Virtue Signaling: A Theory of Message Legislation*

Daniel Gibbs† Charles M. Cameron‡

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Abstract

We present a theory of message legislation, legislative enactments not intended to alter policy but instead constructed to send a message to constituents. Using a formal model, we identify conditions under which legislators knowingly introduce non-viable legislation in order to signal their congruence with voters' policy preferences. We find message legislation to be most prevalent when legislation is highly visible, voters strongly disfavor the status quo, incumbent legislators face a strong primary challenger, the probability that viable legislation can be passed in the future is high, and the opportunity cost of producing non-viable legislation is low. We further show that message legislation, while seemingly wasteful, provides voters with valuable information to select candidates who better represent their interests. However, this selection benefit comes at the cost of the quality of future legislation if messaging diverts legislative attention away from preparing a substantive replacement of the status quo in the future.

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†Ph.D. Candidate, Department of Politics, Princeton University. Corresponding author. Email: dagibbs@princeton.edu

‡Professor of Politics and Public Affairs, Princeton University. Email: ccameron@princeton.edu

"Insanity: Doing the same thing over and over again and expecting different results." -Albert Einstein (attributed)

1 Introduction

In January of 2016, President Obama vetoed a bill passed by a Republican-controlled Congress to repeal his signature legislative accomplishment, the Patient Protection and Affordable Care Act (ACA), or "Obamacare." This veto, and subsequent failure of the House to override the veto by nearly three dozen votes, came to the surprise of no honest observer of American politics. As House Speaker Paul Ryan remarked, it was "no surprise that someone named Obama vetoed a bill repealing Obamacare." Far from an isolated incident, the failure of the House to override the veto marked the *sixty-third* time that legislation passed by the Republican House to repeal the ACA had been defeated.

Similar episodes of doomed legislative efforts have occurred under a Republican president with a Democrat-controlled House of Representatives. In April 2019, President Trump vetoed a War Powers Resolution curtailing the administration's authority to aid Saudi Arabia in its war in Yemen. A month later, the House voted to repeal the 2001 Authorization for the Use of Military Force, again in effort to limit Trump's war powers. Once more in January 2020, the House passed a pair of measures along party lines intended to constrain the president's authority to conduct war. One measure proposed to block funding for any use of force against Iran without Congressional approval. The second would repeal a 2002 resolution authorizing military force in Iraq. Without the necessary votes to override a veto, much like Republican efforts to repeal the ACA, these repeated efforts to repeal previous authorizations and impose new restrictions on President Trump were guaranteed to never become law.

These legislative episodes are examples of what political scientist Frances Lee has called "message votes." According to Lee (2016, 143-44), message votes occur when

> A party brings to the floor an attractive-sounding idea with the following

> characteristics: (1) its members support it; (2) the other party opposes it; and (3) it is not expected to become law. Former Senator Olympia Snow offers a more detailed explanation: "much of what occurs in Congress today is what is often called "political messaging." Rather than putting forward a plausible, realistic solution to a problem, members on both sides offer legislation that is designed to make the opposing side look bad on an issue and it is not intended to ever actually pass.

Senator Snow's elaboration emphasizes the role of message bills in making the other side look bad, a version of blame-game politics (Groseclose and McCarty 2001). But message bills also have a complementary effect: making one's own side look good to key constituencies such as citizen activists, interest groups, and major contributors. From this perspective, a consequence of the multitudinous failed attempts to repeal Obamacare was to demonstrate to Tea Party Republicans a genuine fealty by the GOP and its members to the activists' agenda. Only if the party were demonstrably and credibly committed to the activist agenda could it count on their support in the future. One might call this a *virtue signaling* effect of message legislation: it sends the message, "I am one of you."

In this paper we present a formal model of message legislation emphasizing virtue signaling. In the model, a representative legislator can choose to attempt to repeal and replace a status quo disfavored by his or her constituency. The legislator and the voters he or she represents understand that any such attempt will fail. The intensity of the legislator's commitment to do the work necessary to change the status quo if given the opportunity in the future is private information. Voters do not know whether their representative will prove a faithful agent should policy windows open in the future or whether their representative is actually a lazy shirker who will prove a bitter disappointment on the critical day. We show that under certain conditions, zealous legislators manipulate legislative policymaking procedures to send a credible message to their principal that they are faithful agents. In our model, message legislation is not just "sound and fury, signifying nothing." It affects ac-

tivist voters' electoral calculations, the subsequent composition of the legislature, and policy representation. The information communicated to voters is quite valuable because it helps them retain faithful agents for the future when the configuration in Washington may allow productive policymaking. On that happy day, faithful agents will be valuable assets for their policy-oriented principals.

Repeated non-viable legislation is a puzzling phenomenon within standard complete-information models of policymaking. Because it results in no policy change directly, it appears prima facie to be fruitless, ridiculous, or even—from the perspective of the definition at the head of the paper—insane. Why do lawmakers go through the trouble of passing a bill that they know will surely be defeated? Incomplete-information models of veto bargaining in political science can rationalize vetoes if either lawmakers (Cameron 2000) or voters (Groseclose and McCarty 2001) are uncertain about a veto player's preferences. But neither Obama's position on Obamacare nor Trump's position on his own authority were a mystery. Our theory shows that these inefficient bargaining outcomes can arise because of third-party uncertainty about the intensity of the *proposer's* preferences.

Conceptually, our theory is embedded in a tradition of Congressional scholarship descended from Mayhew and Arnold's seminal analyses of legislative position-taking. This "accountability approach" gives primacy to the electoral connection and analyzes politicians in the shadow of elections (Fenno 1978; Miller and Stokes 1963; Snyder and Ting 2003; Cain et al. 1987; Ansolabehere and Jones 2010; Bafumi and Herron 2010; Buttice and Stone 2012; Gerber et al. 2011; Harbidge and Malhotra 2011; Mayhew 1974; Arnold 1990). This is distinct from a tradition that can be called the "structure and process approach" which emphasizes how Congressional structures and procedures create incentives for members with ideal points who play a Congressional game among each other (Aldrich and Rohde 2001; Baron and Ferejohn 1989; Brady and Volden 2006; Cooper and Brady 1981; Cox and McCubbins 2005; Ferejohn 1974; Gilligan and Krehbiel 1987; Huber and Shipan 2002; Krehbiel 1998; McCubbins et al. 1987, 1989; Poole and Rosenthal 1997; Shepsle and Weingast 1987;

Weingast et al. 1981). Voters and elections, in this approach, are in the background.[1] Elections simply re-shuffle the players who play the Congressional game when they arrive in Congress. The accountability approach places voters and elections at the forefront of the analysis. Members take few actions without first considering how these affect their allies', their opponents', but above all their own reputation among voters.

The accountability literature in political science has shown that regular elections are a rather effective mechanism for disciplining politicians and holding them accountable for their actions. It is with little exaggeration to say that elections are the best way ever invented to control the behavior of politicians. But nevertheless there are pathologies. Three significant pathologies of democracy have been brought to light by the accountability literature. The first of these is *pandering*. Politicians' interest in reelection creates perverse incentives for them to knowingly do the wrong thing because it is popular with voters (Canes-Wrone et al. 2001; Maskin and Tirole 2004; Ashworth and Shotts 2010; Fox and Stephenson 2011). A second pathology is *biased representation*. Electoral incentives bias representation towards the organized and observant (Mayhew 1974; Arnold 1990; Gilens 2012; Achen and Bartels 2016). The third pathology is *blame-game politics*. In the interest of harming an opposing party's prospects for reelection, politicians engage in insincere policymaking simply to bait their opponent into taking an unpopular position (Groseclose and McCarty 2001; Lee 2016).

We posit virtue signaling as a fourth pathology. Our model is the first to study this ubiquitous form of position-taking. Our formal approach allows us to clearly identify the mechanisms that make message legislation a viable and potentially unavoidable signaling strategy, even when voters understand that politicians are merely position-taking. Because voter welfare is explicitly defined in our model, we can rigorously evaluate the normative implications of virtue signaling. Like its flip side, the blame game, virtue signaling is not purely pathological. It provides the electorate with otherwise unavailable information about the preferences or characteristics of politicians. Both virtue signaling and the blame game,

[1] This literature encompasses theories of pivotal politics, the informational role of committees, leader power, delegation to the bureaucracy, bicameralism, and ideal point estimation.

however, direct scarce policymaking time and resources toward futile legislation never seriously intended to become law for the purpose of position-taking. While the information gained may be more valuable to voters on net, non-viable message legislation diverts lawmakers' time, resources, and attention away from serious policymaking and compromise. Our theory also admits a multitude of positive predictions about when legislators message and how much visible effort they devote to message legislation when they do. We discuss several potential empirical hypotheses that our results imply.

2 Model

2.1 Players and Sequence

A legislator represents a voter in a legislature. At the start of the game there is a status quo policy, $\lambda > 0$. The voter dislikes this status quo and would like to replace it with her ideal policy, 0.[2] There are two types of legislators, *slackers* and *zealots*. Formally, the legislator's type is represented by $\gamma \in \Gamma = \{s, z\}$. Slackers only value the material or ego benefits of holding office, $b > 0$. Zealots additionally value policy. They share the voter's policy preferences and want to replace the status quo with policy 0 if given the opportunity. Let $x \in \{0, \lambda\}$ denote the policy in place at the end of the game. The voter and zealots suffer policy loss of $-x^2$ from policy x.

The game is played with the following sequence of moves. First, Nature selects the legislator's type. The legislator's type is his private information. The voter only knows that the incumbent is a zealot with probability π^I. The game then enters a legislative phase. We assume that a veto player blocks any effort by the legislator to change the status quo. Both the voter and incumbent know that any attempt to change the status quo in the first period is futile. The legislator can, however, exert doomed effort to "repeal and replace" the status

[2]Consistent with convention in the principal-agent literature, we refer to the voter (principal) as "she" and a legislator (agent) as "he."

quo with the voter's preferred policy. The legislator decides how many times to attempt to repeal and replace the status quo, $n \in \mathbb{N}$. Legislation requires scarce time and resources to be expended. It costs a legislator nk to legislate n times where $k > 0$.

After the legislative phase, with probability ζ the voter observes the incumbent legislator's efforts to repeal and replace the status quo, n. This ζ term can be interpreted as the salience of an issue to the voter. A voter is quite likely to know whether or not her representative attempts to change a status quo that directly affects her livelihood such as one regulating the industry in which she works. She is less likely to pay attention to the legislator's activities directed towards social policies that are important to her moral sensibilities but that do not affect her personally. Alternatively, ζ can represent some feature of the media landscape or information technology. The presence of cable news, the internet, and social media intuitively make a legislator's actions more visible to the voter.

After either observing her representative's actions in the first period or not, the voter chooses between the incumbent and a challenger in an election. Because legislators vary in terms of the intensity of their preferences rather than spatial location, we conceive of the challenger as a primary rather than general election challenger. The challenger is a zealot with probability π^C which is common knowledge. The winner of the election is appointed to the legislature and earns the office benefit, b. The loser receives a material payoff of 0. A zealot who loses the election continues to care about policy when out of office. This distinguishes a zealous legislator from a policy-minded implementor who may avoid some or all of the distress and shame of carrying out a detested policy by quiting the job, a "clean hands" phenomenon (Cameron and de Figueiredo 2020).

Following the election, there is a second period of legislative activity. With probability ρ, the policy window opens and the status quo can be replaced. With probability $1 - \rho$, the policy window remains shut and any attempt to change the status quo is defeated. Introducing successful viable legislation into an open policy window costs the legislator $c > 0$. Payoffs are realized and the game ends after the second legislative period.

2.2 Assumptions

To economize on notation, we do not explicitly model the legislator's strategy in the second legislative phase or the voter's electoral strategy. Rather, we assume that in the second period, a zealot replaces the status quo if the policy window opens while a slacker does not. Because the voter wants the status quo to be replaced, we also assume that she reelects the incumbent if and only if she believes he is at least as likely as the challenger to be a zealot. In the Appendix, we show that if voters and legislators are strategic after the first legislative period, these actions represent unique equilibrium strategies under Assumption 1.

Assumption 1 $c < \lambda^2(1 - \pi^C)$

In our model zealots are policy motivated. Assumption 1 ensures that they are sufficiently policy motivated to work to change the status quo in the event that the policy window opens. If the condition in Assumption 1 is not satisfied, zealots prefer to pass off responsibility for changing policy to a replacement legislator. While an interesting possibility to consider, we do not believe that this type of freeriding is plausible in most cases. If our assumption is incorrect, then zealots are willing to voluntarily lose reelection in the hope that their replacement will do the policy work for them. Under our assumption, zealots are sufficiently policy motivated such that they always prefer to ensure that a zealot (themselves) is in office in the event that the policy window opens rather than shirk and hope that their replacement is a zealot.

We also model the legislative process in reduced form in two ways. First we assume that the legislator's choice of bill is always the voter's ideal bill: a complete repeal and replace. Substantively, our binary policy setup has the advantage of encompassing both ideological and distributive policies. The policy loss that the zealot and voter suffer from the status quo, λ^2, can represent disutility they suffer from not having a military base in their district. The status quo can also represent a disfavored spatial policy over which the voter and zealot suffer quadratic policy loss. In this spatial setting, our basic setup ignores intermediate policy

proposals between λ and 0 and assumes that the legislator always offers his and the voter's ideal policy. In principle, neither message bills nor viable legislation need to be spatially located at the voter's ideal point. The legislator could choose different spatial locations to message with or select an intermediate bill in the final stage if the policy window opens. Second, we black box the legislative bargaining process between the legislator and the veto player. We simply assume that all of his efforts are doomed. In the Appendix, we explicitly model legislative bargaining with a strategic veto player and allow the legislator to choose the spatial location of each proposal from a compact policy space. We obtain all of our main results from the reduced form model presented here in the more general model.

2.3 Legislator Payoffs

Given our assumptions about legislator actions in the second legislative period, it is straightforward to express payoffs for the incumbent zealot and slacker respectively:

$$u_L^z(n) = \begin{cases} b - nk - \rho c - (1-\rho)\lambda^2 & \text{if reelected} \\ -nk - (1-\rho\pi^C)\lambda^2 & \text{otherwise} \end{cases} \tag{1}$$

$$u_L^s(n) = \begin{cases} b - nk & \text{if reelected} \\ -nk & \text{otherwise} \end{cases} \tag{2}$$

The slacker and zealot each receive office benefit b if and only if they are reelected. Both pay nk from legislating n times in the first period. If the zealot wins reelection, with probability ρ the policy window opens and he pays c to replace the status quo. With probability $1-\rho$, the policy window remains shuttered and he suffers policy loss, λ^2. If he loses the election, he suffers policy loss unless both the policy window opens and his replacement is a zealot.

2.4 Legislator Strategy and Voter Beliefs

Our equilibrium concept is a weak sequential equilibrium that satisfies the intuitive criterion.[3] We restrict attention to pure strategy equilibria. A pure strategy for the legislator is a mapping from his type into the number of times he chooses to make a non-viable attempt to change the status quo

$$n : \Gamma \to \mathbb{N}$$

The voter's decision depends on her beliefs given the legislator's actions in the first period. Let $\psi \in \Psi$ denote an information set for the voter and let Ψ denote the set of all information sets. With probability ζ, the voter observes n, the number of times the incumbent attempts to replace the status quo. Conditional on observing n, there are $|\mathbb{N}|$ possible information sets. Denote each simply as $\psi = n$ for all $n \in \mathbb{N}$. With probability $1 - \zeta$, the voter does not observe n. Let $\psi = \emptyset$ denote this information set. The voter's beliefs can now be expressed as a mapping

$$\mu : \Psi \to [0, 1]$$

where she believes the incumbent is a zealot with probability $\mu(\psi)$ at information set ψ. With this notation, the incumbent wins the election when the voter observes ψ if and only if $\mu(\psi) \geq \pi^C$.

3 Equilibrium

We are interested in identifying the conditions under which message legislation occurs in equilibrium. Because voters necessarily retain their prior belief about the incumbent's type in a pooling equilibrium, legislation can only serve a messaging function in a separating equilibrium. We begin our analysis of the model by characterizing the model's unique sepa-

[3] Weak sequential equilibrium combines sequential rationality with the requirement that beliefs satisfy Bayes' rule wherever possible. The more familiar concept of perfect Bayesian equilibrium is defined for extensive form games with incomplete information and observed actions. In our model, with probability $1 - \zeta$ the voter does not observe the legislator's actions.

rating equilibrium which we refer to as a *messaging equilibrium*. We then discuss the model's pooling equilibria and identify the conditions under which a messaging equilibrium is the unique equilibrium.

3.1 Messaging Equilibrium

In a messaging equilibrium, the zealot legislates a positive number of times: $n^*(z) > 0$. The slacker does not legislate: $n^*(s) = 0$. In equilibrium, the voter learns the incumbent's type if she observes the legislative phase. If she observes $n = n^*(z)$, she learns that the incumbent is a zealot, $\mu(n^*(z)) = 1$, and reelects him. If she observes $n = 0$, she believes the incumbent is a slacker, $\mu(0) = 0$, and elects the challenger. If the voter does not observe the legislative phase, she retains her prior belief about the incumbent's type, $\mu(\emptyset) = \pi^I$, and reelects the incumbent if and only if $\pi^I \geq \pi^C$. It will be useful in defining and analyzing equilibria to distinguish between two cases. We refer to voters as *trusting* if $\pi^I \geq \pi^C$ and *skeptical* if $\pi^I < \pi^C$.

In the first period, legislation has no effect on policy. Its only purpose for the zealot is to signal to the voter. The zealot therefore legislates the minimum number of times necessary to distinguish himself from the slacker in a messaging equilibrium. We derive this unique minimum and then state the definition of a messaging equilibrium formally. We then characterize necessary and sufficient conditions for the messaging equilibrium to exist and show that the messaging equilibrium is the unique separating equilibrium.

3.1.1 Definition

For a messaging equilibrium to exist, the slacker must be unwilling to imitate the zealot to get reelected. This requires that his equilibrium payoff from doing nothing exceeds his payoff from legislating as much as the zealot. With skeptical voters, the slacker always loses the election in a separating equilibrium. Either the voter observes that the incumbent has not legislated and learns that the legislator is a slacker or she does not observe the

legislative phase and falls back on her prior belief that the challenger is better. This yields an equilibrium payoff zero. If instead the slacker legislates $n > 0$ times and is reelected if the voter observes n, he earns a payoff of $\zeta b - nk$. With a trusting voter, the slacker loses the election if the voter observes his lack of effort but wins the election if the voter does not observe the legislative phase. His equilibrium payoff in this case is $(1 - \zeta)b$. If instead he devotes $n > 0$ to legislation and is reelected if the voter observes n, he is guaranteed to be reelected and earns a payoff of $b - nk$. Therefore with both trusting and skeptical voters, messaging equilibrium requires that the zealot legislates at least

$$n \geq \frac{\zeta b}{k}$$

times in order to prevent imitation by the slacker. In a messaging equilibrium then, the zealot legislates the minimum number of times necessary to separate from the slacker,

$$n^*(z) = \lceil \frac{\zeta b}{k} \rceil$$

where $\lceil \cdot \rceil$ is the ceiling function which returns the smallest integer greater than or equal to its argument.

Definition 1 (Messaging Equilibrium) *In a messaging equilibrium, slackers do not legislate in the first period: $n^*(s) = 0$. Zealots legislate $n^*(z) = \lceil \frac{\zeta b}{k} \rceil$ times. On the equilibrium path, the voter's beliefs satisfy Bayes' rule:*

$$\mu(0) = 0$$

$$\mu(\lceil \frac{\zeta b}{k} \rceil) = 1$$

$$\mu(\emptyset) = \pi^I$$

Off the equilibrium path, the voter believes the incumbent is a slacker if she observes less

legislation than she expects a zealot to conduct:

$$\mu(n) = 0 \quad for \quad n \in (0, \lceil \frac{\zeta b}{k} \rceil)$$

If she observes more legislation than she expects the zealot to conduct, she believes that the incumbent is a zealot:

$$\mu(n) = 1 \quad for \quad n > \lceil \frac{\zeta b}{k} \rceil$$

We impose standard off-path beliefs for signaling games at information sets where an incumbent messages fewer than the minimum number necessary for the zealot to separate from the slacker. If the slacker legislates fewer than $n^*(z)$ times and is reelected, he is strictly better off relative to equilibrium. The voter's belief that the incumbent is a slacker after observing such a deviation therefore survives the intuitive criterion. For deviations in which an incumbent legislates more than $n^*(z)$ times, the slacker is strictly worse off even if he is reelected. We assume that the voter believes that the incumbent is a zealot if she observes an unexpectedly large amount of legislation.

3.1.2 Existence

In order for a separating equilibrium to exist, the zealot must be willing to exert $n^*(z) = \lceil \frac{\zeta b}{k} \rceil$ in order to be reelected. Because the only purpose of legislation is to send a credible message to the voter who correctly rewards the zealot's equilibrium level of legislation, the zealot can never gain by legislating more times than equilibrium proscribes. Additionally, because the voter believes the incumbent is a slacker if she observes less legislation than she expects the zealot to conduct, if the zealot chooses to legislate fewer than $n^*(z)$ times, he is best off legislating zero times.

From (1), the value of reelection for the zealot can be identified by comparing his second-

period payoff from winning the election,

$$W \equiv b - \rho c - (1 - \rho)\lambda^2$$

to his second-period payoff if defeated,

$$D = -(1 - \rho\pi^C)\lambda^2$$

With a trusting voter, the zealot is reelected regardless of how much effort he expends if the voter does not observe legislative activity. His equilibrium payoff is therefore $W - n^*(z)k$. If he chooses not to legislate, he loses the election only if the voter observes his lack of legislative effort. His payoff from no legislation is therefore $(1 - \zeta)W - \zeta D$.

If the voter is skeptical, in a messaging equilibrium the zealot is reelected only if the voter observes his legislative effort. This yields an equilibrium payoff of $\zeta W - (1 - \zeta)D - n^*k$. If instead he does not legislate, he loses the election for sure. His payoff from this action is D. For both trusting and skeptical voters then, the zealot is willing to play his equilibrium strategy and legislate $n^*(z)$ times if and only if

$$\zeta(W - D) \geq n^*(z)k$$

The term

$$W - D = b + \rho[\lambda^2(1 - \pi^C) - c]$$

expresses the net value of reelection to the zealot. This can be further decomposed into the material value of reelection, b, and the policy value of reelection,

$$\phi \equiv \rho[\lambda^2(1 - \pi^C) - c]$$

With this notation, the value of reelection to the zealot is

$$W - D = b + \phi$$

Note that under Assumption 1, the policy value of reelection is strictly positive: $\phi > 0$. Moreover, the policy value of reelection is increasing in ρ and λ and decreasing in π^C and c. As the probability that the policy window opens, the probability that a reelected zealot can repeal the status quo and obtain his preferred policy rises. Thus the policy value of reaching the second period rises with ρ. Similarly, for higher λ where the status quo is more disfavorable, the value of reaching the second period in order to repeal the status quo if the policy window opens is greater. Conversely, as it becomes more costly to produce and implement viable legislation to repeal the status quo when the policy window opens, the policy value of reelection declines. Finally, if π^C is low, then the incumbent expects that his replacement will fail to repeal the status quo if the policy window opens. In this case, the zealot cannot count on his replacement to affect policy change and has a strong incentive to make it to the second period in order to ensure that his preferred policy can be implemented if the policy window opens.

The zealot's incentive compatibility condition can now be written

$$\zeta(b + \phi) \geq n^*(z)k$$

The expected benefit of messaging is expressed on the left-hand side of the inequality. The value of reelection is scaled by the probability that messaging is observed, ζ. If the voter is skeptical, then ζ represents the probability that the zealot is reelected in equilibrium. If the voter is trusting, then ζ expresses the probability that the zealot loses the election if she deviates from equilibrium and does not legislate in an attempt to exploit the voter's benefit of the doubt. In both cases then, ζ captures the additional probability of reelection that the zealot earns from messaging relative to not messaging.

Substituting $\lceil \frac{\zeta b}{k} \rceil$ in for $n^*(z)$ and rearranging yields the condition

$$\frac{\zeta \phi}{k} \geq \lceil \frac{\zeta b}{k} \rceil - \frac{\zeta b}{k} \tag{3}$$

The term on the left-hand side expresses the expected policy benefit that the zealot earns from messaging, normalized by the cost of messaging. The first term on the right-hand side is the normalized cost of messaging. The second term, $\frac{\zeta b}{k}$, is the normalized expected office benefit that the zealot earns from virtue signaling. This is also the expected payoff that the slacker earns if he imitates the zealot and legislates $n^*(z)$ times. Note that $\lceil \frac{\zeta b}{k} \rceil - \frac{\zeta b}{k} \in [0, 1)$. This difference is weakly positive because the cost of message legislation must weakly exceed the office benefit to deter the slacker from messaging. It is bounded by one because the zealot messages only one more round than the slacker is willing to in order to separate. If (3) is satisfied, the zealot is willing to legislate at least one more time than the slacker. It follows that if this condition is satisfied, a messaging equilibrium exists.

Proposition 1 *A messaging equilibrium exists if and only if* (3) *is satisfied.*

All proofs are in the Appendix. The zealot's policy payoff from reelection, ϕ, creates a wedge between himself and the slacker that allows him to separate. Under Assumption 1, the policy benefits of retention are always positive: $\phi > 0$. If this benefit is sufficiently large to exceed the cost of messaging, (3) is satisfied. In particular, if $\frac{\zeta \phi}{k} \geq 1$, the zealot is guaranteed to be willing to legislate for at least one more round than the slacker which implies that a separating equilibrium exists.

Corollary 1 *A messaging equilibrium exists if* $\frac{\zeta \phi}{k} \geq 1$.

For $\frac{\zeta \phi}{k} < 1$, the zealot may be willing to legislate for one more round than the slacker but this is not guaranteed. If a messaging equilibrium does not exist, then a pooling equilibrium exists in which neither type of incumbent legislates. We discuss pooling equilibria below. Before doing so, we complete our characterization of the messaging equilibrium by showing

that it is the unique separating equilibrium. This result, along with our characterization of the model's pooling equilibia, will allow us to identify conditions under which the messaging equilibrium is the unique equilibrium.

3.1.3 Unique Separating Equilibrium

Lemma 1 *A messaging equilibrium is the unique separating equilibrium.*

It is straightforward to rule out any separating equilibrium in which the slacker legislates a positive number of times. Because he loses the election if the voter observes his legislative effort, no matter how punishing the voter's beliefs are if he does not legislate, he is strictly better off saving the effort and not legislating. It is also easy to rule out separating equilibria in which $n^*(z) < \lceil \frac{\zeta b}{k} \rceil$. By construction, if the zealot legislates fewer than $\lceil \frac{\zeta b}{k} \rceil$ times, the slacker is strictly better off in expectation imitating the zealot rather than legislating zero times.

All that remains is to show that there is no equilibrium in which $n^*(z) > \lceil \frac{\zeta b}{k} \rceil$. By construction, if the slacker legislates $\lceil \frac{\zeta b}{k} \rceil$ times, he can earn no higher payoff than that which he receives in equilibrium from not legislating. This is true even under the most favorable beliefs the voter can form after observing $n = \lceil \frac{\zeta b}{k} \rceil$. If the zealot legislates $n = \lceil \frac{\zeta b}{k} \rceil$ times instead of the $n^*(z) > \lceil \frac{\zeta b}{k} \rceil$ required by equilibrium, the existence of the equilibrium implies that he is strictly better off if the voter reelects him after observing the unexpected n. Because the zealot and only the zealot can be made strictly better off from legislating $n = \lceil \frac{\zeta b}{k} \rceil$ times, under the intuitive criterion the voter must believe that the incumbent is a zealot if she observes this unexpected n. Because separating equilibrium requires that $\mu(\lceil \frac{\zeta b}{k} \rceil) = 1$ off the equilibrium path, the zealot is always better off legislating only $n = \lceil \frac{\zeta b}{k} \rceil$ times rather than $n^*(z) > \lceil \frac{\zeta b}{k} \rceil$. Therefore no such separating equilibrium exists.

3.2 No-Legislation Equilibrium

We define a *no-legislation (NL) equilibrium* as a pooling equilibrium in which both the slacker and zealot legislate zero times. While other pooling equilibria may exist under certain conditions discussed below, a NL equilibrium maximizes each type's equilibrium payoff. Additionally, the existence of a NL equilibrium is a necessary condition for the existence of any pooling equilibrium.

Definition 2 (No-Legislation Equilibrium) *In a no-legislation equilibrium, the slacker and zealot do not legislate:* $n^*(z) = n^*(s) = 0$. *On the equilibrium path, voter beliefs satisfy Bayes' rule:*

$$\mu(0) = \mu(\emptyset) = \pi^I$$

Off path, the voter believes the incumbent is strictly less likely to be a zealot than the challenger:

$$\mu(n) < \pi^C \quad for \quad n \neq 0$$

In any pooling equilibrium, the voter does not learn anything new about the incumbent legislator after observing legislative action. It follows that for trusting voters, incumbent legislators are reelected in a pooling equilibrium. With skeptical voters, challengers are elected.

It is straightforward to check that with trusting voters, a NL equilibrium always exists. Slackers only care about being retained in order to earn the office benefit in the first period. While zealots care about about policy in addition to office benefit, the policy gains from retention arise solely through legislative action in the second period. First-period legislation only harms the zealot. Because both types are retained in equilibrium, neither type has any incentive to legislate.

In order to prevent either type of incumbent from legislating a positive number of times when the voter is skeptical, the voter must believe the incumbent is less likely to be a zealot than the challenger after observing any n that either type would be willing to select if

doing so were to result in reelection. In the derivation of the messaging equilibrium above, it was shown that the slacker is weakly better off exerting no legislative effort and losing the election rather than legislating $\lceil \frac{\zeta b}{k} \rceil$ times and winning the election with probability ζ. We also showed that if (3) is satisfied with strict inequality, the zealot is strictly better off legislating $\lceil \frac{\zeta b}{k} \rceil$ times and winning the election with probability ζ than not legislating and losing the election for sure. Under the intuitive criterion, if (3) is satisfied with strict equality and the voter observes $n = \lceil \frac{\zeta b}{k} \rceil$, she must believe that the incumbent is a zealot: only the zealot can benefit from this deviant amount of legislation. Thus if (3) is satisfied with strict equality, voter beliefs required to prevent the zealot from legislating do not survive the intuitive criterion. Therefore if the voter is skeptical, a NL equilibrium exists if and only if

$$\frac{\zeta \phi}{k} \leq \lceil \frac{\zeta b}{k} \rceil - \frac{\zeta b}{k} \tag{4}$$

where (4) is simply (3) with the inequality reversed.

Proposition 2 (No-Legislation Equilibrium) *A no-legislation equilibrium exists if and only if either (i) the voter is trusting or (ii) the voter is skeptical and (4) is satisfied.*

If the voter is trusting, other pooling equilibria may exist in which legislators legislate a positive number of times. Such an equilibrium is held together by punishing off-path beliefs when incumbents legislate fewer than the number of times proscribed by equilibrium. Because incumbents are reelected in equilibrium, they are willing to legislate a positive number of times and avoid punishment. With a skeptical voter, the challenger is elected in a pooling equilibrium. No matter how punishing the voter's beliefs are off the equilibrium path, both legislators are strictly better off not legislating at all than legislating a positive number of times. It follows that there can exist multiple pooling equilibria only if the voter is trusting. If the voter is skeptical, pooling equilibrium requires that incumbents do not legislate.

Lemma 2 *If the voter is skeptical, a no-legislation equilibrium is the unique pooling equilib-*

rium.

3.3 Uniqueness of Messaging Equilibrium

Propositions 1 and 2 imply that if voters are skeptical, then a NL and messaging equilibrium coexist only on a knife edge where $\frac{\zeta\phi}{k} = \lceil \frac{\zeta b}{k} \rceil - \frac{\zeta b}{k}$. If this equality is not satisfied, Lemmas 1 and 2 imply that there is a unique equilibrium. If only (4) is satisfied, the unique equilibrium is NL. If only (3) is satisfied, the unique equilibrium is messaging.

Lemma 3 *If the voter is skeptical and* (4) *fails, the unique equilibrium is messaging. If the voter is skeptical and* (3) *fails, the unique equilibrium is no-legislation.*

Lemma 3 and Corollary 1 then imply a sufficient condition for the messaging to be unique.

Proposition 3 *If* $\frac{\zeta\phi}{k} \geq 1$ *and the voter is skeptical, the unique equilibrium is messaging.*

Proposition 3 expresses a key result that we use to examine the substantive positive implications of the model.

4 Analysis

In this section we use the equilibria characterized in the previous section to examine the positive and normative implications of our results. We first consider the conditions under which we expect legislators to be most likely to message. We then identify how the model's parameters influence how much non-viable legislation legislators engage in to credibly message. We conclude our analysis by examining the implications of messaging for voter welfare.

4.1 Prevalence of Messaging

Our results allow us to examine the conditions under which we expect to observe messaging legislation. The model is deterministic in the sense that for a given set of parameters, a

messaging equilibrium either exists or not and if it exists, is either unique or not. To ease our exposition of the model's positive predictions (and make them more amenable to future empirical analysis), we introduce stochasticity on one of the model's parameters from our perspective as outside observers. Formally, we assume that, from the perspective of an outside observer, the voter's belief about the challenger, π^C, is a random variable with a cumulative distribution F.[4] The sufficient conditions for a unique messaging equilibrium expressed in Proposition 3 can be rewritten in terms of π^C as

$$\pi^C \leq 1 - (\frac{k}{\zeta\rho} + c)\frac{1}{\lambda^2} \tag{5}$$

$$\pi^C > \pi^I \tag{6}$$

If (5) is satisfied, then a messaging equilibrium is guaranteed to exist. The probability that a messaging equilibrium exists with certainty is therefore

$$F(1 - (\frac{k}{\zeta\rho} + c)\frac{1}{\lambda^2})$$

Condition (6) states simply that the voter is skeptical. If (5) is satisfied, then the messaging equilibrium is unique if (6) is also satisfied. Thus a messaging equilibrium is guaranteed to exist and be unique with probability

$$F(1 - (\frac{k}{\zeta\rho} + c)\frac{1}{\lambda^2}) - F(\pi^I)$$

It is now straightforward to identify how changes in the model's parameters affect this probability.

[4]We select π^C because of its presence in both the existence and uniqueness condition for a messaging equilibrium. In anticipation of future empirical assessment of the model's predictions (cf. Crosson, Gibbs, Cameron n.d.), treating π^C as a random variable to generate hypotheses has an additional advantage. Of all the model's parameters, voter beliefs about a potential challenger seem most difficult to feasibly measure.

Proposition 4 *From the perspective of an outside observer, if $\pi^C \sim F$, then the probability that a messaging equilibrium must exist and be unique is increasing in*

- *the probability that the voter observes messaging, ζ*
- *the probability that the policy window opens, ρ*
- *the extremity of the status quo, λ*

and decreasing in

- *the voter's prior belief that the incumbent is a zealot, π^I*
- *the cost of non-viable legislation, k*
- *the cost of viable legislation, c*

As legislative activity becomes more visible to the voter, messaging becomes more likely to result in the the zealot's reelection when the voter is skeptical. Greater visibility allows a zealot to more easily signal their way out of an electoral defeat he would suffer otherwise. If voters are trusting, greater visibility raises the cost of not messaging and achieving reelection through voter good faith and ignorance of the legislative record. Substantively, this implies that messaging may become more prevalent with the adoption of new technologies that make messaging more visible. The introduction of C-SPAN, talk radio, cable news, and social media may account for an increase in messaging legislation over time.

As the likelihood that the policy window opens rises, so does the policy benefit of holding office in the second period. In the event that messaging is observed, the zealot reaps policy benefits from this costly behavior only if the policy window opens. Accordingly, a higher probability that the policy window opens makes messaging more attractive to the zealot. Substantively, the model predicts that messaging by members of a minority party should be observed when the party anticipates that the veto player will be replaced by a co-partisan in

an upcoming election. Leaders of a Republican Congress, for example, should pass message bills it knows a Democratic president will veto when they believe a Republican has a decent chance of becoming the next president.

Message legislation also becomes more prevalent when the status quo is further from the voter and legislator's ideal point. A higher λ means greater policy loss in the second period for the zealot if the status quo is not repealed and replaced. The zealot therefore becomes more willing to engage in costly message legislation in order to be retained so that he can pass a preferred policy in the second period. Our motivating examples of ACA repeal and Iraq war defunding comport with this result as particularly disfavored policies for Republican and Democratic bases respectively.

The model also predicts that as voters form more pessimistic ex ante beliefs about their legislator, the legislator becomes more likely to message. If voters already believe their representative is a zealot, the incumbent has little need to convince the voters of something they already believe. Voters who doubt their representative's commitment to alter the status quo if the policymaking environment becomes more favorable, on the other hand, demand evidence that their representative is a true believer. Substantively, messaging should occur more often when legislators have a low approval rating and appear vulnerable to a primary challenger. This broadly describes the circumstance facing the veteran Republican lawmakers who repeatedly passed doomed legislation to repeal the ACA in the shadow of the Tea Party movement.

A rise in the cost of messaging has a negative effect on the prevalence of message legislation. This effect is straightforward. The zealot must expend costly effort to signal his type to the voter in the first period. The more it costs to signal, the less attractive signaling is to the zealot. Substantively, variation in k can be generated by the opportunity cost of spending valuable time passing hopeless legislation. If messaging takes time away from fund-raising or other campaign related activities, messaging plausibly occurs more frequently earlier in election cycles when these needs are less pressing. Alternatively, messaging may come at

the cost of viable legislation in other policy areas. If there is a wide scope for compromise on other issues, the opportunity cost of messaging is higher and messaging should be less prevalent. If Congress is generally gridlocked, messaging takes little focus away from potentially productive legislative effort. In this interpretation, it is plausible that messaging is more likely to arise when parties are more polarized and hyperpartisan.

Finally, as the cost of actually replacing the status quo rises, messaging becomes less prevalent. As this cost rises, the policy value to the zealot of reaching the second period declines. Substantively, we expect legislators to message in less complex policy areas where changing the status quo once the policy window opens is less demanding.[5]

4.2 Extent of Messaging

Our model also permits analysis of the extent of messaging when it arises in equilibrium. When legislators message, how much non-viable legislation does it take to get the message across?

Proposition 5 (Extent of Messaging) *In a messaging equilibrium, the number of times that the zealot legislates is increasing in office benefit, b, and the probability that the voter observes legislative activity, ζ, and decreasing in the cost of conducting non-viable legislation, k.*

In a messaging equilibrium, the amount messaging legislation, $n^*(z) = \lceil \frac{\zeta b}{k} \rceil$, is determined by the slacker's willingness to imitate the zealot. As the cost of legislating rises, slackers become less willing to legislate in order to be reelected and earn the office benefit in the second period. Accordingly, the equilibrium number of times the zealot messages declines as k rises. Conversely, as office benefit, b, rises, the slacker becomes willing to legislate for more rounds in order to secure this benefit in the second period. Finally, imitation of the zealot is only electorally consequential if the voter observes the slacker's message legislation.

[5]This admittedly works against our example of the ACA. Other factors discussed above, in particular high λ and low k and π^I, rather than policy complexity rationalize repeated ACA repeal.

It follows that the slacker becomes willing to legislate for more rounds as the visibility of legislation, ζ, rises.

4.3 Voter Welfare

We conclude our analysis of the baseline model by considering the voter's welfare in each type of equilibrium. In a no-legislation equilibrium with a trusting voter, the incumbent is always reelected. The voter's preferred policy is enacted if and only if both the policy window opens and the incumbent is a zealot. Otherwise the status quo prevails in the second period. With a skeptical voter, the challenger is always elected. Unless the policy window opens and the challenger is a zealot, the status quo remains in place.

In a messaging equilibrium, the voter always learns the incumbent's type prior to the election. If the incumbent is a zealot, the voter reelects the incumbent and achieves her ideal policy in the second period if and only if the policy window opens. If the incumbent is a slacker, the voter elects the challenger. She attains her ideal policy if and only if the policy window opens and the challenger is a zealot.

Note that for both types of equilibrium, the voter avoids policy loss in the second period if and only if the second-period legislator is a zealot and the policy window opens. In both types of equilibrium the latter occurs with the same probability, independently of the legislator's type. In the no-legislation equilibrium, the probability that the legislator is a zealot in the second period is either π^I or π^C depending on whether the voter is trusting or skeptical. The voter gets a "single draw" from the pool of possible legislators to represent her. In a messaging equilibrium, the voter gets an additional draw if the incumbent is not a zealot. This yields a probability $\pi^I + (1 - \pi^I)\pi^C$ that the legislator is a zealot in the second period which exceeds both π^C and π^I. Therefore the voter's welfare is always greater in a messaging equilibrium than a no-legislation equilibrium.

Proposition 6 (Voter Welfare) *The voter's welfare is strictly greater in a messaging equilibrium than a no-legislation equilibrium.*

Despite the ostensible wastefulness and futility of legislators passing doomed legislation repeatedly, our baseline model reveals that this practice is beneficial to the voter by providing her with valuable information about the legislator which is unavailable otherwise. Message legislation, although it has no effect on policy in the period in which it is performed, helps the voter select a better candidate to represent her in the future when legislation may effectively be enacted. From the voter's perspective, an equilibrium with message legislation is socially optimal. Insofar as there is waste or inefficiency, this is borne by the incumbent legislator alone. We consider an extension of the baseline model below in which the apparent wastefulness of message legislation may adversely affect the voter too. In our extension we allow for the possibility that message legislation diverts the attention of legislators away from developing an effective plan to actually change the status quo in the future, resulting in worse policy if the policy window opens than that which could be attained if zealots concentrated on the substance of legislation rather than messaging.

5 Extension: Messaging-Quality Tradeoff

We now consider an extension that takes into account the possibility that messaging diverts a legislator's attention away from developing an effective plan to implement policy change once the policy window opens.

5.1 Setup

In the baseline model we assume that the status quo is repealed and replaced with probability one whenever a zealot legislates into an open policy window. We now introduce randomness into the policy outcome following an attempt at repeal. In the first period, the legislator selects a level investment in a plan to successfully pass viable legislation in the future, $q \in Q = \mathbb{R}_+$. In the second legislative period, if the policy window opens, a zealot successfully replaces the status quo with probability $\beta(q)$. With probability $1 - \beta(q)$, the repeal is

unsuccessful and the status quo remains in place. We assume that $\beta(\cdot)$ is strictly increasing and concave with $\beta(0) > 0$ and that investment is specific to a legislator. That is, a zealot who is defeated in period one cannot pass the investment made in the first period on to a replacement. Newly elected challengers successfully change the status quo in the event that the policy window opens with probability $\beta(0)$.

Investment in a future plan to alter the status quo is costly. Additionally, message legislation is a substitute for investment and raises the marginal cost of investing in future success. For consistency with the baseline model and clarity we assume that the legislator's cost function is

$$c(n, q) = nk_n + qk_q + nqk_{nq}$$

with $k_n, k_q, k_{nq} > 0$ although our results generalize to any cost function that is strictly increasing and weakly convex in both inputs with a positive cross-partial derivative. As in the baseline model, $n \in N = \mathbb{N}$ is a number of times that the legislator attempts to repeal and replace the status quo. Voters observe the extent of legislation in the first period but do not observe the legislator's investment in future legislation. This planning process takes place behind closed doors and cannot be verified by the voter. As in the baseline model the status quo is λ, office benefit is b, the incumbent is a zealot with probability π^I, the challenger a zealot with probability π^C, and policy window opens with probability ρ. For simplicity we assume that the voter always observes legislative effort ($\zeta = 1$).[6] Legislator and voter ideal points remain the same as in the baseline model.

The sequence of play is as follows. First, Nature draws the incumbent legislator's type. The incumbent then selects legislative effort and quality investment, (n, q). The voter observes n and reelects the incumbent or elects the challenger. After the election, Nature draws the challenger's type and determines whether the policy window opens or not. As in the baseline model, we assume that in the second legislative period a zealot attempts to change

[6]With $\zeta < 1$, the zealot has an incentive to sneak low legislative effort past the voter in the interest of better quality in the second period. This possibility significantly complicates the model.

the status quo if the policy window opens while a slacker does not. If the policy window opens and the legislator is a zealot, the status quo is replaced with 0 with probability $\beta(q)$. Otherwise the status quo remains in place. Payoffs are then realized and the game ends.

5.2 Equilibrium

We consider equilibria analogous to the messaging and no-legislation equilibria in the baseline model. In the main text we provide intuition for equilibrium strategies and outcomes. In the Appendix we formally characterize these equilibria.

In a messaging equilibrium, the zealot chooses the least amount of legislation necessary to distinguish himself from the slacker, $n^*(z) = \lceil \frac{b}{k_n} \rceil$. Because the voter does not observe q, if the zealot messages n times he can only credibly commit to investing $q^*(n)$ in the quality of future legislation where

$$q^*(n) \equiv \arg\max_q \quad \lambda^2 \rho \beta(q) - q k_q - q n k_{nq}$$

is level of investment that maximizes the zealot's utility when he is retained and messages n times. It is straightforward to check that $q^*(n)$ is decreasing in n. The more effort the zealot is required to spend messaging, the less effort he devotes towards developing an effective plan to implement if the policy window opens. The slacker invests nothing in future legislation. As in the baseline model, a messaging equilibrium exists if and only if zealots are willing to legislate $n^*(z) = \lceil \frac{b}{k_n} \rceil$ times in order to ensure reelection.

There are two varieties of pooling equilibria without messaging, one in which incumbents are reelected and one in which challengers are elected. If incumbents are reelected in equilibrium, zealots invest $q^*(0)$ in developing quality future legislation. They direct all of their attention towards the future and maximize the probability of successfully changing the status quo if the policy window opens. This type of pooling equilibrium exists if the voter's

prior belief about the incumbent's type is sufficiently favorable.[7]

In the pooling equilibrium in which voters elect the challenger, zealots invest nothing in the quality of future legislation, as this costly investment will go to waste. Two conditions are necessary for this type of pooling equilibrium to exist. First, the voter must be skeptical. Second, under the intuitive criterion zealots must be weakly worse off legislating $\lceil \frac{b}{k_n} \rceil$ times if doing so were to ensure reelection. This is the opposite of the condition required for a messaging equilibrium. Therefore if a messaging equilibrium exists, then a pooling equilibrium in which challengers are elected does not exist.[8] Because our interest in this section is a welfare comparison between equilibria with messaging and equilibria without, we focus on voters who have sufficiently generous prior beliefs such that both a pooling equilibrium with reelection and a messaging equilibrium exist. That is, we compare the voter's welfare in the messaging equilibrium to the pooling equilibrium when both types of equilibria exist for the same set of parameters.

5.3 Voter Welfare

The voter's welfare can be expressed as the ex ante probability of changing the status quo, conditional on the policy window opening. In a no-legislation equilibrium, the status quo is changed if the policy window opens with probability

$$\pi^I \beta(q^*(0))$$

In this equilibrium, the voter gambles that the incumbent is a zealot and allows him to devote all of his efforts towards future legislation, foregoing a second draw from the pool

[7] The voter's optimal choice of candidate now depends on her beliefs about both the incumbent legislator's type *and* the amount of effort he has expended on developing legislation. In the baseline model, if the voter believes the incumbent is less likely to be a zealot than the challenger, it is always optimal to choose the challenger. Now incumbent zealots are at least as effective at changing policy than new zealots. Accordingly, the voter's payoff may be maximized by selecting the incumbent even if she believes that the challenger is more likely to be a zealot.

[8] An exception is on a knife edge where both can exist.

of candidates if the incumbent is a slacker. In a messaging equilibrium, the status quo is successfully replaced if the policy window opens with probability

$$\pi^I \beta(q^*(\lceil \frac{b}{k_n} \rceil)) + (1 - \pi^I)\pi^C \beta(q^*(0))$$

In the messaging equilibrium, the voter learns the incumbent's type. Relative to the no-legislation equilibrium, this yields an added benefit of $(1 - \pi^I)\pi^C \beta(q^*(0))$. If the incumbent is a slacker, the voter gets a second attempt at selecting a zealot by voting for the challenger. If the challenger is a zealot, he successfully changes the status quo if given the opportunity with probability $\beta(q^*(0))$. This benefit of screening comes at the cost of the viability of legislation if the incumbent is a zealot. In the messaging equilibrium, the incumbent zealot diverts attention away from his plan to successfully change the status quo in order to signal his type to the voter through failed legislation. This cost in terms of the lost probability of changing the status quo if the incumbent is a zealot is $\beta(q^*(n^*)) - \beta(q^*(0))$.

Lemma 4 *The voter's welfare is greater in a messaging equilibrium than a no-legislation equilibrium if and only if*

$$\pi^C(1 - \pi^I)\beta(0) \geq \pi^I[\beta(q^*(0)) - \beta(q^*(\lceil \frac{b}{k_n} \rceil))] \tag{7}$$

We can now use (7) to identify how the voter's welfare in a messaging equilibrium changes with respect to her welfare in a pooling equilibrium. This tells us how the value of messaging to the voter responds to changes in the model's parameters.

Proposition 7 *The value of messaging to the voter is increasing in*

- *the probability that the challenger is a zealot,* π^C
- *the cost of messaging,* k_n

and decreasing in

- *the ex ante probability that the incumbent is a zealot,* π^I
- *the legislator's office benefit,* b
- *the degree to which messaging and quality investment are substitutes,* k_{nq}

As π^C rises, the voter's relative welfare in a messaging equilibrium rises. The messaging equilibrium is valuable to the voter only because it provides insurance against a bad draw in the first period. A higher probability that the challenger is a zealot raises the value of a second draw. Conversely, as π^I rises, the messaging equilibrium becomes relatively less valuable as there is less need to sacrifice quality as a hedge against an incumbent slacker.

The level of investment that the zealot chooses in a messaging equilibrium, $q^*(\lceil \frac{b}{k_n} \rceil)$, is decreasing in b and k_{nq} and increasing in k_n. The level of investment in a no-legislation equilibrium, $q^*(0)$, is constant in these parameters. As b rises, zealots need to exert more legislative effort in order to separate from slackers as slackers become willing to exert more effort to secure office benefits in the second period. This leads the zealot to invest less in the quality of legislation, reducing the voter's welfare in the messaging equilibrium relative to the no-legislation equilibrium. A rise in k_{nq} also results in less investment in a messaging equilibrium as legislation raises the marginal cost of investing in expertise even further. Finally, as the cost of messaging, k_n, rises, the amount of investment in quality also rises. Less messaging is necessary to separate from the slacker for higher k_n which frees up time and resources for additional investment in quality.[9]

[9]The effect of k_q, λ, and ρ is ambiguous. We know that $q^*(0)$ and $q^*(n^*)$ are increasing in λ and ρ and decreasing in k_q but cannot identify the relative rates of change of $\beta(q^*(0))$ and $\beta(q^*(n^*))$ without making assumptions about the third derivative of $\beta(\cdot)$.

6 Conclusion

In this paper, we have presented the first theory of message legislation, legislative enactments not intended to alter policy but instead constructed to send a message to constituents. We show that repeatedly passing non-viable legislation allows true policy zealots to credibly distinguish themselves from their less motivated peers. By redirecting scarce time and resources away from fundraising, constituency service, viable legislation, and leisure, repeated messaging visibly demonstrates a true believer's devotion to the cause. In this way it is an effective position-taking strategy even though voters know that their representative is merely position taking.

Our theory also accounts for when legislators engage in message legislation and how aggressively they message. We show that legislators are more apt to message when their failed legislative efforts are more visible, when the status quo is highly disfavored, when the opportunity cost of messaging is low, when voters are skeptical of their dedication to change the status quo, and when policy window is expected to open in the future. We also show that more repetition is necessary when office benefits are high, messaging is highly visible, and the opportunity cost of messaging is low. These results admit a wealth of empirical hypotheses for future analysis. Our results with respect to the opportunity cost and visibility of messaging in particular suggest that messaging has become more prevalent in the United States over the course of the past several decades. Talk radio, cable news, and the internet should make messaging more visible compared to earlier eras in American politics. Increasing polarization and resulting gridlock plausibly lower the opportunity cost of messaging as the menu of viable legislation which message legislation redirects time and resources away from shrinks.

Finally, we use the model to evaluate the normative implications of message legislation. We show that virtue signaling is a potential pathology inherent to democracy but also that it is not a pure pathology like pandering or biased representation. Like blame-game politics, virtue signaling provides valuable information to voters about their representatives'

true preferences. This allows them to select candidates who truly represent their interests. However, virtue signaling redirects scarce time and resources away from developing a viable plan to change the status quo in the future, as evidenced by Republican failure to repeal and replace the ACA after retaking control of government. This result suggests a related downside of message legislation. By spending time and energy virtue signaling in the interest of reelection, legislators may neglect basic tasks of governing. Time spent drafting futile legislation and organizing one's colleagues to vote on it is time that cannot be spent overseeing the bureaucracy or reauthorizing essential programs. Our theory suggests an additional cost of virtue signaling over time. While virtue signaling benefits voters by providing them with better representation, it also stacks a legislature with policy zealots. These zealots may be unwilling to compromise with one another, accentuating gridlock and hyper-partisanship. Examining this potential consequence of virtue signaling is a natural avenue for future research.

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