Persuasion with Partisanship: The Informational Content of Policymaking with Application to U.S. Governors

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Abstract

I study a model where a political executive's choice of policy agenda acts as an information structure allowing voters to learn about her ability. Due to the mediation of a legislature, passage is a function of not only the incumbent's ability but also the agenda's partisanship. The model delivers a nonmonotonic relationship between an incumbent's ex-ante winning chances and the partisanship of her agenda: incumbents likely to lose reelection pursue ambitious partisan agendas to save themselves, those likely to win pursue partisan agendas whose failure can be blamed on the legislature, and those in the middle pursue safe bipartisan policies to secure reelection. I apply these insights to analyze variation in the partisanship of U.S. gubernatorial speech. I compile governors' annual "State of the State" speeches from 1990-2020 and use a fine-tuned large language model to isolate policy proposals in these speeches. I show that reelectable governors exhibit a nonmonotonic relationship between partisanship of agenda and approval ratings matching that of the model.

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1 Introduction

Scholars have documented a rise in political polarization in the US Congress since the mid-1990s that is apparent in political speeches, voting behavior, and policy implementation.[1] However, much less attention has been devoted to the role of political executives in shaping partisan priorities.[2] Executives' public image, and thereby their ability to win reelection, is closely tied to their ability to pass and successfully implement policies. Because more partisan policies are often harder to pass and implement than those that compromise between two parties, the choice of a partisan policy agenda generates different information about an executive's skill than a less partisan one. As a result, changes in an incumbent's electoral environment may generate fluctuations in partisanship of speech and policy proposals that are left undetected by broader studies of trends in legislative environments.

This paper utilizes a theoretical model to study electoral incentives for political executives to pursue partisan policies. It then applies the theoretical insights to study empirical variations in the partisanship of U.S. gubernatorial policy agendas. I develop a model where a political incumbent's choice of policy agenda generates an *information structure* mapping her underlying political ability to a likelihood of policy success. Bipartisan or nonpartisan policies that are appealing to both the incumbent and the opposition are easier to pass. Partisan policies that only appeal to the incumbent's party are more difficult to pass, but their passage necessarily signals higher political ability. As agendas become more partisan, failure to pass policies can be increasingly blamed on antagonistic legislatures, while success becomes a stronger signal of skill in the face of adversity. The model delivers a nonmonotonic relationship between an incumbent's ex-ante winning chances and the partisanship of her agenda: incumbents with high and low winning chances pursue partisan policies, while those with middling changes pursue bipartisan agendas. This relationship weakens as the incumbent's alignment with the legislature increases.

I then study the partisanship of U.S. gubernatorial policy agendas and test the predictions of the model. I begin by compiling a panel of governors' annual "State of the State" addresses to the legislature. The presence of 50 governors at any given time in the states provides a rich laboratory for uncovering the role of the executive branch in generating fluctuations

[1] See McCarty (2019) for an overview of the forces driving trends in partisanship.

[2] Andeweg, Elgie, Helms, Kaarbo, and Mller-Rommel (2020) discuss the reemergence of executive power since the mid-20th century, as well as the expanding role of the U.S. Presidency and its administrative apparatus in shaping legislative discourse. Goldgeier and Saunders (2018) note a rise in the executive branch's control over foreign policy, which has become increasingly left unchecked by Congress. Reynolds (2024) and E. Peterson (2024) provide stylized overviews of the eroding power of Congress over the executive branch. The burgeoning power of U.S. state governors, especially after the 1990s, is discussed by Heidbreder (2012).

around slower-moving trends in national partisanship. I utilize large-language modeling to isolate text related to policy proposals from the broader corpus, allowing me to measure partisanship of both full speeches and portions of speech corresponding to policy agendas. I document substantial fluctuations in governor-level partisanship around a slower moving increase in partisanship of political speech beginning in the early 2000s. I show that aggregate partisanship — measured using either policy proposals or full speech — is consistently below that estimated from the Congressional Record.[3] Then, I turn to the panel data and compare the partisanship of reelectable governors' proposals to those of lame duck governors ineligible for reelection. This comparison controls for common determinants of partisanship affecting both lame duck and reelectable governors — such as flow preferences for more or less partisan policies — thereby isolating variations in partisanship emerging from the reelection concerns the model speaks to. I showcase a nonmonotonic relationship between gubernatorial approval and partisanship of policy proposals for governors unaligned with their legislatures, in line with the theoretical predictions of the model. As approval increases, the speech of these governors falls by over a standard deviation between the first and fourth decile of approval ratings. After a trough in the fourth decile, partisanship of speech gradually increases until it is nearly 1.5 standard deviations higher in the top deciles of approval. This pattern is primarily driven by swing states that experience historic variation in governor party, precisely the sort of high-stakes political setting the model speaks to. As the model predicts, this nonmonotonicity additionally weakens for governors aligned with their legislatures. Finally, I argue that even in the absence of panel data, the model's qualitative insights can be applied to study the policy choices of other political executives like the U.S. President.

Theoretical Model The baseline model considers an incumbent executive of unknown ability who chooses a policy agenda of varying partisanship. The probability of an agenda's success is decreasing in its partisanship but increasing in the incumbent's ability. This captures the notion that partisan policies appealing to a single party are harder to garner support for than bipartisan compromises amenable to most of the legislature, which even low-skilled politicians may be able to pass. A representative voter observes the incumbent's choice of agenda, whether it passes or fails, updates beliefs over the incumbent's ability, and reelects her if and only if her expected ability is higher than that of a challenger. An incumbent's expected ability is referred to as her *reputation*. Because incumbents are office-motivated, the predictions of the model capture the behavior of reelectable incumbents relative to lame ducks. I argue that ability can representative an executive's managerial skill,

[3]I.e., the level of gubernatorial partisanship is below that of the Congressional level estimated by Gentzkow, Shapiro, and Taddy (2019).

capacity to follow through on promises, or valence.

The key idea of the model is that the incumbent's choice of policy is, in fact, also a choice of information structure, as in models of persuasion. Given a prior over the incumbent's ability, the success or failure of an agenda generates a distribution of posteriors whose skewness is determined by its partisanship. The incumbent chooses this distribution — i.e. the partisanship of her policy agenda — to maximize her chances of reelection. The relative informativeness of success or failure is disciplined by the incumbent's alignment with the legislature. Intuitively, an incumbent totally aligned with her legislature has de facto power over the government and, consequently, receives all credit for policy successes or failures. As such, it is difficult for her to find policies that are totally uninformative regardless of whether they pass or fail. Conversely, an incumbent totally unaligned with her legislature can, if she chooses, pursue agendas whose failure can be plausibly blamed on the legislature.

The baseline model highlights a fundamental nonmonotonicity in how partisan the incumbent's policy agenda is as her reputation increases. This is the core theoretical prediction of the model. Partisan policies are more likely to fail, but if they do succeed, generate a strong signal that the incumbent is high ability. Bipartisan policies are less likely to fail, but if they do, generate confirmatory evidence that an incumbent is low ability. Hence, incumbents with low reputation, who are likely to lose reelection, pursue partisan policies in hopes of salvaging their chances at retaining office. Incumbents with middling reputation pursue low-risk bipartisan policies to secure reelection. Incumbents with high reputation pursue partisan policies. Because these policies are less likely to pass ex-ante, their failure can be credibly blamed on legislative antagonism, meaning the incumbent's expected ability decreases, but by very little. Therefore, the model delivers a U-shaped relationship between an incumbent's reputation — her ex-ante perception as a capable politician — and the partisanship of her policy agenda. This U-shape flattens out if legislative alignment increases. Increasing party entrenchment also makes the U-shape less salient — for example, in constituencies where an incumbent's party always wins reelection. Conversely, the model predicts that this nonmonotonicity should be strongest in settings with relatively competitive electoral environments and legislatures unaligned with the incumbent. In terms of welfare, I show that the voter's utility is generally nonmonotonic in reputation, legislative alignment, and electoral competition — whether measured as the learning value policy agendas provide in helping the incumbent elect a higher ability politician or the contemporaneous flow utility provided to the incumbent's constituents.

After presenting this baseline model, I extend it by allowing endogenous differentiation of policy passage by ability. This generalization renders the model similar to a Bayesian Persuasion problem where a sender cannot totally obfuscate information; in this case, the

incumbent of the model is unable to pursue a policy agenda whose success or failure is totally uninformative of her ability. [4] This approach permits mathematical flexibility that allows me to add a preference shock into the baseline model and thereby analyze how partisanship varies with direct changes in the incumbent's ex-ante *winning probability*. I show that partisanship of the incumbent's policy agenda also exhibits a U-shape as a function of ex-ante winning probability. The flattening of the U-shape with increases in legislative alignment or competition also carries through to this setting. The more general model shows in fact that this U-shape may be asymmetric: incumbents with very high reputation pursue *more partisan* agendas than those with very low reputations. Consequently, the general approach allows me to write the model's empirical predictions in terms of winning probability directly — allowing me to utilize proxies for winning probability such as approval ratings to investigate the nonmonotonic prediction in the data. I additionally show, using the technology of the extension, that the key features of the model are robust to allowing multiple periods of agenda passage; and that allowing incumbents to choose policies from the opposing party accentuates the model's nonmonotonicity.

Documenting Gubernatorial Partisanship I then apply the insights of the model to explain fluctuations in the state-level partisanship of U.S. governors' policy agendas. I begin by discussing the scrutiny executives like governors face in office. I also document how voters are empirically responsive to governors' abilities to pass policies and performance, and indeed differentially so depending on governor's alignment with their legislature.

The data I use to investigate variation in partisanship are a corpus of U.S. governors' "State of the State" speeches, annual addresses given by the governor of each state to the state legislature. These speeches are relatively high decorum events, are always given in the first quarter of each year, and are known vehicles for governors' policy agendas. Moreover, this corpus of text data provides an ideal setting to deploy techniques from the literature measuring partisanship of political speech. I collect over 800 speeches and merge them with existing data to assemble an annual panel of over $1,300$ speeches from 1990-2020. Because these speeches contain not only policy proposals but also reflections on past policies and rhetoric, I utilize a large language model called "bert" to isolate speech related to policy proposals. To measure partisanship, I utilize the leave-out estimator of Gentzkow, Shapiro, and Taddy (2019) on bigrams in the text corpus, allowing me to both correct for speech sampling bias and compare my estimates to their study of the US Congressional record.

[4] In particular, the model can be seen as a Bayesian Persuasion problem where a receiver (voter) is uncertain whether he observes a signal because it was endogenously chosen by a sender (incumbent) or whether it was generated by an outside source (i.e. whether a policy outcome is a consequence of the incumbent's inherent skill or the legislature's involvement).

This approach yields a measure of partisanship in aggregate for each year, as well as for each governor-year in the sample.

Because little work documents aggregate behavior of U.S. gubernatorial partisanship, I first describe general patterns in governor speech before turning to panel level data to investigate fluctuations around these trends and test the model's predictions. I calculate a measure of aggregate partisanship for each year in the sample; as well as a measure of partisanship for each governor-year speech. My series shows that partisanship of the entirety of gubernatorial speeches closely tracks that of the portions of speech related to just policy proposals. The speeches exhibit a steady rise beginning only in the 2000s and finishing with a spike in 2017. The timing of changes is vastly different from the Congressional record, which begins its rise in the early 1990s and experiences a spike in 2008-10 before settling around 2016. Moreover, the level of gubernatorial partisanship is consistently below that of Congress.

However, I show that these aggregate trends disguise sizable variation in partisanship at the state level, showing how even when aggregating by geographic region of the U.S., partisanship may exhibit drastic upwards and downward swings. In some regions, there are spikes in partisanship in the late 1990s that exceeds levels of partisanship at the end of the 2010s. In others, partisanship trends downwards for most of the 2010s. I show that deviations in partisanship are sizable across time, moreso within states than between states, and that there is also substantial variation within governors, thereby meriting further study of when these deviations emerge and why.

Testing Model and Implications I then turn to the panel data to test the predictions of my model and explain deviations in partisanship of U.S. gubernatorial policy proposals. I construct a regression equation whose dependent variable is the unidimensional measure of partisanship for each governor and year. I take my measure of winning probability to be a governor's approval rating. To capture the interaction of reputation with legislative alignment, I interact deciles of gubernatorial approval ratings with an indicator for whether the majority of legislators in the state are of the governor's party. Because the model's predictions speak to the behavior of reelectable incumbents as compared to lame ducks, the regression coefficients of interest are those that capture the *difference* between the partisanship of reelectable governors and lame duck governors in each category, adjusting for general effects of being a lame duck. In particular, governor-level policy preferences or latent time trends in partisanship may drive fluctuations in partisanship, but impact both reelection-eligible and ineligible governors. Looking at the difference between these two categories thereby allows me to uncover fluctuations in partisanship emanating from reelection

incentives.

I show that governor speech descends by approximately one standard deviation from the first decile of approval to the fourth decile of approval, before climbing up again by over a standard deviation and peaking in the highest decile of approval. Aligned legislatures exhibit a flatter relationship between partisanship and approval, consistent with the predictions of the model. I disaggregate the behavior of states by the competitiveness of their electoral environment. I identify "Republican states," as those that have a Republican governor for more than two-thirds of the sample, "Democratic states" as those with a Democratic governor for more than two-thirds of the sample, and "swing states" as the remaining states. I show that this nonmonotonicity in aggregate is driven by swing states with unaligned legislatures, with a weak nonmononotonicity for swing states with aligned legislatures. Republican and Democratic states with unaligned legislatures exhibit a weaker, statistically insignificant U-shape between approval and partisanship and no relationship for aligned legislatures. This finding is in line with the model's prediction that the relationship between partisanship and approval should be weaker or nonexistent under party entrenchment and higher legislative alignment.

In tandem with the theoretical model, these results shift the spotlight away from partisanship as a slow-moving aggregate object and onto the role of individual politicians' electoral incentives in shaping the partisanship of their jurisdictions. Fluctuations and differences in levels of partisanship at the level of governors are seen not as evidence of black-boxed political heterogeneity or measurement noise but rather as structured and rational deviations in policy agendas that respond to executive popularity, legislative alignment, and competition. These insights permit a deeper understanding of when and why executives like governor and presidents pursue radical policies, or decide to compromise with the opposition and push forth bipartisan legislation.

Literature This paper contributes to a theoretical literature on political reputation and career concerns by developing a model that exhibits a nonmonotonic relationship between policy extremity and reputation. By contrast, most other settings establish a negative monotonicity known as "gambling for resurrection" (Dur, 2001; Fu & Li, 2014; Izzo, 2024; Majumdar & Mukand, 2004), which would not explain the nonmonotonicities evident in the data. Additionally, I develop a model where partisanship endogenously emerges from an incumbent's desire to win reelection in a Bayesian setting, distinguishing the present paper from models where partisanship emerges as a byproduct of voters' behavioral updating methods (Izzo, Martin, & Callander, 2021; Levy & Razin, 2021). The paper's welfare insight on the ambiguous effects of electoral competition is also related to Dewan and Hortala-Vallve

(2019), is studied in the settings of electoral accountability by Ashworth, De Mesquita, and Friedenberg (2017), and is applied to executives' willingness to pursue unilateral actions in Judd et al. (2017). A subtle feature of this paper's model is that, by choosing the partisanship of an agenda (and hence an information structure) while in office, executives may generate an informational incumbency advantage for themselves; this observation has also been studied by Ashworth, de Mesquita, and Friedenberg (2019).

The present paper provides insights into solving a constrained Bayesian Persuasion problem, following Kamenica and Gentzkow (2011), where a receiver is uncertain about the origin of a sender's signal. The key constraint on the sender (incumbent) in this environment is that she is unable to implement totally uninformative information structures (policy agendas). A lemma in the appendix shows how to solve this problem when senders possess concave, strictly increasing value functions, which is the primary setting in which inability to shut down information binds. To this end, the model is related to a literature on Bayesian Persuasion with mediation, multiple senders, and cheap talk (Alonso & Câmara, 2016; Arieli, Babichenko, & Sandomirskiy, 2022; Ichihashi, 2019; Lipnowski, Ravid, & Shishkin, 2022).

I contribute to a literature testing the theoretical predictions of political reputation models by providing a comprehensive picture linking the ideological partisanship of executives' policy agendas to legislative alignment, popularity, and reelection eligibility. Prior papers study such topics as the positive effects of term limits on partisanship (Besley & Case, 1995), reelection concerns in motivating pursuit of less radical welfare reform (Bernecker, Boyer, & Gathmann, 2021) less stringent COVID-19 policies (Pulejo & Querubín, 2021), or the economic returns to holding a Congressional seat (Diermeier, Keane, & Merlo, 2005). The theoretical mechanisms underlying this paper are linked to a reputation literature studying voters' responsiveness to executives' policy outcomes, which I address at the beginning of the data section on U.S. governors.

I add to research on partisanship of political speech by providing a novel, unidimensional series on partisanship of political executives' speech and partisanship at the state level. Series for partisanship of political speech have been produced and extensively studied in the U.S. Congressional record (Gentzkow, Shapiro, & Taddy, 2019; Jensen et al., 2012), as well as the UK (A. Peterson & Spirling, 2018), but the few studies at the state level have been limited to frequencies of word counts in state policy agendas — such as Hopkins, Schickler, and Azizi (2022) — or nationalization of gubernatorial speech — such as Butler and Sutherland (2023). I also add to a political science literature analyzing governors' State of the State speeches, which I discuss more thoroughly in the data section.

My utilization of advances in large language modeling techniques adds to a growing literature in Economics utilizing LLMs, including applications to labor contracts and the FOMC

(Arold, Ash, MacLeod, & Naidu, 2024; Hansen, McMahon, & Prat, 2018). I utilize the same methods as Card et al. (2022), who fine-tune two models to isolate speeches related to immigration in the Congressional record and then categorize those speeches by sentiment. The literature on theory and applications of text as data in Economics is reviewed by Gentzkow, Kelly, and Taddy (2019) and Ash and Hansen (2023).

Finally, I document an increasing trend in partisanship of U.S. governors' speech and study fluctuations around those trends, complementing a literature on the more mixed (and heterogeneous) behavior of partisanship in state and local politics utilizing roll-call data, close elections, and other non-text measures. Some studies argue that governor and mayoral party identity has little impact on partisanship of most political outcomes (Ferreira & Gyourko, 2009; Leigh, 2008), while others argue for modest or larger effects of party control on partisanship after the 1990s, measured using liberalism scores; law passage by policy domain; taxation, debt, housing stock, and public expenditures; or policy diffusion across states (Carlino, Drautzburg, Inman, & Zarra, 2023; Caughey, Xu, & Warshaw, 2017; de Benedictis-Kessner, Jones, & Warshaw, 2024; de Benedictis-Kessner & Warshaw, 2020; DellaVigna & Kim, 2022; Grumbach, 2018). There has relatedly been a documented increase in partisanship of legislative voting behavior at the state level, as documented by Shor and McCarty (2011) and updated by DellaVigna and Kim (2022), although evidence is again heterogenous by states, and voting along party lines is empirically much more salient under unified government (Morehouse, 1996). Because my model views fluctuations in partisanship as outcomes of incumbents' electoral incentives and environments, my paper provides potential structure to these more heterogeneous outcomes from the standpoint of executives. To this end, the present paper differs from attempts to measure partisanship of inherent gubernatorial ideology, such as the campaign finance DIME measure constructed by Bonica (2014) and evaluated for governors in Warner (2023).

Plan of the Paper I introduce the theoretical model in the next section. I solve the baseline model, investigate welfare implications of the equilibrium result, solve the general model with a valence shock, detail data predictions, and address extensions. I then introduce the data, explain the relevance of the model to the gubernatorial setting, and detail speech processing and estimation of partisanship. I then show that any aggregate trends in partisanship are different than the Congressional record, but crucially mask fluctuations at the region, state, and governor level. With these fluctuations in mind, I then test the predictions of the model on the panel data. I conclude with a qualitative analysis of U.S. Presidents through the lens of the model and comment on the broader implications of the research.

2 Theoretical Model

I begin by introducing a benchmark model highlighting the key intuitions of the theory. After showing the central result and assessing welfare, I move to an extended model that maintains the key intuitions of the benchmark while permitting mathematical flexibility to solve the model with a valence shock. This allows me to write the model's comparative statics in terms of the incumbent's win probability and thereby utilize approval ratings as an independent variable when testing the model's comparative statics in the empirical section. I finish by addressing two extensions to the model.

2.1 Preliminaries

Setup There are two time periods. At $t = 1$, an incumbent politician R (she) holds office. R chooses a policy agenda $\pi \in [0, 1]$, which may pass or fail. Higher π represents a more partisan agenda that favors R's party. The probability of passage is increasing in R's ability $a_R \in \{0, 1\}$, which is unknown to all agents. Higher ability politicians are more effectively able to pass and/or implement legislation.

A representative voter V (he) observes R's choice of agenda, whether it passes or fails, and updates his beliefs about R's ability. Then, at $t = 2$, V chooses to retain R or replace her with a challenger L of unknown ability $a_L \in \{0, 1\}$. q_i^t is the belief politician i is high ability ($a_i = 1$) at time t, which we refer to as i's "reputation." V's utility is the ability a_i of politician i in office. Politicians are office-motivated, receiving 1 upon reelection and 0 otherwise.

Policies The success of R's policy agenda is a function of its partisanship $\pi \in [0, 1]$; R's ability a_R; and the legislature's alignment with R, $\lambda \in [0, 1]$. The probability of passage is:

$$\lambda a_R + (1 - \lambda)(1 - \pi).$$

Legislative alignment λ dictates the relative control of the incumbent over the legislature and, relatedly, how much blame can be placed on the incumbent for a success or failure. When $\lambda = 1$, the legislature is totally aligned with the incumbent. Success or failure are entirely driven by R's ability. When $\lambda < 1$, the legislature involves itself in the passage of policies so that passage is a weighted combination of R's ability and her agenda's partisanship. Pursuing the least partisan agenda $\pi = 0$ always leads to success when $a_R = 1$ and may still succeed when $a_R = 0$. Pursuing the most partisan agenda $\pi = 1$ succeeds only if $a_R = 1$, and even then may still fail. For $\lambda = 0$, only partisanship affects whether an agenda passes.

The choice of $\pi \in [0,1]$ then amounts to the choice of an *information structure*. That is, the agenda maps a state (the incumbent's underlying ability) to a distribution of signals (success or failure of that agenda). The voter infers the incumbent's type from these signals and uses this to update his beliefs over how competent the incumbent is.

Comments Because incumbents are office-motivated, the model should be thought of as isolating fluctuations in partisanship due to reelection incentives. Adding flow utility over partisan policies (e.g. due to an incumbent's preferences or external constraints) would add a unidirectional preference for more partisan policies on top of that of the model. Because such forces would also operate if an incumbent were term-limited, the predictions of the model should emerge when comparing reelection eligible incumbents to lame ducks.[5] This comparison controls not only for executives' preferences but also contemporaneous shocks that affect the partisanship of both reelectable and lame duck executives equally, and will serve as a cornerstone of the empirical tests of the model.

The model interprets ability as a politician's managerial skill, which may include efficacy in crafting and implementing laws, managing bills and the budget, and maintaining a smooth-running bureaucracy. Governors themselves often use the analogy of a "CEO" to describe the duties and skills ascribed to their job (Behn, 1991). Ability can also represent a capacity to commit to following through on a policy agenda; or the incumbent's valence, which is higher if she is perceived to be better at passing legislation. The data section provides examples of these skills from the National Governors Association, noting that the success or failure of a policy agenda is one of the most crucial inputs into voters' perceptions of governors.

I assume that the representative voter V prefers a high ability incumbent to a challenger of unknown ability to a low ability incumbent. This assumption may capture two sorts of phenomena. First, V may be a member of R's party and, all else equal, prefers that the executive of her party is high ability rather than low ability. The second interpretation is that V is a median voter who may have positive or negative ideological preferences over R's partisan policies but, regardless of these preferences, values R's managerial ability to address nonpartisan tasks of governing. As long as V values this managerial ability enough, which is highly plausible in a setting like that of U.S. governors, the findings of the model should hold. I provide a microfoundation for this phenomenon in Appendix A.2. [6]

[5]Relatedly, because partisan policies are identified by their informational feature that they are hard to pass, an incumbent facing an aligned legislature may counterintuitively attempt to pass policies from the opposing party to signal her skill. I show in an extension at the end of the section that allowing for this accentuates the model's result.

[6]In particular, I assume there are two dimensions of policy that are functions of ability: managerial and ideological. Voter utility in the managerial dimension is always increasing in ability. Voter utility in the ideological dimension is given by an absolute loss function in π with a weight δ. I assume that the

I assume that all else equal, bipartisan policies are more likely to pass than partisan policies. In many polarized electoral environments, passing even bipartisan legislation may be seen as a success. What matters for the analysis is that even if passing bipartisan policies is a strong signal of political skill, passing even more partisan policies is an even stronger signal of political skill. To this end, the definition of bipartisan policies comprises *ideologically* bipartisan (or even nonpartisan) policies, as opposed to bills requiring bipartisan *support* to pass. For U.S. governors in particular, there is also substantial scope for bipartisan or nonpartisan policies — such as infrastructure or education spending. [7]

Notice that in the model, independently of the incumbent's policy choice, some information is bound to be revealed about her type with positive probability. This feature is motivated by the fact that, in high-stakes political settings, incumbents oversee programs run by the executive branch, basic functioning of government, and passage of "business as usual" legislation.

The model defines partisanship as *relative* to a legislature's composition. Suppose λ increases to λ'. The level of a bipartisan policy $\pi = 0$ will likely be higher under the λ' legislature. π, to this end, identifies partisanship relative to a base level for the legislature.

Voters in the model can learn about an incumbent but not the challenger, meaning the expected ability of a challenger is effectively an outside option for voters. I take the expected ability of the challenger to generally describe how electorally competitive the incumbent's jurisdiction is. Voters learn about the incumbent's ability precisely because she is in office, and her ability can be assessed through performance of regular duties.

2.2 Equilibrium

The voter elects whichever politician has higher expected ability. R wins reelection if and only if $q_R^2 \geq q_L^2$. Hence, the equilibrium utility of R as a function of q_R^2 is $u_R(q_R^2) \equiv \mathbf{1}[q_R^2 \geq q_L^2]$.

representative voter's preferences align with the legislature, writing her bliss point as λ; and assume that this loss is experienced only if the incumbent's agenda π is passed. I show that as long $\delta \leq 4$, the insights of the model hold.

[7] Curry and Lee (2020) provide a comprehensive picture of the landscape of (bi)partisan bill passage in the U.S. Congress. One Congressional staffer notes that "[a] bill still has a lot greater chance to make it into law if it's bipartisan" (p. 44), while another states that "[g]etting anything done is hard, but it's even harder on a partisan basis" (p. 45). Another staffer points out that while some bipartisan legislation may be passed with easy support from both parties, more ambitious legislation is only able to pass with negotiation between party leaders and veto-holders, suggesting a certain level of persuasion skill or political acumen — such as that at the level of a political executive — to secure passage of more partisan initiatives. The authors additionally point out that, despite increasing party polarization, the sorts of bipartisan support and tactics required to secure legislation is empirically no different than the 1970s and 1980s.

Information Given a prior q_R^1, the partisanship of each policy agenda generates posteriors q_R^2 about R's ability, given by $F(q_R^2|q_R^1,\pi)$. In the setting with success/failure, we end up with either a posterior higher than q_R^1 (denoted $\overline{q}_R^2$) or lower than q_R^1 (denoted $\underline{q}_R^2$). The incumbent's general problem is then given by:

$$V_R(q_R^1) = \max_{\pi\in[0,1]} \int_{q_R^2} u_R(q_R^2) dF(q_R^2|q_R^1,\pi). \tag{1}$$

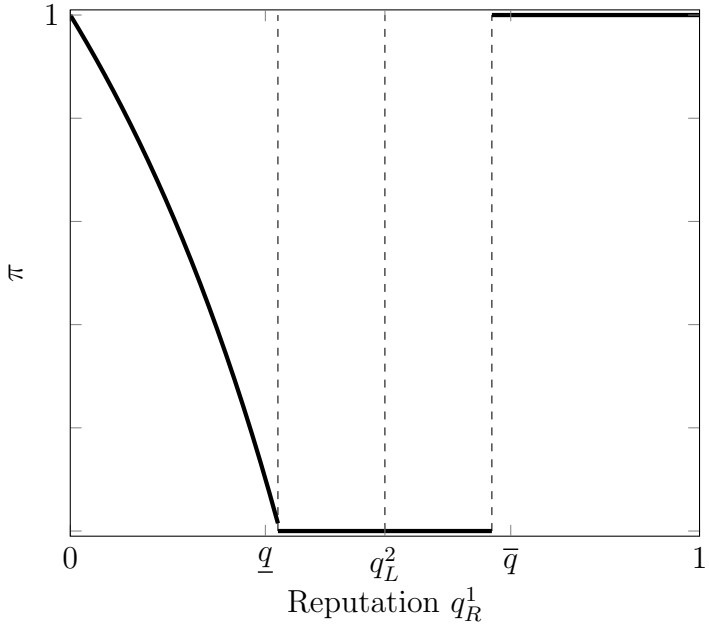
Let $\pi^*(q_R^1)$ represent the solution of the program above. The following proposition describes π^*.

Proposition 1. *There exist thresholds* $0 < \underline{q} < q_L^2 < \overline{q} < 1$ *such that:*

- *for* $q_R^1 \in [0,\underline{q})$, $\pi^*(q_R^1)$ *is strictly decreasing, with* $\pi^*(0) = 1$ *and* $\pi^*(\underline{q}) = 0$*;*
- *for* $q_R^1 \in [\underline{q},\overline{q})$, $\pi^*(q_R^1) = 0$*;*
- *for* $q_R^1 \in [\overline{q},1]$, $1 \in \pi^*(q_R^1)$ *with equality at* $\overline{q}$*.*

The solution is graphed below:

Figure 1: Partisanship of Optimal Policy π^*



All proofs are contained in Appendix A. The intuition for this result is best viewed through comparing the payoffs from $\pi = 0$ and $\pi = 1$. When $\pi = 0$, observing a success generates the posterior over ability $\overline{q}_R^2 = \frac{q_R^1}{q_R^1+(1-\lambda)(1-q_R^1)}$. Observing a failure generates the posterior $\underline{q}_R^2 = 0$, since failure to pass bipartisan policies is damning evidence that $a_R = 0$.

When $\pi = 1$, observing a success is confirmatory evidence that $a_R = 1$, so $\overline{q}_R^2 = 1$. Because high ability incumbents may fail to pass partisan policies, the posterior upon observing failure is $\underline{q}_R^2 = \frac{(1-\lambda)q_R^1}{1-\lambda q_R^1}$. The expected winning probabilities from pursuing each policy are :

$$\pi = 1: \qquad (q_R^1 + (1-\lambda)(1-q_R^1))\mathbf{1}\left[\frac{q_R^1}{q_R^1 + (1-\lambda)(1-q_R^1)} \geq q_L^2\right],$$
$$\pi = 0: \qquad \lambda q_R^1 + (1-\lambda q_R^1)\mathbf{1}\left[\frac{(1-\lambda)q_R^1}{1-\lambda q_R^1} \geq q_L^2\right].$$

Consider the following cases:

- Suppose q_R^1 is so low that $\frac{q_R^1}{q_R^1+(1-\lambda)(1-q_R^1)} < q_L^2$. Then R never wins if she pursues $\pi = 0$. However, if she pursues $\pi = 1$, because successes are confirmatory news of high ability, she wins with positive probability. Hence, $\pi = 1$ dominates $\pi = 0$.
- Suppose q_R^1 is larger so that $\frac{q_R^1}{q_R^1+(1-\lambda)(1-q_R^1)} \geq q_L^2$ but such that $\frac{(1-\lambda)q_R^1}{1-\lambda q_R^2} < q_L^2$. The expected win probability from pursuing $\pi = 0$ is $q_R^1 + (1-\lambda)(1-q_R^1)$. The expected win probability from pursuing $\pi = 1$ is λq_R^1, which is lower. Hence $\pi = 0$ dominates $\pi = 1$.
- Finally, suppose q_R^1 is high, so that $\frac{(1-\lambda)q_R^1}{1-\lambda q_R^1} \geq q_L^2$. Pursuing $\pi = 1$ then leads to a win with probability 1, which dominates $\pi = 0$.

Note that for $q_R^1 \geq \overline{q}$, π^* may contain other values besides $\pi = 1$ because win probability is flat above q_L^2. Any indifference can be broken in favor of $\pi = 1$ by assuming that, all else equal, R prefers more partisan policies in her direction.

The proof of the baseline result yields the following comparative statics.

Corollary 1. *$\overline{q}$ and $\underline{q}$ vary as follows with λ:*

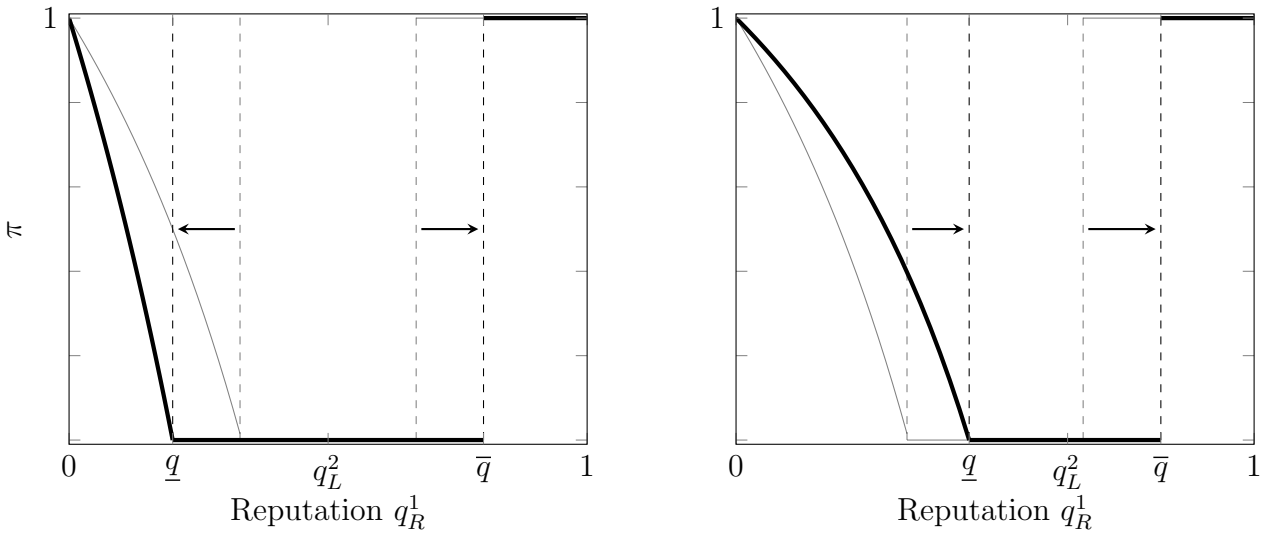
- *$\underline{q}$ is decreasing in λ; as $\lambda \to 0$, $\underline{q} \to 0$; as $\lambda \to 1$, $\underline{q} \to q_L^2$.*
- *$\overline{q}$ is increasing in λ; as $\lambda \to 1$, $\underline{q} \to 1$; as $\lambda \to 0$, $\overline{q} \to q_L^2$.*

$\overline{q}$ and $\underline{q}$ are both increasing in q_L^2. As $q_L^2 \to 0$, both terms $\to 0$. As $q_L^2 \to 1$, both terms $\to 1$.

Recall that $1 - \lambda$ also measures R's capacity to blame outcomes on the legislature. As λ increases, this obfuscatory power decreases, meaning in particular that the failure of partisan policies is more damning of ability. Bipartisan policies $\pi = 0$ are the "safest" in the sense that they have a high probability of success; and so, incumbents lean more on bipartisan policies for their relative safety. As q_L^2 increases, the electoral environment becomes more competitive, i.e. R needs to achieve a higher threshold to win reelection. This ultimately

causes a "right shift" in the model, as R requires more partisan policies at the low end of q_R^1 to signal sufficiently high ability. Flipping the result suggests that in *less* competitive environments — e.g. those where an incumbent's party always tends to win reelection — we should observe a "left shift" in the baseline predictions.

Figure 2: Variation of Optimal Policy π^* with λ, q_L^2



(a) Increase in Leg. Alignment λ

(b) Increase in Competitition q_L^2

2.3 Welfare

I show that voter welfare — measured as the additional value of learning or flow utility — may be nonmonotonic with respect to reputation; and that changes in legislative alignment and competition may have ambiguous effects on welfare.

2.3.1 Learning

The first benchmark for welfare will be voter learning. The voter's value function at the beginning of $t = 2$, as a function of his beliefs, is $\max\{q_2^R, q_2^L\}$. With some abuse of notation, the value of learning for the voter given $\pi^*(q_R^1)$ can be written as:

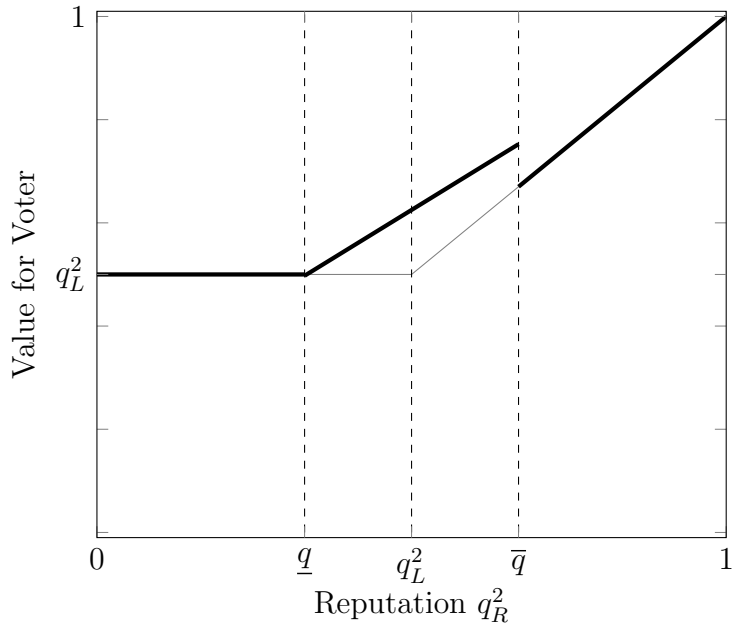
$$V_V(\pi^*) = \int_{q_R^2} \max\{q_2^R, q_2^L\} dF(q_R^2 | q_R^1, p_1^*, p_0^*),$$

which can be summarized as follows.

Proposition 2. *For $q_R^1 \in [0, \underline{q}]$, $V_V(\pi^*) = q_L^2$; for $q_R^1 \in [\underline{q}, \overline{q})$, $V_V(\pi^*) = q_R^1 + \lambda(1 - q_R^1)q_L^2$; for $q_R^1 \in [\overline{q}, 1]$, $V_R(\pi^*) = q_R^1$.*

The value of learning is graphed below. The thick lines indicate the value of the solution, while the light gray lines represent the baseline value of the problem for the voter.

Figure 3: Learning Value of π^* for Voter



The only region where R generates a strictly positive effect on learning is on $[\overline{q}, \underline{q})$. Increasing λ always widens this range; hence, increasing λ always improves agents' relative learning. However, changing q_L^2 results in shifts to this region; I show in the appendix that there is an intermediate value of competition q_L^2 at which the size of the interval over which R adds any value to voter learning is maximal.

2.3.2 Flow Utility

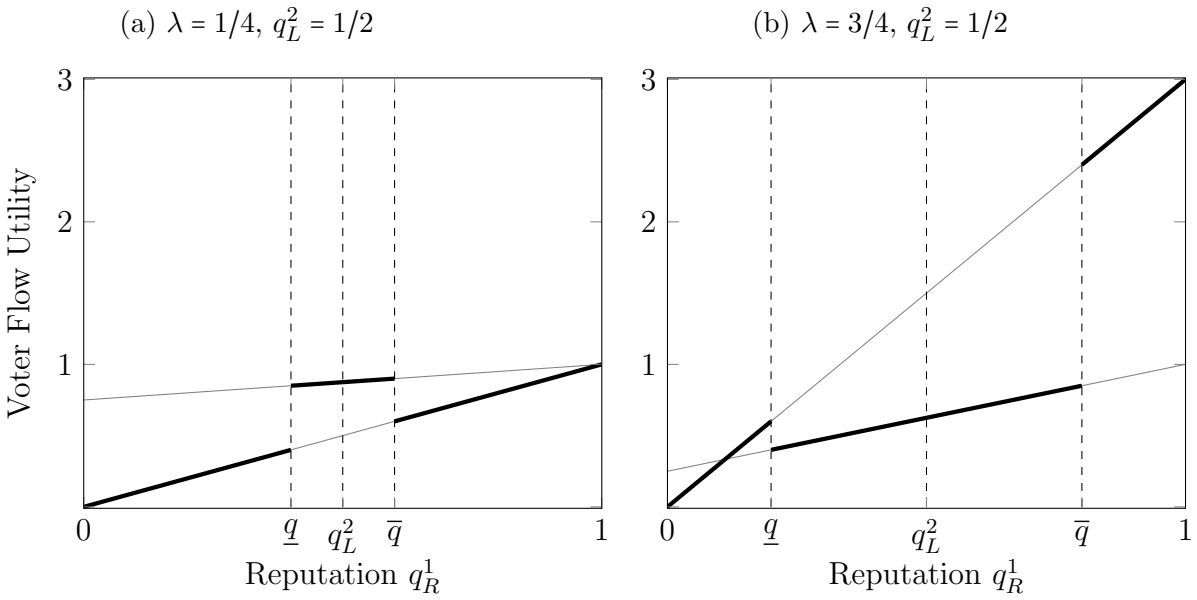
So far, the model is silent about the concurrent effects of pursuing different policy agendas on the representative voter's welfare.[8] Partisan policies, when manifest as policy reforms, are often assumed to be valuable when implemented by a skilled incumbent but worse than a (bipartisan) status quo when pursued by an unskilled incumbent.

To illustrate the nonmonotonic variation of welfare with reputation and legislative alignment, I allow two policies, $\pi \in 0, 1$, as in the proof intuition for Proposition 1. I assume voter utility from $\pi = 0$ is always equal to 1 upon passage. I assume utility from $\pi = 1$ is equal to 0 if passed by a low ability incumbent and 4 if passed by a high ability incumbent. Utility from non-passage is always 0. The two panels of the figure below illustrate the tradeoffs

[8]While more partisan policies may please members of R's party, they may displease members of L's party. I hence take these results as an upper bound on the potential welfare gains of different policy agendas.

of increasing or decreasing λ when $q_L^2 = 1/2$. The left panel shows the result under low legislative alignment ($\lambda = 1/4$) and the latter under high alignment ($\lambda = 3/4$).

Figure 4: Variation of Optimal Policy π^* with λ



The pursuit of partisan policies results in less than ideal flow utility at low values of reputation, since incumbents' abilities are low in expectation. At high values of partisanship, pursuing partisan policies is optimal in expectation when legislative alignment is high but suboptimal when legislative alignment is low. At middling values of reputation, pursuit of bipartisan policies is optimal at low values of legislative alignment but suboptimal at high values of alignment, since the incumbent has tighter control over the legislature and could use this control to pass more ambitious policies.

2.4 Persuasion Model and Data Predictions

While the benchmark is useful for conveying the core intuitions of the theory, the information structures it captures are quite stark. The model does not directly capture, for example, that high ability incumbents may be marginally better at passing partisan policies. Additionally, the incumbent in the model, immediately prior to an election, always wins with probability 0 or 1. This latter point is particularly limiting given my empirical application, where proxies for winning probability (such as approval ratings) are readily available, while proxies for reputation are hard to uncover.

To improve mathematical tractability and address these points, I now describe an extended model utilizing a constrained persuasion structure. This approach gives the incum-

bent flexibility in directly choosing success probabilities for high and low ability incumbents. The extended model not only shows that the insights of the benchmark are more robust to a general setting, but also allows me to solve the model with a valence shock and thereby write the theoretical predictions in terms of an incumbent's ex-ante winning probability. Additionally, it allows me to easily address two extensions — described in the next section — for a multi-period version of the model as well as an extension regarding politician flow utility.

Persuasion Model I now characterize R's choice of policy agenda as a signal structure (p_1, p_0) for $p_1 \geq p_0$. These respectively represent the conditional probabilities an $a_R = 1$ and 0 incumbent would be able to earnestly pass an agenda if she were totally unaligned with the legislature. Total passage probabilities are:

$$\begin{aligned} a_r = 1: &\qquad \lambda + (1-\lambda)p_1, \\ a_r = 0: &\qquad (1-\lambda)p_0. \end{aligned}$$

The partisanship π of an agenda (p_1, p_0) is defined as $\pi(p_1, p_0) = 1 - \frac{p_1+p_0}{2}$.

This model is a form of a constrained persuasion problem. When $\lambda = 0$, the problem boils down to a standard Bayesian persuasion problem with two states (high/low ability) and two signals (success/failure). (p_1, p_0) represent the conditional probabilities of observing a success conditional on each state. For $\lambda > 0$, R chooses a signal structure (p_1, p_0), but the voter V only receives a signal from this structure with probability $1-\lambda$. With probability λ, he receives a signal from a structure $T = (1, 0)$ (success $\iff a_R = 1$), and cannot differentiate whether the signal they received came from P or T. In this sense, the set of posteriors over ability the policy agenda can induce is constrained.

Proving an analogue of Proposition 1 for this case is nearly identical. I hence use the flexibility of this more general model to prove the baseline result with a valence shock. Let $\epsilon \sim N$ be a single-peaked preference shock favoring L, which has support on $\mathbb{R}$, has mean 0, is symmetric around 0, is twice continuously differentiable, and is strictly increasing (decreasing) above (below) 0. V retains L if and only if $q_R^2 \geq q_L^2 + \epsilon$, meaning she wins the election with ex-ante probability $N(q_R^2 - q_L^2)$. Her expected value from an agenda (p_1, p_0) is then

$$\max_{p_1 \geq p_0} \int_{q_R^2} N(q_R^2 - q_L^2) dF(q_R^2 | q_R^1, p_1, p_0).$$

where $F(q_R^2 | q_R^1, p_1, p_0)$ now represents the distribution of posteriors given (p_1, p_0). Let

$p^*(q_R^1) = (p_1^*, p_0^*)$ represent the agenda that solves the equation above and π^* the partisanship of this agenda. The more general version of the first proposition is as follows.

Theorem 1. *There exist thresholds $\underline{q} < \overline{q}$ such that:*

- *for $q_R^1 \leq \underline{q}$, $\pi^*(q_R^1)$ is strictly decreasing. $p^*(0) = (1,0)$ and $\pi^*(0) = 1/2$, while $\pi^*(\underline{q}) = 0$ and $\pi^*(\underline{q}) = 0$.*
- *For $q_R^1 \in [\underline{q}, \overline{q})$, $p^* = (1,1)$ and $\pi^* = 0$;*
- *for $q_R^1 \geq \overline{q}$, $p^* = (0,0)$ and $\pi^* = 1$.*

Note in particular that $p^* = (1,1)$ corresponds to the $\pi = 0$ policy in the initial model. The $p^* = (0,0)$ policy corresponds to the $\pi = 1$ policy in the initial model.

As a (constrained) persuasion problem, I utilize insights from the Bayesian Persuasion literature to address parts of the problem. In particular, because an optimal solution in an unconstrained persuasion problem is given by the concavification of the sender's — in this case, the incumbent's — value function. If a policy agenda induces posteriors that achieve the concavification of $N(q_R^2 - q_L^2)$, that solution is optimal. I show that for $q_R^1 < \underline{q}$, we can indeed use (p_1, p_0) to achieve that concavification, which is a lottery between some posterior $\overline{q}_R^2 = \tilde{q} > q_L^2$ and $\underline{q}_R^2 = 0$.[9] However, because the persuasion problem is *constrained*, the concavification is no longer achievable after some $\underline{q}$, where an incumbent would ideally implement a less informative or uninformative policy agenda, but cannot due to the constraints of the problem. At $\underline{q}$, the solution itself is given by $(p_1, p_0) = (1,1)$. After $\underline{q}$, the incumbent pursues a boundary solution. I show that the solution is either given by $(p_1, p_0) = (1,1)$ or $(p_1, p_0) = (0,0)$, just as in the baseline model. In particular, I show that if V is an everywhere concave function, then $(p_1, p_0) = (0,0)$ is the optimal solution. Because when q_R^2 is sufficiently high, $N(q_R^2 - q_L^2)$ is locally concave (and equal to its concavification), $(p_1, p_0) = (0,0)$ is the optimal solution for sufficiently high q_R^2. Otherwise, between $\underline{q}$ and $\underline{q}$, R continues to implement $(p_1, p_0) = (1,1)$.

The persuasion extension suggests a potential *asymmetry* in nonmonotonicity relative to the baseline model. When $q_R^1 = 0$, $\pi = 1/2$, while when q_R^1 is high, $\pi = 1$. The baseline comparative statics also emerge from the proof of the result. Increasing λ causes $\underline{q}$ to decrease and $\overline{q}$ to increase. Increasing q_L^2 causes $\underline{q}$ and $\overline{q}$ to shift to the right.

Data Mapping The expression $N(q_R^2 - q_L^2)$ can be inverted to write the predictions of Theorem 1, as well as the comparative statics, in terms of win probabilities. Let P represent the incumbent's ex-ante probability of reelection.

[9] A picture of the value function and its concavification is displayed in the appendix.

Corollary 2. *There exist thresholds* $\underline{P} < \overline{P}$ *such that:*

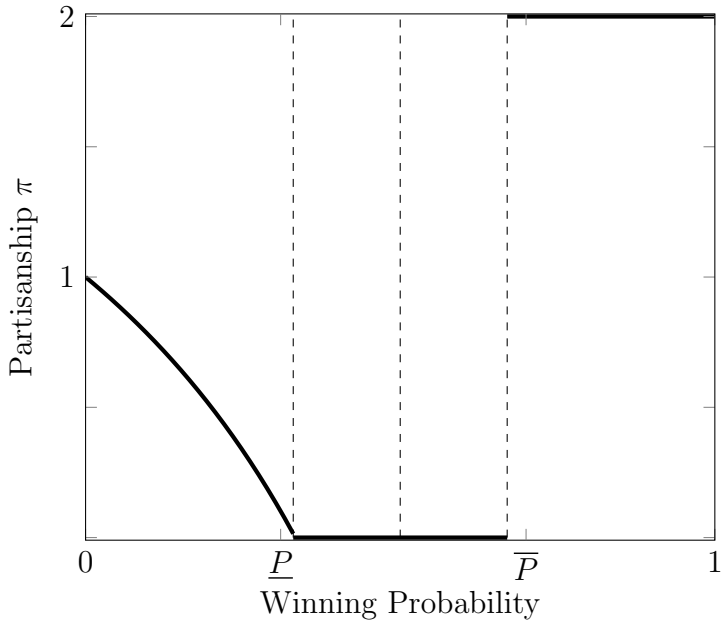
- *when* $P \leq \underline{P}$*, partisanship* π^* *is strictly decreasing in* P *until* $\pi^* = 0$ *at* $\underline{P}$*;*
- *when* $P \in (\underline{P}, \overline{P})$*, partisanship* $\pi^* = 0$*;*
- *when* $P \geq \overline{P}$*, partisanship* $\pi^* = 1$*.*

Moreover,

- *When legislative alignment* λ *increases ,* $\underline{P}$ *decreases and* $\overline{P}$ *increases.*
- *When competition* q_L^2 *increases,* $\underline{P}$ *and* $\overline{P}$ *both increase.*

This corollary summarizes the key predictions I will take to test the partisanship of gubernatorial policy agendas in the model. The basic graph of this pattern is shown below.

Figure 5: Partisanship of Optimal Policy $\mathbf{P}^*$



The data predictions are as follows:

- **P1**: Incumbents eligible for reelection, as compared to those ineligible, should pursue relatively partisan policy agendas when their probability of reelection is low or high; and relatively bipartisan policy agendas when their probability of reelection is moderate.
- **P2**: When increasing legislative alignment, the nonmonotonicity of **P1** should flatten out. However, the minimum level of partisanship of **P1** at moderate levels of win probability should also increase.

- **P3**: When increasing party entrenchment, the nonmonotonicity of **P1** may flatten out. The model's predictions should be strongest in states with low party entrenchment.

P1 emerges because the model isolates informational incentives for partisan policies that drive reelection, meaning its predictions apply when comparing reelection eligible to ineligible executives. **P2** utilizes the fact that the definition of a bipartisan policy is relative to the legislature's composition, measured using λ. This means that raising λ may also raise the base level of partisanship in the data. **P3** emerges because increasing competition q_L^2 can be thought of as increasing party entrenchment.

Finally, although direct measures of winning probability are hard to track historically for executives — particularly in non-election years — approval data are readily available. These data are often used by politicians themselves to assess their popularity and chances at reelection; as such, I utilize approval data to proxy for ex-ante win probability in the data section.

2.5 Extensions

I utilize the persuasion model without a valence shock to address two extensions to the model.

Politician Utility and L Policies First, I show that the model is robust to allowing R to choose policies from the opposing party. In particular, a more partisan policy's informational utility is that it is "hard to pass." However, if R is incredibly aligned with her legislature, then passing policies favored by the opposing parties may in fact be harder to pass. Paradoxically, R may then attempt to go against her party's preferences and pursue an agenda of the opposition to "prove her worth."

I address this concern by allowing R to choose from a spectrum of partisan policies. She can choose either an R-partisan agenda $p^R \in (p_1^R, p_0^R)$ or an L-partisan agenda $p^L = (p_1^L, p_0^L)$. I endow R with a preference for R policies over L policies. I show that the model's central nonmonotonicity is left untouched. If flow utility concerns are weak, the region in $[\underline{q}, \overline{q}]$ may exhibit additional nonmonotonicities in the direction of L policies.

Suppose that R chooses a policy agenda p^R or p^L. Success probabilities are:

$$\text{Choose } \pi_R : \lambda a_R + (1-\lambda) p_{a_R}^R$$
$$\text{Choose } \pi_L : (1-\lambda) a_R + \lambda p_{a_R}^L$$

Intuitively, if R chooses π^L, she is adopting the policies an L politician would implement,

meaning her de facto legislative alignment flips. I assume R receives a disutility $-c$ from pursuing π^L.

Let $F^i(q_R^2|q_R^1, p_1^i, p_0^i)$ be the distribution of posteriors over R's ability for $i \in \{R, L\}$. Then, R implements an agenda from π^R if and only if

$$\max_{p_1^R \geq p_0^R} \int_{q_R^2} u_R(q_R^2) dF^R(q_R^2|q_R^1, p_1^R, p_0^R) \geq -c + \max_{p_1^R \geq p_0^R} \int_{q_R^2} u_R(q_R^2) dF^L(q_R^2|q_R^1, p_1^L, p_0^L).$$

The left expression is the value from the solution to the baseline problem. The right expression is the value from choosing an L policy agenda less the cost $-c$ from choosing policies preferred by the opposing party. We can write the optimal solution of each program as p^{i*}, which is characterized by thresholds $\underline{q}^i, \overline{q}^i$. While c sufficiently large may mechanically shut down any preference for L policies, I show that even for c small, the model's nonmonotonicity still holds.

Proposition 3. *There exists $\overline{\lambda} > 1/2$ such that for $\lambda \leq \overline{\lambda}$, R implements p^{R*}. For $\lambda \geq \overline{\lambda}$ and c sufficiently low, there exist thresholds $\underline{q}^f, \overline{q}^f$, with $\underline{q}^R < \underline{q}^f < \overline{q}^f < \overline{q}^R$ such that R implements*

- *p^{R*} for $q_R^1 \leq \underline{q}^f$;*
- *p^{L*} or p^{R*} for $q_R^1 \in (\underline{q}^f, \overline{q}^f)$;*
- *p^{L*} for $q_R^1 \geq \overline{q}^f$;*

The intuition is as follows. Below $\underline{q}^R$ and above $\overline{q}^R$, R is able to achieve the concavification of $u_R(\cdot)$ utilizing p^R. The integrand term on the left hand side is maximized, suggesting a strict preference for p^{R*}. Note that R's maximal utility from pursuing p^{R*} is strictly decreasing in λ — since lower λ allows greater informational flexibility — while the maximal utility from pursuing p^{L*} is strictly increasing in λ. The utility from pursuing either policies is always equal at $\lambda = 1/2$, modulo the $-c$ term. This means that p^{R*} is still strictly preferred at $\lambda = 1/2$. Preference for p^{L*} can override if and only if c is sufficiently small; and only then when the value from pursuing π^{L*} is sufficiently higher than that of p^{R*}. This can occur only within a strict subset of $[\underline{q}^R, \overline{q}^R]$.

Extending the space of partisanship downwards — so that L policies are even *less* partisan than $\pi = 0$ (for an R incumbent) — suggests that partisanship weakly decreases from $\pi = 1/2$ to 0 at $\underline{q}^f$; potentially plummets further between $\underline{q}^f$ and $\overline{q}^f$, either with the implementation of a moderate or extremely partisan L policy; and then shoots back up to $\pi = 1$ above $\overline{q}^f$. That is, within $(\underline{q}^f, \overline{q}^f)$, R implements either $\pi^R = 0$ or $\pi^L \geq 0$, potentially adding additional nonmonotonicities to the pattern, but ensuring that partisanship (relative to R's party) is always lower in this middle region than when reputation is low or high.

Multi-Period Dynamics I show that allowing for an additional period of policy passage preserves the fundamental insights of the model. While the baseline model assumes that politicians' policy agendas represent the totality of their term in office, we can consider a three period model where politicians pursue agendas in periods $t = 0$ and $t = 1$ before an election at $t = 2$. In between $t = 0$ and $t = 1$, agents update beliefs over a_R as before.

Following notation from earlier, let the belief that R is high ability at the beginning of $t = 0$ be q_R^0. The optimal solution is characterized as follows.

Proposition 4. *Given $\underline{q}, \overline{q}$, there exist thresholds $\underline{\underline{q}} < \underline{q} < \overline{q} < \overline{\overline{q}}$ such that*

- *For $q_R^0 \leq \underline{\underline{q}}$, partisanship π^* is decreasing from $1/2$ at q_R^0 to 0 at $\underline{\underline{q}}$.*
- *There exists $q_\dagger \in [\underline{\underline{q}}, \overline{q} < \overline{\overline{q}}]$ such that for all $q_R^0 \geq q_\dagger$, $\pi^* < 1$.*
- *For $q_R^0 \geq \overline{\overline{q}}$, $\pi^* = 1$.*

3 Data

This section begins with information about U.S. gubernatorial State of the State addresses, including their relevance to our setting. I then discuss how the data is sourced and pre-processed before analysis. I finish by detailing how I use large-language modeling to isolate policy proposals from speeches.

3.1 U.S. Governors and State of the State Addresses

Reputational Priorities of U.S. governors The policy agendas of U.S. governors provide an ideal setting to test the predictions of the model. Governors are high-profile political executives who, since the end of the 20th century, have played an outsized role in setting, pursuing, and implementing state policy agendas.[10] Compared to legislators, governors "enjoy organizational, institutional, and popular advantages similar to and arguably even greater than the president [over Congress]" (Heidbreder, 2012). In any given year there are 50 U.S. governors in office, all of whom vary in their popularity, eligibility for reelection, party entrenchment, and alignment with state legislatures.

There is substantial evidence that voters evaluate governors based on their productivity in passing their policy agendas. The National Governors Association (NGA) provides a series of guides to incoming U.S. governors, which provide rich insight into how governors themselves

[10]The "devolution revolution" of the 1990s marks the period where the federal government heavily devolved authority over many public policies to state governments

view incentives to pass policies while in office. One excerpt from a guide remarks that "[t]he media and public will judge the governor's leadership ability and success... [by] whether the administration's legislative program succeeds... The governor's ability to manage and secure legislation also affects his or her ability to serve as a strong leader of the party... If the legislation fails, it will be considered a political defeat... [T]he passage of priority legislation usually will signal a political success." (National Governors Association, 2018). An executive director of the NGA has gone as far as to say that "the ultimate measure of success [is] the ability of... governors to get his or her initiatives enacted" (Scheppach, 2005).

The NGA guides also provide insights on the dimensions of skill by which a governor is evaluated, often using the language of a managerial "CEO" to describe these responsibilities. "As chief executive officers (CEOs), governors are responsible for the leadership and management of their states. As leaders, they set priorities for their administration and enact new policies and programs designed to achieve those priorities" (National Governors Association, 2019). Moreover, an "effective process to craft and implement a legislative program and strategy, as well as to cultivate and maintain working relationships with legislative leaders and members, is critical to ensuring the success of a governor's legislative program." (National Governors Association, 2018)[11]

There is evidence that voters pay attention to and respond to governors' actions, and that this response may be mediated by alignment with legislatures. Wolak and Parinandi (2022) find a positive response of gubernatorial approval to both ideological alignment and substantive measures of performance, such as economic performance and policy outputs. Across economic and policy outcomes, Brown (2010) shows that voters are more likely to blame opposing parties for problems if the opposition holds an executive position and their own party has a hold on the legislature. Leyden and Borrelli (1995) find that voters are much more responsive to changes in state economic outcomes when state government is unified (rather than divided, with different parties holding the executive and legislative branches). Jacobson (2006) shows that governors who are not aligned with their state legislatures enjoy slightly higher approval than those with aligned legislatures, arguably in part due to the fact that misalignment reduces blame. Larimer (2015) studies the limits of gubernatorial party control and argues that "[u]nified control provides the public an easy target to blame when things go bad" (p. 96), going on to note that divided governments may permit flexibility in

[11] Anecdotal evidence supports the idea that executives strengthen their reelection chances by successfully pursuing ambitious policies in the face of partisan adversity. Iowa Governor Terry Branstad, for instance, describes how his ability to massively restructure state government aided in a competitive reelection to his second term. Branstad writes that he managed to secure "90 percent of the reorganization package" despite a "legislature overwhelmingly controlled by the opposition party" (Behn, 1991), going on to describe the techniques of solid management, legislative persuasion, and drive necessary to achieve those goals.

allowing voters to learn about governors' managerial strengths.

Policy Agendas The model's predictions apply to executives' policy agendas. I utilize the text of each governor's annual "State of the State" address as a baseline corpus of policy agendas; utilizing text data also allows us to use methods from the literature to analyze partisanship of policy proposals.

At the beginning of each legislative session, the governor of each state in the United States is required to address a joint session of the legislature to deliver a "State of the State" (SotS) speech. [12] The speech is delivered annually (in some states biennially) in the first quarter of the year, and is the US States' analogue of the presidential "State of the Union." Since these data are given around the same time every year in (almost) every US state, these data allow an annual panel of policy agendas for each governor, state, and year.

According to a National Governors Association guide on legislative relations, the "inaugural address, State of the State address and budget message are all excellent forums to communicate and build momentum for the executive branch's legislative agenda" (National Governors Association, 2018). A large literature in political science has documented the importance of these speeches as vehicles for the governor reflect on her administration's past accomplishments and lay out her policy priorities for the coming year. Coffey (2005) and Heidbreder (2012) argue that these speeches accurately represent the incumbent's current policy priorities rather than pure policy preferences. Governors themselves also view these addresses as a highly salient, public platform for signaling policy agendas.

There is also evidence that governors are indeed able to pass many of the agenda items laid out in their SotS addresses. Kousser and Phillips (2012) investigate over $1,000$ proposals laid out in a set of State of the States speeches in the mid-2000s, showing that 41% passed in some form similar to what the governor proposed and 18% with compromises. They show that passage is more likely when a governor is aligned with the legislature or holds more political capital, with the notable exception of budgetary items — where these variables exhibit no apparent effect on passage probability. One implication of this finding is that, regardless of partisan affiliation, there are basic duties (such as budget management) that a skilled executive should be able to address. Indeed, an ex-governor of Maryland noted that "the realities of running a state do not allow for ideological rigidity. Governors must ensure that the budget is balanced, that the state can adequately respond to its day-to-day challenges, and must be able to work with lawmakers from both parties and across the ideological spectrum" (Kousser & Phillips, 2012, p. 97).

[12] In some states, the speech is called the "State of the Commonwealth"; in others, the governor's budget or inaugural address take the same role.

In stark contrast to the congressional record (Gentzkow, Shapiro, & Taddy, 2019; Jensen et al., 2012), comprehensive analysis of partisanship in the State of the State speeches has been relatively scarce. Many articles — e.g. DiLeo (1997), Coffey (2005), Weinberg (2010), Heidbreder (2012), Warner (2023) — have been able to analyze a few years worth of SotS data to document cursory facts about gubernatorial ideology. For example, DiLeo (1997) shows governors in Democratic states are more likely to pursue redistribution. Ferguson (2003) shows that a governor's priorities are disciplined by the composition of her legislature and economic conditions in states. Coffey (2005), Weinberg (2010), and Kousser and Phillips (2012) attempt to measure ideology in these speeches by either manually coding sentences or relying on dictionaries of partisan words. Heidbreder (2012) shows that Democratic governors are more attentive to healthcare and social policies.

One of the key issues with analysis of SotS addresses is the lack of a systematic, centralized data source of speeches, with the exception of two potential databases. Lushkov (2019) collects hundreds of SotS addresses back to the 1800s to look at the frequency with which governors discuss education. Butler and Sutherland (2023) have digitized almost all SotS addresses from 1960 onwards, documenting in increase in nationalization of speech. However, this result does not necessarily imply any distinct trend in gubernatorial partisanship. Relatedly, Hopkins et al. (2022) document a divergence in the speech of 1,783 state party platforms from 1918-2017 beginning in the 1990s, but restrict their analysis to the frequencies of certain topics and phrases as opposed to en-masse text analysis of their corpus that delivers a unidimensional measure for partisanship.

3.2 Sourcing and Pre-Processing

I compile a digitized text library of the State of the State speeches from 1990-2020, allowing me to employ methods from the literature on partisanship of speech and large language modeling to measure partisanship, study its fluctuations, and test the model's predictions.

I began with the database of Lushkov (2019), which contained 330 speeches post-1995 due to data loss. Next, I scoured state news sites, educational resources, archived governor websites, and online state libraries to assemble SotS speeches for an initial dataset of $1,144$ usable speeches. I later gained access to data from Butler and Sutherland (2023), allowing me to assemble a final dataset of $1,345$ speeches for 1990-2020. Figure B.1 in the appendix graphs the set of usable speeches for analysis.

Finally, I broke these speeches into snippets of thematically contiguous thoughts using the NLTK (Natural Language Toolkit) Text-Tiling tokenizer. Each snippet was about 7 sentences and can be thought of either as a paragraph or sets of small paragraphs. I end up

with 78,702 snippets for the period 1990 – 2000.

3.3 Speech Processing with bert

To separate portions of SotS addresses discussing the governor's policy agenda, I fine-tuned a large-language-model called "bert" from the huggingface transformers library to identify relevant snippets of text. In particular, I asked it to classify whether a given snippet of text discussed a concrete policy (yes/no) and, if so, whether it was a discussion of a policy proposal or made mention of a past policy (yes/no).

bert is a pretrained model that learns the structure of provided text examples, allowing it to be "fine-tuned" to classify text (Devlin, Chang, Lee, & Toutanova, 2018). The present paper's process utilizes the same methodology as Card et al. (2022), which identifies whether Congressional speeches were a) about immigration; b) if they were about immigration, whether the tone was positive, negative or neutral. I repurpose much of these authors' github code to my setting.

Hand-Coding I randomly selected around 9500 snippets from the 70,368 snippets of the initial 1,144 speech 1995-2020 dataset to be hand-labelled and provided to bert as fine tuning data. Two research assistants were given the following instructions to code these snippets.

1. "Policy." Coded as "1" if the snippet discusses the enactment of a state-level policy (either passed by the governor, state government, or referendum) and "0" if it does not. A policy discussion is a reference to a specific act of legislation or law, a concrete proposal to increase or decrease funding to a certain cause, other legal orders proposed by the government to take certain concrete actions, and discussions of details of any of the above.

2. "Proposal/Past." Only applies if "policy" coded as "1." Coded as "1" if the snippet refers to a policy that has just put into place or will be put into place in the future. Coded as "0" otherwise — in particular, if a governor is reflecting on the effects of a policy in the past.

The full coding guide is contained in Appendix C. Of these hand-coded data, we identified 4,144 snippets as discussing policy and, of those, 2,993 as discussing proposals.

Detailing bert Model I utilized the "bert-Base-Uncased" model, which contains approximately 110 million parameters which are adjusted through the process of fine-tuning, to analyze the data. I make use of a two-layered model approach. I first train a model to

classify whether a snippet is a policy discussion, which takes in as inputs all the snippets in our hand-coded data. The second model is trained to classify whether a snippet is about a policy proposal or some reflection on a past policy. The latter takes as inputs only the hand-coded data corresponding to policies.[13]

Once these models were fine-tuned, I ran the full dataset of snippets through each model. I used the policy classification to identify policies, and then the proposal classification model to identify proposals, allowing me to classify each snippet as desired: snippets about policy proposals, snippets about policy but not proposals, and other snippets. The policy classification model ended with a low cross-entropy loss of 0.0111 nits and the proposal classification 0.0058 nits. Of the 78,702 snippets, I identify 35636 (45%) as corresponding to policy and 26720 (34%) as corresponding to policy proposals.

3.4 Additional Data Sources

The following additional data sources are used in the analysis:

- Governor names/dates in office: National Governors Association (2024)
- Gubernatorial win margins and seat status: Algara and Amlani (2021)
- Quarterly governor approval ratings: Singer (2023)
- Legislative composition: Klarner (2013) and National Conference of State Legislatures (2024)
- Term limit rules and missing election dates: Ballotpedia (2024a) and Ballotpedia (2024b)
- Additional covariates: Grossmann, Jordan, and McCrain (2021)

4 Documenting Partisanship

The section begins by detailing measurement of aggregate partisanship. I then document aggregate changes in partisanship from 1990-2000 before describing how aggregate trends

[13]The input (hand-coded) data for each model is divided into seven stages called "epochs." Each epoch takes the training data and partitions it into three groups. The first set, the "train set," is the main dataset used to train the model. The "dev set," comprised of 400 snippets, is used to adjust the model after its initial training. Finally, the "test set," comprised of 300 snippets, is used to calculate the models' accuracy. Before feeding the data into the model, we also tokenize the data using spaCy, which takes each snippet and breaks it into its component words.

disguise substantive variation at the level of governors, states, and regions that merit further study with the insights of the model.

4.1 Calculating Partisanship

With the corpus of governor speeches, partisanship of gubernatorial speech can be measured for both full speeches and just policy proposal portions using techniques from the literature on political speech. I calculate a measure of partisanship π_{it} for each governor i and year t. I then take a weighted sum of π_{it} to construct the familiar measure of annual aggregate partisanship Π_t used in the literature.

The metric for defining and calculating partisanship is that detailed in Gentzkow, Shapiro, and Taddy (2019). Aggregate partisanship for year t, Π_t, is measured as the expected *informativeness* of a randomly selected phrase in inferring a governor's party. Specifically, suppose we randomly select a governor — selecting from one of Democrats or Republicans with (prior) probability 1/2. Partisanship is measured as the expected posterior of guessing that governor's party correctly. If partisanship is less than or equal to 1/2, speech is — on average — uninformative of governor party. If Republican and Democratic governors use dissimilar phrases, partisanship is greater than 1/2 since, in expectation, language is informative of party.

I use "bigrams," i.e. two-word phrases, as my measure of phrase. I use the NLTK PorterStemmer to reduce words to their base form. I then use the Gentzkow, Shapiro, and Taddy (2019) "leave-out-estimator," for calculating aggregate partisanship Π_t. For a sample period of interest, let R be a set of Republican governors and D Democratic governors.[14] Let c_{ij} be the count of phrase j used by governor i. Let $C_{ij} = \frac{c_i j}{\sum_{j \in J} c_{ij}}$ be the normalized count of phrase j used by governor i, where J is the set of all phrases used in the time period of interest. Let C_j^P be the normalized count of phrase j used by party P: $C_j^P = \frac{\sum_{i \in P} c_{ij}}{\sum_{i \in P} \sum_{j \in J} c_{ij}}$. Finally, let $T(t)$ be a five-year window around time t: $T(t) = \{t-2, t-1 \ldots, t+2\}$[15] A subscript t represents the value of the variable at time t, while $t \in T(t)$ represents its value within the five-year window. Define ρ_{-ijt} as the ratio of phrase use by R to D governors,

[14] The few independent governors in our sample lean Democrat, so I classify them as Democratic for all intents and purposes.

[15] We make use of a five-year window since each year only has at most 50 speeches. Gentzkow, Shapiro, and Taddy (2019) use Congressional Record Data, where the number of speakers and quantity of text is much larger, and the length of a Congressional session is two years.

modulo governor $i \in R_t \cup D_t$, with the five-year window acting as the reference group:

$$\rho_{-ijt} = \frac{C^{R-\{i\}}_{jt\epsilon T(t)}}{C^{R-\{i\}}_{jt\epsilon T(t)} + C^{D-\{i\}}_{jt\epsilon T(t)}}.$$

Concretely, ρ_{-ijt} is the posterior probability assigned to a speaker being an R governor upon observing phrase j.

Aggregate partisanship in the US States at time t, Π_t, can then be calculated as:

$$\Pi_t = \frac{1}{2}\frac{1}{|R_t|}\sum_{i\in R_t}\sum_j C_{ijt}\cdot\rho_{-ijt} + \frac{1}{2}\frac{1}{|D_t|}\sum_{i\in D_t}\sum_j C_{ijt}\cdot(1-\rho_{-ijt}). \tag{2}$$

The interpretation of Π_t is precisely as above. With probability 1/2, we randomly select a party (R or D), and from there randomly draw a governor. With probability C_{ijt}, the chosen governor i uses phrase j. Then, conditional on phrase j, the posterior over governor party moves to ρ_{ijt}. Π_t averages this posterior across governors and phrases.

I measure the partisanship of the speech of governor i in state s at time t as:

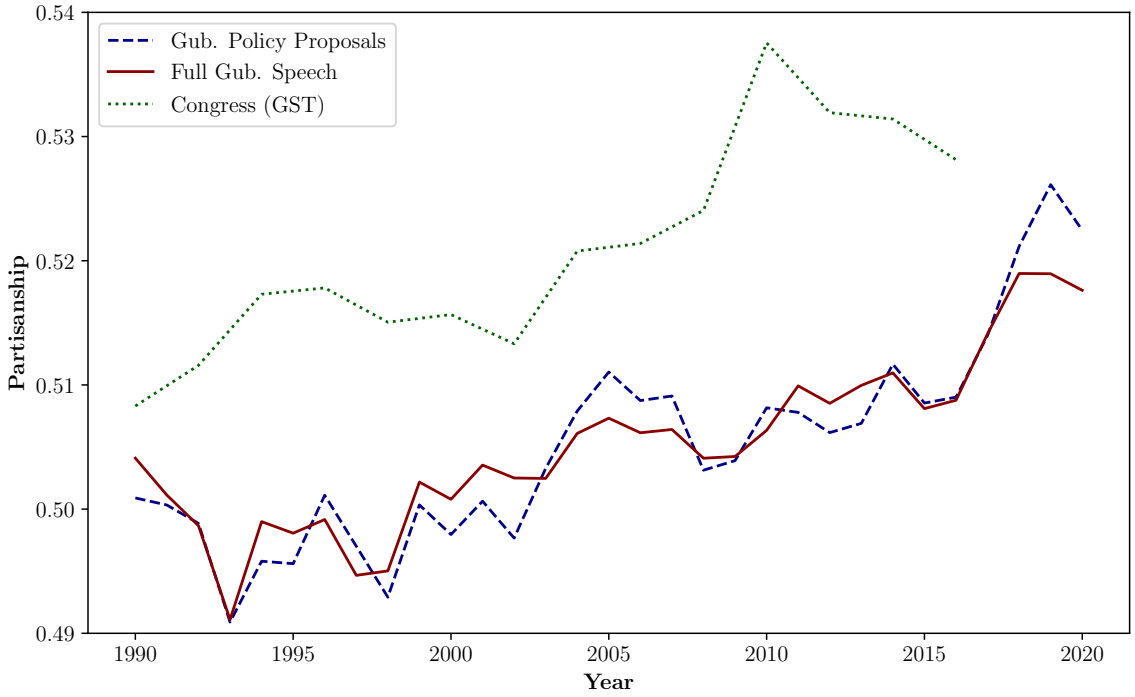
$$\begin{aligned} \pi_{it} &= \sum_j C_{ijt}\cdot\rho_{-ijt} && i \in R_t \\ \pi_{it} &= \sum_j C_{ijt}\cdot(1-\rho_{-ijt}) && i \in D_t, \end{aligned} \tag{3}$$

which measures how partisan governor i's speech is relative to her party. Governors with $\pi_{it} \geq 1/2$ use language mostly in line with their party, while those with $\pi_{it} \leq 1/2$ use language in line with that of the other party.

4.2 Aggregate Behavior of Partisanship

The figure below shows the evolution of partisanship over our sample period for three series. Partisanship calculated using the entire corpus of speeches is shown in the solid red line, while partisanship calculated using only the policy proposal component of speeches is shown in the dashed blue line. Finally, the dotted green line plots the series of Congressional partisanship from Figure 2a of Gentzkow, Shapiro, and Taddy (2019), which also uses the leave-out estimator. In Appendix Figure B.2, I also compare these measures of partisanship to those estimated from past policy discussions and rhetoric.

Figure 6: Partisanship of U.S. gubernatorial Speeches, Full Speech vs. Policy Proposals vs. Congressional Record: 1990-2020



Partisanship of gubernatorial speech calculated using Gentzkow, Shapiro, and Taddy (2019) leave-out estimator. "Gub. Policy Proposals" computes estimator for gubernatorial speech snippets coded as discussing policy proposals on corpus of U.S. governors' speech from 1990-2020. "Full Gub. Speech" computes estimator for all gubernatorial speech in given year. "Congress (GST)" series is partisanship of Congressional speech using leave-out estimator, extracted from Figure 2A of Gentzkow, Shapiro, and Taddy (2019).

I begin by discussing the measures of state partisanship using both full speeches and the policy proposal data. Partisanship for both series remains low in the early 1990s until around the year 2000. The policy proposals data do not experience their first prominent increase until a hump lasting from 2001-2008, with the end of the hump coinciding with the Great Recession. Partisanship dips during the recessionary period before returning to its slow upwards creep, although by 2016, the level of partisanship is not much different from that measured in 1990. Partisanship then experiences a massive spike in 2017, coinciding with the arrival of governors elected in the 2016 electoral cycle. Both series track each other well, a fact borne out in the governor-level panel data.[16] However, the 2001 – 2008 "hump" as well as the post-2016 "spike" are much more prominent in the proposal data than the full

[16]The correlation between the full speech and proposal measures is 0.92 in the panel data.

speech data. The stages in which we see these increases is likely correlated with the electoral cycle; while Congressional terms are only two years, governors mostly serve four year terms, and many serve two consecutive terms.

Crucially, recall that partisanship measures the posterior probability that an observer with a flat prior can accurately guess a governor's party after randomly drawing a phrase. This means that when partisanship is less than or equal to 1/2, speech is on average so similar between parties that observing a randomly drawn phrase does not improve inference about the correct governor party. By this metric, partisanship is effectively negligible at the level of state governors until around 2000.

By contrast, consider the Gentzkow, Shapiro, and Taddy (2019) series for Congressional partisanship, whose level is consistently higher than that of the gubernatorial series. While both series start from nearly identical levels, the Congressional series exhibits a consistently upward pattern through 2010, when it slightly decreases. Notably, the states' series experiences no such spike around 2008 – 2010; by contrast, the gubernatorial series see a spike in partisanship only post-2016. In fact, it is not until 2015 that the *level* of gubernatorial partisanship even reaches that of Congressional Partisanship in 1990. This finding also contrasts starkly with that of Hopkins et al. (2022), who find that divergence in speech of state party platforms began in the mid-1990s.

As a validation exercise, Appendix Table B.1. summarizes the most partisan Republican and Democratic phrases utilizing the policy proposal text data. I again utilize a method from Gentzkow, Shapiro, and Taddy (2019), where the partisanship of a phrase is determined as measuring the informational loss in inferring governor's party when removing phrase j from governors' vocabulary. This formula for phrase j is given by

$$1/2 - 1/2 \sum_{j \neq k} \left(\frac{C_k^R}{1 - C_j^R} + \frac{C_k^D}{1 - C_j^D} \right) \frac{C_k^R}{C_k^R + C_k^D}, \tag{4}$$

where more positive numbers correspond to more Republican phrases and more negative numbers to more Democratic phrases.[17] I calculate this metric for each bigram in the six epochs of 1990-1994, 1995-1999, 2000-2004, 2005-2010, 2010-2014, and 2015-2020. The table lists the ten "most Republican" and "most Democratic" phrases. Republicans are overwhelmingly likely to mention taxes — including phrases like tax reduction, tax relief, and cutting taxes; as well as emphasize the budget and, later in the sample, discuss crime. Democrats are more likely to mention topics related to the environment, welfare and childcare, the minimum wage, and affordable housing.

[17] Following the norm established by their paper, I code Republican governors' party as +1 and Democratic governors' as –1.

4.3 Fluctuations

The apparently smooth trends in Figure 7 mask massive fluctuations in partisanship at the level of state governors. Taking the policy proposal data, this is best seen by calculating the geometric average of governor-level partisanship π_{it} for each of the five regions in the United States, as shown in the panels of the figure below.

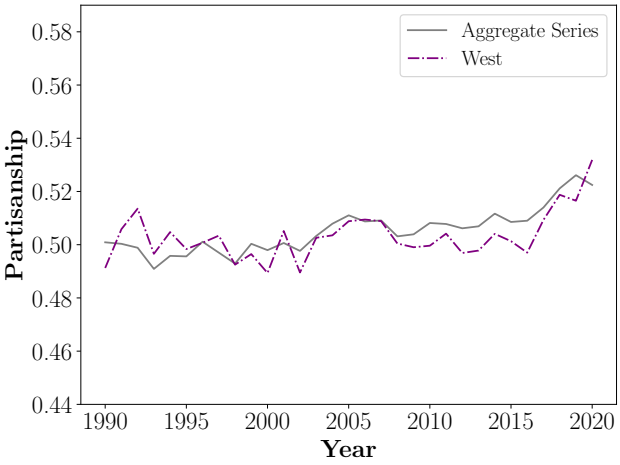
Figure 7: Average Partisanship of U.S. Gubernatorial Speeches, Policy Proposals, by U.S. Region: 1990-2020

(a) Northeast

(b) Southeast

(c) Midwest

(d) Southwest



(e) West

Partisanship of gubernatorial speech calculated using Gentzkow, Shapiro, and Taddy (2019) leave-out estimator on U.S. gubernatorial speech snippets coded as discussing policy proposals. Northeastern states are CT, ME, MA, NH, NJ, NY, PA, RI, VT. Southeastern states are AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, SC, TN, VA, WV. Midwestern states are IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI. Southwestern states are AZ, NM, OK, TX. Western states are AK, CA, CO, HI, ID, MT, NV, OR, UT, WA, WY.

Even at the aggregate level of regions, there is already significant evidence of deviations in partisanship at the level of states and governors. The Northeast, Midwest, and Southwest all experience large spikes in partisanship at the end of the 1990s, well-surpassing the apex of partisanship achieved at the end of the aggregate series. The Southwestern States in panel (d) see regular increases and decreases in partisanship. Partisanship in the Northeast in panel (a) actually experiences a trough in the mid-2010s and ends at the same level if began in the 1990s. Only the Western states in panel (e) closely follow the aggregate picture; but even then, their partisanship slightly decreases after 2005 and does not pick up again until 2017.[18]

Table 1 below summarizes standard deviations in partisanship by each of the three decades for the aggregate sample, between states, within states, and within governors.

[18]Because the West is the largest aggregate in the group, it may mechanically exhibit the least amount of variation.

Table 1: Standard Deviations of Partisanship by Decade, Aggregate vs. State vs. Governor Level, 1990-2020

	1990-1999	2000-2009	2010-2020
Overall Standard Deviation	0.053	0.031	0.041
Between-State Standard Deviation	0.039	0.017	0.030
Within-State Standard Deviation	0.041	0.027	0.029
Within Governor Standard Deviation	0.028	0.016	0.017
N	375	482	479
Num. States	50	50	50
Num. Governors	80	92	104

Partisanship of gubernatorial speech calculated using Gentzkow, Shapiro, and Taddy (2019) leave-out estimator on U.S. gubernatorial speech snippets coded as discussing policy proposals.

For reference, the change from 1990s to the end of the 2010s for both the Gentzkow, Shapiro, and Taddy (2019) and the gubernatorial series is about 0.02, suggesting that these variations in partisanship at the panel level are substantive. The table shows that variation in partisanship within states is similar to, if not slightly larger than, variation in partisanship between states. There is also substantive variation in partisanship within governors, consistently around half that in the full sample, suggesting that these effects are not driven by conditions unique to certain governors.[19]

These data suggest that viewing partisanship as a smoothly-moving, aggregate object inherently disguises the massive variations in partisanship at the level of individual states and years, as well as countervailing dynamic fluctuations — such as in the late 1990s — that are smoothed out in the aggregate series. Because much of this variation occurs within the same states and often within the same governors, I turn to test the predictions of the model in explaining fluctuations in partisanship in the next section.

5 Testing the Model

I begin by overviewing estimation methods before presenting baseline results speaking to the nonmonotonicity of the model. Afterwards, I disaggregate by competition and state type to further probe the model's predictions.

[19]Differences in partisanship between governors in the same state may be driven not by differences in their styles of governing or policy preferences, but by differences in governors' approval ratings, legislative alignment, or other changes in the governors' environment.

5.1 Estimation

Recall the central predictions of the model.

- **P1**: Incumbents eligible for reelection, as compared to those ineligible, should pursue relatively partisan policy agendas when their probability of reelection is low or high; and relatively bipartisan policy agendas when their probability of reelection is moderate.
- **P2**: When increasing legislative alignment, the nonmonotonicity of **P1** should flatten out. However, the minimum level of partisanship of **P1** at moderate levels of win probability should also increase.
- **P3**: When increasing party entrenchment, the nonmonotonicity of **P1** may flatten out.

To test these predictions, I use the following variables for governor i in state s at time t.

- Partisanship, π_{ist}. I obtain this measure using the partisanship formula in equation (3) and normalize it by the sample mean and standard deviation.
- Win probability, q_{ist}. I utilize quarterly gubernatorial approval data compiled by Singer (2023).[20] Since State of the State addresses are given in Q1 of each year, I use approval data from Q4 of the previous year. For governors' inaugural years, I use the approval data from Q1.[21]
- Legislative alignment, λ_{ist}. I combine the data on legislative composition from Klarner (2013) and National Conference of State Legislatures (2024). I choose a binary representation of λ_{ist}. The variable is equal to 1 if more than 50% are members of the governor's party and 0 otherwise.
- r_{ist}, reelection neligibility. This is equal to 1 if a governor is eligible to run another term and 0 otherwise.[22]

To pinpoint the model's nonmonotonicity, I break the approval ratings measure q_{ist} into deciles by state.[23] Let q_{kist} correspond to the k^{th} decile of approval for a governor in state

[20] I assume win probability is a strictly increasing function of gubernatorial approval within each state.

[21] For the sample period, these data are missing approval data from Idaho. There are also substantial gaps for Hawaii, Louisiana, and North Dakota.

[22] I count those governors who are eligible for reelection but *choose* not to run again as still being reelection eligible, as choosing not to run again is an endogenous choice. The central results are robust to counting only governors who actually run for their seats as reelection eligible.

[23] This accounts for persistent differences in the means of state gubernatorial approval. This also ensures state-level balance in the approval data, allowing the regression to capture departures from average approval within each state.

s. Finally, let ξ_s be a state fixed effect and χ_t a year fixed effect. I estimate the following regression equation.

$$\begin{aligned}\pi_{ist} =&\alpha_0 + \sum_{k\neq 4}^{10} \alpha_k q_{kist} + \gamma_0 \cdot \lambda_{ist} + \sum_{k\neq 4}^{10} \gamma_k q_{kist} \cdot \lambda_{ist} \\ &+ r_{ist} \cdot \Big(\beta_0 + \sum_{k\neq 4}^{10} \beta_k q_{kist} + \delta_0 \cdot \lambda_{ist} + \sum_{k\neq 4}^{10} \delta_k q_{kist} \cdot \lambda_{ist}\Big) + \xi_s + \chi_t + \epsilon_{ist} \end{aligned} \tag{5}$$

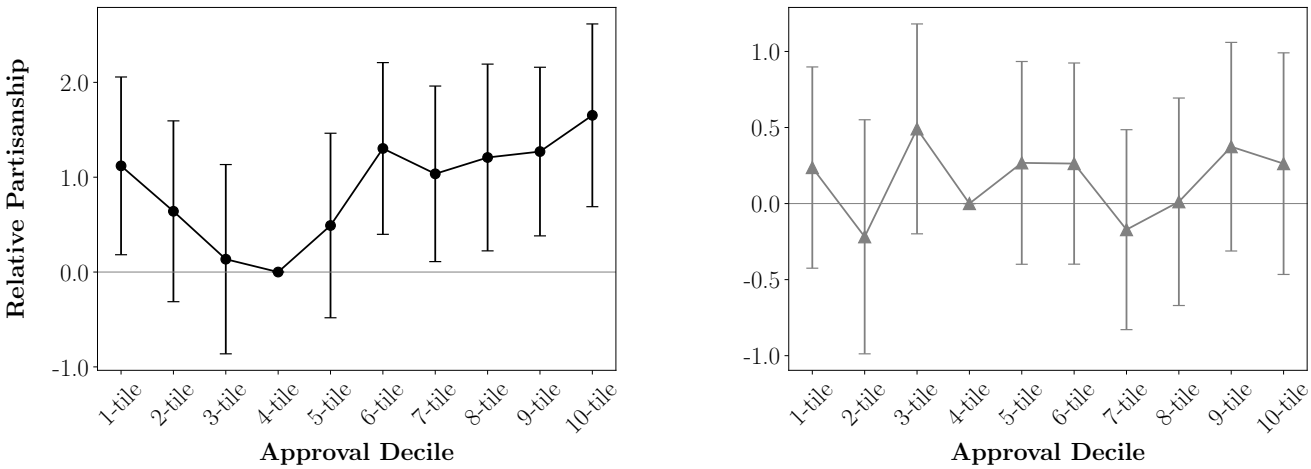
The baseline expression in the first line summarize describes how the level of partisanship varies with approval decile interacted with legislative alignment. The estimands of interest are the β_k and δ_k coefficients, which isolate changes in partisanship for reelection eligible governors relative to those ineligible for reelection. β_k represents the level of partisanship for the k^{th} decile of approval, relative to the fourth decile of approval, for a reelection eligible governor with an unaligned legislature. $\beta_k + \delta_k$ represents the level of partisanship for the k^{th} decile of approval, relative to the fourth decile of approval, for a reelection eligible governor with an *aligned* legislature.[24]

5.2 Estimating Model's Predictions

The figure below plots the estimates of the β_k coefficients using black circles in panel (a) on the left. The sums of the $\beta_k + \delta_k$ coefficients are plotted using gray triangles in panel (b) on the right.

[24]The α_k and γ_k coefficients have an analogous interpretation for reelection ineligible (lame duck) governors.

Figure 8: Partisanship of Reelectable Governors by Approval Decile, Adjusting for Lame Duck Behavior, Unaligned vs. Aligned Legislatures, 1990-2020



(a) Unaligned Legislatures

(b) Aligned Legislatures

Dependent variable measures partisanship of U.S. governor State of the State speeches using Gentzkow, Shapiro, and Taddy (2019), as calculated in equation (3), normalized by sample mean and standard deviation. Horizontal axis plots approval decile of gubernatorial approval by state, calculated using previous year's fourth quarter approval from Singer (2023) after first year in office, with first quarter approval utilized for first year in office. Black circles plots β_k coefficients from equation (5), measuring level of partisanship for reelectable governors with unaligned legislatures in decile k, adjusting for behavior of lame ducks, relative to fourth decile. Gray triangles plot $\beta_k + \delta_k$, measuring level of partisanship for reelectable governors with aligned legislatures in decile k, adjusting for behavior of lame ducks, relative to fourth decile. Bands around coefficient estimates display 95% confidence intervals. Legislative alignment measured as whether more than half of legislators match governor's party.

The left panel showcases a nonmonotonic relationship between approval decile and level of partisanship for unaligned legislatures. Being in the first decile of approval means governors' speeches are, on average, 1.1 standard deviations more partisan than in the fourth decile, falling to this level gradually in the second and third deciles. Partisanship relative to the fourth decile begins rising in the fifth decile before remaining at between 1 to 1.5 standard deviations higher in the sixth through tenth deciles. This nonmonotonicity is consistent with prediction **P1** of our model.[25]

P2 suggests that when legislative alignment increases, the nonmonotonicity of **P1** flattens

[25]I also look at how approval deciles map onto winning gaps in gubernatorial elections. For governors eligible for reelection in the first approval decile, the average win gap is about six percentage points, i.e. a governor on average wins a race with about 53% of votes. This drops to less than four percentage points for swing states, which I define in the next section, with a large left tail. The average gap rises steadily util about 10 percentage points in the fifth decile and then all the way to 17 percentage points in the top decile.

out. The lack of any evident relationship between approval and partisanship for aligned legislatures in the right panel is consistent with prediction **P2**.

Table B.2. in the appendix lists the main regression coefficients for equation (5) from which Figure 8 is constructed. Additionally, Table B.4. lists the β_k and δ_k coefficients for an analog of equation (5) run on quintiles instead of deciles, which is detailed in the next section. Table B.4. additionally shows that the baseline result is robust to excluding the year reelectable governors are up for reelection, including *only* the year reelectable governors are eligible for reelection, and dropping observations for lame duck governors in their last year in office.[26] The lack of any obvious dynamic effects is in line with the theoretical model's robustness to multiple periods of passage.

Finally, both Tables B.2. and B.4. show that the coefficient on legislative alignment for reelectable governors is positive and statistically significant. This is in line with the prediction of **P2** that increases in legislative alignment also cause increases in the baseline level of partisanship.

Disaggregation by Competition The model also predicts, via **P3**, that competitive "swing states" should exhibit more prominent nonmonotonicities than states where a single party always wins the governorship. To test this prediction of the model, I break states into three groups based on the frequency of governor party over the sample period. This allows states to be categorized via a time-invariant definition.

1. Republican States: those states with a Republican governor more than 60% of the sample period (1990-2020).

2. Democratic States: those states with a Democratic governor more than 60% of the sample period.

3. Swing States: those remaining states, where the State governorship experiences fluctuations in party over the sample period.

A list of all states belonging to each category is displayed in appendix Table B.3.

To streamline the analysis, I estimate an analogue of equation (5) for quintiles, as follows:

$$\begin{aligned}\pi_{ist} =&\alpha_0 + \sum_{k\neq 2}^{5} \alpha_k \tilde{q}_{kist} + \gamma_0 \cdot \lambda_{ist} + \sum_{k\neq 2}^{5} \gamma_k \tilde{q}_{kist} \cdot \lambda_{ist} \\ &+ r_{ist} \cdot \Big(\beta_0 + \sum_{k\neq 2}^{5} \beta_k \tilde{q}_{kist} + \delta_0 \cdot \lambda_{ist} + \sum_{k\neq 2}^{5} \delta_k \tilde{q}_{kist} \cdot \lambda_{ist}\Big) + \xi_s + \chi_t + \epsilon_{ist} \end{aligned} \tag{6}$$

[26] The nonmonotonicity is starkest when dropping lame ducks in their last year in office since, presumably, these governors have a substantively minimal policy agenda relative to prior years in office.

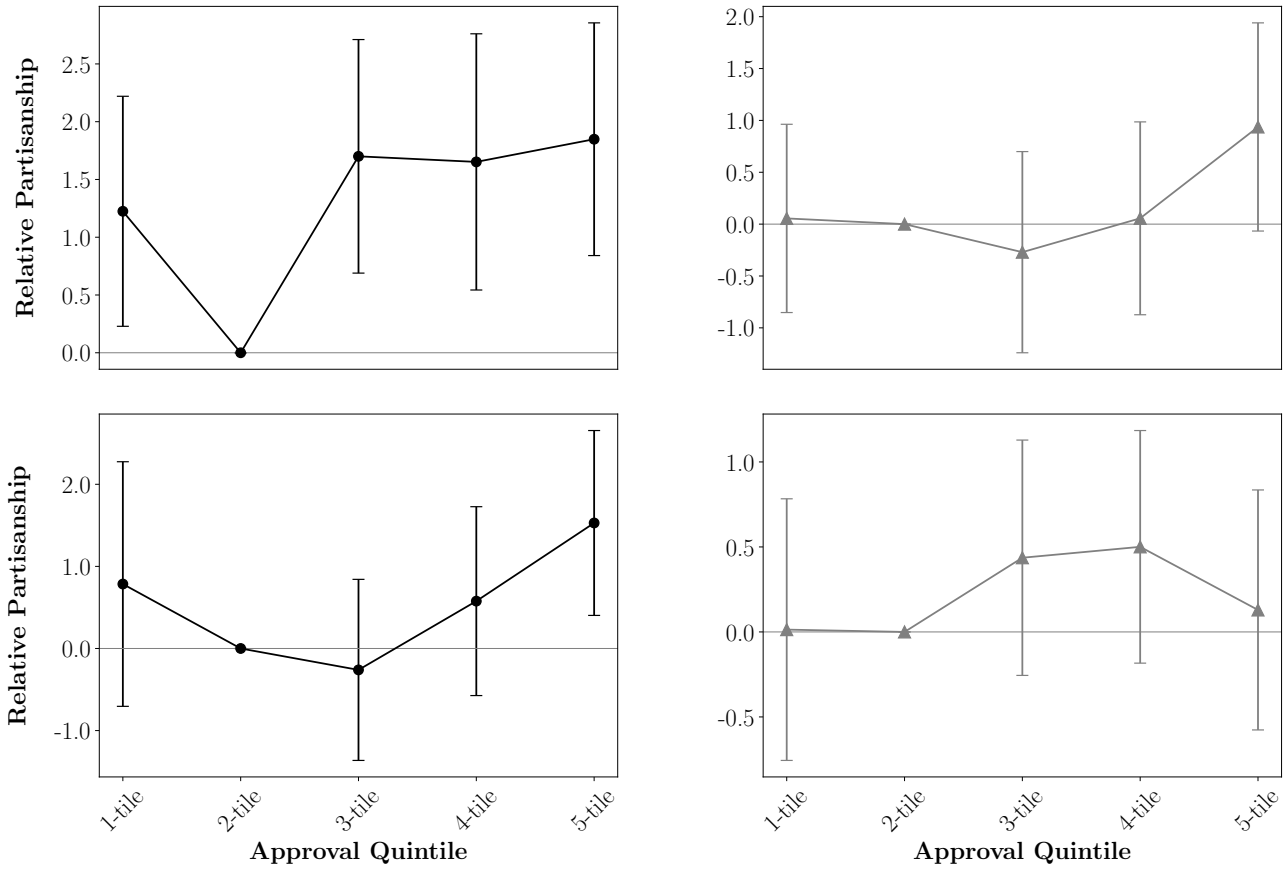
Here, $\tilde{q}_k$ now corresponds to quintile k. I take the omitted category to be the second quintile, which corresponds to the trough in the fourth decile of equation (5). The first column of Table B.4. in the appendix shows that this renormalization indeed picks up a trough in partisanship for unaligned legislatures in the second quintile of approval, relative to the first and third through fifth, when pooling all states together, as in Figure 8.

The six panels of the figure below showcase estimations of equation (5) for the three categories of state competition: Swing, Republican, and Democratic. The corresponding regression coefficients are in columns (5) through (7) of Table B.4.

Figure 9: Partisanship of Reelectable Governors by Approval Quintile, Adjusting for Lame Duck Behavior, Unaligned vs. Aligned Legislatures, Disaggregated by Competition, 1990-2020

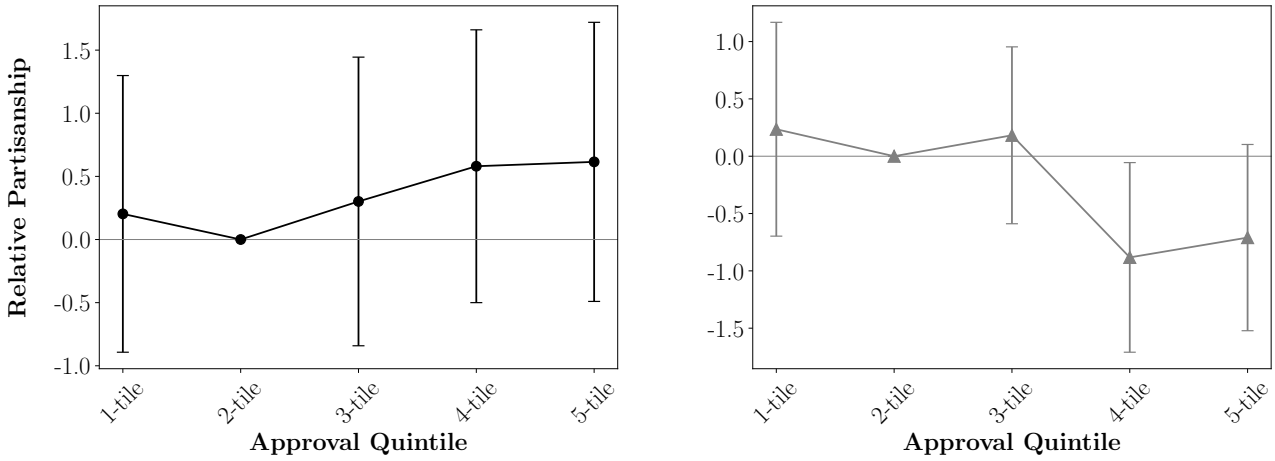
(a) Swing States, Unaligned Legislatures

(b) Swing States, Aligned Legislatures



(c) Rep. States, Unaligned Legislatures

(d) Rep. States, Aligned Legislatures



(e) Dem. States, Unaligned Legislatures

(f) Dem. States, Aligned Legislatures

Dependent variable measures partisanship of U.S. governor State of the State speeches using Gentzkow, Shapiro, and Taddy (2019), as calculated in equation (3), normalized by sample mean and standard deviation. Horizontal axis plots approval quintile of gubernatorial approval by state, calculated using previous year's fourth quarter approval from Singer (2023) after first year in office, with first quarter approval utilized for first year in office. Black series plots β_k coefficients from equation (5), measuring level of partisanship for reelectable governors with unaligned legislatures in quintile k, adjusting for behavior of lame ducks, relative to second quintile. Gray circles plot $\beta_k+\delta_k$, measuring level of partisanship for reelectable governors with aligned legislatures in quintile k, adjusting for behavior of lame ducks, relative to second quintile. Bands around coefficient estimates display 95% confidence intervals. Legislative alignment measured as whether more than half of legislators match governor's party. Republican states defined as those states with Republican governor more than 60% of sample period. Democratic states defined as those states with Democratic governor more than 60% of sample period. Swing states defined as remaining states.

Indeed, a nonmonotonicity resembling that in Figure 7 is most prominent in Figure 9(a). For governors in swing states with aligned legislatures, being in the first quintile leads to a 1.3 standard deviation increase in partisanship relative to the second quintile, while being in the fifth quintile leads to a 1.9 standard deviation increase. The pattern for aligned legislatures in panel (b) is sufficiently flatter; the drop in partisanship from the first to second quintile is statistically insignificant.[27] That the nonmonotonicity of the model is strongest for swing states with aligned legislatures is consistent with **P3**.

In panels (c) and (e), Republican and Democratic governors exhibit a statistically weak nonmonotone relationship between approval quintile and partisanship under unaligned legislatures. Republicans see a trough in partisanship around the third quintile, while Democrats see a trough in the second. For aligned legislatures, Republicans and Democrats both see a lightly monotone relationship, although none of the coefficient estimates are statistically

[27]The asymmetry in partisanship, where the level of partisanship for the lowest approval governors is lower than that of the highest approval governors, is consistent with the general version of the model presented in Theorem 1.

different from 0. These predictions are in line with **P2** and **P3**: the nonmonotonocity of **P1** should be weak for states with entrenched parties, and especially weak (or nonexistent) for entrenched states with aligned legislatures.

6 Discussion and Conclusion

This paper explores how political executives may utilize partisan policies as a means of winning reelection and, thereby, how changes in executives' electoral environments may generate fluctuations in partisanship. I develop a theory that interprets an incumbent executive's choice of policy agenda as an information structure over incumbent ability, where less partisan policies generate left skewness in the distribution of posteriors over incumbent ability and more partisan policies generate right skewness. Incumbents who face threshold retention rules as a function of their ability, as in much of the voting literature, then exhibit a nonmonotonic relationship between the partisanship of their policies and their reputation. As their reputation increases, they first pursue partisan policy agendas, then bipartisan agendas, and then partisan agendas again. Utilizing an extension akin to a constrained persuasion model, I show that high reputation incumbents may even pursue more partisan policies than their low reputation counterparts. I show that these insights are robust to uncertainty in elections, allowing incumbents to choose opposing parties' platforms, and multiple periods of agenda setting.

I then apply these insights to explain how the partisanship of U.S. governors' policy proposals fluctuates with changes in their electoral environments. I first document that gubernatorial partisanship —measured using governors' annual State of the State speeches — only becomes substantive after the early 2000s, creeps up slowly for the next decade, spikes after 2017, and consistently has a lower level than the comparable series for Congress. I then move to panel data to study partisanship of governors' policy proposals in these speeches, using the model to explore differences in the partisanship of reelectable and lame duck governors. I show that a nonmonotonic variation of gubernatorial partisanship with approval decile in unaligned legislatures matches that of the model, especially in swing states. I show that, in line with the model, increasing legislative alignment flattens this nonmonotonicity; that increasing legislative alignment also shifts up the baseline level of partisanship; and that states with entrenched parties are also less likely to showcase this nonmonotonicity. The panel analysis coupled with the theoretical analysis permits a view that changes in partisanship as not solely driven by latent trends in political landscapes but also shaped by elected officials' reelection incentives.

Partisanship in the U.S. Presidency The lessons of the paper provide a unified structure for analyzing fluctuations in the partisanship of political executives more broadly. Although the existence of only one president at any given time limits empirical analysis of presidential speech, the model can provide qualitative insight into patterns in partisanship of presidential policies, as well as their effects on reelection.

For example, the resounding success of Franklin D. Roosevelt's first two New Deal policies amidst high approval ratings contributed to a landslide reelection in 1936, illustrating how the success of a partisan agenda can broadly secure reelection. At the same time, Roosevelt continued to pursue more radical reform in his second term in what scholars sometimes call a "Third New Deal" — "far reaching" efforts to greatly expand a social welfare state, establish fiscal Keynesianism, and address the plight of the "one-third of a nation ill-housed, ill-clad, ill-nourished" — which met significant opposition from many Republicans and centrist Democrats that, along with other failures, stymied his approval later in his second term (Jeffries, 1996, p. 396). FDR's consequent shift to bipartisan policies towards the end of his second term can be seen as a response to this negative change in approval, a decision likely helping him secure reelection. [28]

Similarly, Lyndon B. Johnson enjoyed high popularity ratings leading up to his reelection. [29] His consequent exhibition of political acumen — a keen handling of the Kennedy assassination and passage of landmark civil rights legislation through a "congressional logjam" in less than a month (Caro, 2012) — contributed to a landslide reelection.[30] Johnson's soaring popularity may have further influenced his pursuit of the ambitious Great Society reforms and the War on Poverty, despite the contentions of many conservative politicians, in line with the sort of phenomena predicted by our model.

Conversely, the passage or failure of more bipartisan or nonpartisan legislation may not generate a strong enough signal to win politicians reelection when the odds are stacked against them. While Jimmy Carter, for example, "did have some successes with Congress", it was "often because he backed existing Democratic programs, such as raising the minimum wage"; Carter gained a reputation for "political ineptitude" compounded by a hostage crisis, communication blunders, and contentious relations with legislators amidst plummeting

[28] "The reinforcing impacts of the court-packing bill, the 1937-38 recession, labor activism, and the 1938 purge attempt both diminished popular support for FDR and increased congressional opposition to the New Deal. By shifting attention to foreign and military affairs, restoring prosperity, and enhancing the prestige and political clout of business, World War II contributed to the ebbing of reform energies and to stalemate and consolidation" (Jeffries, 1996, p. 398).

[29] References for presidential approval come from The American Presidency Project (2024).

[30] Caro writes: "To watch him deal with Congress, deal with the Kennedys, confront a dozen other challenges for which there was no precedent — for which he had to create his own precedents — is to watch a President, in very difficult circumstances, triumph over them, and it is therefore a means of gaining new insight into some fundamental realities about the pragmatic potential in the American presidency."

approval ratings (Strong, 2024). To this end, his success in achieving bipartisan goals was not informativeness enough of his skill, given his context, to win him reelection . Similarly, George H.W. Bush's bipartisan accomplishments — the Americans with Disabilities Ac and Clean Air Act — could not save him from a perceived negligence of domestic affairs and an ongoing recession that led to his loss to Bill Clinton (Knott, 2024). Clinton performed well in the election — corresponding to an incumbent with high initial reputation in the model — setting him up to pursue an ambitious partisan healthcare reform within his first 100 days in office. However, after the bill's eventual failure and Clinton's subsequently middling approval ratings, the president shifted to a decidedly more bipartisan program that made significant concessions to the Republicans — manifest in his plan ending "welfare as we know it," ratification of NAFTA, and the 1996 Crime Bill (Riley, 2024). Clinton's initial pursuit of an ambitious partisan policy, the failure of that partisan policy hurting (although not dooming) his reputation, and his subsequent success in pursuing concessionary politics to secure reelection is in line with the story of this paper's model.

Broader Implications The paper broadly advances three research agendas. First, the model links the documentary literature on partisanship directly to the theoretical literature on political accountability. It provides a reputational and informational mechanism through which partisanship may manifest, grow, and fluctuate as a function of an incumbent executive's electoral environment. The model's application of a constrained persuasion approach generates a nonmonotonic relationship between reputation and partisanship that contrasts with a large literature on "gambling for resurrection." Simultaneously, the theory sheds light on solving a more general constrained persuasion problem, where senders are unable to implement completely uninformative Blackwell experiments, a subject that merits further study.

Second, the documentation of trends in gubernatorial partisanship provides a novel series measuring partisanship of political executives by utilizing governors' State of the State speeches. It also provides a novel series measuring partisanship of political speech at the state level, and utilizes advances in large-language modeling to specifically probe the partisanship of policy proposals. At the same time, however, the analysis suggests that even within region, state, and governor, there are substantive fluctuations in partisanship around these trends, and that the differences in the timing and size of these fluctuations raise serious questions about the potential mechanisms driving the patterns seen in aggregate partisanship. To this end, this contribution opens the door for more comprehensive studies of partisanship at the level of states and localities, emphasizes the important role political executives play in rising partisanship in the US, and prioritizes fluctuations — as opposed to trends — in studying

partisanship in a broader national context.

Finally, the paper links a theoretical framework to aggregate partisanship with specific attention to explaining *fluctuations* in partisanship, contrasting with a large literature which has largely documented *trends* in partisanship. Crucially, the model does not interpret departures from trends or state-level heterogeneity in partisanship as noise, but as structured deviations generated by incumbents' incentives to win reelection. Regression analysis of panel data on governor-level partisanship provides evidence of the model's mechanism, manifest in a nonmonotonic relationship between partisanship and proxies for gubernatorial reputation when executives are unaligned with their legislature, and driven by swing states with competitive electoral environments.

Executives at large, especially governors, exercise close control over public policies. In the dataset at hand, partisan attitudes manifest themselves in efforts to create affordable housing, combat climate change, restructure law enforcement, fund charter schools, extend healthcare coverage, raise minimum wages, create hospitable business environments, or cut taxes.[31] These policies have large effects on the shape of economic inequality, social stratification, and human capital acquisition within the States. Providing insight on when, how, and why politicians may pursue more or less partisan policies permits richer insights into the timing, nature, and potential effects of these sorts of policies, and contributes to understanding the landscape of policy partisanship in American politics.

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[31] These insights are gleaned from Table B.1.

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Appendix A Proofs and Theoretical Extensions

A.1 Main Proofs

Proposition 1. *There exist thresholds* $0 < \underline{q} < q_L^2 < \overline{q} < 1$ *such that:*

- *for* $q_R^1 \in [0, \underline{q})$, $\pi^*(q_R^1)$ *is strictly decreasing, with* $\pi^*(0) = 1$ *and* $\pi^*(\underline{q}) = 0$*;*
- *for* $q_R^1 \in [\underline{q}, \overline{q})$, $\pi^*(q_R^1) = 0$*;*

- *for* $q_R^1 \in [\overline{q}, 1]$, $1 \in \pi^*(q_R^1)$ *with equality at* $\overline{q}$.

Proof. Note in general the following formulae for posteriors as a function of π, fixing q_R^1:

$$\overline{q}_R^2(\pi) = \frac{(\lambda + (1-\lambda)(1-\pi))q_R^1}{\lambda q_R^1 + (1-\lambda)(1-\pi)}$$
$$\underline{q}_R^2(\pi) = \frac{(1-\lambda)\pi q_R^1}{\lambda(1-q_R^1) + (1-\lambda)\pi}.$$

Note that $\overline{q}_R^2$ is decreasing in π while $\underline{q}_R^2$ is increasing in π.

Next, fix $q_R^1 \in (0,1)$. Consider the following sets $\overline{P}$ and $\underline{P}$:

$$\underline{P}(q_R^1) := \{\pi : \overline{q}_R^2(\pi) \geq q_L^2, \underline{q}_R^2(\pi) < q_L^2\}$$
$$\overline{P}(q_R^1) := \{\pi : \underline{q}_R^2(\pi) \geq q_L^2\}.$$

Note that $\underline{P}$ is always nonempty ($\ni \pi = 1$) but $\overline{P}$ is empty for q_R^1 low. I claim that $\pi^*(q_R^1) = \min\{\underline{P}(q_R^1)\}$ when $\overline{P} = \varnothing$ and $\overline{P}$ otherwise.

First, any $\pi \notin \overline{P}, \underline{P}$ always leads to an expected win probability of 0; these are dominated by any $\pi \in \underline{P}$. Next, for any $\pi \in \underline{P}$, the expected win probability is $\lambda q_R^1 + (1-\lambda)(1-\pi)$, which is the likelihood of seeing $\overline{q}_R^2$. This probability is maximized when π is minimized, i.e. at $\min\{\underline{P}(q_R^1)\}$. If $\overline{P}$ is empty, then $\pi^*(q_R^1) = \min\{\underline{P}(q_R^1)\}$. Finally, if $\overline{P}$ is nonempty, any $\pi \in \overline{P}$ leads to a win with probability 1, meaning $\pi^*(q_R^1) = \overline{P}(q_R^1)$.

Next, we show $\min\{\underline{P}(q_R^1)\}$ is strictly decreasing in π until a point $\underline{q}$, whereafter it is equal to 0. In general, $\min\{\underline{P}(q_R^1)\}$ is the solution to $\frac{(\lambda+(1-\lambda)(1-\pi))q_R^1}{\lambda q_R^1+(1-\lambda)(1-\pi)} = q_L^2$. As q_R^1 rises, the left-hand-side increases for each π, meaning the π solving this equation decreases. The solution to this equation exists up until some $\underline{q} < q_L^2$, defined by $\frac{(\lambda+(1-\lambda))\underline{q}}{\lambda\underline{q}+(1-\lambda)} = q_L^2$, where $\pi = 0$ and can no longer decrease. For $q_R^{1\prime} > q_R^1$, if $\pi \in \underline{P}(q_R^1)$, then $\pi \in \underline{P}(q_R^{1\prime})$, meaning $\min\{\underline{P}(q_R^1)\} = 0$ for $q_R^1 \geq \overline{q}$. Finally, as $q_R^1 \to 0$, $\pi \to 1$.

Finally, we show that there exists $\overline{q} > q_L^2$ such that $\overline{P}(q_R^1) \neq \varnothing$ if and only if $q_R^1 \geq \overline{q}$. Note that, fixing q_R^1, the expression for $\underline{q}_R^2$ is maximized when $\pi = 1$. This means that $\overline{P}$ is nonempty if and only if $\frac{(1-\lambda)q_R^1}{1-\lambda q_R^1} \geq q_L^2$, which occurs if and only if $q_R^1 \geq \overline{q} > q_L^2$ defined as the implicit solution to $\frac{(1-\lambda)\overline{q}}{1-\lambda\overline{q}} = q_L^2$.

The comparative statics with respect to q_L^2 and λ emerge directly from the equations defining $\overline{q}$ and $\underline{q}$. □

Proposition 2. *For* $q_R^1 \in [0, \underline{q}]$, $V_V(\pi^*) = q_L^2$*; for* $q_R^1 \in [\underline{q}, \overline{q})$, $V_V(\pi^*) = q_R^1 + \lambda(1-q_R^1)q_L^2$*; for* $q_R^1 \in [\overline{q}, 1]$, $V_R(\pi^*) = q_R^1$.

Proof. Below $\underline{q}$, we either have $q_R^1 \to \underline{q}_R^2 < q_L^2$ or $q_R^1 \to \overline{q}_R^2 = q_L^2$. In the former case, V elects L and receives q_L^2; in the latter, she is indifferent between R and L but receives q_L^2 either way. In the region $(\underline{q}, \overline{q})$, $q_R^1 \to 0$ or some $\overline{q}_R^2 > q_L^2$. In the former case, V replaces R but in the latter she is retained, and her expected ability is greater than q_L^2. Finally, for $q_R^1 \geq \overline{q}$, R is always retained. The expected value of the posterior q_2^R is, as a result, simply the prior q_R^1. □

Proposition 5. *As $q_L^2 \to 1$, $\underline{q} \to \overline{q}$. As $q_L^2 \to 0$, $\overline{q} \to \underline{q}$. There exists q_L^{2*} that maximizes the size of the interval $[\underline{q}, \overline{q})$.*

Proof. The closed forms for $\underline{q}, \overline{q}$ are respectively, based on the previous proposition:

$$\frac{(1-\lambda)q_L^2}{1-\lambda q_L^2}, \frac{q_L^2}{1-\lambda(1-q_L^2)}.$$

Both terms are increasing in q_L^2. The derivative of the difference of these two terms with respect to q_L^2 is given by:

$$\frac{1-\lambda}{(1-\lambda(1-q_L^2))^2} - \frac{1-\lambda}{(1-\lambda q_L^2)^2}$$

which is positive for $q_L^2 \leq 1/2$, negative when $q_L^2 \geq 1/2$, and $= 0$ at $q_L^{2*} = 1/2$. □

The following two lemmata are used to prove Theorem 1.

Lemma 1. *Suppose w is a differentiable, strictly concave, and strictly increasing function defined over q_R^2. Then, there exists $p \in [0,1]$ such that the expected value of w over the lottery of posteriors $\overline{q}_R^2, \underline{q}R^2$ is maximized when $(p_1, p_0) = (p, p)$.*

Proof. We make a slight change of notation, $q_R^1 = q$. Our problem describing the maximum of w over the lotteries over q_R^2 is given by:

$$\max_{p_1 \geq p_0} \int_{q_R^2} w(q_R^2) dF(q_R^2 | p_1, p_0, q).$$

Let $g(p_1)$ be the probability of a success conditional on $a_R = 1$; and $h(p_0)$ the probability of success conditional on $a_R = 0$. Note that the distribution of posteriors $F(q_R^2 | p_1, p_0, q_R^2)$ is a two-point mean preserving spread of the prior q.

Suppose by contradiction that $p_1 > p_0$. This means that there would exist p_1, p_0 such that

$$\overline{q}_R^2(p_1, p_0) = \frac{g(p_1)q}{g(p_1)q + h(p_0)(1-q)}$$
$$\underline{q}_R^2(p_1, p_0) = \frac{q - qg(p_1)}{1 - qg(p_1) - (1-q)h(p_0)}.$$

The partial derivatives of $\overline{q}_R^2$ are:

$$\begin{aligned} p_1 \qquad & q(1-q)g'(p_1)\frac{h(p_0)}{[g(p_1)q + h(p_0)(1-q)]^2} > 0 \\ p_0 \qquad & -q(1-q)h'(p_0)\frac{g(p_1)}{[g(p_1)q + h(p_0)(1-q)]^2} < 0. \end{aligned}$$

The partial derivatives of $\underline{q}_R^2$ are:

$$\begin{aligned} p_1 \qquad & -q(1-q)g'(p_1)\frac{(1-h(p_0))}{[1 - qg(p_1) - (1-q)h(p_0)]^2} < 0 \\ p_0 \qquad & q(1-q)h'(p_0)\frac{(1-g(p_0))}{[1 - qg(p_1) - (1-q)h(p_0)]^2} > 0 \end{aligned}$$

Suppose we marginally decrease p_1 by Δ_1 and increase p_0 by Δ_0 so that $\overline{q}_R^2$ remains the same, i.e.

$$\begin{aligned} q(1-q)g'(p_1)\frac{h(p_0)}{[g(p_1)q + h(p_0)(1-q)]^2}\Delta_1 = q(1-q)h'(p_0)\frac{g(p_1)}{[g(p_1)q + h(p_0)(1-q)]^2}\Delta_0 \\ \implies g'(p_1)h(p_0)\Delta_1 - g(p_1)h'(p_0)\Delta_0 = 0 \end{aligned}$$

The sign of the change in $\underline{q}_R^2$ is then the sign of:

$$\begin{aligned} & -g'(p_1)(1-h(p_0))\Delta_1 + h'(p_0)(1-g(p_1)\Delta_0 \\ = g'(p_1)h(p_0))\Delta_1 - g(p_1)h'(p_0)\Delta_0 - g'(p_1)\Delta_1 + h'(p_0)\Delta_0 \\ & = -g'(p_1)\Delta_1 + h'(p_0)\Delta_0 \end{aligned}$$

$g(p_1)$ is given by $\lambda + (1-\lambda)p_1$, so its derivative is $(1-\lambda)$. $h(p_0)$ is given by $(1-\lambda)p_0$, so its derivative is also $(1-\lambda)$. Hence, the sign of the change in $\underline{q}_R^2$ is the sign of $\Delta_0 - \Delta_1$.

I claim that $\Delta_0 > \Delta_1$. The expressions for these are

$$\Delta_1 = q(1-q)g'(p_1)h(p_0)$$
$$\Delta_0 = q(1-q)g(p_1)h'(p_0).$$

The latter is larger than the former if and only if

$$g(p_1)h'(p_0) > g'(p_1)h(p_0).$$

Since $h'(p_0) = g'(p_1) = 1 - \lambda$, this is true if and only if $g(p_1) > h(p_0)$, which is always true by the constraint that $p_1 \geq p_0$ (i.e. the conditional likelihood of a success is higher for $a_R = 1$ than $a_R = 0$). Hence, decreasing p_1 by Δ_1 and raising p_0 by Δ_0 keeps $\overline{q}_R^2$ fixed while raising $\underline{q}_R^2$, generating a mean preserving contraction of the original lottery over posteriors. Because w is strictly increasing and concave, this new lottery over posteriors is preferred to the original generated by (p_1, p_0), a contradiction. Hence, we always have that w is maximized when $p_1 = p_0 = p$. □

Lemma 2. *Suppose w is a differentiable, strictly concave, and strictly increasing function defined over q_R^2. Then, the lottery generated by $(p, p) = (0, 0)$ over q_R^2 dominates all other (p_1, p_0).*

Proof. Note first that $\overline{q}_R^2$ is strictly decreasing as a function of p, meaning $\overline{q}_R^2$ is maximized at $p = 0$. Note that any lottery over posteriors can be represented with a line segment connecting $(\underline{q}_R^2, w(\underline{q}_R^2))$ and $(\overline{q}_R^2, w(\overline{q}_R^2))$, with the expected value of the lottery given by the point on the segment corresponding to the prior q.

Note that, fixing $\overline{q}_R^2$, flatter line segments correspond to higher expected values. It then suffices to show that the line segment connecting $(\underline{q}_R^2, w(\underline{q}_R^2))$ and $(\overline{q}_R^2, w(\overline{q}_R^2))$ is shallowest at $p = 0$ — where $w(\overline{q}_R^2)$ is additionally maximal. I.e., its slope, given by

$$\frac{w(\overline{q}_R^2(p)) - w(\underline{q}_R^2(p))}{\overline{q_R^2} - \underline{q}_R^2},$$

achieves a minimum at $p = 0$. The numerator of the derivative of this expression is given by:

$$[\overline{q_R^2} - \underline{q}_R^2][w'(\overline{q}_R^2)\overline{q_R^2}' - w'(\underline{q}_R^2)\underline{q_R^2}'] - [w(\overline{q}_R^2) - w(\overline{q}_R^2)][\overline{q}_R^{2\prime} - \underline{q}_R^{2\prime}]$$

Note that $h'(p) = g'(p) = (1 - \lambda)$, and that $g(p) - h(p) = \lambda$, so that:

$$\begin{aligned}\overline{q}_R^{2\prime} - \underline{q}_R^{2\prime} &= \frac{q(1-q)[g'(p)h(p) - h'(p)g(p)]}{[qg(p) + (1-q)h(p)]^2} - \frac{q(1-q)[g'(p)(1-h(p)) - h'(p)(1-g(p))}{[1 - qg(p) - (1-q)h(p)]^2} \\ &= \frac{q(1-q)\lambda(1-\lambda)}{[1 - qg(p) - (1-q)h(p)]^2} - \frac{q(1-q)\lambda(1-\lambda)}{[qg(p) + (1-q)h(p)]^2}\end{aligned}$$

Hence the derivative above is ≥ 0 if and only if

$$
\begin{aligned}
[\overline{q_R^2} - \underline{q}_R^2][-w'(\overline{q}_R^2)\frac{q(1-q)\lambda(1-\lambda)}{[qg(p)+(1-q)h(p)]^2} + w'(\underline{q}_R^2)\frac{q(1-q)\lambda(1-\lambda)}{[1-qg(p)-(1-q)h(p)]^2}] \\
-[w(\overline{q}_R^2) - w(\overline{q}_R^2)]\left[\frac{q(1-q)\lambda(1-\lambda)}{[1-qg(p)-(1-q)h(p)]^2} - \frac{q(1-q)\lambda(1-\lambda)}{[qg(p)+(1-q)h(p)]^2}\right] \geq 0 \\
\frac{w'(\underline{q}_R^2)}{[1-qg(p)-(1-q)h(p)]^2} - \frac{w'(\overline{q}_R^2)}{[qg(p)+(1-q)h(p)]^2} \\
\geq \frac{\frac{w(\overline{q}_R^2)-w(\overline{q}_R^2)}{\overline{q_R^2}-\underline{q}_R^2}}{[1-qg(p)-(1-q)h(p)]^2} - \frac{\frac{w(\overline{q}_R^2)-w(\overline{q}_R^2)}{\overline{q_R^2}-\underline{q}_R^2}}{[qg(p)+(1-q)h(p)]^2}
\end{aligned}
$$

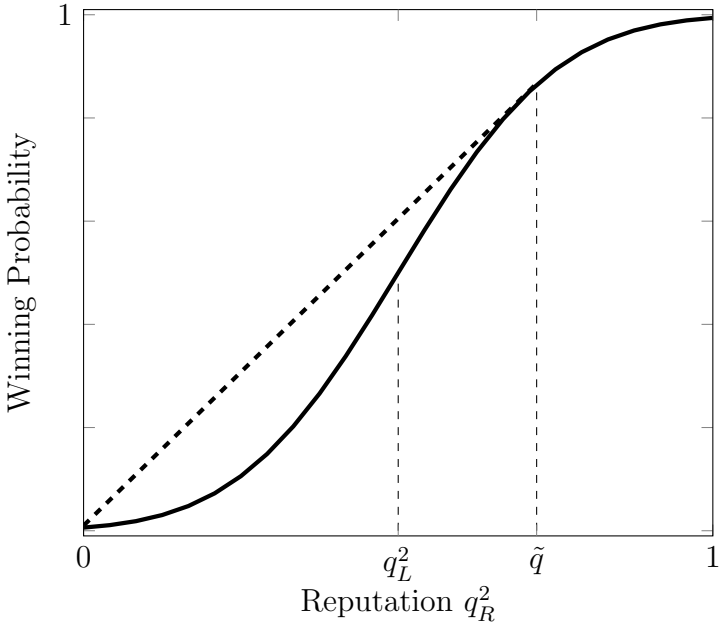
Note in particular that by concavity, $w'(\underline{q}_R^2) > \frac{w(\overline{q}_R^2)-w(\overline{q}_R^2)}{\overline{q_R^2}-\underline{q}_R^2} > w'(\underline{q}_R^2)$. This means that the first term on the left is always strictly larger than the first time on the right; and that the magnitude of the second term on the left is smaller than the magnitude of the second term on the right, so that this expression is always true, i.e. the derivative is positive for all p. Hence, the slope of the segment achieves a minimum at $p = 0$, showing the result. □

Theorem 1. *There exist thresholds $\underline{q} < \overline{q}$ such that:*

- *for $q_R^1 \leq \underline{q}$, $\pi^*(q_R^1)$ is strictly decreasing. $p^*(0) = (1,0)$ and $\pi^*(0) = 1/2$, while $\pi^*(\underline{q}) = 0$ and $\pi^*(\underline{q}) = 0$.*
- *For $q_R^1 \in [\underline{q}, \overline{q})$, $p^* = (1,1)$ and $\pi^* = 0$;*
- *for $q_R^1 \geq \overline{q}$, $p^* = (0,0)$ and $\pi^* = 1$.*

Proof. The proof of this result makes use of the previous two lemmata. First, note that the concavification of $N(q_R^2 - q_L^2)$ is characterized by a point $\tilde{q} > q_L^2$. Specifically, the concavification is given by a line segment connection the points $(0, N(-q_L^2))$ and $(\tilde{q}, N(\tilde{q} - q_L^2))$, where $\tilde{q}$ solves $N'(\tilde{q} - q_L^2)\tilde{q} = N(\tilde{q} - q_L^2) - N(-q_L^2)$, followed by the curve N itself for $q \geq \tilde{q}$. Note also that N is strictly concave for $q_R^1 > q_L^2$ and strictly convex for $q_R^1 < q_L^2$. These are shown in the figure below, where the solid line is $N(q_R^2 - q_L^2)$ and the dashed line the concavification.

Figure A.1: Concavification of $N(q_R^2 - q_L^2)$



Next, notice that there exists $0 < \underline{q} < \tilde{q}$ such that for all $q_R^1 \leq \underline{q}$, we can choose p_1 and p_0 to achieve the concavification. Since $\underline{q}_R^2$ must = 0 for any point $\leq \tilde{q}$ to achieve the concavification, we must have $p_1 = 1$ and vary p_0. p_0 must then solve, for each q_R^1,

$$\frac{q_R^1}{q_R^1 + (1-\lambda)(1-q_R^1)p_0} = \tilde{q}.$$

Notice that this expression is minimized when $p_0 = 1$, when it is equal to $\frac{q_R^1}{q_R^1+(1-\lambda)(1-q_R^1)}$. Let $\underline{q}$ solve $\frac{\underline{q}}{\underline{q}+(1-\lambda)(1-\underline{q})} = \tilde{q}$. Note that for all $q_R^1 > \underline{q}$, there does not exist $p_0 \in [0,1]$ such that the posteriors $(\overline{q}_R^2, \underline{q}_R^2) = (\tilde{q}, 0)$ are achievable. It is easy to see that for all $q \leq \underline{q}$, there exists $p_0(q_R^1)$ that achieves these posteriors, with p_0 given directly by

$$p_0 = \frac{q_R^1(1-\tilde{q})}{(1-\lambda)(1-q_R^1)\tilde{q}},$$

which is strictly increasing from 0 at $q_R^1 = 0$ to 1 at $\underline{q}$. This argument uses a similar approach to Proposition 1.[32]

Next, we show that for all $q_R^1 \geq \underline{q}$, $(p_1, p_0) = (1,1)$ dominates any (p_1, p_0) such that $\underline{q}_R^2 < q_L^2$. Suppose by contradiction that there exists $(p_1, p_0) \neq (1,1)$ such that $\underline{q}_R^2 < q_L^2$, which dominates $(1,1)$. Because $\overline{q}_R^2$ is minimized at $(p_1, p_0) = (1,1)$, we necessarily have that

[32]In particular, $\frac{\underline{q}}{\underline{q}+(1-\lambda)(1-\underline{q})} = \tilde{q}$ gives the comparative static of $\underline{q}$ with respect to λ and q_L^2. Increasing λ decreases $\underline{q}$. Increasing q_L^2 increases $\tilde{q}$ and hence increases $\underline{q}$.

$\overline{q}_R^2 > q_L^2$, so that $\overline{q}_R^2$ is on the concave portion of N. Suppose first that $p_1 = 1$ so that $\underline{q}_R^2 = 0$. The expected value of this lottery is the line segment from $(0, N(-q_L^2))$ to $(\overline{q}_R^2, N(\overline{q}_R^2 - q_L^2))$. Since $p_0 < 1$, we can generate a strict improvement by increasing p_0, which slightly lowers $\overline{q}_R^2$. However, because $\overline{q}_R^2$ is on the concave portion of N, the line segment from $(0, N(-q_L^2))$ to $(\overline{q}_R^2, N(\overline{q}_R^2 - q_L^2))$ becomes steeper while originating from the same point $(0, N(-q_L^2))$. Because the expected value from (p_1, p_0) lies on the point on the segment corresponding to q_1^2, this steepening generates an improvement on the original (p_1, p_0), a contradiction.

Hence, suppose $p_1 < 1$ so that $\underline{q}_R^2 > 0$. If $p_0 > 0$, we can reverse the argument in Lemma 1 and slightly raise p_1 and lower p_0 so that $\overline{q}_R^2$ remains the same but $\underline{q}_R^2$ decreases. The line segment connecting $(\underline{q}_R^2, N(\underline{q}_R^2 - q_L^2))$ to $(\overline{q}_R^2, N(\overline{q}_R^2 - q_L^2))$ becomes shallower, while its upper point $(\overline{q}_R^2, N(\overline{q}_R^2 - q_L^2))$ remains the same, meaning the line rotates upwards, again generating an improvement. If $p_0 = 0$, increasing p_0 causes both $\underline{q}_R^2$ and $\overline{q}_R^2$ to decrease. However, because $\overline{q}_R^2$ is on the concave portion of N and $\underline{q}_R^2$ on the convex portion, this generates a left/upward shift in the line segment connecting $(\underline{q}_R^2, N(\underline{q}_R^2 - q_L^2))$ to $(\overline{q}_R^2, N(\overline{q}_R^2 - q_L^2))$, again generating an improvement.

Next, we show that there exists $\overline{q}$ such that for all $q_R^1 \geq \overline{q}$, $(p_1, p_0) = (0, 0)$ dominates $(1, 1)$. $(0, 0)$ generates posteriors $\overline{q}_R^2 = 1$ and $\underline{q}_R^2 = \frac{(1-\lambda)q_R^1}{1-\lambda q_R^1}$. Note that because $1 > \frac{q_R^1}{q_R^1 + (1-\lambda)(1-q_R^1)}$, a sufficient condition for this to hold is that the line segment connecting and $(\frac{(1-\lambda)q_R^1}{1-\lambda q_R^1}, N(\frac{(1-\lambda)q_R^1}{1-\lambda q_R^1} - q_L^2)$ and $(1, N(1-q_L^2))$ is shallower than that connecting $(0, N(-q_L^2))$ to $(\frac{q_R^1}{q_R^1 + (1-\lambda)(1-q_R^1)}, N(\frac{q_R^1}{q_R^1 + (1-\lambda)(1-q_R^1)} - q_L^2))$. As $q_R^1 \to 1$, the slope of the former line segment approaches 0; while the slope of the latter approaches $N(1-q_L^2) - N(-q_L^2)$. Because the change in these slopes is monotone as long as q_R^1 is sufficiently high (i.e. as long as $\frac{(1-\lambda)q_R^1}{1-\lambda q_R^1} \geq q_L^2$) , by continuity, there exists $\overline{q}$ such that for $q_R^1 \geq \overline{q}$, $(0, 0)$ dominates $(1, 1)$.

Finally, using Lemma 2, we know that $(0, 0)$ dominates any other (p_1, p_0) such that $\overline{q}_R^2, \underline{q}_R^2 \geq q_L^2$. Because $(1, 1)$ dominates any (p_1, p_0) with $\overline{q}_R^2 \geq q_L^2 \geq \underline{q}_R^2$, $(0, 0)$ also dominates all these points, showing the result.

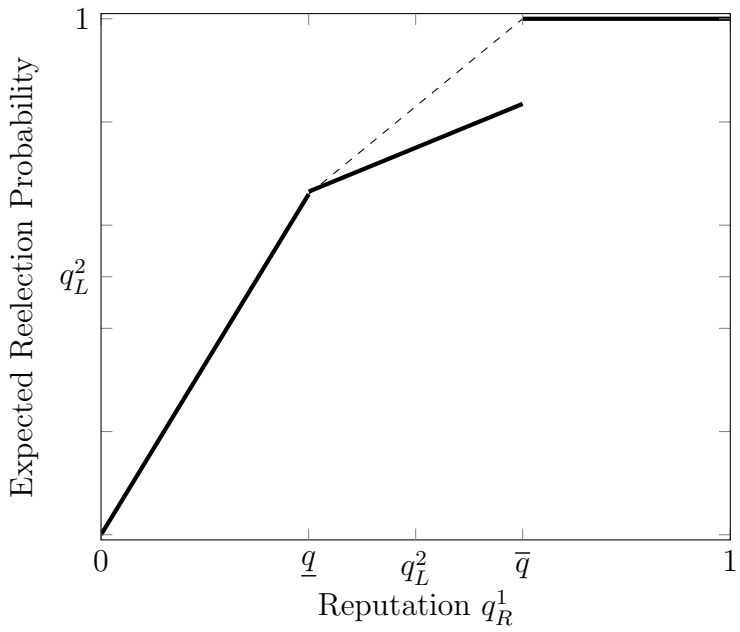
□

Proposition 6. *Given $\underline{q}, \overline{q}$, there exist thresholds $\underline{\underline{q}} < \underline{q} < \overline{q} < \overline{\overline{q}}$ such that*

- *For $q_R^0 \leq \underline{\underline{q}}$, partisanship π^* is decreasing from $1/2$ at q_R^0 to 0 at $\underline{\underline{q}}$.*
- *There exists $q_\dagger \in [\underline{\underline{q}}, \overline{q} < \overline{\overline{q}}]$ such that for all $q_R^0 \geq q_\dagger$, $\pi^* < 1$.*
- *For $q_R^0 \geq \overline{\overline{q}}$, $\pi^* = 1$.*

Proof. We graph the value function of R, $V_R(q_R^1)$, as a function of q_R^1 in the figure below.

Figure A.2: Value Function of R As Function of q_R^1



Note that for q_R^1 low, achieving the concavification for low q_R^1 is achievable as a lottery between the beliefs 0 and $\underline{q}$, achieved using $(p_1, p_0) = (1, p_0^*)$, where p_0^* solves $\frac{q_R^0}{q_R^0 + (1-q_R^0)(1-\lambda)p_0^*} = \underline{q}$. p_0^* is increasing in q_R^0 until some point $\underline{\underline{q}}$, when it is equal to 1. By a similar argument from before, partisanship $\pi^* = 1 - \frac{1+p_0^*}{2}$ is then decreasing from 1/2 at 0 to 0 at $\underline{\underline{q}}$. A similar argument as earlier shows that above some threshold $\overline{\overline{q}}$, the optimal policy agenda is given by $(p_1, p_0) = (0, 0)$.

Let $q_\dagger$ solve $\underline{q} = \frac{(1-\lambda)q_R^0}{1-\lambda q_R^0}$. Note that for each (p_1, p_0), we have a line segment connecting $(\underline{q}_R^1, V_R(\underline{q}_R^1))$ to $(\overline{q}_R^1, V_R(\overline{q}_R^1))$. Moreover, for $q_R^0 \in [q_\dagger, \overline{\overline{q}}]$, the expected value of $(p_1, p_0) = (0, 0)$ is the segment connecting the value function at $\underline{q}$ to the value function at 1 (i.e. an extension of the value function on $[\underline{q}, \overline{q}]$).

I claim that for all $q_R^0 \in (q_\dagger, \overline{\overline{q}})$, $\pi^* < 1$, i.e. $(p_1, p_0) \neq (0, 0)$. To see this, note that by slightly increasing both p_1 and p_0, $(\underline{q}_R^1, V_R(\underline{q}_R^1))$ decreases linearly. However, $(\overline{q}_R^1, V_R(\overline{q}_R^1))$ slides to the left without decreasing, meaning the line segment steepens and, at the prior q_R^0, generates an improvement on $(p_1, p_0) = (0, 0)$. The expressions for points in between are generally dependent on λ and q_L^2.

□

A.2 Voter Preference Microfoundation

In this subsection, I address a microfoundation for second period voter utility, providing conditions under which, regardless of a voter's ideological preferences over policy, she retains

an incumbent if and only if the incumbent's ability is sufficiently high.

Consider two dimensions of flow utility, both of which are a function of ability. The first is a managerial component; for politician R, the expected ability for the voter i is simply a_R. The second dimension of issue is an ideological component, weighted by some $\delta > 0$. Given that the incumbent pursues a partisan policy π, I assume that the voter has preferences given by $-|\lambda - \pi|$, i.e. the voter's ideal point is given by alignment with the legislature. However, this loss is experienced only if π actually passes. Voter utility is given by the sum of these two components, as follows:

$$a_R - \delta(\lambda a_R + (1-\lambda)(1-\pi))|\lambda - \pi|$$

Suppose that, in the second period, R pursues the most extreme policy, $\pi = 1$. Then, the voter's utility is given by:

$$a_R - \delta(\lambda a_R + (1-\lambda)(1-\pi))(1-\lambda)$$

which is increasing in a_R if and only if

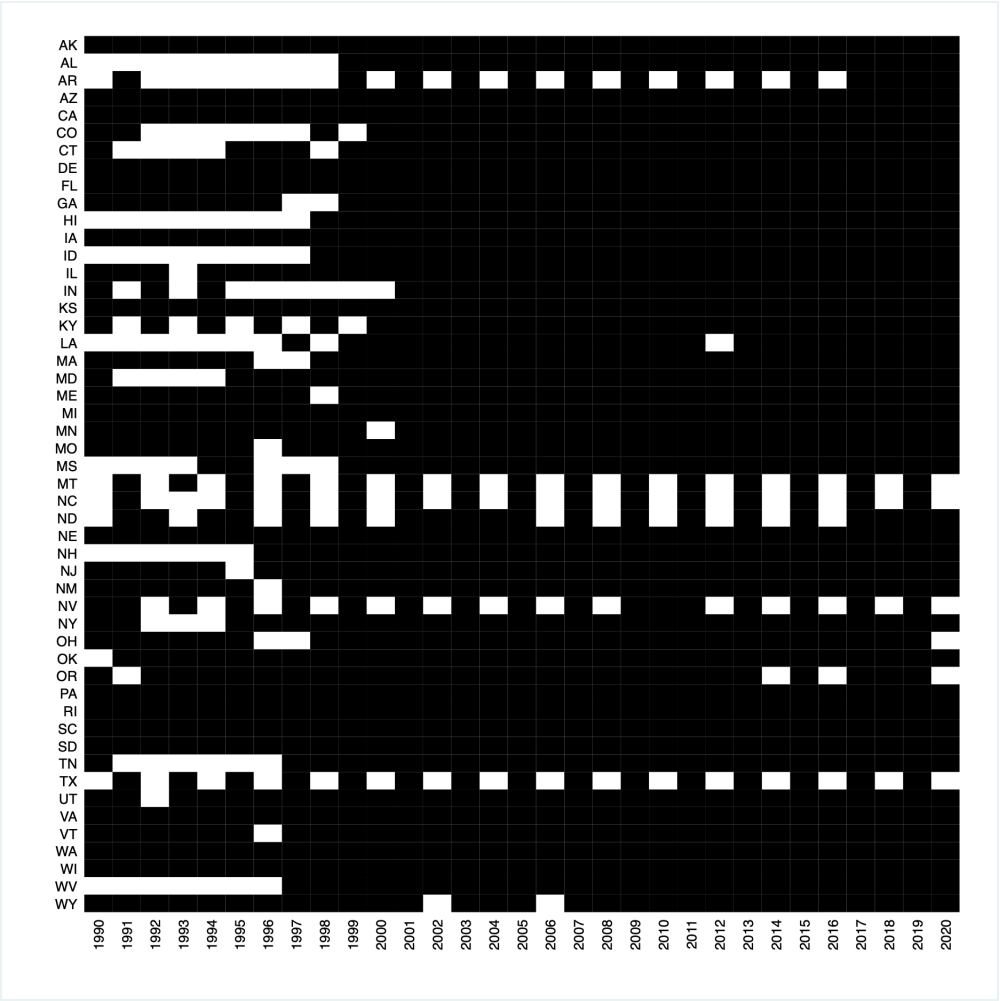
$$1 - \delta\lambda(1-\lambda) \geq 0 \iff 1 \geq \delta\lambda(1-\lambda).$$

The right hand side is maximized when $\lambda = 1/2$, when its value is $\frac{\delta}{4}$. Hence, this inequality holds everywhere if $\delta \leq 4$. If $\delta = 1$ (managerial and ideological components of utility are weighted equally), this always holds. The inequality also always holds in neighborhoods of $\lambda = 0$ and $\lambda = 1$. The intuition for the former is that when λ is low, partisan legislation passes with very low probability. Hence, even if the incumbent is skilled (including if she is skilled at passing legislation V would heavily dislike), this unlikeable legislation never passes. The intuition for λ high is simply that the incumbent's and voter's preferences are nearly perfectly aligned.

Note that voter utility is a linear function of a_R; hence, when compared to a constant outside option at $t = 2$ (i.e. the utility from replacing R with L, plus any additional valence terms for L), V will choose to re-elect R if and only if q_R^2 is sufficiently high.

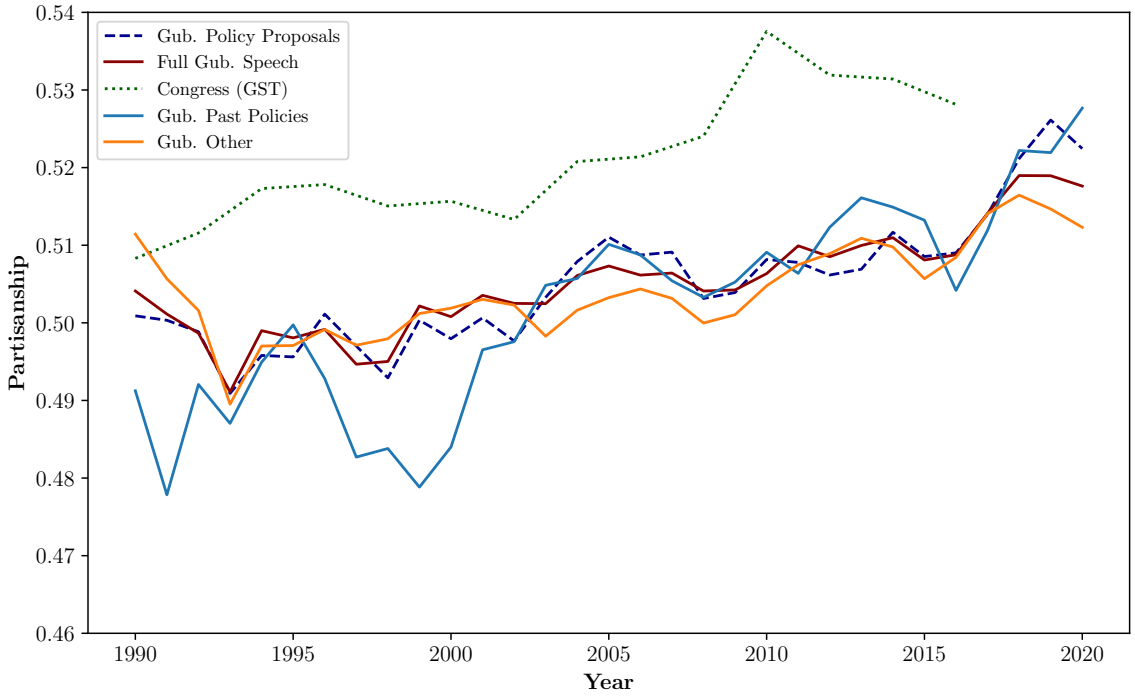
Appendix B Auxiliary Tables and Figures

Figure B.1: Usable Data Coverage by State and Year



Solid black squares indicate availability of usable speech for given state and year. Empty squares indicate lack of speech data for that year. Some states experience periodicity in missing speeches due to biannual delivery of addresses, such as Texas.

Figure B.2: Partisanship of U.S. gubernatorial Speeches, Full Speech, Policy Proposals, Past Policies, and Other Speech, vs. Congressional Record: 1990-2020



Partisanship of gubernatorial speech calculated using Gentzkow, Shapiro, and Taddy (2019) leave-out estimator. "Gub. Policy Proposals" computes estimator for gubernatorial speech snippets coded as discussing policy proposals on corpus of U.S. governors' speech from 1990-2020. "Full Gub. Speech" computes estimator for all gubernatorial speech in given year. "Gub. Past Policies" computes estimator for snippets coded as discussing policies but not policy proposals. "Gub. Other" computes estimator for snippets coded as not discussing policies. "Congress (GST)" series is partisanship of Congressional speech using leave-out estimator, extracted from Figure 2A of Gentzkow, Shapiro, and Taddy (2019).

Table B.1: Most Republican and Most Democratic Phrases, 1990-2020

(a) 1990-1994

Republican	Democratic
properti tax	state govern
gener assembl	long term
sale tax	commun colleg
incom tax	health insur
amend section	human resourc
public school	welfar recipi
act appropri	clean air
tax relief	child care
school district	econom develop
tax reduct	state employe

(b) 1995-1999

Republican	Democratic
properti tax	class size
school district	high school
tax relief	child care
million dollar	public safeti
cut tax	perman fund
charter school	tax credit
budget recommend	transport system
econom develop	privat sector
look forward	year thi
thi budget	econom growth

(c) 2000-2004

Republican	Democratic
charter school	health care
incom tax	prescript drug
high tech	state agenc
mental health	properti tax
center excel	minimum wage
tax cut	domest violenc
million state	school construct
long term	billion dollar
tax relief	health insur
low incom	educ lotteri

(d) 2005-2009

Republican	Democratic
incom tax	health care
tax relief	thi budget
charter school	health insur
million dollar	new job
math scienc	feder govern
tax rate	clean energi
gener fund	energi effici
qualiti life	pre k
properti tax	creat job
budget provid	afford health

(e) 2010-2014

Republican	Democratic
incom tax	health care
econom develop	sale tax
charter school	tax credit
state govern	creat job
budget recommend	minimum wage
school district	earli childhood
feder govern	mental health
job creator	21st centuri
high school	gener assembl
gener fund	thi budget

(f) 2015-2020

Republican	Democratic
incom tax	clean energi
tax relief	afford hous
budget recommend	health care
high school	minimum wage
law enforc	middl class
tax cut	renew energi
properti tax	climat chang
task forc	child care
pay rais	let pass
depart correct	work togeth

Table lists top 10 most Democratic and top 10 most Republican bigrams, in descending order, for each time period. Partisanship of phrase measured using equation (4), which describes informational loss in inferring governor's party based upon removal of bigram, as in Gentzkow, Shapiro, and Taddy (2019) Table 1. Table removes certain procedural phrases in calculation of partisanship of phrase use.

Table B.2: Partisanship by Approval Decile, Legislative Alignment, and Reelection Eligibility, 1990-2020

		Reelect ×	Leg. Align ×	Reelect × Leg. Align ×
Appr. 1-cile	-0.550	1.120**	0.443	-0.439
	(0.417)	(0.478)	(0.497)	(0.310)
Appr. 2-cile	-0.333	0.641	0.445	-0.414
	(0.424)	(0.486)	(0.545)	(0.309)
Appr. 3-cile	-0.095	0.136	-0.209	0.147
	(0.459)	(0.509)	(0.543)	(0.294)
Appr. 5-cile	-0.149	0.491	0.032	-0.191
	(0.439)	(0.496)	(0.516)	(0.309)
Appr. 6-cile	-0.953**	1.303***	0.975**	-0.065
	(0.408)	(0.461)	(0.496)	(0.291)
Appr. 7-cile	-0.500	1.036**	0.686	-0.521*
	(0.412)	(0.472)	(0.495)	(0.310)
Appr. 8-cile	-0.827*	1.208**	1.176**	-0.020
	(0.452)	(0.502)	(0.538)	(0.305)
Appr. 9-cile	-0.704*	1.270***	0.512	-0.385
	(0.395)	(0.453)	(0.490)	(0.309)
Appr. 10-cile	-1.000**	1.653***	0.867	-0.523*
	(0.418)	(0.491)	(0.513)	(0.345)
Constant	0.325	-0.832**	-0.216	0.367*
	(0.218)	(0.378)	(0.391)	(0.218)
N		1108		
Num. States		48		
Year F.E.		Yes		
State F.E.		Yes		
R^2 Within		0.1072		

Dependent variable measures partisanship of U.S. governor State of the State speeches using Gentzkow, Shapiro, and Taddy (2019), as calculated in equation (3), normalized by sample mean and standard deviation. Approval decile represents decile of approval rating by state, calculated using previous year's fourth quarter approval from Singer (2023) after first year in office, with first quarter approval utilized for first year in office. First column of coefficients measures baseline levels of partisanship by approval decile for lame duck governors, i.e. α_k terms in equation (5), with constant corresponding to omitted category of fourth decile. Names of second through fourth columns represent variables being interacted with approval decile. Second column of coefficients measures baseline partisanship of reelectable governors relative to lame ducks by approval decile, i.e. β_k coefficients. Third column measures level of partisanship for legislatively aligned lame duck governors relative to unaligned, i.e. γ_k coefficients. Fourth column measures level of partisanship for reelectable governors with aligned legislatures relative to unaligned legislatures, i.e. δ_k coefficients. Third column compares partisanship of reelectable governors in gubernatorial election years to all lame duck governors. Fourth column compares partisanship of reelectable governors to all lame duck governors except those in their last year in office. Data for Idaho (no approval data) and Nebraska (does not recognize political parties in legislature) omitted. Standard errors in parentheses. $^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$.

Table B.3: Swing States, Republican States, and Democratic States

Swing States	**Republican States**	**Democratic States**
AK	AL	CO
AR	AZ	DE
CA	FL	HI
CT	IA	KY
GA	ID	MD
IL	MA	MO
IN	MI	NC
KS	MS	NY
LA	ND	OR
ME	NE	PA
MN	NM	VA
MT	NV	VT
NH	OH	WA
NJ	SC	WV
OK	SD	
RI	TX	
TN	UT	
WY	WI	

Table B.4: Partisanship by Approval Quintile, Legislative Alignment, Reelection Eligibility, and Competition, 1990-2020

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Reelect × Appr. 1-tile	0.802**	0.893**	0.805*	1.054***	1.224**	0.785	0.203
	(0.331)	(0.358)	(0.425)	(0.375)	(0.506)	(0.757)	(0.556)
Reelect × Appr. 3-tile	0.915***	0.874**	1.178***	1.178***	1.700***	-0.261	0.301
	(0.327)	(0.349)	(0.437)	(0.361)	(0.514)	(0.560)	(0.580)
Reelect × Appr. 4-tile	0.991***	0.966***	1.263***	1.182***	1.652***	0.577	0.580
	(0.333)	(0.352)	(0.486)	(0.383)	(0.564)	(0.585)	(0.549)
Reelect × Appr. 5-tile	1.362***	1.315***	1.660***	1.599***	1.848***	1.529***	0.615
	(0.325)	(0.357)	(0.410)	(0.354)	(0.512)	(0.572)	(0.561)
Reelect × Align × Appr. 1-tile	-0.529**	-0.590**	-0.523	-0.551***	-0.780**	-0.956***	-0.0373
	(0.211)	(0.256)	(0.402)	(0.213)	(0.340)	(0.366)	(0.376)
Reelect × Align × Appr. 3-tile	-0.217	-0.131	-0.680	-0.195	-0.761**	0.204	0.00934
	(0.203)	(0.240)	(0.421)	(0.204)	(0.334)	(0.312)	(0.374)
Reelect × Align × Appr. 4-tile	-0.345	-0.329	-0.726	-0.349*	-0.702**	0.393	-0.951**
	(0.210)	(0.245)	(0.469)	(0.212)	(0.350)	(0.324)	(0.384)
Reelect × Align × Appr. 5-tile	-0.540**	-0.492*	-0.720*	-0.542**	0.00607	-0.565*	-1.452***
	(0.222)	(0.272)	(0.414)	(0.223)	(0.384)	(0.329)	(0.409)
Reelect × Leg Align	0.419***	0.395**	0.688**	0.410***	0.573**	0.371*	0.248
	(0.145)	(0.174)	(0.277)	(0.146)	(0.235)	(0.215)	(0.271)
N	1108	910	518	1028	421	369	318
Num. States	48	48	47	48	18	16	14
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Type	All	All	All	All	Swing	Rep.	Dem.
Year Type	All	Non-reelect.	Reelect.	No Lame Duck Last	All	All	All
R^2 Within	0.0907	0.0906	0.184	0.0888	0.200	0.359	0.332

Dependent variable measures partisanship of U.S. governor State of the State speeches using Gentzkow, Shapiro, and Taddy (2019), as calculated in equation (3), normalized by sample mean and standard deviation. Regressors measure level of partisanship for reelectable governors as compared to lame duck governors by quintile of governor's approval rating in Q4 of previous year, normalized by state, interacted with whether governor is aligned with legislature. For governors in first year in office, approval calculated using first quarter's approval rating. Omitted category is reelectable governor in second quintile of approval with unaligned legislature. Legislative alignment measured as whether more than half of legislators match governor's party. First column displays results for entire sample. Second column compares partisanship of reelectable governors in non-election years to all lame duck governors. Third column compares partisanship of reelectable governors in gubernatorial election years to all lame duck governors. Fourth column compares partisanship of reelectable governors to all lame duck governors except those in their last year in office. Fifth column displays baseline results from first column but with swing states, sixth column for Republican states, seventh for Democratic states. Republican states defined as those with Republican governors more than 20 years in sample. Democratic states defined as those with Democratic governors more than 20 years in sample. Swing states defined as residual. Data for Idaho (no approval data) and Nebraska (does not recognize political parties in legislature) omitted. Standard errors in parentheses. $^{*}p < 0.1, ^{**}p < 0.05, ^{***}p < 0.01$

Appendix C Hand-Coding Guide

Below is the guide provided to research assistants for the hand-coding task.

General remark. Remember that the goal of this task is to identify (past or current) policy proposals among gubernatorial speech snippets — as well as risky policy proposals —that will be used to train a large language model. As a guiding principle when coding, it may be useful to ask yourself: is the language in this snippet relevant to identifying policy proposals, past/current proposals, or risky policy proposals?

For example, if a governor spends a lot of time in a snippet on rhetoric, but then at the very end mentions a policy she passed, we wouldn't code that as "yes, this is about as policy" even though a policy may be mentioned by name at the end. This is because the language of that snippet, by and large, does not talk about past policy proposals.

If a governor is clearly reflecting on the content of a policy proposal —but the policy is not mentioned by name —this would also be coded as "referring to a policy proposal." The reason is that we are trying to figure out how much time governors spend in their speeches discussing policy proposals (as opposed to other things). So the relevancy of snippets to this category — or any of the other categories —should be assessed using these sorts of heuristics.

Coding Guidelines. The outline below details each of the main categories to be coded, as well as examples ("easy" and "hard") of each of the codings.

1. "Policy." Coded as "1" if the snippet discusses the enactment of a state-level policy (either passed by the governor, state government, or referendum) and "0" if it does not. A policy discussion is a reference to a specific act of legislation or law, a concrete proposal to increase or decrease funding to a certain cause, other legal orders proposed by the government to take certain concrete actions, and discussions of details of any of the above.

    - Example of 0 (easy): "I will continue to speak out against those who promote prejudice. I know you will too. And I will tell you this: a handful of people who may want to burn a cross are no match for 10,000 Idahoans who marched to support the Table Rock Cross." (ID, 2000).
    - Example of 0 (hard): "It is simply not pono for our families to be living in cars, people to be sleeping in the doorways of businesses downtown or on picnic tables in our parks. There is no one silver bullet to solve the problems of homelessness and affordable housing, but there are many good ideas that can and should be

enacted." (HI, 2006). Discusses an issue and hints at the concept of a solution, but does not concretely address a policy.

- Example of 0 (hard): "The budget is balanced but great risks and uncertainties lie ahead. The federal government, the courts or changes in the economy all could cost us billions and drive a hole in the budget. The ultimate costs of expanding our health care system under the Affordable Care Act are unknown. Ignoring such known unknowns would be folly, just as it would be to not pay down our wall of debt. That is how we plunged into a decade of deficits." (CA, 2013). Does not actually discuss a governor or state-led policy initiative, despite referring to the ACA (a federal initiative).
- Example of 1 (easy): "The Reform Albany Act will have as its centerpiece an independent ethics commission that will have jurisdiction over State government. This commission will have the power to enforce campaign finance and end pay-to-play and bring jurisdiction and oversight to so-called good government groups, who hide their donors behind walls of sanctimony." (NY, 2010)
- Example of 1 (hard): "We were asked to meet yet another list of requirements. The federal government objects not on a scientific basis, but upon a vaguely defined legal risk analysis. This is not just about semantics. It is about achieving wolf delisting on rational terms that work for Wyoming. I do not care what we call them as long as we can manage them. The new demands from the federal government go far beyond the word predator and include changing how a pack is defined and even questioning whether the national parks will assume responsibility for half of the 15 packs it plans for Wyoming." (WY, 2004). Refers to federal policy/definitions, which is confusing, but also details of how the state will implement such a policy out in the context of their own state.

2. "Proposal/Past." Only applies if "policy" coded as "1." Coded as "1" if the snippet refers to a policy that has just put into place or will be put into place in the future. Coded as "0" otherwise — in particular, if a governor is reflecting on the effects of a policy in the past. Coded as "0.5" if it contains substantive elements of both. Continuing a preexisting policy implemented from the past without any substantive changes also does not constitute a (future) policy proposal —this would be coded as a "0."

   - Example of 0 (easy): "Clearly we are doing things right. We are making progress. But the job numbers are only part of the story. In addition to making it easier for

businesses to create jobs, we have also invested in public works projects. In doing so, we improved our public infrastructure, made it more attractive for businesses to relocate or stay here, and directly created even more jobs." (OR, 2006). Clearly refers to a past policy action but not a future action.

- Example of 0 (hard): "... We have budgeted more than 260 million for higher ed capital. That funds new science facilities at Jackson State Community College and the University of Tennessee. It also includes nearly 25 million for improvements to our colleges of applied technology all across the state, and it includes the funds to complete the long awaited fine arts building at East Tennessee State University. The reason we continue to make these investments in education is we want Tennesseans to have the education, training and skills necessary to have a good paying, high-quality job..." (TN, 2015). Suggests that we "have budgeted" (not will budget) money, and that this process will continue, but does not propose something inherently novel.
- Example of 1 (easy): "By reducing our dependence on foreign energy sources we can not only stop sending our energy dollars to unstable parts of the world, but we can become a world leader in clean energy technologies, from wind and solar power to geothermal and fuel cells...." (NY, 2004). References clear future policy action (reducing dependence on foreign energy source.)
- Example of 1 (hard): "We need a new, more dynamic, economic development strategy. One that can leverage the resources of our business sector, as well as higher education and not for profits. The Delaware Economic Development Office needs to be at the forefront of moving Delaware into the 21st century economy. So my first act as governor was to find a way to energize our economic development efforts. We are going to do that by bringing private sector involvement into DEDO." (DE, 2017). Reflects on a past action, but lays out a policy for the coming year (private sector involvement).
- Example of 0.5: "Some said that Louisiana could not change its stripes and make a new start... but we did.And now... after our recent successes in ethics reform and tax reform... we must take the next step forward... an overhaul of our workforce development system." (LA, 2008). Second sentence reflects on past risky policies, and then talks about workforce development.