x_{sq})^2 - (1 - s)r$. Hence, the incumbent changes the status quo if and only (18) is satisfied. This equilibrium exists if $\hat{y} > q_{sq} + \kappa - (x_I - x_{sq})^2 - (1 - s)r$. Note, this allows for the possibility that $0 > \kappa - (x_I - x_{sq})^2 - (1 - s)r$ ■

Proposition 18. *Fix π_{sq} and $\eta > 0$.*

(a) If (4) is satisfied, there is a PBE where the incumbent changes the status quo if and only if (7) is satisfied, and is never reelected.

Otherwise, if $\eta > 0$ and (4) is not satisfied:

(b) and if $\hat{y} \leq -(x_I - x_{sq})^2 - (1 - s)r$, there is a PBE where the incumbent changes the status quo if and only if (17) is satisfied, and is reelected if he changes the status quo.

(c) and if $\overline{y} \leq -(x_I - x_{sq})^2 - (1 - s)r < \hat{y}$, there is a PBE where the incumbent changes the status quo if and only if (18) is satisfied, and the incumbent is reelected if he changes the status quo and q_I is not revealed or if q_I is revealed and $q_I \geq \hat{q}_I$.

(d) and if $\overline{y} \in (-(x_I - x_{sq})^2 - (1 - s)r, -(x_I - x_{sq})^2)$, there is a PBE where the incumbent changes the status quo if and only if (19) is satisfied, and is reelected with probability $\rho^* < 1$ if he changes the status quo and q_I is not revealed or if q_I is revealed and $q_I \geq \hat{q}_I$.

(e) and if $\overline{y} \geq -(x_I - x_{sq})^2$ there is a PBE where the incumbent changes the status quo if and only if (7) is satisfied, and is reelected with probability one if he changes the status quo, q_I is revealed, and $q_I \geq \hat{q}_I$.

Proof. Fix π_{sq} and $\eta > 0$. Furthermore, suppose that (4) is satisfied, in which case neither $\overline{y}$ nor $\hat{y}$ exist. Then the incumbent is never reelected if he changes the status quo. Hence, he changes the status quo if and only if (5) is satisfied. When $q_{sq} - (x_I - x_{sq})^2 < 0$, retaining is off the equilibrium path. By assumption, if the incumbent deviates to an action off the equilibrium path, the probability he is high ability is $\mu < p$. Therefore, the incumbent will not deviate as long as (5) is satisfied, which holds for all q_I. This proves the first result of the proposition.

Now suppose $\eta > 0$ and (4) is not satisfied. In equilibrium, the incumbent's expected utility from changing the status quo is

$$q_I - \kappa + (1 - s)\lambda r + s\gamma(q_I)r$$

where λ is the probability the incumbent is reelected if q_I is not revealed and $\gamma(q_I)$ is the probability the incumbent is reelected if q_I is revealed. This expected utility is increasing in q_I since $\gamma(q_I)$ is weakly increasing in q_I. Hence, it is sufficient to solve for q_I such that the incumbent is indifferent between retaining and changing since they will strictly prefer changing for any larger q_I.

Focus on equilibria where the incumbent is reelected with positive probability when they change the status quo and q_I is not revealed. That is, equilibria where $\overline{y} \leq y^*$. First suppose the incumbent is reelected with probability one when they change the status quo and q_I is not revealed. Then, in equilibrium, the incumbent changes the status if and only if (9) is satisfied. For this to be an equilibrium, it must be that $\hat{y} < \kappa - (x_I - x_{sq})^2 - r$ and $\underline{y} < \kappa - (x_I - x_{sq})^2 - r$, where the first implies the second.

Next, suppose there is an equilibrium where the incumbent changes the status quo if and only if $q_I \geq \hat{q}_I$. This implies that the incumbent is reelected if they change the status quo. In addition to the restrictions on the voter's beliefs that are satisfied by the definition of $\hat{y}$, two other conditions must be satisfied for this to be an equilibrium. First, if the incumbent wins reelection if q_I is revealed, they must prefer to change the status quo. That is,

$$\hat{q}_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2 - r.$$

Second, an incumbent for whom $q_I < \hat{q}_I$ cannot want to deviate to changing the status quo and getting reelected with probability $1-s$. That is,

$$\hat{q}_I \leq q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r.$$

These conditions are satisfied if $\hat{y} \in [\kappa - (x_I - x_{sq})^2 - r, \kappa - (x_I - x_{sq})^2 - (1-s)r]$

Summarizing, if $\hat{y} \leq \kappa - (x_I - x_{sq})^2 - (1-s)r$, in equilibrium, the incumbent changes the status quo if and only if

$$q_I \geq \max\{q_{sq} + \kappa - (x_I - x_{sq})^2 - r, \hat{q}_I\}. \tag{17}$$

This proves the second result in the proposition.

Continue to suppose that in equilibrium the incumbent is reelected with probability one if they change the status quo. But suppose there are realizations of q_I such that they change the status quo but are not reelected if q_I is revealed. This means that an indifferent incumbent will not be reelected if q_I is revealed. The incumbent is indifferent if $q_I = q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r$, and hence changes the status quo if and only if

$$q_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r. \tag{18}$$

For this to be an equilibrium, it must be that

$$\overline{y} < \kappa - (x_I - x_{sq})^2 - (1-s)r < \hat{y}$$

Finally, suppose there is an equilibrium where the incumbent is reelected with probability $\rho^* \in [0,1]$ if they change the status quo and q_I is not revealed. Since the voter mixes, it must be that $y^* = \overline{y}$, which implies $y^* < \hat{y}$ and hence the incumbent is sometimes not reelected if they change the status quo and q_I is revealed. In particular, the incumbent who is indifferent will not be reelected if q_I is revealed. In this potential mixed strategy equilibrium, the incumbent is indifferent between retaining and changing when $q_I = q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)\rho^* r$, and hence changes the status quo if and only if

$$q_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)\rho^* r. \tag{19}$$

The voter is willing to mix if

$$\Leftrightarrow \rho^* = \frac{\kappa - (x_I - x_{sq})^2 - \overline{y}}{(1-s)r}.$$

$\rho^* \in (0,1)$ if

$$\overline{y} \in (\kappa - (x_I - x_{sq})^2 - (1-s)r, \kappa - (x_I - x_{sq})^2).$$

Additionally, note that when when $\overline{y} = \kappa - (x_I - x_{sq})^2 - (1-s)r$, $\rho^* = 1$, and when $\overline{y} = \kappa - (x_I - x_{sq})^2$, $\rho^* = 0$.

It remains to consider equilibria where the incumbent is not reelected when q_I is not revealed. In such an equilibrium, there must be realizations of q_I such that the incumbent changes the status quo and is not reelected if q_I is revealed. As a result, the incumbent is indifferent when $q_I = q_{sq} + \kappa - (x_I - x_{sq})^2$, and hence changes the status quo if and only if (5) is satisfied. This requires $\overline{y} > \kappa - (x_I - x_{sq})^2$. Which means this equilibrium exists when $\kappa - (x_I - x_{sq})^2 < 0$. ■

Proposition 19. *If $\eta = 0$:*

(a) and if $0 > q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r$, there is an equilibrium where the incumbent changes the status quo for any q_I, and is reelected with probability $\rho^* \in [0,1]$ if they change the status quo and q_I is not revealed and with probability one if q_I is revealed and $q_I \geq \hat{q}_I$.

Otherwise, if $\eta = 0$, $0 \leq q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r$:

(b) and if $\hat{y} \leq \kappa - (x_I - x_{sq})^2 - (1-s)r$, there is a unique equilibrium where the incumbent changes the status quo if and only if (17) is satisfied, and is reelected if they change the status quo.

(c) and if $\hat{y} > \kappa - (x_I - x_{sq})^2 - (1-s)r$, there is a unique equilibrium where the incumbent changes the status quo if and only if (18) is satisfied, and is reelected if they change the status quo and q_I is not revealed or if q_I is revealed and $q_I \geq \hat{q}_I$.

Proof. Fix $\eta = 0$. Moreover, suppose there is an equilibrium where the incumbent changes the status quo for any q_I. Further, consider an incumbent for whom $q_I = 0$. Since $\eta = 0$, $\hat{q}_I$ exists and $\hat{q}_I > 0$. Thus, changing the status quo is a best response for this incumbent if and only if

$$0 > q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)\rho r. \tag{20}$$

By a similar argument to the one used in Proposition 18, in equilibrium, the incumbent's expected utility from changing the status quo is increasing in q_I. Hence, if 20, the incumbent changes the status quo for all q_I. Hence, if $0 > q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r$, a continuum of equilibria exist where the incumbent changes the status quo with probability one and is reelected with probability with probability ρ^* where $0 > q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)\rho^*$.

For the remainder of the proof suppose the incumbent retains the status quo on the equilibrium path. Hence, the incumbent is reelected when they change the status quo and q_I is not revealed.

Consider first an equilibrium where the incumbent is reelected with probability one when they change the status quo. In such an equilibrium, the incumbent will change the status quo if and only if (9) is satisfied. This equilibrium exists if $\hat{y} < \kappa - (x_I - x_{sq})^2 - r$.

Next, consider a strategy profile where the incumbent changes the status quo if and only if $q_I \geq \hat{q}_I$ and is reelected with probability one when they change the status quo. By a similar argument to the one used in Proposition 18, for this to be an equilibrium, it must be that

$$\hat{y} \in (\kappa - (x_I - x_{sq})^2 - r, \kappa - (x_I - x_{sq})^2 - (1-s)r)$$

which is true by assumption.

Finally, consider an equilibrium where the incumbent is only reelected if they change the status quo and q_I is not revealed or if q_I is revealed and $q_I \geq \hat{q}_I$. Hence, the incumbent changes the status quo if and only if (18) is satisfied. For this to be an equilibrium it must be that $\hat{y} > \kappa - (x_I - x_{sq})^2 - (1-s)r$.

It remains to check two knife edge cases. Suppose $\hat{y} = \kappa - (x_I - x_{sq})^2 - (1-s)r$, which is the same as saying $\hat{q}_I = q_{sq} + \kappa - (x_I) - x_{sq}^2 - (1-s)r$. In the previously proposed equilibrium the incumbent changes the status quo, $q_I \geq \hat{q}_I$, and is reelected with probability one when they change the status quo. Hence, this is an equilibrium.

Finally, suppose $\hat{y} = \kappa - (x_I - x_{sq})^2 - r$. This is the same as saying $\hat{q}_I = q_{sq} + \kappa - (x_I) - x_{sq}^2 - (1-s)r$. In the previously proposed equilibrium the incumbent changes the status quo, $q_I \geq \hat{q}_I$, and is reelected with probability one when they change the status quo. Hence, this is an equilibrium. ■

A.7 Proof of Proposition 7

Suppose (4) is satisfied and $\eta > 0$. Fix $\hat{y}(\eta)$ and $\overline{y}(q_{sq}, \eta)$ such that $\hat{y}(\eta) > -(x_I - x_{sq})^2 - (1-s)r \geq \overline{y}(q_{sq}, \eta)$. Hence, the incumbent changes the status quo if and only if (18) is satisfied. Note, the preliminary assumption implies $\hat{q}_I > q_{sq} + \kappa - (x_I - x_{sq})^2 - (1-s)r$. Hence, the incumbent's ex-ante expected utility is

$$\int_0^{q_{sq}-(x_I-x_{sq})^2-(1-s)r}(q_{sq}-(x_I-x_{sq})^2)h(q_I)dq_I \\ +\int_{q_{sq}-(x_I-x_{sq})^2-(1-s)r}^{\hat{q}_I}(q_I+(1-s)r)h(q_I)dq_I \\ +\int_{\hat{q}_I}^{\infty}(q_I+r)h(q_I)dq_I, \quad (21)$$

where $h(q_I)=pf(q_I)+(1-p)g(q_I)$. Differentiating,

$$\frac{\partial(21)}{\partial s}=-\int_{q_{sq}-(x_I-x_{sq})^2-(1-s)r}^{\hat{q}_I(\eta)} rh(q_I)dq_I<0.$$

Hence, for small increases in s, the incumbent's expected utility is decreasing.

Now, suppose $\overline{y}(q_{sq},\eta)\geq -(x_I-x_{sq})^2$. Then, the incumbent changes the status quo if and only if (7). In particular, $q_{sq}-(x_I-x_{sq})^2\geq 0$. Then the incumbent's expected utility is

$$\int_0^{q_{sq}-(x_I-x_{sq})^2}(q_{sq}-(x_I-x_{sq})^2)h(q_I)dq_I \\ +\int_{q_{sq}-(x_I-x_{sq})^2}^{\hat{q}_I}(q_I-\kappa)h(q_I)dq_I \\ +\int_{\hat{q}_I}^{\infty}(q_I+sr)h(q_I)dq_I, \quad (22)$$

Differentiating,

$$\frac{\partial(22)}{\partial s}=\int_{\hat{q}_I}^{\infty} rh(q_I)dq_I\geq 0.$$

Hence, the incumbent's expected utility is increasing s.

A.8 Proof of Proposition 8

I analyze this model for $\eta<0$ and $\eta>0$.

Proof. Fix q_{sq} and $\eta<0$. Consider the case where $\underline{y}(q_{sq},\eta)>-(x_I-x_{sq})^2-r$ and hence the incumbent is not reelected if he chooses $x_I=\hat{x}$ and retains the status quo in any PBE. If the incumbent chooses $\hat{x}\neq x_I$, his optimal choice is $\hat{x}$ such that the voter is indifferent between the incumbent and the challenger when the incumbent retains the status quo. Hence, $\hat{x}^*$

solves

$$q_{sq} + \underline{y}(q_{sq}, \eta) = q_{sq} - (x_I - x_{sq})^2 + (x_I - \hat{x})^2,$$
$$\Leftrightarrow \hat{x}^* = x_I \pm \sqrt{\underline{y}(q_{sq}, \eta) + (x_I - x_{sq})^2}.$$

To show existence of an equilibrium where $\hat{x} \neq x_I$, consider the following example: $f(q_I) = e^{-q_I}$, $g(q_I) = 2e^{-2q_I}$, $p = 0.5$, $\eta = \frac{1}{1+\frac{1-e^{-2}}{1-e^{-1}}} - p \approx -0.078$, $x_{sq} = 0$, $q_{sq} = 1$, $r = 0.5$ and $x_I = 0.1$.

These parameters imply $\underline{y}(q_{sq}, \eta) = 0$, $-(x_I - x_{sq})^2 - r = -0.51 < \underline{y}(q_{sq}, \eta)$, and $\hat{x}^* \in \{0, 0.2\}$.

If the incumbent chooses $\hat{x}^* = 0$, his expected utility is

$$\left(\frac{1}{2}\left(1 - e^{-1}\right) + \frac{1}{2}\left(1 - e^{-2}\right)(1 - 0.01 + 0.5)\right.$$
$$\left. + \int_{1}^{\infty} (q_I - 0.01 + 0.5)\left(\frac{1}{2}e^{-q_I} + \frac{1}{2}2e^{-2q_I}\right) dq_I \approx 1.7077,\right.$$

and his expected utility from proposing $\hat{x} = x_I$ is

$$\left(\frac{1}{2}\left(1 - e^{-0.49}\right) + \frac{1}{2}\left(1 - e^{-0.98}\right)(1 - 0.01)\right.$$
$$\left. + \int_{0.49}^{\infty} (q_I + 0.5)\left(\frac{1}{2}e^{-q_I} + \frac{1}{2}2e^{-2q_I}\right) dq_I \approx 1.3852.\right.$$

Hence, he chooses $\hat{x}^* \in \{0, 0.2\}$.

Now consider the case where $\eta > 0$. In particular, focus on the case where $-(x_I - x_{sq})^2 - r < \overline{y}(q_{sq}, \eta)$, as this is when the incumbent is not reelected with probability one if he proposes $\hat{x} = x_I$ and changes the status quo.

If the incumbent proposes a policy that differs from his ideal point, he will choose the policy such that when he changes the status quo the voter is indifferent between the the challenger and incumbent. That is, the incumbent chooses $\hat{x}^*$ such that

$$q_{sq} + \overline{y}(q_{sq}, \eta) = q_{sq} - (x_I - x_{sq})^2 + (x_I - \hat{x})^2 - r$$
$$\hat{x}^* = x_I \pm \sqrt{r + (x_I - x_{sq})^2 + \overline{y}}.$$

Suppose $\overline{y}(q_{sq}, \eta) \in (-(x_I - x_{sq})^2 - r, -(x_I - x_{sq})^2)$. The incumbent's expected utility from proposing $\hat{x} = \hat{x}^*$ is

$$(q_{sq} - (x_I - x_{sq})^2)(pF(q_{sq} + \overline{y}(q_{sq}, \eta)) + (1-p)G(q_{sq} + \overline{y}(q_{sq}, \eta))) \\ + \int_{q_{sq}+\overline{y}}^{\infty} (q_I - (x_I - x_{sq})^2 - \overline{y}(q_{sq}, \eta))h(q_I)dq_I$$

and his expected utility from proposing $\hat{x} = x_I$, in which case there is a mixed strategy equilibrium, is

$$(q_{sq} - (x_I - x_{sq})^2)(pF(q_{sq} + \overline{y}(q_{sq}, \eta)) + (1-p)G(q_{sq} + \overline{y}(q_{sq}, \eta))) \\ + \int_{q_{sq}+\overline{y}}^{\infty} (q_I - (x_I - x_{sq})^2 - \overline{y}(q_{sq}, \eta))h(q_I)dq_I.$$

Hence, an equilibrium exists where the incumbent proposes $\hat{x} = \hat{x}^*$. ■

A.9 Proof of Lemma 2

Proof. Suppose in a PBE, the probability the minority wins reelection when she blocks the proposed change is $\omega^* \in [0, 1]$ and the probability she wins reelection if shes accept the proposal is $\lambda^* \in [0, 1]$. Then, the minority accepts the proposed change if and only if

$$q_I \geq q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2 + (\omega^* - \lambda^*)r.$$

Therefore, the minority agrees to a change if and only if q_I is sufficiently large. ■

A.10 Proof of Lemma 3

Proof. Suppose not. Then there is an equilibrium where the majority does not propose a policy for some realizations of q_I, the minority blocks some of the majority's proposals, and the probability the majority is reelected when he does not propose a policy is different from the probability he is reelected if he proposes a policy and the minority blocks it. That is, there are policies q_I and q_I' such that the majority does not propose a policy change if the quality of his alternative is q_I and he does if it is q_I' but the minority blocks the proposal with quality q_I'. Moreover, the probability the minority is reelected in these two cases is different. Denote these probability υ_{q_I} and $\upsilon_{q_I'}$.

Given q_I, the incumbent's expected utility in equilibrium is

$$q_{sq} - (x_I - x_{sq})^2 + \upsilon_{q_I} r.$$

And given q_I', the incumbent's expected utility in equilibrium is

$$q_{sq} - (x_I - x_{sq})^2 + \upsilon_{q_I'} r.$$

Hence, because $\upsilon_{q_I} \neq \upsilon_{q_I'}$ the majority has a profitable deviation. ■

A.11 Proofs of Propositions 9 and 10

I provide characterization of all PBE where the majority proposes a policy for all q_I and where off the path the voter believes the majority has high ability with probability μ if either policymaker deviates in Propositions 21, 20, and 22. I then show that D1 forces the voter to believe that a deviation by the majority comes from a majority whose alternative has $q_I = 0$ and as a result is high ability with probability μ. Propositions 9 and 10 follow from applying equilibrium condition (4) to Propositions 21, 20, and 22.

Proposition 20. *Fix q_{sq} and $\eta < 0$.*

(a) If (4) is satisfied, there is an equilibrium where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if 23 is satisfied, and the majority is always reelected.

Otherwise, if (4) is not satisfied:

(b) if (24) is satisfied, there is a PBE where the majority proposes a policy for any q_I, the minority accepts all proposals, and the majority is always reelected.

(c) if $-(x_C - x_{sq})^2 + (x_C - x_I)^2 \geq \underline{y}(q_{sq}, \eta)$, there is a PBE where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if (29) is satisfied, and the majority is always reelected.

(d) if $-(x_C - x_{sq})^2 + (x_C - x_I)^2 < \underline{y}(q_{sq}, \eta)$, there is an equilibrium where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if (27) is satisfied, and the majority is reelected with probability one if the minority accepts the policy and with probability $\rho^* \in (0, 1]$ if the minority blocks the policy.

Proof. Fix q_{sq} and $\eta < 0$, and suppose the majority proposes a policy for all q_I. Since the minority uses a threshold, the majority is always reelected if the minority accepts the proposed policy.

Suppose (4) is satisfied. Then the minority will accept a proposed change if and only if

$$q_I \geq \max\{q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2, 0\}. \tag{23}$$

For the remainder of the proof suppose (4) is not satisfied, and hence, $\underline{y}(q_{sq}, \eta)$ exists. First, consider an equilibrium where the majority always accepts the majority's proposed policy. Since the majority leads, he is always elected on the equilibrium path. But if the minority deviates, she is reelected. Hence, for this to be an equilibrium it must be that

$$0 > q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2 + r. \tag{24}$$

Next, suppose $\underline{y}(q_{sq}, \eta) < z^*$ and (24) is not satisfied, in which case the majority is reelected whether his proposal is accepted or blocked. Then the minority accepts a proposed policy if and only if

$$q_I \geq q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2. \tag{25}$$

For this equilibrium to exist, it must be that $-(x_C - x_{sq})^2 + (x_C - x_I)^2 > \underline{y}(q_{sq}, \eta)$.

Now, suppose $\underline{y}(q_{sq}, \eta) > z^*$ and (24) is not satisfied, in which case the majority is reelected if his proposal is accepted but not if it is blocked. Then, the minority accepts the majority's proposed policy if and only if

$$q_I \geq q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2 + r. \tag{26}$$

For this equilibrium to exist, it must be that $-(x_C - x_{sq})^2 + (x_C - x_I)^2 + r < \underline{y}(q_{sq}, \eta)$.

Finally, suppose $\underline{y} = z^*$ and (24) is not satisfied. Then the voter is indifferent when the minority blocks a proposed change, and reelects the majority with probability ρ. Hence, the minority accepts a proposed policy if and only if

$$q_I \geq q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2 + (1 - \rho^*)r.$$

For this to exist, it must be that

$$\rho^* = \frac{-(x_C - x_{sq})^2 + (x_C - x_I)^2 + r - \underline{y}(q_{sq}, \eta)}{r}$$

and if $\underline{y}(q_{sq}, \eta) \in [-(x_C - x_{sq})^2 + (x_C - x_I)^2, -(x_C - x_{sq})^2 + (x_C - x_I)^2 + r]$.

Summarizing, if $\underline{y}(q_{sq}, \eta) \geq -(x_C - x_{sq})^2 + (x_C - x_I)^2$, the minority accepts the proposed policy if and only if

$$q_I \geq q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2 + (1 - \rho^*)r, \tag{27}$$

for $\rho \in [0, 1)$. ■

Proposition 21. *Fix q_{sq} and $\eta > 0$.*

(a) If (4) is satisfied, there is a PBE where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if (23) is satisfied, and the majority is never reelected.

Otherwise, if (4) is not satisfied:

(b) if (28) is satisfied, there is a PBE where the majority proposes a policy for any q_I, the minority accepts all proposals, and the minority is never reelected.

(c) if $-(x_C - x_{sq})^2 + (x_C - x_I)^2 + r \geq \overline{y}(q_{sq}, \eta)$, there is a PBE where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if (26) is satisfied, and the majority is reelected if the proposal is accepted.

(d) if $-(x_C - x_{sq})^2 + (x_C - x_I)^2 \leq \overline{y}(q_{sq}, \eta)$, there is an equilibrium where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if (23) is satisfied, and the majority is never reelected.

(e) if $\overline{y}(q_{sq}, \eta) \in (-(x_C - x_{sq})^2 + (x_C - x_I)^2, -(x_C - x_{sq})^2 + (x_C - x_I)^2 + r)$, there is an equilibrium where the majority proposes a policy for any q_I, the minority accepts the proposal if and only if (29) is satisfied, and the majority is with probability $\rho^* \in (0, 1)$ if the proposal is accepted.

Proof. Fix q_{sq} and $\eta > 0$, and suppose the majority proposes a policy for all q_I. Since the minority uses a threshold, the majority is never reelected if the minority blocks a proposed policy.

Then suppose (4) is satisfied. Then the majority cannot win reelection and the minority will accept a proposed change if and only if (23) is satisfied.

For the remainder of the proof suppose (4) is not satisfied. Hence, $\overline{y}(q_{sq}, \eta)$ exists. First, suppose there is an equilibrium where the minority accepts every proposed policy. On the path, the majority is not reelected because he trails. And by the assumption about the off the path belief induced by deviation, the majority is also not reelected if the minority deviates. Hence, for this to be an equilibrium it must be that

$$0 > q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2. \tag{28}$$

Next suppose $z^* > \underline{y}(q_{sq}, \eta)$ and (28) is not satisfied, in which case the majority is reelected if the minority accepts the proposed policy but not otherwise. Then, the minority accepts a proposed policy if (26) is satisfied. For this to be an equilibrium, it must be that $-(x_C - x_{sq})^2 + (x_C - x_I)^2 + r > \underline{y}(q_{sq}, \eta)$.

Next, suppose $z^* < \underline{y}$ and (28) is not satisfied, in which case the minority is reelected whether or not she accepts the proposed policy. Then, the minority accepts a proposed policy if and only if (29) is satisfied. For this to be an equilibrium, it must be that $-(x_C - x_{sq})^2 + (x_C - x_I)^2 < \underline{y}$.

Finally, suppose $z^* = \overline{y}$ and (28) is not satisfied, in which case the voter is indifferent between the majority and minority when the minority accepts a proposed policy. Hence, she reelects the majority with probability ρ. Given ρ, the minority accepts a proposed policy if

$$q_I \geq q_{sq} - (x_C - x_{sq})^2 + (x_C - x_I)^2 + \rho^* r. \tag{29}$$

Then, such an equilibrium exists if

$$\frac{\overline{y}(q_{sq}, \eta) - +(x_C - x_{sq})^2 - (x_C - x_I)^2}{r} = \rho^*,$$

and if $\overline{y}(q_{sq}, \eta) \in [-(x_C - x_{sq})^2 + (x_C - x_I)^2, -(x_C - x_{sq})^2 + (x_C - x_I)^2 + r]$. ■

Proposition 22. *If* $\eta = 0$

Proof. Fix $\eta = 0$. Fix a strategy for the majority of proposing a policy for any q_I.

Additionally, suppose there is an equilibrium where the minority accepts any proposal. Then on the path the voter is indifferent between the minority and majority and reelects the majority with probability ρ^*. For such an equilibrium to exist, it must be that

$$0 > q_{sq} + \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2 + (1 - \rho^*) r.$$

Since $\rho^* \in [0, 1]$, if $0 > q_{sq} + \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2$, a continuum of equilibria exist.

For the remainder of the proof, suppose the minority blocks some proposed policies on the equilibrium path. Hence, the majority is reelected when the minority accepts a proposal and is not reelected when the minority blocks a proposal. Hence, the minority will accept a proposal if and only if

$$q_I \geq q_{sq} \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2 + r$$

■

A.12 Proof of Proposition 11

Proof. Recall from Lemma 6 that $\underline{y}$ and $\overline{y}$ are increasing in η.

If (4) is satisfied or if

$$q_{sq} + \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2 + r < 0, \tag{30}$$

the probability of policy change is constant in η.

For the remainder of the proof suppose neither 4 nor 30 are satisfied. Then $\underline{y}$ and $\overline{y}$ exists and the minority blocks some proposed policies in equilibrium. Suppose first that $\eta < 0$. There is a unique equilibrium in this case so the set of equilibria is the same as the equilibrium with minimal policy change. Proposition 20 implies that the probability of policy change is weakly increasing in η and weakly smaller than

$$\begin{aligned} pF(q_{sq} + \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2 + r) \\ + (1-p)G(q_{sq} + \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2 + r). \end{aligned} \tag{31}$$

Now suppose $\eta = 0$. Then the probability of policy change is either one or (31)

Finally, suppose $\eta > 0$. In the equilibrium with minimum policy change, if $\underline{y} \in (\kappa - (x_C - X_{sq})^2 + (x_C - x_I)^2, \kappa - (x_C - X_{sq})^2 + (x_C - x_I)^2 + r)$, the incumbent changes the status quo if and only if (23) is satisfied. Proposition 21 implies that the probability of policy change is weakly decreasing in η and is weakly smaller than (31). ■

A.13 Proof of Proposition 12

In Γ, if $\underline{y} \geq \kappa - (x_I - x_{sq})^2$, the unique equilibrium is one with electorally beneficial policy change where the incumbent is reelected if and only if they change the status quo. And in Γ^v, if $\underline{y} \leq \kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2$, the unique equilibrium is one with certain reelection. Hence, if

$$\kappa - (x_C - x_{sq})^2 + (x_C - x_I)^2 > \kappa - (x_I - x_{sq})^2, \tag{32}$$

the probability of reelection in the unique equilibrium of Γ is lower than the probability of reelection in the unique equilibrium of Γ^v. Condition (32) is satisfied if the minority's ideological benefit of policy change is strictly smaller than the majority's.

B Robustness

B.1 Incumbent knows their Type

Suppose the incumbent knows their type. Furthermore, suppose that in equilibrium, the voter reelects the incumbent with probability $\lambda \in [0,1]$ when the incumbent retains the status quo, and with probability $\gamma \in [0,1]$ when the incumbent changes the status quo. Than an incumbent of type τ_j changes the status quo if and only if

$$q_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2 + (\lambda - \gamma)r.$$

Note, the incumbent's strategy does not depend on their type.

B.2 Election Outcome Affects Policy

Suppose that if the challenger is elected, the status quo is implemented regardless of what the incumbent chosen in the previous period. Specifically, suppose that the incumbent chooses $\tilde{\pi} \in \{\pi_{sq}, \pi_I\}$. If the incumbent is reelected, $\pi = \tilde{\pi}$. Otherwise, $\pi = \pi_{sq}$.

If $\tilde{\pi} = \pi_{sq}$, the voter reelects the incumbent if

$$\Pr(\tau_I = \overline{\theta} | \pi = \pi_{sq}) - x_{sq}^2 + q_{sq} > p - x_{sq}^2 + q_{sq} + \eta.$$

Hence, this is as in the baseline model.

By an identical argument to that used above, the incumbent will use a threshold strategy in any equilibrium. That is, in equilibrium, they will change the status quo if and only if

$$q_I \geq q_{sq} + w^*.$$

If $\tilde{\pi} = \pi_I$, the voter reelects the incumbent with probability one if

$$\frac{(1 - F(q_{sq} + w^*))p}{(1 - F(q_{sq} + w^*))p + (1 - G(q_{sq} + w^*))(1 - p)} - x_I^2 + \mathbb{E}[q_I | \tilde{\pi} = \pi_I, w^*] - \zeta$$
$$> p - x_{sq}^2 + q_{sq} + \eta. \quad (33)$$

By Lemma 4, and the fact that $\mathbb{E}[q_I | \tilde{\pi} = \pi_I, w^*]$ is increasing in w^*, the voter's expected utility from reelecting the incumbent, the LHS of (33), is increasing in w^*. Hence, if the incumbent changes the status quo, they are reelected if w^* is sufficiently large and are not reelected otherwise. Call the cutoff such that w^* is sufficiently large $\overline{w}$.

Suppose first that $\eta > 0$, and hence the incumbent is not reelected if they retain the status quo. Then, suppose that $w^* < \overline{w}$, in which case the incumbent is never reelected. Then, the incumbent changes the status quo if and only if

$$q_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2.$$

For this to exist, it must be that

$$\kappa - (x_I - x_{sq})^2 < \overline{w}.$$

Hence, for some parameters, there is an equilibrium with certain replacement.

Suppose next that $w^* > \overline{w}$, in which case the incumbent is reelected if and only if they change the status quo. In this case, the incumbent changes the status quo if and only if

$$q_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2 - r.$$

For this to exist, it must be that

$$\kappa - (x_I - x_{sq})^2 - r > \overline{w}.$$

Hence, for some parameters, there is an equilibrium with electorally beneficial policy change.

Finally, suppose $\eta < 0$, in which case the incumbent is reelected if they retain the status quo. Furthermore, suppose $w^* > \overline{w}$, in which case they are reelected if they change the status quo. In this case, the incumbent changes the status quo if and only if

$$q_I \geq q_{sq} + \kappa - (x_I - x_{sq})^2.$$

For this to exist, it must be that

$$\kappa - (x_I - x_{sq})^2 > \overline{w}.$$

Hence, for some parameters, there is an equilibrium with certain reelection.