Policymaking and Appointments under Electoral and Judicial Constraints

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Abstract

Many democratic systems supplement periodic elections with checks and balances. Yet, elected executives typically have some influence on one important check, the judicial branch, through their power to nominate justices. How do electoral and judicial constraints influence which policies executives pursue and which justices they nominate? We study a game-theoretic model of electoral accountability in which an executive chooses policy and appoints a justice, who can overturn policy today and (potentially) after the election. We highlight how judicial appointments provide executives a tool for signaling *and* commitment, and also affect their incentives to signal with policy. We characterize how executives combine policy and appointments differently depending on judicial turnover, polarization, office motivation, or ideologies of sitting justices. We find that elections can moderate appointments but can also polarize them; reforms increasing justice turnover can backfire and reduce voter welfare; and distinct forms of polarization can have critically different effects.

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If men were angels, no government would be necessary... A dependence on the people is no doubt the primary control on the government; but experience has taught mankind the necessity of auxiliary precautions. — Madison (1788)

Many political executives have broad powers to shape policy. As such, it is important to understand how political institutions shape their incentives to use those powers according to voter interests. Scholars have emphasized the importance of executive constraints for centuries and advocated for combining elections with "auxiliary precautions." Heeding that advice, democratic statebuilders around the world have combined periodic elections with auxiliary precautions in the form of systems of checks and balances.

A particularly important check on executive power is judicial oversight. Yet, in most democracies, executives appoint judges and thus directly influence the judicial branch. Consequently, the executive may use their influence to appoint friendly justices, undermining the court's ability to constrain incumbent policymaking (Montesquieu, 1748). Alternatively, elections may discipline both executive policymaking and judicial appointments (Hamilton, 1788). Thus, electoral and judicial constraints may interact to shape both policymaking and appointments. Accordingly, in this paper, we ask: how does an executive's anticipation of electoral and judicial constraints influence policymaking and appointments?

We analyze a game-theoretic model of electoral accountability in which the executive makes policy and appoints a justice. First, the executive appoints a justice, anticipating how that justice will constrain policy today and into the future. Next, the executive sets policy, accounting for her own policy preferences, the constraints imposed by the court, and the impact on her electoral prospects. We show how the executive's choices are conditioned by key features of the political environment, such as the value of office, the degree and nature of polarization, and the durability of judicial appointments. In equilibrium, appointments and policy each shape, and are shaped by, the prospect of subsequent policymaking and elections. As such, our findings contribute to a broad literature on the political economy of executive action and highlight judicial appointments as an important form of "strategic pre-action" by executives (Cameron, 2008).

In the model, the incumbent and the challenger are known to ideologically lean in opposite directions, but the other players do not know the extent of each politician's bias, i.e., whether the incumbent is moderate or extremist. The executive considers the impact of her decisions through two channels. First, the incumbent worries that choosing an extreme policy or appointing an extreme justice may be interpreted negatively by the median voter. Second, by changing the composition of the judiciary, appointments directly influence the set of feasible policies that *any* executive officeholder may enact. Specifically, the incumbent faces a tradeoff between appointing a moderate justice, who will constrain her to choosing electorally appealing centrist policies, or appointing an extreme justice, who allows the incumbent to pursue her ideologically preferred policies today and would constrain the challenger if she is elected. Thus, the executive considers (i) how her decisions in office may act as a signal of her ideological bent, *and* (ii) how the appointed justice may act as a commitment device for constraining policies today and into the future.

We show that these considerations lead to three forms of executive behavior in equilibrium. First, in an *informative appointments* equilibrium, a moderate executive chooses a centrist policy and judge, and wins reelection. In contrast, an extremist loses reelection, but adopts her preferred policy and appoints an extreme justice, who then constrains the policies of the incumbent's successor. Second, in a *compromising* equilibrium, the extremist responds to electoral pressures by choosing the same centrist policy and judge as the moderate incumbent, in order to signal ideological congruence with the voter. Finally, in a *tying hands* equilibrium, an extremist incumbent uses the judicial appointment as a commitment device to constrain *her own* future policies in order to win reelection. Using this equilibrium characterization, we study how features of the political environment influence both the incumbent's appointment and policy choices.

We find that the durability of appointments plays a key role in shaping executive behavior and voter welfare. In making policy and choosing an appointee, executives look ahead, anticipating the likelihood of a future vacancy on the court. This shapes the incumbent's expectations about whether the judicial constraint imposed by the current court, and the incumbent's appointee, will persist into the next term. If a vacancy is very likely, then the incumbent cannot use the court as a means to commit to a moderate course of future policy. If a vacancy is very unlikely, then the judicial constraint becomes too strong and undermines electoral accountability in policy. Thus, we find that the voter-optimal vacancy rate is intermediate, balancing these two forces.

We also show how elite polarization plays an important role in shaping executive behavior and, in turn, voter-optimal judicial turnover. Moreover, we highlight how polarization's effects can depend critically on its form. In the model, polarization can increase in two ways. First, extremists can shift outward away from center, which we call *ideological divergence*. Second, the proportion of moderates may decrease, which we interpret as an increase in *party extremists*. In expectation, both forms of polarization shift the parties away from the voter and each other, thus increasing between-party polarization. A key difference is that an increase in ideological divergence also increases within-party polarization, which does not vary with an increase in party extremists. We highlight how this difference matters, as the two forms of polarization may have opposing effects on executive behavior in equilibrium. Furthermore, the optimal vacancy rate is a function of polarization. If the proportion of party extremists increases, so too does the optimal vacancy rate. In contrast, the optimal vacancy rate decreases as ideological divergence grows.

Finally, we extend the model in three ways. First, we consider a multi-member court to study how the signaling and commitment forces we highlight are affected by the ideological composition of sitting justices. If the expected departing justice is far from the incumbent, then equilibrium policymaking and appointments resemble the baseline model. However, if the expected departing justice is close to the incumbent, then the incumbent is significantly less constrained by electoral pressures than in the baseline model. These differences arise because the location of a vacancy determines the possible locations of a court's median after a new appointment, connecting our work to existing studies that treat appointments as a "move-the-median" game (Krehbiel, 2007; Cameron and Kastellec, 2016). Second, in the Appendix, we incorporate uncertainty over judicial ideology. We find that executive behavior from the baseline model is preserved, with some additional nuance — judicial appointments may still be used by the executive as a commitment device to win reelection, even when policy is overruled on the equilibrium path of play. Third, in the Appendix, we also extend the model to incorporate probabilistic review of the executive's policy. Although in some cases this weakens the incumbent's ability to use appointments as a commitment device, it further incentivizes the incumbent to compromise and appoint a moderate judge.

Our analysis has several important empirical and policy implications. First, we find conditions under which electoral accountability can alleviate the *counter-majoritarian difficulty* by encouraging the appointment of moderate justices, bringing the court into line with the median voter. Second, we apply our results on the voter-optimal vacancy rate to discuss reforms to the Supreme Court that would alter the frequency of turnover, e.g., term limits for justices. Third, our model highlights the dynamic effect of judicial appointments, offering an explanation for empirical patterns that are difficult to rationalize with static theories.

Although we primarily consider policymaking and appointments in the context of the United States, our model applies more broadly. Our findings apply to contexts where (i) the executive can influence the court's composition, (ii) the court has power to review policy, and (iii) the executive (or the executive's party) is elected by citizens. For example, in France the president is directly elected and appoints 3 members of the constitutional court, which has powers of judicial review. More broadly, 41 countries shared these features in 2020, according to the Comparative Constitutions Project.[1] Although this is a rough approximation, and important institutional features differ across these settings, the underlying strategic forces

[1]Specifically, in these 41 countries a single elected executive appoints members to the constitutional court. This is a lower bound on relevant countries, as some constitutions (e.g., the US) delegate similar powers to a supreme, rather than constitutional, court.

of our model should still be present.

Related Literature

Our findings contribute to a broad literature on the relationship between oversight and political accountability (See, e.g., Patty and Turner, 2021; Turner, 2017, 2021). Judicial review is a prominent source of oversight, but it can encourage *posturing* and undermine electoral accountability by shielding politicians from the effects of ill-advised policies (Fox and Stephenson, 2011). Additionally, judicial constraints do not necessarily prevent political executives from accumulating power over time (Howell et al., forthcoming). Alternatively, by constraining the set of feasible policies, judicial review can strengthen office motivation and enhance electoral accountability (Almendares and Le Bihan, 2015). More broadly, however, this constraining aspect can complicate signaling incentives in spatial policymaking settings (Fox and Stephenson, 2015). Unlike existing work, we allow the elected politician to appoint justices. Thus, we contribute to this literature by studying the effect of judicial oversight on political accountability in an environment where the composition of the judiciary, and consequently the nature of judicial oversight, is subject to control by the politician.

We also contribute to the broader literature on the political economy of elections. A classic strategic consideration is how incumbent actions influence elections by shaping voter expectations about future outcomes.[2] They may provide *signals* about some underlying, but not directly observed, incumbent characteristic (e.g., Duggan, 2000; Maskin and Tirole, 2004; Acemoglu et al., 2013).[3] Alternatively, they may durably alter the policymaking environment and thereby *commit* future officeholders towards certain policies (Persson and Svensson, 1989; Alesina and Tabellini, 1990; Milesi-Ferretti, 1995; Wolitzky, 2013; Callander

[2]See Ashworth (2012) and Duggan and Martinelli (2020) for overviews of the game-theoretic literature studying electoral accountability.

[3]In this vein, our model is especially related to analyses in which politicians have multiple options to influence voter beliefs (Daley and Snowberg, 2011; Ash et al., 2017).

and Raiha, 2017). In our analysis, a key aspect is that judicial appointments can constrain *both* candidates, and in different ways — e.g., constraining the incumbent to enact policies the voter likes *and* leaving challengers unconstrained to enact policies the voter does not like.[4] A novelty here is tracing how strategic commitment interacts with signaling considerations.

We contribute to two strands of literature on judicial politics. The first strand analyzes judicial appointments. Rather than focusing on the role of Senate confirmation (as in, e.g., Rohde and Shepsle, 2007; Krehbiel, 2007; Moraski and Shipan, 1999; Cameron and Kastellec, 2016), we focus on the role of electoral incentives. Moreover, we account for how appointments and potential electoral turnover can affect each other, addressing the recognized need for incorporating dynamic considerations when studying judicial appointments (Cottrell et al., 2019).[5] The second strand analyzes how executives can influence judicial oversight. Executives can evade (Vanberg, 2001) or pressure (Clark, 2009) the judiciary, and these possibilities can expand judicial deference (Stephenson, 2004; Carrubba and Zorn, 2010). We differ by taking the extent of judicial deference as given and instead emphasizing how executives can use their appointment power to influence which policies receive deference.

Finally, we contribute to the literature on the political economy of the presidency (Cameron, 2008) by adding to our theoretical understanding of presidential unilateral action. Previous work studies how executive unilateralism is affected by checks and balances (Moe and Howell, 1999; Howell, 2003) and legislative considerations (Bolton and Thrower, 2016; Noble, forthcoming), as well as electoral considerations (Judd, 2017; Howell and Wolton, 2018; Kang, 2020). We shed light on how electoral consequences of unilateral policymaking are conditioned by judicial constraints, in an environment where those constraints depend on

[4]Callander and Raiha (2017) uncover a similar mechanism in a different context, durable public investment, and show that incumbents may strategically make wasteful investments to make challengers less appealing.

[5]Closest to our work, Jo et al. (2017) includes exogenous executive turnover that does not depend on the executive's behavior in office.

judicial appointments by the president.

Model

We study a two-period model featuring an incumbent, I; a challenger, C; a voter, V; and a continuum of potential justices.[6]

In the first period, an incumbent holds office and makes two decisions: (i) she chooses the ideal point of the first-period justice, denoted J_1, and (ii) she proposes a policy x_1 in the policy space $\mathbb{R}$. Next, J_1 chooses whether to strike down the policy. If x_1 is struck down, then J_1 incurs a cost $\phi > 0$ but can issue a ruling that moves the first-period outcome to any policy in $\mathbb{R}$. Though stylized, this captures the notion that justices' decisions are made with the aim of bringing outcomes in line with their policy preferences. Then, V observes x_1, J_1, and the ruling before choosing whether to reelect I or elect the challenger, C.

In the second period, the winner takes office. With probability $\nu \in (0, 1)$, a judicial vacancy opens and the officeholder can choose J_2, the ideal point of the second-period justice. Otherwise, she cannot appoint a new justice and J_1 persists, i.e., $J_2 = J_1$. Once the court is in place, the officeholder proposes second-period policy, x_2. After observing that proposal, J_2 chooses whether to overturn it. Subsequently, payoffs accrue and the game ends.

Each player has an ideal point in the policy space. To simplify notation, we use player i's identity as shorthand for their ideal point. The voter's ideal point is common knowledge, as is the ideal point of the sitting justice in each period. In contrast, politician ideal points are private information. Informally, V knows that I leans right and C leans left, but does not know exactly how far. Formally, we normalize $V = 0$ without loss of generality, so that V knows $I \in \{m, e\}$, where $0 < m < e$, and V's commonly known prior belief places probability p on $I = e$ and $1 - p$ on $I = m$. Similarly, V and I share the same commonly known prior belief about C, which puts probability p on $C = -e$ and $1 - p$ on $C = -m$. Qualitatively

[6] Assuming one voter is without loss of generality, since the median voter is decisive over lotteries in our setting, see Duggan (2014).

similar results hold if the support of the type space is not extremely asymmetric, and so we opt for the simpler specification.

In the model, the voter and justices never observe I's type directly but can draw inferences from observed behavior. Thus, the election features pure adverse selection.

In each period, player i's policy utility from x is $u_i(x) = -|x - i|$. To capture exogenous reelection motivations, politicians receive additive benefit $\beta \geq 0$ in each period they hold office. In period t, if policy x_t is proposed then J_t obtains utility $u_{J_t}(x_t)$ for upholding the policy and utility $-\phi$ for striking it down. Finally, to ease presentation, we assume the cost of overturning policy is moderate, i.e., $\phi \in (m, e)$.

For each player, dynamic payoffs are the sum of utility across both periods. To illustrate, if I wins reelection and the policy outcomes are x_1 and x_2, then I's payoff is

$$u_I(x_1) + \beta + u_I(x_2) + \beta.$$

Comments on the Model: We model policymaking and appointments in a spatial setting, following existing studies in which ideological conflict affects the judicial appointments (Moraski and Shipan, 1999; Rohde and Shepsle, 2007; Krehbiel, 2007). Ideology is central to policymaking and elections, and also an important factor in judicial decisionmaking (Martin and Quinn, 2002; Clark et al., forthcoming) and public support for judicial nominees (Gimpel and Wolpert, 1996; Caldeira and Smith Jr, 1996; Sen, 2017).

In the main analysis, we assume that politicians and voters know the judge's ideal point. This assumption allows us to (i) clearly highlight several strategic tradeoffs that executives face when choosing policy and appointing judges and (ii) cleanly compare against existing models of electoral accountability, which emphasize uncertainty about incumbent politicians. Empirically, presidents attempt to minimize their uncertainty about the appointee (Nemacheck, 2008) and voters are knowledgeable about the court (Gibson and Caldeira, 2009a,b).[7] In the appendix, we introduce uncertainty over how the appointed justice will

[7]Voters also appear to be able to recall Senate confirmation votes on Supreme Court nom-

rule and show that the executive faces similar tradeoffs as in the baseline model.

Additionally, the court has only one justice in our main analysis. In an extension, we incorporate additional sitting justices. There, we study how the court's composition can affect the executive's policy choice and appointee, as well as how those decisions may be influenced by expectations about which justice will leave next.

Next, we allow the court to enact any policy if it overturns the executive's chosen policy. In practice, justices often have significant leeway to influence public policy when interpreting laws and writing opinions. They can specify nuanced details (Murphy, 1964) by writing opinions in a way that "...command(s) government agencies to undertake certain policies, sometimes in minute detail." (Canon, 1982, p. 245). Our setup reflects these features and follows existing models of statutory interpretation (see Cameron and Kornhauser (2017) for an overview). The key forces here carry over if the judge cannot craft opinions so finely and must instead choose from a restricted set of policies after overturning the executive.

We also assume that the court always has an opportunity to rule on the executive's policy. While this is true in some contexts — in France, some types of policies are subject to compulsory review — in other contexts review is not guaranteed to occur immediately, if at all. In the appendix, we extend the model to allow probabilistic review and show that qualitatively similar results hold.

Finally, consistent with previous work such as Cameron et al. (2000), we assume the court pays a cost for reviewing the executive's policy. We refer to ϕ as a cost, but it can be interpreted more generally. Crucially, it creates and scales a zone of judicial deference in which policies will not be struck down, as in e.g., Stephenson (2003). Substantively, such deference could reflect various court considerations that discourage justices from hearing and striking down any policy — e.g., opportunity costs of not hearing other cases unrelated to the executive's policies, as well as concerns about future court curbing or public backlash against

inees (Bass et al., forthcoming), and appointments have become an increasingly contentious and salient issue for voters (Gimpel and Wolpert, 1996, p. 164).

court activity. Alternatively, it could reflect the court's ability to perceive sufficiently small deviations from its ideal policy, due to, e.g., legal skill or (unmodeled) policy obfuscation.

Strategies and Equilibrium Concept: Informally, a pure strategy profile σ specifies: a policy and appointee in each period for each type of I; a second-period policy and appointee for each type of C; whether V reelects I after seeing the first-period appointee and policy; and the policies each judge would overturn in each period.[8] Additionally, V's belief system is represented by $\mu : \mathbb{R}^2 \to [0,1]$, where $\mu_{J_1}^{x_1}$ denotes the probability that V places on $I = e$ after observing x_1 and J_1.[9]

We study perfect Bayesian equilibria (PBE), i.e., assessments (σ, μ) such that (i) the strategy profile σ is sequentially rational given μ, and (ii) the belief system μ is derived from σ via Bayes's Rule whenever possible. As is standard in PBE, there is "no signaling what you don't know" (Osborne and Rubinstein, 1994) — since J_1 does not have private information, her ruling does not influence the beliefs of the other players. Throughout, *equilibrium* refers to PBE satisfying *equilibrium dominance*, which we maintain to refine away equilibria supported by unnatural off-path beliefs (Cho and Kreps, 1987).

Analysis

We begin by characterizing the relationship between justice ideology and overturning policy, which is the same in both periods. Then, we characterize second-period executive behavior — who they appoint and which policy they choose. Third, we characterize how electoral outcomes depend on first-period behavior. Fourth, we characterize first-period executive behavior. Building on that foundation, we then characterize which types of incumbents win reelection, the consequences of polarization, and implications for institutional design.

Judicial Rulings

The strategic calculus for equilibrium rulings is straightforward and analogous across periods.

[8] We formally define pure strategies in the Appendix.

[9] Defining belief systems for justices is unnecessary.

For the second-period justice, overturning the executive's second-period policy x_2 and instead placing policy at J_2 yields a payoff of $-\phi$, whereas upholding yields $-|x_2 - J_2|$. Thus, the second-period executive's policy is upheld if and only if $|x_2 - J_2| \leq \phi$, so the set of feasible second-period policies consists of all $x_2 \in [J_2 - \phi, J_2 + \phi]$. We refer to this interval as J_2's *acceptance set*.

The first-period justice faces an analogous strategic calculus, since J_1 does not observe I's type and there is "no signaling what you don't know," so J_1's acceptance set is $[J_1 - \phi, J_1 + \phi]$.

Second-period Appointment & Policymaking

Next, we describe a second-period officeholder's equilibrium behavior. To do so, we first define the *constrained optimal policy* for politician-type $\theta \in \{-e, -m, m, e\}$ given judge J:

$$x^*(\theta; J) = \underset{x \in [J-\phi, J+\phi]}{\arg\max} \ u_\theta(x). \tag{1}$$

We will refer to (1) throughout the analysis, as it also helps us characterize first-period policymaking and judicial appointments.

In the second period, the executive's only policymaking constraint is J_2's acceptance set, so politician-type $\theta \in \{-e, -m, m, e\}$ chooses second-period policy equal to $x^*(\theta; J_2)$. With this in hand, we can characterize the executive's choice of J_2 in the event of a vacancy. Given the absence of electoral considerations, the executive simply appoints a friendly judge so that she can enact her own ideal point. Specifically, politician-type $\theta \in \{-e, -m, m, e\}$ solves $\max_{J_2} \ -|x^*(\theta; J_2) - \theta|$. Thus, any $J_2 \in [\theta - \phi, \theta + \phi]$ is optimal.

The Election

We now study the voter's decision between reelecting I or electing C. Two key factors are (i) how J_1 constrains the candidates differently and (ii) the voter's beliefs about each candidate's extremism after observing (J_1, x_1).

Specifically, the preceding characterization of second-period appointments and policymaking implies that V's continuation value from electing C is

$$U_V^C(J_1) = \nu\Big(p\,u_V(-e) + (1-p)\,u_V(-m)\Big) + (1-\nu)\Big(p\,u_V(x^*(-e;J_1)) + (1-p)\,u_V(x^*(-m;J_1))\Big), \tag{2}$$

which depends on J_1 due to constraints on second-period policy when no vacancy opens. Similarly, V's continuation value from re-electing I is

$$U_V^I(J_1) = \nu\Big(\mu_{J_1}^{x_1}\,u_V(-e) + (1-\mu_{J_1}^{x_1})\,u_V(-m)\Big) + (1-\nu)\Big(\mu_{J_1}^{x_1}\,u_V(x^*(-e;J_1)) + (1-\mu_{J_1}^{x_1})\,u_V(x^*(-m;J_1))\Big), \tag{3}$$

which depends on J_1 through (i) the constraints on second-period policy in the event of no vacancy and (ii) V's updated beliefs about I's type after observing (J_1, x_1). Thus, V is willing to reelect I in equilibrium if $U_V^I \geq U_V^C$. Otherwise, V strictly prefers to elect C.

Both (2) and (3) reveal that V's continuation value from each candidate depends directly on the first-period appointment, J_1, because a judicial vacancy may not open in the second period. For the rest of this section, we focus on how this constraining effect can render the appointee's signaling effect irrelevant for V's election choice. Specifically, some justices can constrain I favorably enough for V that her vote does not depend on her belief about I.

Definition 1. The election is *safe* if the voter strictly prefers one of the candidates regardless of her beliefs. Otherwise, the election is *competitive*.

In a competitive election, V's choice depends upon her belief about I's type — she prefers to reelect I if, and only if, her belief puts sufficiently high probability on I being moderate. For our analysis, the key observation about competitive elections is that, under V's prior beliefs, I wins reelection only if $J_1 \leq 0$. Below we discuss this observation further, as this will have important consequences for first-period behavior.

For safe elections, we can focus on those that are safe for I. A necessary and sufficient condition for the election to be safe for I is that V prefers to reelect a known extremist over the unknown challenger. Formally,

$$\nu\ u_V(e) + (1-\nu)\,u_V(x^*(e;J_1)) \geq U_V^C(J_1), \tag{4}$$

where, given J_1, the left-hand side gives V's worst-case utility from reelecting I and the right-hand side gives V's expected utility from electing C.

Why can V prefer to reelect an incumbent she knows to be extremist? Given the justice's ideological motivations, any justice who constrains I more will also constrain C less. And if a vacancy opens in the second period, any officeholder will appoint a friendly justice and then enact her own ideal point, as shown earlier. If J_1 is a strong enough constraint on the incumbent, then V may prefer to reelect a known extremist who might be constrained in the second period; rather than elect a challenger who may be extreme or moderate, but will certainly be less constrained.

The strength of the judicial constraint affecting whether the election is safe or competitive depends on (i) the first-period justice's ideology, i.e., the location of J_1, and (ii) the vacancy rate, ν. Let $\mathcal{J}^I$ denote the set of J_1 such that the election is safe for I, i.e., such that (4) holds given ν. Additionally, let $\overline{J}^I = \max \mathcal{J}^I$. Lemma 1 provides several useful observations about how the vacancy rate affects the scope for safe elections.[10]

Lemma 1. *There exists a unique vacancy probability $\overline{\nu}^I \in (0,1)$ such that: (i) $\mathcal{J}^I$ is nonempty if and only if $\nu \leq \overline{\nu}^I$, and (ii) $\overline{J}^I$ increases towards 0 as ν decreases over $[0, \overline{\nu}^I]$.*

Lemma 1 highlights how the vacancy rate, ν, plays a key role in the constraining effect of J_1. Higher values of ν reduce the expected impact of J_1 on second-period policymaking because a vacancy is more likely. Consequently, V's decision becomes more sensitive to her beliefs about I's type and the appointment's constraining effect has less bearing on V's election decision. In the other direction, a lower vacancy rate (low ν) facilitates safe elections. It does so by increasing the salience of the constraining effect, since the second-period officeholder probably will not appoint a new justice. Thus, V anticipates that J_1 is likely to persist and also constrain second-period policymaking.

So far, we have highlighted that the vacancy rate, ν, determines *whether safe elections*

[10]In the appendix, Lemma 1 fully characterizes when elections are safe versus competitive.

are possible. Next, we discuss *which* justices make the election safe for I. Broadly, Lemma 1 implies that only some challenger-friendly justices can make the election safe for I. If vacancy is unlikely and J_1 leans sufficiently leftward, then it is likely that the right-leaning I would be constrained to moderate policy if elected, whereas the left-leaning C would be relatively unconstrained. In this case, the election is safe for I because V prefers a constrained extremist incumbent to a potentially moderate, but less-constrained, challenger.[11]

We conclude this section by discussing Lemma 1(ii), which characterizes how the vacancy probability affects the scope for competitive elections in the first period. Making the vacancy less likely (decreasing ν) increases the persistence of J_1, so V is more willing to re-elect a known extremist. Thus, J_1 does not have to constrain I as much to ensure a safe election, so $\overline{J}^I$ increases towards 0 as ν decreases.

First-period Appointments & Policymaking

With voter behavior characterized, we now analyze first-period equilibrium behavior in appointments and policymaking. Our model highlights a *dual role of appointments*: signaling and constraining. On one hand, appointments affect the voter's evaluation of the incumbent by providing a signal of the incumbent's ideology. On the other, appointments can directly influence the voter's expectations about future policy by constraining the set of policies that can survive review. As highlighted by the possibility of safe elections, the constraining effect can overwhelm the signaling effect. But if I's appointee does not induce a safe election, then the information provided by I's behavior influences V's vote.

Next, we formally define three mutually exclusive forms of first-period behavior.

Definition 2. A strategy profile has: (i) **compromising** if both types of I appoint identical $J_1 \notin \mathcal{J}^I$ and choose the same first-period policy; or (ii) **informative appointments** if each type of I appoints a distinct $J_1 \notin \mathcal{J}^I$ and choose different policies; or (iii) **tying hands** if each type of I appoints a $J_1 \in \mathcal{J}^I$ and chooses the closest policy acceptable to their J_1.

[11] By a parallel logic, elections can be safe for C.

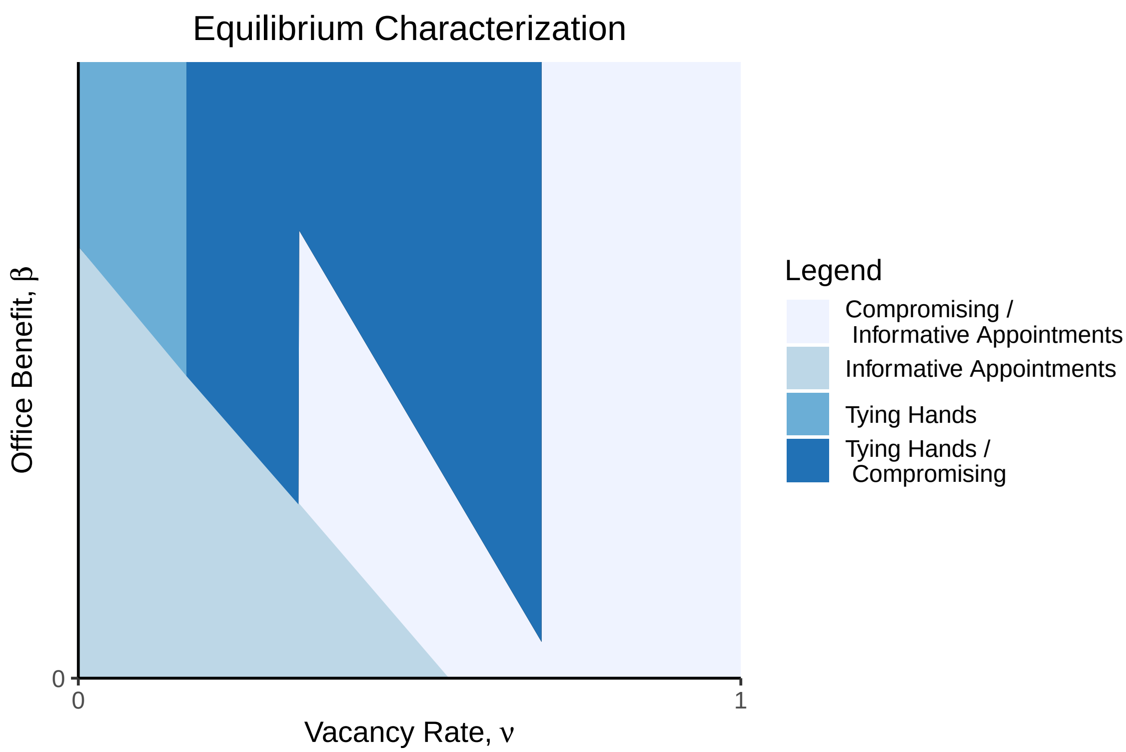

Figure 1: Parameters: $e = 3$, $m = 1$, $\phi = 1.33$, $p = 0.6$

Our next result demonstrates that I's equilibrium strategy must feature one of these three forms of behavior. Furthermore, we fully characterize the conditions under which each can arise in equilibrium. Under broad conditions, equilibria take one form. Under no conditions do all three forms coexist as equilibria.

Proposition 1. *Every equilibrium features either compromising, informative appointments, or tying hands. Furthermore, there exists an equilibrium featuring: (i) compromising if and only if* $\nu \geq \underline{\nu}$ *and* $\beta \geq \overline{\beta}_\nu^c$*; (ii) informative appointments if and only if either* $\nu > \overline{\nu}^I$ *or* $\beta < \overline{\beta}_\nu^{th}$*; and (iii) tying hands if and only if* $\nu \leq \overline{\nu}^I$ *and* $\beta \geq \overline{\beta}_\nu^{th}$*.*

Figure 1 provides a visual representation of this equilibrium characterization. For each form of behavior, we can immediately derive several useful observations about equilibrium behavior on the path of play.

Compromising. In these equilibria, V does not update and also must reelect I, as otherwise e would behave distinctly from m. Thus, $J_1 \leq 0$ and $x_1 \leq m$. Because e constrains herself to imitate m, her electoral gain from reelection must compensate. If $\beta = \overline{\beta}^c_\nu$, then e is indifferent between winning reelection after choosing $(J_1, x_1) = (0, m)$ versus her optimal losing behavior $(J_1, x_1) = (e + \phi, e)$. Increasing β further makes e even more willing to compromise for electoral gain. The compromising equilibrium with $(J_1, x_1) = (0, m)$ still exists but there will also be additional compromising equilibria with $J_1 < 0$ and $x_1 < m$. Note, however, that $(J_1, x_1) = (0, m)$ maximizes the ex ante payoff of both incumbent types among compromising equilibria.

Informative Appointments. In these equilibria, the election is competitive and V learns I's type after seeing (J_1, x_1). Thus, m wins but e loses. Anticipating losing, e chooses $(J_1, x_1) = (e + \phi, e)$, so that she can enact $x_1 = e$ and also constrain any second-period officeholder to enact $x_2 = e$ if no vacancy opens. Pinning down e's behavior helps us characterize m's behavior, as she chooses an appointee and policy to make e indifferent between (i) imitating to win reelection versus (ii) choosing $(J_1, x_1) = (e + \phi, e)$ and losing. To do so, m's appointee and policy must skew leftward enough to deter imitation by e.[12]

If elections are always competitive ($\nu > \overline{\nu}^I$), then an informative appointments equilibrium always exists. With low vacancy probability ($\nu \leq \overline{\nu}^I$) there are appointees who make the election safe for I. Crucially, this option bounds how far I will skew her appointee in equilibrium. Since reelection is guaranteed at $J_1 = \overline{J}^I$, neither incumbent type will choose a more left-leaning appointee. For low office benefit, i.e., $\beta < \overline{\beta}^{th}_\nu$, an informative appointments equilibrium exists because m can win reelection without skewing J_1 to $\overline{J}^I$. As β increases, e's incentive to win reelection also increases, so m's choice of J_1 or x_1 must move left in an informative appointments equilibrium to decrease e's policy payoff from imitating m.

Tying Hands. In these equilibria, I appoints her friendliest "safe" judge ($J_1 = \overline{J}_1$) and chooses her constrained optimal first-period policy. Thus, I's behavior may reveal information to V but that information does not influence the election because the appointment's

[12]There can be multiple equilibrium pairs of appointee and policy for m, as she can pair increasingly skewed policies with less skewed appointees.

constraining effect makes it irrelevant. Of course, the possibility of a safe election is necessary for tying hands behavior in equilibrium, i.e., the vacancy rate must be low ($\nu \leq \overline{\nu}^I$). Additionally, e must be willing to select $J_1 = \overline{J}^I$ for electoral reasons, i.e., there must be high office benefit ($\beta \geq \overline{\beta}_\nu^{th}$).

As noted above, m has no reason to skew J_1 past $\overline{J}^I$: the voter's expectation about J_1's constraint on future policy is favorable enough to ensure reelection, so there is no signaling incentive to skew J_1 farther left. Moreover, because the election is safe, I's policy choice has no electoral consequences. Each incumbent type therefore simply chooses its constrained optimal policy. Thus, it is possible that the types choose different first-period policies, thereby giving V full information. Yet, separation on policy does not jeopardize reelection because J_1's commitment effect decides the election.

Compromising vs. Tying Hands. The potential coexistence of compromising equilibria and tying hands equilibria, as established by Proposition 1, hinges on whether e would rather win reelection by choosing $(J_1, x_1) = (0, m)$ or instead do so with $(J_1, x_1) = (\overline{J}^I, x^*(e; \overline{J}^I))$. The former provides the highest possible payoff among equilibria featuring compromising, so tying hands *must* happen in equilibrium if e prefers the latter.

If $x^*(e; \overline{J}^I) < m$, then compromising equilibria exist whenever office motivation is high enough. Yet, $x^*(e; \overline{J}^I)$ can shift rightward past m as ν decreases because I does not have to skew J_1 as far leftward to ensure safe reelection.[13] Thus, e faces a tradeoff when comparing compromising against tying hands, and this tradeoff favors tying hands if ν is low enough.

Essentially, tying hands provides e with flexibility today, while compromising provides flexibility tomorrow. In the incumbent-optimal compromising equilibrium, e enjoys a weaker constraint on future policymaking but must exercise self-restraint today to enjoy it. By instead tying hands, e faces a tighter constraint tomorrow but can get away with more extreme policy today.

[13]We formally show this in the appendix in Lemma 1(iv).

Electoral & Policy Outcomes

Before moving to our analysis of polarization and voter welfare, we briefly discuss electoral outcomes and the ideological lean of appointments and policy. Proposition 2 characterizes how I's equilibrium reelection prospects depend on office benefit, β, and judicial turnover, ν.

Proposition 2. *In equilibrium, moderate incumbents win reelection. Extremist incumbents: lose if $\beta < \min\{\overline{\beta}^c_\nu, \overline{\beta}^{th}_\nu\}$, win if $\beta \geq \overline{\beta}^{th}_\nu$ and $\nu \leq \overline{\nu}^I$, and otherwise can win or lose.*

In equilibrium, I loses only if she is an extremist in an equilibrium featuring informative appointments. Therefore we can understand Proposition 2 simply by considering when such equilibria exist. Conditions that guarantee only informative appointments exist also guarantee that e always loses. In contrast, e always wins if conditions guarantee that such equilibria *do not* exist. Finally, if informative appointments are possible but not guaranteed, then e can win or lose, depending on the particular equilibrium being played.

The conditions on β and ν outlined in Proposition 2 also determine equilibrium appointment and policy outcomes in the first period.[14]

First, when $\beta < \min\{\overline{\beta}^c_\nu, \overline{\beta}^{th}_\nu\}$, the extremist is not willing to win reelection by incurring the policy cost of appointing a judge who appeals to V. Instead, e appoints $J_1 = e + \phi$ and enacts $x_1 = e$ before losing reelection, so equilibria must feature informative appointments. Thus, m need not skew J_1 all the way to 0 in order to deter election-seeking imitation by e. Consequently, I's first-period appointee and policy are always right-leaning in this case.[15]

[14]For our discussion of these outcomes, we focus on incumbent-optimal equilibria. If m is indifferent over a range of such equilibria, then we select the one that sets J_1 farthest to the right. We do so because this appointee would provide the strongest constraint on C and therefore m would strictly prefer this appointee if there were an arbitrarily small exogenous probability that C holds office in the second period.

[15]When β and ν are both sufficiently high m may need to choose policies to the left of 0

Second, if $\beta \geq \overline{\beta}_{\nu}^{th}$ and $\nu \leq \overline{\nu}^{I}$, equilibria only feature compromising or tying hands. This is because e is especially keen on reelection and low ν guarantees existence of safe elections, limiting how far m will skew J_1 leftward. Thus, the appointee is always center-left. Specifically, $J_1 \in [-\phi, 0]$, which in turn implies that first-period policy is always center-right because I's constrained optimal policy will be $x_1 \in [0, \phi]$.

Finally, if neither of the above conditions holds, then equilibria featuring informative appointments exist, potentially alongside equilibria featuring compromising. Thus, the appointee can always lean either direction, as e will appoint $J_1 \leq 0$ or $J_1 = e + \phi$ in equilibrium.

Consequences of Polarization

With equilibrium behavior characterized, we turn to consider how changes in polarization influence patterns of appointments. Does polarization lead incumbents to focus on the constraining influence of the judiciary and appoint friendly justices that enable them to implement extreme policy? Or does polarization lead incumbents to appoint moderate justices to win reelection, thereby avoiding the consequences of losing office to an extreme challenger? We show that the answer depends on the particular source of polarization.

Within our framework, there are two natural ways in which polarization can change.

Definition 3. We say there is: (i) an **increase in party extremists** if p increases, and (ii) an **increase in ideological divergence** if e increases.

Recall, that p is the prior probability a politician is an extremist, while e is the ideal point of an extremist. Increasing ideological divergence or party extremists increases polarization by shifting the expected ideal point of I further to the right and the expected ideal point of C left. Thus, in expectation, the parties move further away from V and from each

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to deter e. If I is restricted to only choosing policies to the right of 0 then informative appointments equilibria may not exist. Instead, there would be partially-informative equilibria in which e mixes over policies and V mixes over reelection.

other. However, increasing ideological divergence also increases within party polarization by increasing the difference between m and e.

Proposition 3 characterizes how polarization affects first-period behavior within every equilibrium that exists in a given region of the parameter space. Moreover, it shows that these distinct sources of polarization can have opposing effects on appointments and policymaking.

Proposition 3. *(Effects of Polarization) If ν is sufficiently low and β sufficiently high, then increasing party extremists increases J_1 and increasing ideological divergence decreases J_1. But if ν is sufficiently high, then increasing polarization always decreases J_1, regardless of the source.*

To clarify these differences, we first discuss the effect of polarization in each type of equilibrium. After doing so, we can characterize how polarization affects first-period behavior because (i) polarization does not affect first-period behavior in compromising equilibria, (ii) informative appointments and tying hands are mutually exclusive and mutually exhaustive.

First, polarization does not affect incumbent behavior in equilibria featuring compromising. Since I's first-period behavior does not vary by type, such equilibria are sustained by V's off-path beliefs, as is typical in pooling equilibria. Thus, first-period behavior is not sensitive to relatively small changes in either form of polarization.

In contrast, polarization does affect first-period behavior in equilbria featuring informative appointments or tying hands. Furthermore, these effects can vary depending on the type of the incumbent, the source of polarization, the value of office, and the vacancy rate. What accounts for this variation? The distinguishing factor is whether polarization affects equilibrium through V's incentives or I's incentives. Below we discuss this distinction in greater detail, considering informative appointments and tying hands equilibria in turn.

In equilibria featuring informative appointments, polarization crucially increases I's value for winning reelection and preventing the challenger from holding office. This change incentivizes I to shift first-period appointees and policy weakly leftward. More precisely, m's first-period behavior is pinned down by e's desire to mimic, which grows with e's value of office. Polarization affects this value endogenously by altering e's continuation value from being replaced by C: as polarization increases, regardless of how it is measured, losing re-election gets worse for e and mimicking m gets more attractive. In turn, m must skew her appointee and/or policy relatively further leftwards to deter imitation. If polarization increases through party extremists, then appointees lean farther leftwards. But if polarization increases through ideological divergence, then the direct effect of increasing e pushes the extremist's appointee to the right. Thus, m's choice of judge may move right or left. Yet, due to the previously discussed forces, the appointee's ideal point always moves (weakly) further away from e.

In equilibria featuring tying hands, polarization crucially alters V's comparison between I and C. More precisely, I's first-period behavior is pinned down by V's comparison between the *expected challenger* versus the *worst-case incumbent* because it determines $\overline{J}^I$, the rightmost justice who makes V indifferent between these two options. Because tying hands implies $J_1 = \overline{J}^I$, the consequences of polarization flow through the effect on this comparison for V.

In this case, the form of polarization becomes more important. Whereas both forms had a similar effect on incentives under informative appointments, they have opposing effects under tying hands. First, increasing p makes the expected challenger worse but does not affect the worst-case incumbent. This change makes V more inclined towards safe election, so $\overline{J}^I$ increases towards 0 and therefore J_1 and x_1 shift rightward. Second, greater extremist divergence worsens both the expected challenger *and* the worst-case incumbent. The effect on C is weaker, however, because it is diluted by the probability of being moderate. Consequently, V becomes more concerned about the worst-case incumbent and is less inclined towards safe election. This effect exerts a leftward force on $\overline{J}^I$, but the direct impact of shifting e to the right can result in a J_1 that is further right.

Institutional Design

Thus far, we have treated the vacancy rate, ν, as an exogenous feature of the environment. However, there are institutional reforms that could alter ν. For example, implementing a mandatory retirement age for judges would generate more turnover on the court and increase the probability the executive is able to make an appointment.

Our next result considers (i) the effect of ν on voter welfare and (ii) how the welfare-maximizing ν changes with polarization. In order to determine the highest obtainable level of voter welfare, if multiple equilibria exist we select the one that maximizes voter welfare.

Proposition 4. *If β is sufficiently high, then: (i) the optimal probability of judicial vacancy is given by $\nu^* \in (0, \overline{\nu}^I]$, (ii) increasing party extremists increases ν^*, and (iii) greater ideological divergence decreases ν^*.*

Proposition 4 highlights the important role that the durability of judicial appointments plays in determining voter welfare. An important factor driving the result is that voter welfare is maximized in a tying hands equilibrium. To see this, recall that increasing ν shifts $\overline{J}^I$ leftward, which pulls I's first-period policy toward V. Thus, the optimal level of turnover, ν^*, must balance better first-period outcomes against increasing the probability of a worse second-period outcome. This tradeoff yields that ν^* is also bounded away from 0: if vacancies are too unlikely, then the justice appointed in equilibrium does not sufficiently constrain I's policy choice. Additionally, ν^* is bounded away from 1. As such, durable appointments pave the way for moderation, enhancing voter welfare in the process.

The voter condition that determines the safe incumbent region plays an important role in the optimal vacancy rate. Consequently, both measures of polarization impact ν^*. As discussed earlier, greater ideological divergence makes the voter relatively more concerned about an extremist incumbent than an unknown challenger, while an increase in party extremists makes V relatively more wary of C than she is of a known extremist incumbent. Correspondingly, if e increases then ν^* decreases, while if p increases then ν^* decreases.

The relationship between durability of appointments is relevant to concerns over the counter-majoritarian nature of the court, as well as recent calls for judicial reform. We discuss each of these issues further in the Discussion.

Extension: Appointments to Move the Median

Thus far, we have assumed that the appointed justice is decisive in determining the court's review of executive policy. In practice, however, the executive's appointee is just one member of an already existing court. Consequently, the impact of any appointee will typically depend on the ideologies of the sitting justices. In this section, we account for these constraints by assuming the court is composed of multiple judges and that the median justice determines whether the executive's policy is upheld. As noted earlier, such "move-the-median" games are commonly used to model Supreme Court appointments.

Specifically, suppose the court has five justices and a vacancy opens at the beginning of the game, leaving four sitting justices. We assume there are two left-leaning sitting justices, with ideal points L_1 and L_2, and two right-leaning sitting justices, with ideal points R_1 and R_2. Furthermore, we assume their ideal points are ordered as $-e < L_2 < L_1 < -m < 0 < m < R_1 < R_2 < e$, i.e., the justices are more extreme than the moderate politician types, but less extreme than the extremist types.

As before, in the first period I appoints a judge with ideal point $J_1 \in \mathbb{R}$ and chooses a policy $x_1 \in \mathbb{R}$. Unlike before, however, x_1 remains in place only if a majority of justices vote to uphold it. If a majority vote to strike it down, then we assume the first-period policy outcome is the ideal point of the median justice.[16] Thus, the policy is upheld if and only if the median of the court prefers the new policy over getting her ideal policy at a cost of ϕ.

Incorporating multiple justices also affects potential judicial turnover in the second period. We assume that players correctly anticipate *which* justice *might* be replaced next, but

[16]A microfoundation for this assumption is that the final ruling is determined by a dynamic bargaining game between justices if they strike down policy, see Cho and Duggan (2009).

do not know *whether* that justice *will* leave. Let $\omega \in \{L_1, L_2, R_1, R_2\}$ denote the justice who may be replaced in the second period. With probability ν, justice ω will leave and the second-period officeholder will appoint a new judge J_2 to the court. With probability $1-\nu$, there is not a vacancy and the court's composition remains the same. Once the second-period court is in place, the executive chooses a second-period policy. As in the first period, it is upheld only if a majority of justices vote in favor. If it is struck down, the new policy outcome is at the ideal point of the second-period court's median justice.

This extension provides three insights that dovetail with our main results.

Our first insight is that the multi-member nature of the court creates a more nuanced relationship between vacancy, appointments, and electoral outcomes. In particular, the vacancy's location is an important determining factor for the safety of elections. If any vacancy will arise from the side opposite I, with either L_1 or L_2 vacating, then elections are similar to the baseline model: sufficiently low ν allows I the option to choose a justice that guarantees reelection regardless of V's beliefs. In contrast, if any vacancy will arise from the same side as I, with either R_1 or R_2 vacating, then I can achieve electoral safety more easily than in the baseline model. In this case, there exists a range of justices that guarantee reelection for *any* value of ν.

Proposition 5. *For any ν, the set of incumbent-safe appointees when there may be a left-leaning vacancy is a subset of the set of incumbent-safe appointees when there may be a right-leaning vacancy.*

The key factor underlying Proposition 5 is how a potential vacancy's location constrains the scope for future movement of the court's median. In the baseline model, a second-period vacancy provides free reign to move the court's ideological position. Consequently, vacancies allow any second-period politician to enact any policy. That is no longer true in this extension, as now appointments alter judicial constraints on policy only if they change the court's median. The location of a vacancy determines the "pivots" that constrain where any new median can be. Thus, a vacancy's location also constrains the set of policies that can be enacted after the vacant seat is filled. Importantly, these constraints are consequential for the safety of elections.

When a vacancy will lean left, i.e., opposite I, everyone anticipates that a second-period vacancy would lead to I pulling the second-period median justice rightward in its direction. This makes I less attractive when such a vacancy is likely (high ν). Specifically, safe elections are impossible if ν is high enough, as in to the baseline model.

In contrast, a right-leaning vacancy limits I's ability to shift the court further rightward. Thus, I cannot pull policy as extreme if a second-period vacancy opens and, in turn, V's evaluation of I improves. Notably, this force facilitates incumbent-safe elections even for very high values of ν, unlike the baseline model.

Our second insight is that the choice of J_1 affects both (i) the set of policies that are upheld in the second period *and* (ii) where the second-period executive can move the second-period median justice if a vacancy opens. This contrasts with the baseline model, in which constraining policy is the only potential second-period effect of J_1. In this extension, J_1 can now also constrain the location of the second-period median by affecting the court's pivots. To highlight this incentive, consider I's continuation value from choosing a justice with ideal point $J_1 \in [L_2, L_1]$ if C will be elected and the justice who will potentially vacate in the second period is $\omega \in \{L_1, R_1, R_2\}$, which equals:

$$\nu\Big(p\, u_I(x^*_{-e}(J_1)) + (1-p)\, u_I(-m)\Big) + (1-\nu)\Big(p\, u_I(x^*_{-e}(L_1)) + (1-p)\, u_I(-m)\Big).$$

Notably, I's choice of J_1 in this range will only affect outcomes if a vacancy *opens*. This contrasts with the baseline model, in which J_1 only affects second-period outcomes if a vacancy *does not open*.

Figure 2 explores this difference further. It depicts I's expected second-period payoff from C holding office, as a function of J_1, with the red line depicting the $\nu = 1$ case and the dashed blue line depicting the $\nu = 0$ case. Thus, the red line captures I's incentive to constrain C's scope to change the second-period median justice, whereas the blue line

Figure 2: I's Expected Utility from a Challenger

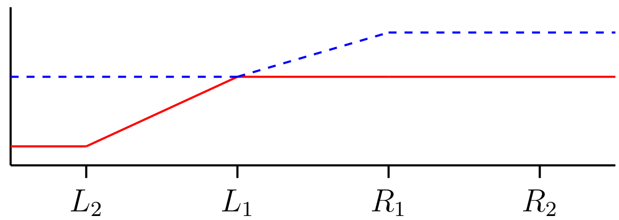

Figure 2 depicts I's expected utility, as a function of the first-period appointee J_1, from C winning the election if a right-leaning justice may leave. The solid line considers the case where $\nu = 1$, while the dotted line is the case where $\nu = 0$.

captures I's incentive to constrain C's policy choices. We see that the first effect explains why I wants to appoint a judge further to the right in the region $[L_2, L_1]$, while the second effect explains why I wants to move the judge to the right over the region $[L_1, R_1]$.

Our third insight is that the move-the-median structure of the court can reduce the informativeness of equilibrium appointments. The following result formalizes this.

Proposition 6. *A fully informative equilibrium does not exist if office benefit is large enough.*

Proposition 6 shows that, once move-the-median considerations are accounted for, high office benefit alone is sufficient to eliminate fully informative equilibria. This constrasts with the baseline model, where fully informative equilibria exist whenever tying hands equilibria do not. What accounts for this difference? The key factor is how the move-the-median structure of appointments in the extended model constrains I's ability to shift the court. Crucially, this restricts how the appointee can be used for signaling.

In the baseline model, a fully informative equilibrium requires that extremist incumbents are unwilling to mimic moderates for electoral gain by appointing the same justice. Accordingly, moderate types must skew their judicial appointee leftward enough to avoid imitation by extremists and, without limits on shifting the court, the moderate always can deter imitation by shifting J_1 sufficiently leftward. In the extended model, however, avoiding imitation is not always possible since the move-the-median structure constrains the moderate's ability to move the ideological position of the court. As office benefit increases, making mimicking more attractive, it eventually reaches a level beyond which the moderate cannot deter imitation by shifting J_1 further leftward, due to the ideologies of sitting justices. As such, a fully informative equilibrium cannot be sustained because the moderate is then unable to prevent the extremist from deviating, unlike in the baseline model. Rather, equilibria in this case are only partially informative, and involve mixed strategies by the extremist and V.

Discussion

We now turn to a broader discussion of our results. We first discuss the *counter-majoritarian difficulty*. Second, we turn to institutional design, discussing proposed reforms to Supreme Court selection through the lens of our model. Finally, we connect our findings to previous work on strategic pre-action by US Presidents and empirical patterns of appointments.

The Countermajoritarian Difficulty. Although justices are not subject to direct public accountability, the Supreme Court has the power to overturn policies favored by a majority of citizens. Bickel (1986) termed this the *counter-majoritarian difficulty.* Our analysis highlights how having elected executives nominate justices can enable voters to have an *indirect* influence over judicial decisionmaking through their ability to discipline the incumbent. The possibility that elections might create incentives for moderate appointments has been previously raised by legal scholars (e.g., Eisgruber, 2009). It is also consistent with evidence that the court tends to rule in line with public opinion (see, e.g., Dahl, 1957; McGuire and Stimson, 2004). Thus, allowing the executive to appoint justices may alleviate the counter-majoritarian difficulty. In both *tying hands* and *compromising* equilibria, electoral accountability operates as a force for moderation: incumbents use their appointment to commit to moderate policy, thereby winning reelection. But absent sufficient incentives to cater to the voter, appointment of justices may exacerbate the problem if the incumbent selects an even more extreme justice in order to constrain policymaking by future politicians, as occurs in *informative* equilibria.

According to historical accounts, this indirect effect prevailed in President Eisenhower's appointment of Justice Brennan to the Supreme Court in 1956. Concerned with the upcoming election, Eisenhower wanted to appoint a relatively moderate Democrat to the court in order to appeal to voters and appear less partisan (Yalof, 2001, p. 56). On the other hand, Eisenhower switched gears after winning reelection and nominated moderate-conservative Republicans in Justices Whitaker and Stewart (Yalof, 2001, p. 61). As suggested by our analysis, electoral concerns encouraged Eisenhower to select moderates during his first term. Absent reelection incentives, however, Eisenhower's second-term nominees were less moderate.

Turnover and Reform. On April 9, 2021, President Joe Biden issued an executive order announcing the formation of the Presidential Commission on the Supreme Court of the United States. Though the Commission ultimately avoided recommending any specific reforms, it considered a number of oft-discussed reform methods including term limits, court expansion, and mandatory retirement ages. Importantly, nearly all of the reforms analyzed would alter the court's rate of turnover. We do not explicitly model these reforms, but our results tying the durability of appointments, ν, to voter welfare provides a framework to assess the costs and benefits from altering rates of turnover in the court's membership.[17]

Our findings suggest that a moderate amount of turnover is optimal, with too-high or too-low rates of turnover encouraging undesirable appointments and policymaking. On one hand, if the turnover rate is too low, extremist politicians are tempted to nominate extremist justices, losing reelection but also locking in extremist policy in the long-term due to the durability of the judicial constraint. On the other hand, if the turnover rate is too high, extremist politicians are unable win reelection by tying their hands through the appointment of a moderate. The optimal rate of turnover is intermediate and balances these two forces — low enough so that extremists commit to moderate policy, but not so low that it encourages

[17]For further analysis of these proposed reforms see Chilton et al. (Forthcoming), Chilton et al. (2021), and Calabresi and Lindgren (2005).

extremists to pursue long-standing and extreme judicial constraint.

Appointments as Strategic Pre-Action. The durability of judicial constraint in our model connects our work to a literature on the political economy of the U.S. presidency. In particular, the power to appoint justices provides the president with an opportunity to durably alter the policymaking environment, engaging in *strategic pre-action* (Cameron, 2008). Other sources of strategic pre-action previously studied include the veto threat, going public, and use of executive orders. As in these models, appointments in our setting have dynamic effects — they constrain policy today and into the future, altering a voter's calculus.

Our analysis contrasts with previous work on appointments, which has typically focused on one-shot, "move-the-median" models. By considering the dynamic effects of appointment choices, our theoretical findings complement existing work by illuminating some otherwise puzzling empirical patterns. Cameron and Kastellec (2016) find an important discrepancy between the predictions of one-shot move-the-median models and the empirical record: nominations that move the court's median *away* from the President's ideal point. Across a variety of move-the-median models, Presidents only ever nominate justices that bring the median weakly toward their own ideal point. Countering this robust theoretical expectation, Cameron and Kastellec find that 15% of appointments are *own goals* moving the court's median farther from the President's ideal point. What might account for this? By modeling the role of electoral accountability in the context of Supreme Court nominations, we have incorporated a potentially important strategic consideration that is absent from the MTM framework. The previously discussed appointment of Justice Brennan by President Eisenhower suggests that electoral considerations may be an important mechanism behind these own goals. Indeed, the Brennan appointment appears in Cameron and Kastellec (2016) as one of the more egregious examples of an own goal. Additionally, both of Eisenhower's second-term appointments are measured as being ideologically closer to Eisenhower. Although the existence of multiple equilibria makes precise empirical predictions difficult, this example demonstrates that the electoral forces driving moderation in our model also drive presidential decisionmaking on appointments.

Conclusion

We studied how electoral considerations influence judicial appointments and policymaking, and how they, in turn, influence elections. We showed how judicial appointments provide executives with a tool for signaling *and* commitment, while also shaping their incentives to use policy for signaling. Moreover, we find that executives combine policy and appointments differently depending on judicial turnover, polarization, office motivation, and the ideologies of sitting justices. We provide three main substantive findings. First, appointments can solve the "counter-majoritarian difficulty," but otherwise make it worse. Second, policy reforms that increase judicial turnover, e.g., judicial term limits, can backfire and reduce voter welfare. Third, accounting for dynamic electoral incentives produces equilibrium behavior consistent with patterns of judicial appointments.

We close with suggestions for future research. Our findings shed light on some empirical patterns in judicial appointments that are not well explained by previous analyses emphasizing constraints from Senate confirmation. Studying these considerations in tandem, both theoretically and empirically, could be fruitful. A full analysis of a model incorporating additional constraints due to Senate confirmation might use our move-the-median extension as a jumping-off point. Additionally, we highlight how different forms of polarziation can have different effects on the interplay between elections and judicial appointments. It is also worth considering how an incumbent's action or type might endogenously influence the court's incentive to rule on a case, perhaps through manipulation of the costliness of a ruling. Continued dialogue between theory and empirics is important for developing useful measures of polarization and assessing their consequences for executive policymaking and appointments.

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A APPENDIX

Strategies and Beliefs. A pure strategy for V is a mapping $\rho_V : \mathbb{R}^2 \to \{0,1\}$ specifying whether V reelects I after observing a justice with ideal point J_1 and first-period policy x_1. Next, a pure strategy for I is a mapping $\pi_I : \{m, e\} \to \mathbb{R}^4$ from I's type into the set of policies and judicial ideal points in each period, and a strategy for C is a mapping $\pi_C : \{-m, -e\} \to \mathbb{R}^2$. Finally, a pure strategy for each judge J is a mapping $\rho_J : \mathbb{R}^2 \to \{0,1\}$ specifying for each policy whether J overturns it in each period. Let $\sigma = (\rho_V, \pi_I, \pi_C, \rho_J)$ denote a strategy profile. Additionally, V's belief system is represented by $\mu : \mathbb{R}^2 \to [0,1]$, where $\mu^{x_1}_{J_1}$ denotes the probability that V places on $I = e$ after observing x_1 and J_1. It is not necessary to define belief systems for justices.

If the election is safe for C, then V prefers to elect the unknown challenger over her favorite type of incumbent, i.e.,

$$\nu u_V(m) + (1-\nu) u_V(x_2^*(m; J_1)) \leq U_V^C(J_1). \tag{5}$$

We now present an expanded version of Lemma 1.

Lemma 1

In equilibrium,

(i) for each politician $i \in \{I, C\}$, there is a threshold $\overline{\nu}_i \in (0,1)$ on the probability of judicial vacancy such that $\mathcal{J}^i$ is nonempty if and only if $\nu \leq \overline{\nu}_i$;

(ii) if $\nu \leq \overline{\nu}_I$, then $\mathcal{J}^I \subseteq [-e-\phi, 0)$ is the union of two compact intervals;

(iii) if $\nu \leq \overline{\nu}_C$, then $\mathcal{J}^C = [\underline{J}^C, \overline{J}^C] \subseteq (\phi - m, \phi + m]$; and

(iv) if ν increases, then $\overline{J}^i$ decreases and $\underline{J}^i$ increases for each $i \in \{I, C\}$.

Proof of Lemma 1

We prove Lemma 1 in three steps. First, Lemma A.1 characterizes when the election is safe for C. Second, Lemmas A.2 and A.3 characterize when the election is safe for I. Finally, Lemma A.4 characterizes the vacancy probability (ν) affects the conditions producing safe elections.

Step 1. To begin, we characterize the conditions under which the election is safe for C. Let

$$\mathcal{J}^C = \Big[\phi - \frac{m - \nu(pe + (1-p)m)}{1-\nu}, \phi + \frac{m - \nu(pe + (1-p)m)}{1-\nu}\Big]. \tag{6}$$

Lemma A.1. *The voter prefers to elect C over a known moderate incumbent if and only if $J_1 \in \mathcal{J}^C$. Furthermore, $\mathcal{J}^C \subseteq (\phi - m, \phi + m]$.*

Proof. If V's beliefs place probability one on I's type being $\theta_I = m$, then she prefers to elect C if and only if

$$-\nu(pe + (1-p)m) - (1-\nu)|J_1 - \phi| \geq -m. \tag{7}$$

Rearranging, (7) holds if and only if $J_1 \in \mathcal{J}^I$. Note that the interval $\mathcal{J}^C = [\underline{J}^C, \overline{J}^C]$ is non-empty if and only if $\nu \leq \frac{m}{pe+(1-p)m} \equiv \overline{\nu}^C < 1$. Moreover, $\phi - m \leq \underline{J}^C$ and $\overline{J}^C \leq \phi + m$ by $m > \frac{m-\nu(pe+(1-p)m)}{1-\nu}$. □

Step 2. Next, we characterize the conditions under which V prefers to reelect a known extremist incumbent. To do so, we first define the following terms:

$$\begin{aligned}
\underline{\gamma}_1 &= -\phi - \frac{(1-p)m + (p-\nu)e}{1-\nu},\\
\overline{\gamma}_1 &= -\phi + \frac{(1-p)m + (p-\nu)e}{1-\nu},\\
\underline{\gamma}_2 &= \Big(\frac{1-p}{1+p}\Big)\Big(-\phi - \frac{m-\nu e}{1-\nu}\Big),\\
\overline{\gamma}_2 &= \Big(\frac{1-p}{1+p}\Big)\Big(-\phi + \frac{m-\nu e}{1-\nu}\Big).
\end{aligned}$$

With these in hand, let

$$\mathcal{J}^I = \Big[\underline{\gamma}_1, \min\{\overline{\gamma}_1, \phi - e\}\Big] \bigcup \Big[\max\{\phi - e, \underline{\gamma}_2\}, \overline{\gamma}_2\Big]. \tag{8}$$

Lemma A.2. *The voter prefers to reelect a known extremist incumbent if and only if $J_1 \in \mathcal{J}^I$. Furthermore, $\mathcal{J}^I \subseteq [-e - \phi, 0)$.*

Proof. If V's belief places probability one on $\theta_I = e$, then V prefers to reelect I if and only if

$$-\nu e - (1-\nu)|J_1 + \phi| \geq p(-\nu e - (1-\nu)|\max\{-e, J_1 - \phi\}|) - (1-p)m. \tag{9}$$

We will show that (9) holds if and only if $J_1 \in \mathcal{J}^I$. There are two cases, which are distinguished by $\max\{-e, J_1 - \phi\}$, as this value determines the set of J_1 for which (9) holds. Qualitatively, the cases determine whether an extremist challenger is constrained by the location of J_1.

Case 1: Suppose $-e \geq J_1 - \phi$. Equivalently, $J_1 \leq \phi - e < 0$. In this case, (9) holds if and only if

$$J_1 \in \Big[-\phi - \frac{(1-p)m + (p-\nu)e}{1-\nu}, -\phi + \frac{(1-p)m + (p-\nu)e}{1-\nu}\Big] = [\underline{\gamma}_1, \overline{\gamma}_1] \equiv \Gamma_1. \tag{10}$$

Because $J_1 \leq \phi - e$, the voter always reelects I if and only if $J_1 \in [\underline{\gamma}_1, \min\{\overline{\gamma}_1, \phi - e\}]$, which is equivalent to the first interval in (8). Note that $\underline{\gamma}_1 < \overline{\gamma}_1$ if

$$\nu \leq \frac{pe + (1-p)m}{e}. \tag{11}$$

Differentiating $\overline{\gamma}_1$ and $\underline{\gamma}_1$ with respect to ν, we have

$$\frac{\partial \overline{\gamma}_1}{\partial \nu} = -\frac{(1-p)(e-m)}{(1-\nu)^2} < 0, \tag{12}$$

and

$$\frac{\partial \underline{\gamma}_1}{\partial \nu} = \frac{(1-p)(e-m)}{(1-\nu)^2} > 0. \tag{13}$$

Case 2: Suppose $-e < J_1 - \phi$. Equivalently, $\phi - e \leq J_1$. In this case, (9) holds if and only if

$$\frac{(1-p)(m-\nu e) + p(1-\nu)\phi}{1-\nu} \geq |J_1 + \phi| + pJ_1, \tag{14}$$

which is equivalent to

$$J \in \Big[\Big(\frac{1-p}{1+p}\Big)\Big(-\phi - \frac{m-\nu e}{1-\nu}\Big), \quad \Big(\frac{1-p}{1+p}\Big)\Big(-\phi + \frac{m-\nu e}{1-\nu}\Big)\Big] = [\underline{\gamma}_2, \overline{\gamma}_2] \equiv \Gamma_2. \tag{15}$$

For $J_1 \geq \phi - e$, the voter always reelects I if and only if $J_1 \in [\max\{\underline{\gamma}_2, \phi - e\}, \overline{\gamma}_2]$, which is equivalent to the second interval in (8). Note that $\underline{\gamma}_2 < \overline{\gamma}_2$ if

$$\nu \leq \frac{m}{e}. \tag{16}$$

Differentiating $\underline{\gamma}_2$ and $\overline{\gamma}_2$, we have

$$\frac{\partial \overline{\gamma}_2}{\partial \nu} = -\Big(\frac{1-p}{1+p}\Big)\frac{e-m}{(1-\nu)^2} < 0, \tag{17}$$

and

$$\frac{\partial \underline{\gamma}_2}{\partial \nu} = \frac{e-m}{(1-\nu)^2} > 0. \tag{18}$$

We have shown that the set of J_1 such that the voter always reelects I is equivalent to $\mathcal{J}^I$ as defined in (8).

□

To complete Step 2, we show existence of $\overline{\nu}^I \in (0,1)$ such that $\mathcal{J}^I \neq \varnothing$ if and only if

$\nu \leq \overline{\nu}^I$. To begin, let:

$$\overline{\nu}_1 = \frac{pe + (1-p)m}{e}, \tag{19}$$

$$\overline{\nu}_2 = \frac{m}{e}, \tag{20}$$

$$\overline{\nu}_3 = \frac{2\phi - (1-p)(e-m)}{2\phi}, \text{ and} \tag{21}$$

$$\overline{\nu}_4 = \frac{(1+p)e + (1-p)m - 2\phi}{2(e-\phi)}. \tag{22}$$

Before proceeding, we collect several useful observations about the cutpoints above:

- $\overline{\nu}_j < 1$ for $j = 1, 2, 3, 4$;
- $\underline{\gamma}_1 \leq \overline{\gamma}_1$ if and only if $\nu \leq \overline{\nu}_1$;
- $\underline{\gamma}_2 \leq \overline{\gamma}_2$ if and only if $\nu \leq \overline{\nu}_2$;
- for $\phi < \frac{e}{2}$, we have $\underline{\gamma}_1 \leq \phi - e$ if and only if $\nu \leq \overline{\nu}_3$;
- for $\phi > \frac{e}{2}$, we have $\overline{\gamma}_1 < \phi - e$ if and only if $\nu > \overline{\nu}_4$;
- for $\phi > \frac{e}{1+p}$, we have $\overline{\gamma}_2 < \phi - e$ if and only if $\nu > \overline{\nu}_4$.

Finally, define

$$\overline{\nu}^I = \begin{cases} \overline{\nu}_2 \text{ if } \phi < \frac{(1-p)e}{2}, \\ \overline{\nu}_3 \text{ if } \phi \in \left(\frac{(1-p)e}{2}, \frac{e}{2}\right), \\ \overline{\nu}_1 \text{ if } \phi \geq \frac{e}{2}. \end{cases}$$

Lemma A.3. *The set $\mathcal{J}^I$ is non-empty if and only if $\nu \leq \overline{\nu}^I$.*

Proof. To show the result, we consider four cases that partition the possible costs of overturning, ϕ.

Case 1. Assume $\phi < \frac{(1-p)e}{2}$. Thus, $\overline{\nu}_3 < \overline{\nu}_2 = \overline{\nu}^I$. Also, note that $\phi < \frac{e}{2} < \frac{e}{1+p}$. There are three subcases.

(a) Consider $\nu > \overline{\nu}_2$. Then $\underline{\gamma}_2 > \overline{\gamma}_2$ and $\underline{\gamma}_1 > \phi - e$, so $\mathcal{J}^I = \varnothing$.

(b) Consider $\nu \in (\overline{\nu}_3, \overline{\nu}_2)$. Then $\overline{\gamma}_2 > \max\{\phi - e, \underline{\gamma}_2\}$ and $\underline{\gamma}_1 > \phi - e$, so $\mathcal{J}^I = [\max\{\phi - e, \underline{\gamma}_2\}, \overline{\gamma}_2]$ is nonempty.

(c) Consider $\nu < \overline{\nu}_3$. Because $\nu < \overline{\nu}_3 < \overline{\nu}_2$ and $\phi < \frac{e}{2}$, both intervals in $\mathcal{J}^I = [\underline{\gamma}_1, \phi - e] \cup [\max\{\phi - e, \underline{\gamma}_2\}, \overline{\gamma}_2]$ are nonempty.

Case 2. Assume $\phi \in (\frac{(1-p)e}{2}, \frac{e}{2})$. As in case 1, we have $\phi < \frac{e}{2} < \frac{e}{1+p}$. Unlike case 1, however, we now have $\overline{\nu}_2 < \overline{\nu}_3 = \overline{\nu}^I$. There are three subcases.

(a) Consider $\nu > \overline{\nu}_3$. Then $\mathcal{J}^I = \varnothing$ because $\underline{\gamma}_2 > \overline{\gamma}_2$ and $\underline{\gamma}_1 > \phi - e$.

(b) Consider $\nu \in (\overline{\nu}_2, \overline{\nu}_3)$. Because $\phi < \frac{e}{2}$, we have $\overline{\nu}_3 \leq \overline{\nu}_1$. It follows that $\underline{\gamma}_2 > \overline{\gamma}_2$ and $\underline{\gamma}_1 \leq \min\{\overline{\gamma}_1, \phi - e\}$, so $\mathcal{J}^I = [\underline{\gamma}_1, \min\{\overline{\gamma}_1, \phi - e\}]$ is nonempty.

(c) Consider $\nu < \overline{\nu}_2$. This subcase is equivalent to Case 1(c), so both intervals of $\mathcal{J}^I = [\underline{\gamma}_1, \phi - e] \cup [\max\{\phi - e, \underline{\gamma}_2\}, \overline{\gamma}_2]$ are nonempty.

Case 3. Assume $\phi \in (\frac{e}{2}, \frac{(1+p)e}{2})$. Then we have $\overline{\nu}_2 < \overline{\nu}_4 < \overline{\nu}_1 = \overline{\nu}^I$. There are four subcases.

(a) Consider $\nu > \overline{\nu}_1$. Immediately, we know $\underline{\gamma}_1 > \overline{\gamma}_1$. Next, $\nu > \overline{\nu}_1 > \overline{\nu}_2$ implies $\underline{\gamma}_2 > \overline{\gamma}_2$. Thus, $\mathcal{J}^I = \varnothing$.

(b) Consider $\nu \in (\overline{\nu}_4, \overline{\nu}_1)$. Because $\overline{\nu}_2 < \overline{\nu}_4 < \nu < \overline{\nu}_1$ and $\phi > \frac{e}{2}$, we know $\underline{\gamma}_1 < \overline{\gamma}_1 < \phi - e$ and $\underline{\gamma}_2 > \overline{\gamma}_2$. Thus, $\mathcal{J}^I = [\underline{\gamma}_1, \overline{\gamma}_1]$ is nonempty.

(c) Consider $\nu \in (\overline{\nu}_2, \overline{\nu}_4)$. Because $\overline{\nu}_2 < \nu < \overline{\nu}_4 < \overline{\nu}_1$ and $\phi > \frac{e}{2}$, we have $\overline{\gamma}_1 < \phi - e < \overline{\gamma}_1$ and $\underline{\gamma}_2 > \overline{\gamma}_2$. Thus, $\mathcal{J}^I = [\underline{\gamma}_1, \phi - e]$ is nonempty.

(d) Consider $\nu < \overline{\nu}_2$. Because $\nu < \overline{\nu}_2 < \overline{\nu}_4 < \overline{\nu}_1$ and $\phi > \frac{e}{2}$, we have: $\overline{\gamma}_1 < \phi - e < \overline{\gamma}1$, $\underline{\gamma}_2 < \overline{\gamma}_2$, and $\overline{\gamma}_2 \geq \phi - e$. Thus, both intervals of $\mathcal{J}^I = [\underline{\gamma}_1, \phi - e] \cup [\max\{\underline{\gamma}_2, \phi - e\}, \overline{\gamma}_2]$ are nonempty.

Case 4. Assume $\phi > \frac{(1+p)e}{2}$. Then we have $\overline{\nu}_4 < \overline{\nu}_1 = \overline{\nu}^I$. Thus, $\phi > \frac{1}{2}$.

(a) Consider $\nu > \overline{\nu}_1$. Analogous to case 3, we have $\mathcal{J}^I = \varnothing$ for this subcase.

(b) Consider $\nu \in (\overline{\nu}_4, \overline{\nu}_1)$. For reasons analogous to case 3(b), $\mathcal{J}^I = [\underline{\gamma}_1, \overline{\gamma}_1]$ is nonempty.

(c) Consider $\nu < \overline{\nu}_4$. Because $\nu < \min\{\overline{\nu}_4, \overline{\nu}_1\}$ and $\phi > \frac{(1+p)e}{2} > \frac{e}{2}$, we know $\underline{\gamma}_1 < \phi - e < \overline{\gamma}_1$ and $\overline{\gamma}_2 > \max\{\underline{\gamma}_2, \phi - e\}$. Thus, both intervals of $\mathcal{J}^I = [\underline{\gamma}_1, \phi - e] \cup [\max\{\underline{\gamma}_2, \phi - e\}, \overline{\gamma}_2]$ are nonempty.

$\square$

Step 3. Finally, we characterize how $\mathcal{J}^I$ and $\mathcal{J}^C$ change as ν increases.

Lemma A.4. *For $i \in \{I, C\}$, increasing ν increases $\underline{J}^i_\nu$ and decreases $\overline{J}^i_\nu$.*

Proof. First, we prove the result for $i = C$. After that, we consider $i = I$.

Part 1. Recall $\mathcal{J}^C = [\underline{J}^C, \overline{J}^C]$ as defined in (7). Differentiating with respect to ν yields

$$\frac{\partial \overline{J}^C}{\partial \nu} = -\frac{p(e-m)}{(1-\nu)^2} < 0, \tag{23}$$

and

$$\frac{\partial \underline{J}^C}{\partial \nu} = \frac{p(e-m)}{(1-\nu)^2} > 0. \tag{24}$$

Thus, $\mathcal{J}^C$ shrinks as ν increases.

Part 2. For $\nu < \overline{\nu}^I$, let $\overline{J}^I_\nu = \max \mathcal{J}^I$ and $\underline{J}^I_\nu = \min \mathcal{J}^I$. Then we show that $\underline{J}^I$ is increasing in ν and $\overline{J}^I$ is decreasing in ν. Throughout, we assume $\nu < \overline{\nu}^I$. There are four cases.

Case 1. Assume $\phi < \frac{(1-p)e}{2}$. Then $\overline{J}^I_\nu = \overline{\gamma}_2$, which is decreasing in ν by (17).

Next, we have

$$\underline{J}^I_\nu = \begin{cases} \max\{\phi - e, \underline{\gamma}_2\} & \text{if } \nu \in [\overline{\nu}_3, \overline{\nu}^I], \\ \underline{\gamma}_1 & \text{if } \nu < \overline{\nu}_3, \end{cases}$$

where $\overline{\nu}^I = \overline{\nu}_2$. By (13), we know $\underline{J}^I_\nu$ increases over $\nu < \overline{\nu}_3$. Next, $\nu < \overline{\nu}_3$ implies $\underline{\gamma}_1 < \phi - e$ in this case because $\phi < \frac{(1-p)e}{2} < \frac{e}{2}$. Finally, $\underline{\gamma}_2$ is increasing in ν by (18). Altogether, we have shown that $\underline{J}^I_\nu$ increases over $[0, \overline{\nu}^I]$.

Case 2. Assume $\phi \in (\frac{(1-p)e}{2}, \frac{e}{2})$. In this case,

$$\overline{J}^I_\nu = \begin{cases} \phi - e & \text{if } \nu \in [\overline{\nu}_2, \overline{\nu}^I], \\ \overline{\gamma}_2 & \text{if } \nu < \overline{\nu}_2, \end{cases}$$

where $\overline{\nu}^I = \overline{\nu}_3$. By (17), we know $\overline{J}^I_\nu$ decreases over $\nu < \overline{\nu}_2$. At $\nu = \overline{\nu}_2$, $\overline{J}^I_\nu$ decreases discontinuously from $-\frac{1-p}{1+p}\phi$ to $\phi - e$. Finally, $\overline{J}^I_\nu$ is constant for $\nu > \overline{\nu}_2$

Next, we have $\underline{J}^I_\nu = \underline{\gamma}_1$, so (13) implies that $\underline{J}^I_\nu$ increases in ν.

Case 3. Assume $\phi \in (\frac{e}{2}, \frac{(1+p)e}{2})$. In this case,

$$\overline{J}^I_\nu = \begin{cases} \overline{\gamma}_1 & \text{if } \nu \in [\overline{\nu}_4, \overline{\nu}^I], \\ \phi - e & \text{if } \nu \in [\overline{\nu}_2, \overline{\nu}_4), \\ \overline{\gamma}_2 & \text{if } \nu < \overline{\nu}_2, \end{cases}$$

where $\overline{\nu}^I = \overline{\nu}_1$. First, (17) implies that $\overline{J}^I_\nu$ decreases over $\nu < \overline{\nu}_2$. At $\nu = \overline{\nu}_2$, $\overline{J}^I_\nu$ decreases discontinuously from $-\left(\frac{1-p}{1+p}\right)\phi$ to $\phi - e$. Next, $\overline{J}^I_\nu$ is constant as ν increases $(\overline{\nu}_2, \overline{\nu}_4)$. At $\nu = \overline{\nu}_4$, we have $\overline{\gamma}_1 = \phi - e$. Finally, (12) implies that $\overline{J}^I_\nu$ decreases in ν over $(\overline{\nu}_4, \overline{\nu}^I]$. Altogether, we have shown that $\overline{J}^I_\nu$ is decreasing in ν.

Next, we have $\underline{J}^I_\nu = \underline{\gamma}_1$, which increases in ν as noted in the previous cases.

Case 4. Assume $\phi > \frac{(1+p)e}{2}$. In this case,

$$\overline{J}^I_\nu = \begin{cases} \overline{\gamma}_1 \text{ if } \nu \in (\overline{\nu}_4, \overline{\nu}^I], \\ \\ \overline{\gamma}_2 \text{ if } \nu < \overline{\nu}_4. \end{cases}$$

where $\overline{\nu}^I = \overline{\nu}_1$.

First, (17) implies that $\overline{J}^I_\nu$ decreases in ν over $[0, \overline{\nu}_4)$. At $\nu = \overline{\nu}_4$, $\phi > \frac{(1+p)e}{2}$ implies $\overline{\gamma}_1 = \overline{\gamma}_2 = \phi - e$. Finally, (12) implies that $\overline{J}^I_\nu$ is decreases in ν over $(\overline{\nu}_4, \overline{\nu}^I]$. Altogether, we have shown that $\overline{J}^I_\nu$ is decreasing.

Next, we have $\underline{J}^I_\nu = \underline{\gamma}_1$, so (13) implies that $\underline{J}^I_\nu$ is decreasing in ν.

$\square$

Proposition 1. *Every equilibrium features either compromising, informative appointments, or tying hands. Furthermore, there exists an equilibrium featuring: (i) compromising if and only if $\nu \geq \underline{\nu}$ and $\beta \geq \overline{\beta}^c_\nu$; (ii) informative appointments if and only if either $\nu > \overline{\nu}^I$ or $\beta < \overline{\beta}^{th}_\nu$; and (iii) tying hands if and only if $\nu \leq \overline{\nu}^I$ and $\beta \geq \overline{\beta}^{th}_\nu$.*

Note: Whenever (x_1, J_1) is off the path of play and beliefs are not pinned down by equilibrium dominance we assume the voter believes the deviation is due to the extremist.

Proof of Proposition 1

We first show that every pure strategy PBE satisfying equilibrium dominance is either an informative appointments equilibrium, a compromising equilbrium, or a tying hands equilibrium. We break the analysis into two cases, distinguished by whether I's appointments strategy separates types. In each case, we show that any equilibrium must be one of the three types listed above. After completing this component of the proof, we subsequently prove the characterization component.

Case 1. Suppose that types separate in equilibrium at the appointments stage, each selecting a different value of J_1. There are two subcases.

(a) Suppose that type e chooses $J_1 \notin \mathcal{J}^I$. As the extremist is removed from office following such a choice, if the extremist chooses any $J_1' \neq e + \phi$, they have a profitable deviation to $J = e + \phi$. Therefore, the extremist must be choosing $J_1 = e + \phi$ in such an equilibrium.

Additionally, in this case it must be that the moderate chooses some x_1 and J_1 that satisfies

$$-|x_1 - e| + \beta - (1 - \nu)|J_1 + \phi - e| = -\nu(2pe + (1 - p)(e + m)), \qquad (25)$$

where the LHS of (25) gives the extremist's expected utility for choosing (x_1, J_1) and winning reelection, while the RHS gives the extremist's expected utility for not deviating.

For a contradiction, first suppose that the moderate is choosing (x_1, J_1) such that $-|x_1 - e| + \beta - (1 - \nu)|J_1 + \phi - e| > -\nu(2pe + (1 - p)(e + m)$ is an equilibrium. As the inequality holds strictly, there exists $\epsilon > 0$ such that $-|x_1 + \epsilon - e| + \beta - (1 - \nu)|J_1 + \phi - e| > -\nu(2pe + (1 - p)(e + m)$. Clearly, the extremist will never deviate to choose $(x_1 + \epsilon, J_1)$, thus, following the off-path action $(x_1 + \epsilon, J_1)$ equilibrium dominance requires the voter to put probability 1 on the incumbent being a moderate. However, since $|x_1 - m| > |x_1 + \epsilon - m|$ the moderate has profitable deviation to $(x_1 + \epsilon, J_1)$, contradicting that (x_1, J_1) is an equilibrium.

To complete the contradiction, suppose that the moderate is choosing some (x_1, J_1) such that $-|x_1 - e| + \beta - (1 - \nu)|J_1 + \phi - e| > -\nu(2pe + (1 - p)(e + m)$. However, this is inconsistent with equilibrium play, as, by construction of the inequality, e may profitably deviate to mimic the moderate.

This completes the argument that in this case, in equilibrium the moderate must be choosing (x_1, J_1) that solves (25). Note that this satisfies our definition of an *informative appointments* equilibrium, as required.

(b) For the second subcase, suppose that type e chooses $J_1 \in \mathcal{J}^I$. First, note that if the extremist is choosing such a J_1 in equilibrium, then they must be choosing $J_1 = \overline{J}^I$. There are two subcases to consider.

First, we show that the moderate must be choosing some $J_1 \in \mathcal{J}^I$. To deduce a contradiction, suppose the the moderate is choosing some $J_1 \notin \mathcal{J}^I$. We show that such a strategy cannot be an equilibrium by demonstrating that any such J_1 admits a profitable deviation by either the moderate or extremist. If the moderate's choice is such that $J_1 < \overline{J}^I$, then the moderate has a profitable deviation to $\overline{J}^I$. If the moderate's choice is such that $J_1 > \overline{J}^I$ and the moderate is winning reelection, then the extremist can profitably deviate to mimic the moderate's choice. Finally, suppose the moderate's choice is such that $J_1 > \overline{J}^I$ and the moderate is losing. Recall that in this proposed equilibrium the extremist is choosing $J_1 = \overline{J}^I$. This implies that the moderate can profitably deviate to $J_1 = \overline{J}^I$, and therefore such a strategy cannot be part of an equilibrium. Therefore, the moderate must be choosing $J_1 \in \mathcal{J}^I$, as required.

Finally, as the moderate must be choosing $J_1 \in \mathcal{J}^I$ in such an equilibrium, note that in this case equilibrium conforms to our definition of a *tying hands* equilibrium.

Case 2. Suppose that both incumbent-types pool at the appointments stage, choosing the same judge. First, note that in equilibrium the incumbent-types cannot pool on a choice of J_1 that results in them losing office. For a proof by contradiction, suppose not. If the incumbent is losing office, then the types must pool on $J_1 = e + \phi$, as type e would have a profitable deviation otherwise. However, note that this implies that the moderate type can profitably deviate to $J_1 = m+\phi$. Therefore, in an equilibrium where incumbent-types pool at the appointments stage, the incumbent must win reelection.

We now consider two subcases, depending on the location of the judge that the politician-types pool on.

(a) First, suppose that types pool on some $J_1 \in \mathcal{J}^I$ in equilibrium. If types pool on any $J_1 \neq \overline{J}^I$, the extremist may profitably deviate to $\overline{J}^I$. Therefore, if types pool on some $J_1 \in \mathcal{J}^I$ in equilibrium, they must pool on $\overline{J}^I$. Such an equilibrium conforms to our definition of a *tying hands* equilibrium.

(b) For the second subcase, suppose that types pool on some $J_1 \notin \mathcal{J}^I$. Because I must win reelection in any equilibrium with both types pooling on $J_1 \notin \mathcal{J}^I$, as shown above, both types must also pool on x_1. For a proof by contradiction, suppose not. Then type e is losing reelection, which contradicts the requirement that both types win reelection in any equilibrium with pooling on J_1.

As the politician-types must pool in both their first-period appointment and policy choice, and they must win reelection, it follows from our analysis of voter incentives that they must be choosing some $J_1 \leq 0$.

Finally, we show that in such an equilibrium the types must pool on a first-policy x_1 such that $x_1 \leq m$. For a proof by contradiction, suppose not. Note that the equilibrium dominance refinement in this case requires that after a deviation at the policy stage to some $x_1' \in [m, x_1)$, that the voter places probability 1 on the moderate. However, this means that the moderate has a profitable deviation to any such x_1'. Therefore, in such an equilibrium, types must pool on $x_1 \leq m$.

Altogether, we have shown in this subcase that types must pool on some $J_1 \leq 0$ and on some $x_1 \leq m$. Therefore, this conforms to our definition of a *compromising* equilibrium.

We prove the characterization component of Proposition 1 in three parts. Beforehand, we define the following useful cutoffs on office benefit:

$$\overline{\beta}_{TH} = (2-\nu)(e - \overline{J}_{\nu}^{I} - \phi) - \nu(2pe + (1-p)e + m)), \text{ and} \tag{26}$$

$$\overline{\beta}_{C} = |e-m| + (1-\nu)|e-\phi| - \nu[2pe + (1-p)|e+m|]. \tag{27}$$

- **Part 1:** We prove part 1 of Proposition 1 in three steps. The first two steps show the first implication, with each focusing respectively on the cases in which an informative appointments and tying hands equilibrium also exists. The third step proves the second implication.

  Step 1: For the first step, consider the case where an informative appointments equilibrium exists, i.e. $\nu > \overline{\nu}^I$ or $\beta < \overline{\beta}_{TH}$. We show that a compromising equilibrium exists in this case if and only if $\beta \geq \overline{\beta}_C$. Recall that a compromising equilibrium exists if and only if neither type can deviate from the strategies $J^*(e) = J^*(m) = 0$ and $x^*(e) = x^*(m) = m$.

  First consider a deviation by the extremist. As $\nu > \overline{\nu}^I$, if the extremist deviates to any $J_1' \neq 0$ they will lose reelection. Therefore, the best possible deviation from the perspective of the extremist is to $J_1 = e + \phi$. Such a deviation is not profitable if

$$-|e-m| - (1-\nu)|e-\phi| + \beta \geq -\nu[2pe + (1-p)|e+m|], \tag{28}$$

  which holds if and only if $\beta > \overline{\beta}_C$, as required.

  The only other deviation that must be considered for type e is a deviation to some $J_1 \in \mathcal{J}^I$. However, note that the assumption that $\nu > \overline{\nu}^I$ implies that $\mathcal{J}^I$ is empty. Finally, note that type m cannot profitably deviate to an appointment that results in losing office, as the best deviation to an appointment that results in the moderate losing office, which is $J_1' = m + \phi$, is not profitable if

$$\beta \geq -\nu[|e-m| + (1-p)2m], \tag{29}$$

which holds as $\beta \geq 0$.

Step 2: For the second step, consider the case where a tying hands equilibrium exists, i.e., $\beta > \overline{\beta}_{TH}$ and $\nu < \overline{\nu}^I$. We show that if a compromising equilibrium exists for some $\nu' < \overline{\nu}^I$, then a compromising equilibrium also exists for all $\nu \in (\nu', \overline{\nu}^I]$. Additionally, our proof demonstrates that there exist parameters for which a compromising equilibrium and a tying hands equilibrium exist simultaneously.

To begin, note that if $\mathcal{J}^I$ is nonempty, then a compromising equilibrium exists if and only if the following inequality holds

$$-(2-\nu)|e - (\overline{J}^I_\nu + \phi)| \leq -|e-m| - (1-\nu)|e-\phi| \tag{30}$$

or equivalently,

$$\overline{J}^I_\nu \leq \frac{m-\phi}{2-\nu}. \tag{31}$$

We proceed by considering cases depending on the location of ϕ and ν. There are three cases to consider, as $\overline{J}^I_\nu$ can only be located at $\overline{\gamma}_1$, $\phi - e$, or $\overline{\gamma}_2$. In each case, we show that inequality (31) holds.

Before proceeding, it is useful to define the functions $f_1(\nu)$ and $f_2(\nu)$ as

$$f_1(\nu) = -\phi + \Big(\frac{(1-p)m + (p-\nu)e}{1-\nu}\Big) - \frac{m-\phi}{2-\nu} \tag{32}$$

and

$$f_2(\nu) = \Big(\frac{1-p}{1+p}\Big)\Big(-\phi + \frac{m-\nu e}{1-\nu}\Big) - \frac{m-\phi}{2-\nu} \tag{33}$$

respectively.

We start by noting that at $\nu = 0$ it is the case that $\overline{J}_\nu^I = \overline{\gamma}_2$. Thus, at $\nu = 0$ inequality (31) holds if and only if

$$\Big(\frac{1-p}{1+p}\Big)(-\phi + m) \leq \frac{m-\phi}{2}, \tag{34}$$

which is true if and only if $p \leq 1/3$.

Case 1. Assume $\phi < \frac{(1-p)e}{2}$. Then $\overline{J}_v^I = \overline{\gamma}_2$. We will show there exists $\underline{\nu}$ such that if $\nu \geq \underline{\nu}$ then inequality (31) holds, otherwise, if $\nu < \underline{\nu}$ then it does not. To do so, we show that $\phi < \frac{(1-p)e}{2}$ implies that, when viewed as functions of ν, $\overline{\gamma}_2$ is decreasing at a slower rate than $\frac{m-\phi}{2-\nu}$.

Taking the derivative of $\frac{m-\phi}{2-\nu}$ with respect to ν yields $\frac{m-\phi}{(2-\nu)^2}$. This is greater than $\frac{\partial \overline{\gamma}_2}{\partial \nu}$ if

$$\frac{m-\phi}{(2-\nu)^2} > -\Big(\frac{1-p}{1+p}\Big)\Big(\frac{e-m}{(1-\nu)^2}\Big), \tag{35}$$

which holds if and only if

$$\phi < m + \Big(\frac{(1-p)(e-m)}{1+p}\Big)\Big(\frac{(2-\nu)^2}{(1-\nu)^2}\Big) \tag{36}$$

Recall that in this case we have $\phi < \frac{(1-p)e}{2}$, so a sufficient condition for (35) to hold is

$$\frac{(1-p)e}{2} < m + \Big(\frac{(1-p)(e-m)}{1+p}\Big)\Big(\frac{(2-\nu)^2}{(1-\nu)^2}\Big). \tag{37}$$

Rearranging yields

$$\frac{(1-p)e-2m}{2} < \Big(\frac{(1-p)(e-m)}{1+p}\Big)\Big(\frac{(2-\nu)^2}{(1-\nu)^2}\Big), \tag{38}$$

which holds as $\frac{(1-p)e-2m}{2} < \Big(\frac{(1-p)(e-m)}{1+p}\Big)$ and $1 < \Big(\frac{(2-\nu)^2}{(1-\nu)^2}\Big)$.

Case 2. Assume $\phi \in (\frac{(1-p)e}{2}, \frac{e}{2})$.

1. Assume $\nu \in [\overline{\nu}_2, \overline{\nu}_3]$, which implies $\overline{J}_\nu^I = \phi - e$. We show that at $\nu = \overline{\nu}_3$ inequality

(31) does not hold. This is true if and only if

$$\phi - e < \frac{m-\phi}{2-\overline{\nu}_3} \tag{39}$$

$$\Leftrightarrow \frac{\phi - m}{e-\phi} < 1 + \frac{(1-p)(e-m)}{2\phi} \tag{40}$$

Since the LHS of the above inequality is strictly increasing in ϕ and the RHS is strictly decreasing, a sufficient condition for the inequality to be true is that it holds at $\phi = \frac{e}{2}$. In this case, the inequality becomes

$$\frac{e-2m}{e} < 1 + \frac{(1-p)(e-m)}{e}, \tag{41}$$

which reduces to $-2m < (1-p)(e-m)$, which always holds.

Since $\frac{m-\phi}{2-\nu}$ is strictly decreasing in ν, and $\phi - e$ is not changing in ν, it must be that inequality (31) holds for all $\nu \in [\overline{\nu}_2, \overline{\nu}_3]$.

2. Assume $\nu < \overline{\nu}_2$, which implies $\overline{J}^I = \overline{\gamma}_2$. Thus, inequality (31) holds in this case if and only if $f_2(\nu) > 0$. First, note that $f_2(\nu)$ is quadratic in ν. Second, note that $f_2(\overline{\nu}_2) < 0$ as $\phi < e/2$. We now consider subcases, depending on whether $f_2(0)$ is positive or negative.

   For the first subcase, suppose that $f_2(0) > 0$. As $f_2(\overline{\nu}_2) < 0$, and $f_2(\nu)$ is quadratic, it follows that there is exactly one value $\underline{\nu} \in (0, \overline{\nu}_2)$ such that $f_2(\underline{\nu}) = 0$. Therefore, if $f_2(0) > 0$, then inequality (31) does not hold for $\nu < \underline{\nu}$ and does hold for $\nu \in [\underline{\nu}, \overline{\nu}_2]$.

   For the second subcase, suppose that $f_2(0) < 0$. As $f_2(\overline{\nu}_2) < 0$, in this subcase it suffices to show that $\frac{\partial f_2}{\partial \nu} < 0$. Differentiating, we find that this holds if and only if

$$\frac{\partial f_2}{\partial \nu} = -\Big(\frac{1-p}{1+p}\Big)\Big(\frac{e-m}{(1-\nu)^2}\Big) - \frac{m-\phi}{(2-\nu)^2} < 0, \tag{42}$$

which is equivalent to

$$\Big(\frac{1-p}{1+p}\Big) > \Big(\frac{\phi-m}{e-m}\Big)\frac{(1-\nu)^2}{(2-\nu)^2}. \tag{43}$$

Note that the left hand side of (48) is decreasing in p. Additionally, the right hand side of (48) is increasing in ϕ and decreasing in ν. Further, recall that $f_2(0) < 0$ implies that $p < 1/3$. We also know in this case that $\nu \geq 0$ and $\phi < e/2$. Therefore, substituting for p, ϕ, and ν, a sufficient condition for (48) to hold in this subcase is

$$1/2 > \frac{(e/2)-m}{e-m}\Big(\frac{1}{4}\Big), \tag{44}$$

which holds if and only if $3e > 2m$, which is true. This implies that in this subcase that inequality (31) holds for all $\nu \in [0, \overline{\nu}_2]$.

With this, we know that as inequality (31) holds for all $\nu > \overline{\nu}_2$ and that $f_2(\nu)$ can only cross 0 at most once for $\nu < \overline{\nu}_2$. Therefore, there exists a unique $\underline{\nu} \in [0, \overline{\nu}^I)$ such that inequality (31) holds for $\nu \geq \underline{\nu}$ and does not hold for $\nu < \underline{\nu}$.

Case 3. Assume $\phi \in (\frac{e}{2}, \frac{(1+p)e}{2})$.

1. Assume $\nu \in [\overline{\nu}_4, \overline{\nu}_1]$, which implies $\overline{J}^I_\nu = \overline{\gamma}_1$. We proceed in two steps. First, we show that equation (31) holds at $\overline{\nu}_1$. Second, we show that there is at most one value of $\nu \in [\overline{\nu}_4, \overline{\nu}_1]$ for which inequality (31) holds with equality.

   Step 1: In this case, recall that if $\nu = \overline{\nu}_1$ then $\overline{J}_\nu = -\phi$. Therefore, inequality (31) holds at $\overline{\nu}_1$ if and only if

$$-\phi - \frac{m-\phi}{1-\overline{\nu}_1} < 0 \iff \phi(\overline{\nu}_1 - 1) < m, \tag{45}$$

   which holds.

   Step 2: Now we show that $f_1(\nu) = 0$ admits at most one solution for $\nu \in [\overline{\nu}_4, \overline{\nu}_1]$.

Note that $f_1(\nu)$ is quadratic in ν. Application of the quadratic formula reveals that the greatest solution to $f_1(\nu) = 0$ is located at

$$\nu = \frac{2(e-\phi) + p(e-m)}{2(e-\phi)} + \frac{\sqrt{[2(\phi - e) + p(m-e)]^2 + 4(e-\phi)[m(1-p) + 2\phi(pe-1)]}}{2(e-\phi)}. \tag{46}$$

The right hand side of the above is strictly greater than 1. Therefore, as ν is bounded above by 1, inequality (31) holds with equality at most once on $[\overline{\nu}_4, \overline{\nu}_1]$.

2. Assume $\nu \in [\overline{\nu}_2, \overline{\nu}_4]$, which implies $\overline{J}^I_\nu = \phi - e$. Note that $\frac{m-\phi}{2-\nu}$ is strictly decreasing in ν. As $\phi - e$ is not a function of ν, this implies that there is at most one solution to $f_1(\nu) = 0$ for $\nu \in [\overline{\nu}_2, \overline{\nu}_4]$.

3. Assume $\nu < \overline{\nu}_2$, which implies $\overline{J}^I_\nu = \overline{\gamma}_2$. We consider two subcases, depending on whether $f_2(0) < 0$ or not.

   For the first subcase, suppose $f_2(0) < 0$. Recall that $f_2(0) < 0 \iff p < 1/3$. Additionally, $p < 1/3 \implies f_2(\overline{\nu}_2) \leq 0$. Thus, it suffices to show that $\frac{\partial f_2}{\partial \nu} < 0$. Differentiating, we find that this holds if and only if

$$\frac{\partial f_2}{\partial \nu} = -\Big(\frac{1-p}{1+p}\Big)\Big(\frac{e-m}{(1-\nu)^2}\Big) - \frac{m-\phi}{(2-\nu)^2} < 0, \tag{47}$$

   which is equivalent to

$$\Big(\frac{1-p}{1+p}\Big) > \Big(\frac{\phi - m}{e-m}\Big)\frac{(1-\nu)^2}{(2-\nu)^2}. \tag{48}$$

   First, note that the right hand side of (48) is increasing in ϕ. Therefore, a sufficient condition for (48) to hold is given by

$$\Big(\frac{1-p}{1+p}\Big) > \Big(\frac{((1+p)e/2 - m}{e-m}\Big)\frac{(1-\nu)^2}{(2-\nu)^2}. \tag{49}$$

   Now, note that the left hand side of (48) is decreasing in p, while the right hand side is increasing in p. Additionally, the right hand side of (48) is decreasing in ν. Therefore, a sufficient condition for (48) to hold is

$$\left(\frac{1-1/3}{1+1/3}\right) > \left(\frac{((1+1/3)e/2-m}{e-m}\right)\frac{(1-0)^2}{(2-0)^2}. \tag{50}$$

This condition holds, as $4e > 3m$.

For the second subcase, suppose that $f_2(0) > 0$. If $f_2(\overline{\nu}_2) < 0$, then as $f_2(\nu)$ is quadratic in ν then $f_2(\nu)$ can cross 0 at most once. Finally, consider $f_2(\overline{\nu}_2)$. We show that this implies that $f_2(\nu) = 0$ has no solutions on $[0, \overline{\nu}_2]$. As $f_2(\nu)$ is quadratic, its lower root is given by

$$\frac{(2e-m-3\phi)(1-p)-\sqrt{(3\phi+m-2e)^2(1-p)^2-4(1-p)(e-\phi)(\phi-m)(3p-1)}}{2(1-p)(e-\phi)}. \tag{51}$$

If $\phi > \frac{2e-m}{3}$, then this solution is less than 0. The assumption that $f_2(\overline{\nu}_2) > 0$ implies that $\phi > \frac{2e-\overline{\nu}_2 e+m}{3-\overline{\nu}_2}$. Combining inequalities, we have

$$\phi > \frac{2e-\overline{\nu}_2 e+m}{3-\overline{\nu}_2} > \frac{2e-m}{3}. \tag{52}$$

Therefore, the lower root of $f_2(\nu)$ is less than 0. As $f_2(\overline{\nu}_2) > 0$ and $f_2(0) > 0$ and $f_2(\nu)$ is quadratic and continuous in ν, this implies that $f_2(\nu) = 0$ has no solutions in this case.

Now, gathering all of this together, we complete the argument that inequality 31 holds with equality at most once for $\nu \in [0, \overline{\nu}_1]$.

First, assume that inequality (31) does not hold for any $\nu < \overline{\nu}_4$. In this case, arguments from part 1 above suffice.

Second, assume that inequality (31) does not hold for any $\nu < \overline{\nu}_2$ but does hold for some $\nu' \in [\overline{\nu}_2, \overline{\nu}_4]$. By arguments from part 2, we know that inequality (31) must hold for all $\nu \in (\nu', \overline{\nu}_4)$. Further, by part 1 above, we have $f_1(\overline{\nu}_1) < 0$ and

f_1 can only cross 0 once on $[\underline{\nu}_4, \underline{\nu}_1]$, thus inequality (31) holding at $\overline{\nu}_4$ implies that it holds for all $\nu \in [\underline{\nu}_4, \underline{\nu}_1]$.

Case 4. Assume $\phi > \frac{(1+p)e}{2}$.

1. Assume $\nu \in (\overline{\nu}_4, \overline{\nu}_1]$, which implies $\overline{J}^I_\nu = \overline{\gamma}_1$. That a compromising equilibrium exists at $\nu = \overline{\nu_1}$ and equation (31) holds with equality at most once over this range follows from the same argument as Case 3 part 1.

2. Assume $\nu < \overline{\nu}_4$, which implies $\overline{J}^I_\nu = \overline{\gamma}_2$. We show that $f_2(\nu)$ can only cross 0 at most once. The roots of $f_2(\nu)$ are given by

$$\frac{(2e - m - 3\phi)(1-p) \pm \sqrt{(3\phi + m - 2e)^2(1-p)^2 - 4(1-p)(e-\phi)(\phi - m)(3p-1)}}{2(1-p)(e-\phi)}. \tag{53}$$

If $\frac{2e-m}{3} < \phi$ then the lower solution is strictly less than 0, and so $f_2 = 0$ at most once on $[0, \overline{\nu}_4]$.

Next, assume $\frac{2e-m}{3} > \phi$. Note, since ϕ is assumed greater than $\frac{(1+p)e}{2}$, for this to be the case requires:

$$\frac{2e-m}{3} > \frac{(1+p)e}{2}, \tag{54}$$

which holds if and only if $\frac{e-2m}{3e} > p$. So assume $p < \frac{e-2m}{3e}$. If $p < 1/3$ then the f_2 can only cross 0 once, as the term in the square root (53) is larger than $(2e-m-3\phi)(1-p)$ and so the lower solution is below 0. Now assume $p \in (1/3, \frac{e-2m}{3e})$. However, $p < \frac{e-2m}{3e}$ contradicts $p > 1/3$. Therefore, f_2 can cross 0 at most once.

Gathering all this together, we complete the argument that inequality (31) holds with equality at most once for $\nu \in [0, \overline{\nu}_1]$.

First, assume that inequality (31) does not hold for any $\nu < \overline{\nu}_4$. Then arguments from part 1 suffice.

Second, assume that inequality (31) holds for some $\nu < \overline{\nu}_4$. By part 1 above, we have

$f_1(\overline{\nu}_1) < 0$ and that f_1 can only cross 0 once on $[\overline{\nu}_4, \overline{\nu}_1]$. Thus, inequality (31) holding at $\overline{\nu}_4$ implies that it holds for all $\nu \in [\overline{\nu}_4, \overline{\nu}_1]$.

Part 2: We prove part 2 of Proposition 1 in two steps.

Step 1: We begin by proving the first implication. Suppose that either $\nu > \overline{\nu}^I$ or $\beta < \overline{\beta}_{TH}$. We show that an informative appointments equilibrium exists if either of these conditions holds. We consider each type in turn, showing that e cannot profitably deviate from $J_1^*(e) = e + \phi$ and $x_1^*(e) = e$, and that m cannot profitably deviate from their strategy of choosing $(x_1^*(m), J_1^*(m))$ that solves equation (25).

Consider type e. First, suppose $\nu > \overline{\nu}^I$ in this case, $\mathcal{J}^I = \varnothing$ so a deviation to any $J_1' \neq J_1^*(m)$ results in e losing reelection. Because e loses reelection after such a deviation, it cannot be profitable by our previous arguments. The only remaining deviation to check for $\nu > \overline{\nu}^I$ is a deviation to $J_1' = J_1^*(m)$, which cannot be profitable, as by construction $J_1^*(m)$ solves an indifference condition for type e given by equation (25). Therefore, if $\nu > \overline{\nu}^I$ then e does not have a profitable deviation. Now consider the case in which $\nu \leq \overline{\nu}^I$ and $\beta < \overline{\beta}_{TH}$. By the arguments above, type e cannot profitably deviate to either some $J_1' \notin \mathcal{J}^I$ or to $J_1' = J_1^*(m)$ The final deviation to check is $J_1' \in \mathcal{J}^I$. Such a deviation is not profitable if

$$-(2-\nu)(e - \overline{J}^I - \phi) + \beta \leq -\nu(2pe + (1-p)(e+m)), \tag{55}$$

which holds given our assumption that $\beta < \overline{\beta}_{TH}$. Therefore, type e does not have a profitable deviation.

Next, consider type m. Note that by construction of $J_1^*(m)$, type e is indifferent between choosing $J_1^*(e)$ and deviating to $J_1^*(m)$. This implies that the m cannot profitably deviate to any $J_1' \notin \mathcal{J}^I$. Further, their strategy selects the best possible J_1 and x_1 that results in reelection. Therefore, the moderate has no profitable deviation. This suffices to show that if $\nu > \overline{\nu}^I$ or $\nu \leq \overline{\nu}^I$ and $\beta < \overline{\beta}(\nu)$ then an informative appointments equilibrium exists.

Step 2: We now prove the second implication, showing that if an informative appointments equilibrium exists, then either $\nu > \overline{\nu}^I$ or $\nu \leq \overline{\nu}^I$ and $\beta < \overline{\beta}(\nu)$. Recall that in such an equilibrium the extremist must be choosing $J_1^*(e) = e + \phi$ and the moderate must be selecting $(x_1^*(m), J_1^*(m))$ satisfying inequality (25). Type e must be unable to profitably deviate to some $J_1 \in \mathcal{J}^I$. Given our knowledge of e's strategy from before, this implies that either (i) $\nu > \overline{\nu}^I$ or (ii) $\nu \leq \overline{\nu}^I$ and $\beta < \overline{\beta}_{TH}$, as required. This completes proof of part 2 of Proposition 1.

Part 3: We prove part 3 of Proposition 1 in two steps.

Step 1: We begin by proving the first implication. Suppose that $\nu < \overline{\nu}^I$ and $\beta > \overline{\beta}_{TH}(\nu)$. We show that a tying hands equilibrium exists. To do so, we show that e cannot profitably deviate from $J_1^*(e) = \overline{J}_\nu^I$ and $x_1^*(e) = \overline{J}_\nu^I + \phi$ and that m cannot profitably deviate from $J_1^*(m) = \overline{J}_\nu^I$ and $x_1^*(m) = \min\{\overline{J}_\nu^I + \phi, m\}$.

Consider type e. There are two deviations to consider. First, a deviation to any $J_1' \in \mathcal{J}^I \setminus \overline{J}_\nu^I$ cannot be profitable, as the incumbent will be reelected after such a deviation but receives strictly lower utility from the consequent first-period policy, which lies strictly to the left of $\overline{J}_\nu^I + \phi < e$. Second, consider a deviation to some $J_1' \notin \mathcal{J}^I$. As the extremist is not reelected following such a deviation, the utility of such a deviation is maximized at $J_1' = e + \phi$ Such a deviation is not profitable if

$$-(2-\nu)(e - \overline{J} - \phi) + \beta \geq -\nu(2pe + (1-p)(e+m)), \tag{56}$$

which holds as we have assumed that $\beta > \overline{\beta}_{TH}$.

Next, we show that the moderate does not have a profitable deviation. There are two deviations to consider. First, a deviation to any $J_1' \in \mathcal{J}^I \neq \overline{J}^I$ cannot be profitable. This is because such a deviation results in reelection for the moderate, but also results in a policy that is weakly to the left of the moderate's ideal point. Therefore, such a deviation cannot be strictly profitable. Second, note that the fact $\beta \geq \overline{\beta}_{TH}$ implies that the moderate cannot profitably deviate to any $J_1' \notin \mathcal{J}^I$, as required.

Step 2: We now prove the second implication, showing that if a tying hands equilibrium exists, then $\nu < \overline{\nu}^I$ and $\beta \geq \overline{\beta}_{TH}$. Suppose a tying hands equilibrium exists. This implies that the set $\mathcal{J}^I$ is nonempty, which implies that $\nu \leq \overline{\nu}^I$. Further, existence of a tying hands equilibrium implies that the extremist cannot profitably deviate to set $J_1' = e + \phi$. By (56), this implies that $\beta \geq \overline{\beta}_{TH}$, as required. This completes proof of part 3 of Proposition 1.

Proposition 2. *In equilibrium, moderate incumbents win reelection. Extremist incumbents: lose if* $\beta < \min\{\overline{\beta}_{\nu}^{c}, \overline{\beta}_{\nu}^{th}\}$*, win if* $\beta \geq \overline{\beta}_{\nu}^{th}$ *and* $\nu \leq \overline{\nu}^I$*, and otherwise can win or lose.*

Proof of Proposition 2

Proof. The result follows from the characterization of equilibrium behavior above. ☐

Proposition 3. *(Effects of Polarization) If* ν *is sufficiently low and* β *sufficiently high, then increasing party extremists increases* J_1 *and increasing ideological divergence decreases* J_1*. But if* ν *is sufficiently high, then increasing polarization always decreases* J_1*, regardless of the source.*

Proof of Proposition 3

Proof. We prove the proposition in three parts by studying how J_1 changes in type of equilibrium. Proposition 3 then follows from the characterization given in Proposition 1.

Compromising: Recall that in a compromising equilibrium, the location of J_1 is neither a function of p nor the location of either incumbent's ideal point. It follows that in a compromising equilibrium, J_1 is constant for $\theta \in \{e, m\}$, as required.

Informative appointments: First, we study the effects of polarization on the extremist's appointee. Recall that in an informative appointments equilibrium, type e chooses $J_1 = e + \phi$. Therefore, in this equilibrium J_1 is increasing in e and constant in p.

Next, we study how the moderate's choice of J_1 changes in polarization. Recall that in the informative appointments equilibrium where $x_1 = J_1 + \phi$, type m sets

$$J_1^*(m) = e - \phi - \frac{\nu[e + m + p(e - m)] + \beta}{2 - \nu}. \tag{57}$$

Taking the derivative of J_1^* with respect to p yields

$$\frac{\partial J_1^*}{\partial p} = -\frac{\nu(e - m)}{2 - \nu} < 0. \tag{58}$$

Next, to capture the effect of ideological polarization, we differentiate with respect to e which yields

$$\frac{\partial J_1^*}{\partial e} = 1 - \frac{(1 + p)\nu}{2 - \nu}. \tag{59}$$

Thus, $\frac{\partial J_1^*}{\partial e} < 0$ if $\nu > \frac{2}{2+p}$, otherwise, $\frac{\partial J_1^*}{\partial e} > 0$.

Tying hands: First, we show that for either type of the incumbent $\frac{\partial J_1^*}{\partial p} \geq 0$.

Recall, $J_1^*(\theta) \in \{\overline{\gamma}_1, \overline{\gamma}_2, \phi - e\}$. We show that in each case the desired inequality holds.

1. $J_1^*(\theta) = \phi - e$. Clearly, $\frac{\partial J_1^*}{\partial p} = 0$.

2. $J_1^*(\theta) = \overline{\gamma}_1$. Differentiating yields

$$\frac{\partial J_1^*}{\partial p} = \frac{e - m}{1 - \nu} > 0.$$

3. $J_1^*(\theta) = \overline{\gamma}_2$. Differentiating yields

$$\frac{\partial J_1^*}{\partial p} = \frac{2}{(1 + p)^2}\Big(\phi - \frac{m - \nu e}{1 - \nu}\Big) > 0,$$

   where the inequality holds by $\frac{1-p}{1+p} > 0$ and $\overline{\gamma}_2 < 0$.

Now we study the effect of changing e on $\overline{J}^I$, which is the equilibrium choice of judge for the both the moderate and incumbent in a tying hands equilbrium.

1. $\overline{J}^I = \phi - e$. Here, $\frac{\partial \overline{J}^I}{\partial e} = -1 < 0$.

2. $\overline{J}^I = \overline{\gamma}_1$. Differentiating yields
$$\frac{\partial \overline{J}^I}{\partial e} = \frac{p-\nu}{1-\nu}.$$
Thus, $\overline{J}^I$ is decreasing if $p < \nu$ and increasing if $p > \nu$. Note, $p < \overline{\nu}_1$ and p may be greater than or equal to $\overline{\nu}_4$. Thus, in the cases where $\overline{J}^I = \overline{\gamma}_1$ it can be that $\overline{J}^I$ is increasing then decreasing in ν or always decreasing in ν.

3. $J_1^*(m) = \overline{\gamma}_2$. Differentiating yields
$$\frac{\partial \overline{J}^I}{\partial e} = -\frac{1-p}{1+p}\frac{\nu}{1-\nu} < 0.$$
Note, it is always the case that if $\nu < \overline{\nu}_2$ then $\overline{J}^I = \overline{\gamma}_2$.

□

Proposition 4. *If β is sufficiently high, then: (i) the optimal probability of judicial vacancy is given by $\nu^* \in (0, \overline{\nu}^I]$, (ii) increasing party extremists increases ν^*, and (iii) greater ideological divergence decreases ν^*.*

Proof of Proposition 4

We start by showing that for any ν such that both a tying hands and compromising equilibrium exists, voter welfare is always maximized in the tying hands equilibrium. Second, we show that the voter prefers the tying hands equilibrium at $\nu = \overline{\nu}^I$ over any compromising or informative appointments equilibrium when $\nu > \overline{\nu}^I$. Third, we find the ν that maximizes voter welfare in a tying hands equilibrium. Finally, we show that the optimal ν is weakly decreasing in e and increasing in m.

Lemma 2. *Fix some $\nu < \overline{\nu}^I$ and suppose that $\beta > \beta_{TH}$. For any compromising equilibrium, there exists a tying hands equilibrium such that $W_{TH}(\nu) \geq W_C(\nu)$.*

Proof. Suppose $\nu < \overline{\nu}^I$. Voter welfare in a compromising equilibrium is given by

$$W_C(\nu) = -|x'| - \nu(pe + (1-p)m) - (1-\nu)(p(J' + \phi) + (1-p)x_m^*(J')). \tag{60}$$

Recall that a compromising equilibrium is given by a pair of first period policy and judge, denoted (x', J'). In a compromising equilibrium, a type e incumbent must not have a profitable deviation to tying hands. Therefore, it must be the case that

$$-|x'| - (1-\nu)(e - J' - \phi) \geq -(2-\nu)(e - \overline{J}_\nu^I). \tag{61}$$

We now argue that at a voter-optimal compromising equilibrium, (61) must hold with equality. Rearranging (61) yields

$$(1-\nu)(J' + \phi) \geq (e - x') + (1-\nu)e - (2-\nu)(e - \overline{J}_\nu^I). \tag{62}$$

Note that if this did not hold with equality, then there must also exist a $J'' < J'$ such that the above holds. However, note that voter welfare is strictly higher in a compromising equilibrium in which politician-types pool on J''. Therefore, at a voter-optimal compromising equilibrium, it must be the case that

$$(1-\nu)(J' + \phi) = (e - x') + (1-\nu)e - (2-\nu)(e - \overline{J}_\nu^I). \tag{63}$$

To complete the argument we consider two cases, depending on $x_m^*(J')$. In each case, we show that $W_{TH}(\nu) \geq W_C(\nu)$. For the first case, suppose that $x_m^*(J') = J' + \phi$. Substituting into $W_C(\nu)$ using equation (63) yields

$$-\nu(pe + (1-p)m) - (2-\nu)(\overline{J}_\nu^I + \phi), \tag{64}$$

which is equal to $W_{TH}(\nu)$, as required.

For the second case, suppose that $x_m^*(J') = m$. Substituting into $W_C(\nu)$ using (63) yields

$$W_C(\nu) = -|x'| - \nu(pe + (1-p)m) - p(e - x') - p(1-\nu)e \\ + p(2-\nu)(e - \overline{J}^I_\nu - \phi) - (1-\nu)(1-p)x_m^*(\overline{J}^I_\nu) \tag{65}$$

Second, suppose that $x_m^*(\overline{J}^I_\nu) = m$. As as $x' \geq 0$ in a compromising equilibrium, a sufficient condition to ensure that $W_C(\nu) \leq W_{TH}(\nu)$ in this case is that

$$-\nu(pe+(1-p)m) - pe - p(1-\nu)e + p(2-\nu)(e - \overline{J}^I_\nu - \phi) - (1-\nu)(1-p)x_m^*(\overline{J}^I_\nu) \leq W_{TH}(\nu) \tag{66}$$

Now, note that $x_m^*(\overline{J}^I_\nu)$ is either equal to m or $\overline{J}^I_\nu + \phi$. In either case, substituting into the above and comparing to $W_{TH}(\nu)$ yields that $W_{TH}(\nu) \geq W_C(\nu)$, as required.

□

Assume $\phi > \frac{(1+p)e}{2}$. In this case, $\overline{\nu}^I = \overline{\nu}_1$. Additionally, assume β sufficiently high such that there is a tying hands equilibrium at $\nu = \overline{\nu}^I$.

1. Assume $\nu \leq \overline{\nu}^I$. In this case, since β is assumed high, there exists a tying hands equilibrium, and possibly a compromising equilibrium. However, we show that the optimal tying hands equilibrium always yields higher welfare than the best possible welfare from the incumbent preferred compromising equilibrium.

   First, we analyze tying hands equilibria. The voter's welfare in a tying hands equilibrium, as a function of ν, is given by

   $$W_{TH}(\nu) = -(2-\nu)(\overline{J}^I + \phi) - \nu(pe + (1-p)m).$$

   If $\nu \in (\overline{\nu}_4, \overline{\nu}_1]$ then $\overline{J}^I = \overline{\gamma}_1(\nu)$, where we write $\overline{\gamma}_1(\nu)$ to highlight that $\overline{\gamma}_1$ is a function of ν. Thus,

$$W(\nu \in (\overline{\nu}_4, \overline{\nu}_1]) = -(2-\nu)(\overline{\gamma}_1(\nu) + \phi) - \nu(pe + (1-p)m).$$

Differentiating with respect to ν yields

$$\begin{aligned}
\frac{\partial W}{\partial \nu} &= -\Big(-(\overline{\gamma}_1 + \phi) + (2-\nu)\frac{\partial \overline{\gamma}_1}{\partial \nu}\Big) - pe - (1-p)m \\
&= \frac{(1-p)m + (p-\nu)e}{1-\nu} + \frac{2-\nu}{(1-\nu)^2}(1-p)(e-m) - pe - (1-p)m.
\end{aligned}$$

We show that $\frac{\partial W}{\partial \nu} > 0$. To see this, note that

$$\begin{aligned}
\frac{\partial}{\partial p}\Big[\frac{\partial W}{\partial \nu}\Big] &= \frac{e-m}{1-\nu} - \frac{2-\nu}{(1-\nu)^2}(e-m) - (e-m) \\
&= [e-m]\Big[\frac{1}{1-\nu} - \frac{2-\nu}{(1-\nu)^2} - 1\Big] < 0.
\end{aligned}$$

Thus, $\frac{\partial W}{\partial \nu}$ is minimized at $p = 1$. At $p = 1$ $\frac{\partial W}{\partial \nu} = 0 \geq 0$. Therefore, $\frac{\partial W}{\partial \nu} > 0$ and $W(\nu)$ is maximized at $\nu = \overline{\nu}_1 = \overline{\nu}^I$ for $\nu \in (\overline{\nu}_4, \overline{\nu}_1]$.

Next, consider $\nu \in [0, \overline{\nu}_4)$. Welfare is given by

$$W(\nu \in [0, \overline{\nu}_4]) = -(2-\nu)(\overline{\gamma}_2(\nu) + \phi) - \nu(pe + (1-p)m).$$

Differentiating with respect to ν yields

$$\begin{aligned}
\frac{\partial W}{\partial \nu} &= -\Big(-(\overline{\gamma}_1 + \phi) + (2-\nu)\frac{\partial \overline{\gamma}_1}{\partial \nu}\Big) - pe - (1-p)m \\
&= \frac{(1-p)m + (p-\nu)e}{1-\nu} + \frac{2-\nu}{(1-\nu)^2}(1-p)(e-m) - pe - (1-p)m.
\end{aligned}$$

Differentiating again with respect to ν yields

$$\frac{\partial^2 W}{\partial \nu^2} = \frac{(e-m)(1-p)(1+\nu)}{(1+p)(1-\nu)^3} > 0.$$

Since welfare is convex in ν over $[0, \overline{\nu}_4]$, it is maximized at either $\nu = 0$ or $\nu = \overline{\nu}_4$. From our earlier argument, welfare is strictly lower at $\nu = \overline{\nu}_4$ than at $\nu = \overline{\nu}_1$. Thus, to find the optimal tying hands equilibrium, all that remains is to compare welfare at $\nu = 0$ to welfare at $\nu = \overline{\nu}_1$. Welfare at $\nu = \overline{\nu}_1$ is higher if and only if

$$-2(\overline{\gamma}_2(0) + \phi) \leq -\overline{\nu}_1(pe + (1-p)m),$$

which holds by $\phi > \frac{(1+p)e}{2} > \frac{e}{2}$.

Second, we compare the tying hands equilibrium at $\nu = \overline{\nu}_1$ to the incumbent preferred compromising equilibrium. We show that the welfare from an incumbent-preferred compromising equilibrium is worse than the welfare from the optimal tying hands equilibrium.

Welfare from an incumbent-preferred compromising equilibrium is

$$-m - (1-p)m - p(\nu e + (1-\nu)\phi). \tag{67}$$

Welfare from the tying hands equilibrium is

$$-\overline{\nu}_1(pe + (1-p)m). \tag{68}$$

As welfare in the incumbent optimal compromising equilibrium is decreasing in ν, a sufficient condition for the result to hold is

$$-m - (1-p)m - p\phi < -\overline{\nu}_1(pe + (1-p)m), \tag{69}$$

which holds iff

$$\overline{\nu}_1 < \frac{m + (1-p)m + p\phi}{pe + (1-p)m}. \tag{70}$$

Substituting in for $\overline{\nu}_1$, this becomes

$$\frac{pe + (1-p)m}{e} < \frac{m + (1-p)m + p\phi}{pe + (1-p)m}, \tag{71}$$

which holds iff

$$(pe + (1-p)m)^2 - em - e(1-p)m < pe\phi. \tag{72}$$

As we have assumed $\phi > (1+p)e/2$, a sufficient condition for the above inequality to hold is

$$(pe + (1-p)m)^2 - em - e(1-p)m < \frac{p(1+p)e^2}{2} \iff \tag{73}$$

$$p^2e^2 + 2pe(1-p)m + (1-p)^2m^2 - em - e(1-p)m < \frac{p(1+p)e^2}{2} \iff \tag{74}$$

$$[p^2e^2/2 - pe^2/2] + [2p(1-p)em - em] + [(1-p)^2m^2 - e(1-p)m] < 0. \tag{75}$$

Note that each term above in brackets is negative by $0 < p < 1$ and $0 < m < e$, so this always holds.

2. Assume $\nu > \overline{\nu}^I$. In this case, by our assumption that β sufficiently high, there are multiple equilibria: an informative appointments equilibrium and a continuum of compromising equilibria. However, we show that the tying hands equilibrium at $\nu = \overline{\nu}^I$ yields higher welfare regardless of the equilibrium selected and choice of ν.

   First, consider the informative appointments equilibrium. Welfare in such an equilibrium is given by

$$\begin{aligned}W_{IA}(\nu) &= p\Big(-e-\nu(pe+(1-p)m)-(1-\nu)e\Big)\\&\qquad+(1-p)\Big(-\overline{J}_1^*(m)-\nu m-(1-\nu)\overline{J}_1^*(m)\Big)\\&=\Big[-pe-\nu(1-p)m\Big]\\&\qquad+\Big[-p(\nu(pe+(1-p)m)+p(1-\nu)e)\\&\qquad\quad-(1-p)(\overline{J}_1^*(m)+(1-\nu)\overline{J}_1^*(m))\Big].\end{aligned}$$

The first term in brackets is strictly less than $W_{TH}(\overline{\nu}^I)$ for all ν, and the second term in brackets is negative. Thus, $W_{IA}(\nu) < W_{TH}(\overline{\nu}^I)$ for all ν.

Next, consider a compromising equilibrium in which both types of the incumbent choose $J' \le 0$ and $x_1' \le m$. In this case, voter welfare is

$$W_C(\nu) = -|x_1'| - \nu(pe+(1-p)m) - (1-\nu)(p\hat{x}_e^*(J')+(1-p)\hat{x}_m^*(J')).$$

Since $\nu > \overline{\nu}^I$, we have $-\nu(pe+(1-p)m) < -\overline{\nu}(pe+(1-p)m) = W_{TH}(\overline{\nu})$. As the remaining terms in $W_C(\nu)$ are negative, we have $W_C(\nu) < W_{TH}(\nu)$, as required. Consequently, it cannot be optimal to have $\nu > \overline{\nu}^I$.

Assume now that $\phi \in (\frac{e}{2}, \frac{(1+p)e}{2})$. From our earlier arguments, we only have to focus on $\nu \le \overline{\nu}^I$ and the tying hands equilibrium to find the optimal ν. If $\nu \in [\overline{\nu}_4, \overline{\nu}^I]$ the previous argument implies that welfare is increasing in ν and so is maximized at $\nu = \overline{\nu}^I$. Next, consider $\nu \in (\overline{\nu}_2, \overline{\nu}_4)$. Since $\overline{J}^I = \phi - e$ in this case, welfare is strictly decreasing in ν and such a ν cannot be optimal. Finally, consider $\nu \in [0, \overline{\nu}_2]$. By the earlier argument, voter welfare is convex in ν when $\overline{J}^I = \overline{\gamma}_2(\nu)$ and, thus, is maximized at one of the boundary points. Therefore, welfare is maximized at either $\nu = 0$, $\nu = \overline{\nu}_2$, or $\nu = \overline{\nu}^I = \overline{\nu}_1$. By the argument for the case where $\phi > \frac{(1+p)}{2}$ we have that $\phi > \frac{e}{2}$ implies welfare at $\nu = 0$ is strictly less than welfare at $\nu = \overline{\nu}_1$. To conclude the proof, we show that welfare at $\nu = \overline{\nu}_2$ is less than welfare $\nu = \overline{\nu}_1$. This holds if and only if

$$-(2-\overline{\nu}_2)(\overline{\gamma}_2(\overline{\nu}_2)+\phi)-\overline{\nu}_2(pe+(1-p)m) \leq -\overline{\nu}_1(pe+(1-p)m).$$

Note, $\overline{\gamma}_2(\overline{\nu}_2) = \phi - e$. Thus, substituting for $\overline{\nu}_2$ and $\overline{\nu}_1$, the above inequality simplifies to

$$-(2-\frac{m}{e})(2\phi-e)-\frac{m}{e}(pe+(1-p)m) \leq -\frac{pe+(1-p)m}{e}(pe+(1-p)m) \tag{76}$$

which holds if and only if $e < \overline{e}$ for some $\overline{e} \in [\frac{2\phi}{1+p}, 2\phi]$. Thus, if $e < \overline{e}$ then $\nu^* = \overline{\nu}_1$, otherwise, $\nu^* = \overline{\nu}_2$.

Now assume $\phi \in (\frac{(1-p)e}{2}, \frac{e}{2})$. In this case, $\overline{\nu}^I = \overline{\nu}_3$. Again by convexity of welfare when $\overline{J}^I = \overline{\gamma}_2$ we have that welfare ove $\nu \in [0, \overline{\nu}_2]$ is maximized at the boundary. Comparing, voter welfare is maximized at $\overline{\nu}_2$ if and only

$$\begin{aligned}
&-2(\overline{\gamma}_2(0)+\phi) \leq -(2-\frac{m}{e})(2\phi-e)-\frac{m}{e}(pe+(1-p)m) \\
&\Leftrightarrow -2\Big(\frac{1-p}{1+p}(m-\phi)+\phi\Big)-(2-\frac{m}{e})(2\phi-e)-\frac{m}{e}(pe+(1-p)m),
\end{aligned}$$

which always holds by $\phi < e/2$, or $e > 2\phi$. If $\nu \in (\overline{\nu}_2, \overline{\nu}^I]$ then $\overline{J}^I = \phi - e$, which is constant in ν. Consequently, voter welfare is strictly decreasing in ν for $\nu > \overline{\nu}_2$. Hence, the optimal vacancy rate is $\nu^* = \overline{\nu}_2$.

Finally, consider $\phi < \frac{(1-p)e}{2}$. In this case, $\overline{\nu}^I = \overline{\nu}_2$ and $\overline{J}^I = \overline{\gamma}_2$ for all ν. Since welfare is convex in ν when $\overline{J}^I = \overline{\gamma}_2$ voter welfare is maximized at either $\nu = 0$ or $\nu = \overline{\nu}_2$. Voter welfare is thus maximized at $\overline{\nu}_2$ if and only if

$$\begin{aligned}
&-2(\overline{\gamma}_2(0)+\phi) \leq -(2-\frac{m}{e})(2\phi-e)-\frac{m}{e}(pe+(1-p)m) \\
&\Leftrightarrow -2\Big(\frac{1-p}{1+p}(m-\phi)+\phi\Big) \leq -(2-\frac{m}{e})(2\phi-e)-\frac{m}{e}(pe+(1-p)m),
\end{aligned}$$

which always holds by $\phi < \frac{(1-p)e}{2}$, or $e > \frac{2\phi}{1-p}$.

Thus, ν^* is given by

$$\nu^* = \begin{cases} \overline{\nu}_1 \text{ if } e > \overline{e} \\ \\ \overline{\nu}_2 \text{ if } e < \overline{e}, \end{cases}$$

where $\overline{e}$ solves (76) at equality and is the unique solution between $(\frac{2\phi}{1+p}, 2\phi)$. As both $\overline{\nu}_1$ and $\overline{\nu}_2$ are strictly decreasing in e and $\overline{\nu}_1 \geq \overline{\nu}_2$ we have that ν^* is decreasing in e. Moreover, $\overline{\nu}_1$ is increasing in p, while $\overline{\nu}_2$ is not changing in p, and $\frac{\partial \overline{e}}{\partial p} < 0$. Thus, ν^* is always weakly decreasing in p.

Extension: Appointments to Move the Median

Before proving the results, it is first useful to establish some notation and derive some preliminary results. We first establish notation that allows us to derive the voter's expected utility for the incumbent and challenger, given the first period appointee and the retiring justice. Then, we characterize the sets of J_1 that are "safe" for the incumbent and challenger, as in the baseline model.

Let J_t^{med} be the ideal point of the median justice of the court in period t. In the second period, an executive with ideal point i chooses policy

$$x_i^*(J_2^{med}) = \underset{x \in [J_2^{med} - \phi, J_2^{med} + \phi]}{\arg\max} -|x - i|$$

If the second-period politician is able to appoint a new justice, she chooses J_2 to solve

$$\max_{J_2 \in \mathbb{R}} -|x_i^*(J_2^{med}(J_2)) - i|.$$

Let $J_2^*(i)$ be a solution to the above problem. Let $J_2^{med}(J_1) = Med\Big(L_1, L_2, R_1, R_2, J_1\Big)$, i.e., the median when J_1 is appointed in the first period and the second-period politician is unable to appoint a new justice. Let $J_2^{med}(J_2|J_1, j)$ denote the median justice of the court if the second-period politician appoints justice J_2 after justice $j \in \{L_1, L_2, R_1, R_2\}$ retires, and just J_1 was appointed in the first period.

The voter's expected utility from reelecting an extreme incumbent, given first-period appointee J_1 and justice $j \in \{L_1, L_2, R_1, R_2\}$ may retire, is

$$-\nu|x_e^*(J_2^{med}(J_2^*(e)|J_1, j))| - (1-\nu)|x_e^*(J_2^{med}(J_1))|.$$

The voter's expected utility from electing the challenger, given J_1, is

$$\begin{aligned}&-\nu\Big(- p|x_{-e}^*(J_2^{med}(J_2^*(-e)|J_1, j))| - (1-p)|x_{-m}^*(J_2^{med}(J_2^*(-m)|J_1, j))|\Big)\\ &\quad - (1-\nu)\Big(- p|x_{-e}^*(J_2^{med}(J_1)| - (1-p)|x_{-m}^*(J_2^{med}(J_1)|\Big)\end{aligned}$$

With these in hand, we next define the safe sets for the incumbent. Throughout, to eliminate uninteresting cases in which the incumbent is always safe, we maintain the assumption that when a vacancy arises from L_1 or L_1, that the incumbent is safe at $\nu = 0$ and unsafe at $\nu = 1$. Note that this always holds if ideal points on the court are symmetric about 0.

First, suppose that a retirement may come from $L \in \{L_1, L_2\}$. We consider three cases based on the location of the first-period justice.

1. $J_1 \le L_1$. If a retirement comes from L_2, then the election is safe for I if

$$-\nu|x_e^*(R_1)| - (1-\nu)|x_e^*(L_1)| \ge -p|x_{-e}^*(L_1)| - (1-p)m. \tag{77}$$

   By assumption, this inequality holds at $\nu = 0$ but does not hold at $\nu = 1$. Note that the LHS is decreasing in ν while the RHS is constant in ν. Therefore, there exists a $\overline{\nu}^I < 1$ such that the inequality holds iff $\nu \le \overline{\nu}^I$.

Next, if a vacancy arises from L_1, then the election is safe for I if

$$-\nu|x_e^*(R_1)| - (1-\nu)|x_e^*(L_1)|$$
$$\geq p\Big[-\nu|x_{-e}^*(\max\{L_2, J_1\})| - (1-\nu)x_{-e}^*(L_1)\Big] - (1-p)m.$$

By assumption this inequality holds at $\nu = 0$ but does not hold at $\nu = 1$. As before, the LHS is decreasing in ν while the RHS is constant in ν. Therefore, there exists a $\overline{\nu}^I < 1$ such that the inequality holds iff $\nu \leq \overline{\nu}^I$.

2. $J_1 \in [L_1, R_1]$. In this case, the election is safe for I if

$$-\nu|x_e^*(R_1)| - (1-\nu)|x_e^*(J_1)| \geq -p|x_{-e}^*(J_1)| - (1-p)|x_{-m}^*(J_1)|. \tag{78}$$

Recall that if $\nu \leq \overline{\nu}^I$ that inequality (77) holds. Comparing the above inequality to inequality (77), it follows that if $\nu < \overline{\nu}^I$, there exists an $\overline{J}^I(\nu) > L_1$ such that the above inequality holds for $J_1 < \overline{J}^I(\nu)$ and does not hold otherwise.

3. $J_1 > R_1$. In this case, the election is safe for I if

$$-\nu|x_e^*(\min\{J_1, R_2\})| - (1-\nu)|x_e^*(R_1)| \geq -p|x_{-e}^*(R_1)| - (1-p)|x_{-m}^*(R_1)|.$$

Note that the right hand side is decreasing in ν, and that the inequality does not hold for $\nu = 0$. Therefore, it does not hold in this case.

Next, assume the justice at risk to retire is $R \in \{R_1, R_2\}$. We consider three cases based on the location of the first-period justice.

1. $J_1 \leq L_1$. The election is safe for I if

$$-|x_e^*(L_1)| \geq \nu\Big(-p|x_{-e}^*(\max\{L_2, J_1\})| - (1-p)m\Big) + (1-\nu)\Big(-p|x_{-e}^*(L_1)| - (1-p)m\Big).$$

This always holds, by assumption that $L_1 + \phi < m$.

2. $J_1 \in [L_1, R_1]$. The election is safe for I if

$$-|x^*_e(J_1)| \geq \nu\Big(- p|x^*_{-e}(L_1)| - (1-p)m\Big) + (1-\nu)\Big(- p|x^*_{-e}(J_1)| - (1-p)|x^*_{-m}(J_1)|\Big) \tag{79}$$

By assumption this inequality does not hold at $\nu = 1$ and $J_1 = R_1$. Increasing J_1 decreases the RHS and increases the LHS. Therefore, there exists $\overline{J}^I \in (L_1, R_1)$ such that this holds for $J_1 \leq \overline{J}^I$ and does not hold for $J > \overline{J}^I$.

3. $J_1 \geq R_1$. We break this into two cases, depending on if the judge who may retire is R_1 or R_2, however, the conclusion remains the same regardless of the judge.

   (a) R_1 may retire. The election is safe for I if

$$\begin{aligned} &-\nu|x^*_e(\min\{J_1, R_2\})| - (1-\nu)|x^*_e(R_1)| \\ &\qquad \geq \nu\Big(- p|x^*_{-e}(L_1)| - (1-p)m\Big) + (1-\nu)\Big(- p|x^*_{-e}(R_1)| - (1-p)|x^*_{-m}(R_1)|\Big). \end{aligned}$$

   This never holds.

   (b) R_1 may retire. The election is safe for I if

$$\begin{aligned} &-|x^*_e(R_1)| \\ &\qquad \geq \nu\Big(- p|x^*_{-e}(L_1)| - (1-p)m\Big) + (1-\nu)\Big(- p|x^*_{-e}(R_1)| - (1-p)|x^*_{-m}(R_1)|\Big). \end{aligned}$$

   This never holds.

Proposition 5. *For any ν, the set of incumbent-safe appointees when there may be a left-leaning vacancy is a subset of the set of incumbent-safe appointees when there may be a right-leaning vacancy.*

From the analysis of safe regions, we have that if the judge at risk of leaving is $R \in \{R_1, R_2\}$ then, for any ν, the set of incumbent-safe appointments is given by $J_1 \leq \overline{J}^I_R$, where $\overline{J}^I_R$ solves equation (79) with equality. Additionally, we have that if the judge at risk of leaving is $L \in \{L_1, L_2\}$ then, there is an $\overline{\nu}^I_L$ such that if $\nu \leq \overline{\nu}^I_L$, then the set of incumbent-safe appointments is given by $J_1 \leq \overline{J}^I_L$, where $\overline{J}^I_L$ solves equation (78) with equality.

If the judge at risk of leaving is left-leaning the incumbent is safe for $J_1 \leq L_1$ if and only if ν is sufficiently low. However, if the judge at risk of leaving is right-leaning, then the incumbent is always safe for $J_1 \leq L_1$. Next, consider $J_1 \geq R_1$. Here, the incumbent is never safe regardless from which side the judge may retire. Finally, consider the case where $J_1 \in [L_1, R_1]$. When the judge to leave is right-leaning there is always an $\overline{J}^I$ such that if $J_1 \leq \overline{J}^I$ then I is safe. On the other hand, if the judge to leave is left-leaning, then this is only the case for ν sufficiently low. Assume $\nu < \overline{\nu}^I$ to complete the proof we show that $\overline{J}^I_L(\nu) < \overline{J}^I_R(\nu)$, where $\overline{J}^I_L(\nu)$ solves equation (78) and $\overline{J}^I_R(\nu)$ solves equation (79). For any ν and J_1 the LHS of (79) $\geq$ LHS (78) by $|x^*_e(J_1)| \leq |x^*_e(R_1)|$ for $J_1 \in [L_1, R_1]$. Additionally, for any ν and J_1 we have that RHS (79) $\leq$ RHS (78) by $|x^*_{-e}(L_1)| \geq |x^*_{-e}(J_1)|$ and $|m| > |x^*_{-m}(J_1)|$ for $J_1 \in [L_1, R_1]$. Thus, inequality (79) holds for a larger set of J_1 than does inequality (78). By our characterization of these sets of J_1 this implies $\overline{J}^I_L < \overline{J}^I_R$ for all $\nu \leq \overline{\nu}^I_L$.

Proposition 6. *A fully informative equilibrium does not exist if office benefit is large enough.*

Proof. Recall that in an informative appointments equilibrium, it must be the case that a type e incumbent does not wish to deviate from their strategy to mimic the appointment and policy decision of type m. In a slight abuse of notation, fix an informative appointments equilibrium and let $u^*_e(e)$ be the e type's payoff of sticking to their proposed strategy in an informative appointments equilibrium, and let $u^*_e(m)$ be the e type's payoff of deviating to mimic the appointment and policy decision of type m. For an informative appointments equilibrium to exist, it must be the case that

$$u_e^*(e) - u_e^*(m) \geq \beta.$$

Note that the left hand side of this inequality is bounded from below, as type m's appointment decision cannot push the median of the court arbitrarily far to the left. As the right hand side of the inequality is unbounded, it follows that there exists a $\overline{\beta}^{MTM}$ such that for $\beta > \overline{\beta}^{MTM}$, an informative appointments equilibrium does not exist. □

Extension: Judicial Uncertainty

Assume that each period there is a mean 0 shock to the judge's ideal point given by $\epsilon_t \in \{-\psi, \psi\}$, with $Pr(\epsilon_t = \psi) = 1/2$. We assume $\frac{\phi}{2} < \psi < \phi$.

In each period t, a judge with ideal point J upholds the incumbent's policy following the positive shock if and only if $x_t \in [J + \psi - \phi, J + \psi + \phi] \equiv A^+(J)$, with $\overline{a}^+ = J + \psi + \phi$ and $\underline{a}^+ = J + \psi - \phi$. Similarly, the judge upholds the policy following the negative shock if and only if $x_t \in [J - \psi - \phi, J - \psi + \phi] \equiv A^-(J)$, with $\overline{a}^+ = J - \psi + \phi$ and $\underline{a}^+ = J - \psi - \phi$. Note, $J + \psi - \phi < J - \psi + \phi$ by assumption that $\psi < \phi$. As before, if the judge overturns the policy then policy is set at the judge's ideal point, i.e., either $J - \psi$ or $J + \psi$.

We first provide some characterization of the second-period incumbent's appointment and policymaking.

Second Period

Assume the officeholder in the second period has ideal point $\hat{x}$. If she is able to appoint a new justice, then she gets her ideal policy, since the acceptance sets of the judge following the positive shock and following the negative shock overlap.

Next, assume the officeholder cannot appoint a new justice. It is optimal for the officeholder to choose either the closest policy to her ideal point that is upheld by the justice following both shocks, or the policy that is closest to her ideal point but is only upheld by the judge following one of the shocks.

We solve for the second period officeholder's precise policy choice by breaking it into cases.

1. If $J_2 < \hat{x} - \psi - \phi$ then the incumbent's optimal policy is either $\overline{a}^-$, which is accepted following either shock, or $\overline{a}^+$, which is only upheld if there is a positive shock. We have

$$U(\overline{a}^+) = -\frac{1}{2}|J + \psi + \phi - \hat{x}| - \frac{1}{2}|J - \psi - \hat{x}| \geq -|J - \psi + \phi - \hat{x}| = U_{\hat{x}}(\overline{a}^-)$$

   which holds by $\psi > \frac{\phi}{2}$.

2. Next, assume $\hat{x} - \psi - \phi < J_2 < \hat{x} + \psi - 2\phi$. The incumbent's optimal policy is either $x = \hat{x}$, which is only accepted if there is a positive shock, or $x_2 = \overline{a}^-$, which is always upheld. Thus, the officeholder chooses $x = \hat{x}$ if and only if

$$U(\overline{a}^+) = -\frac{1}{2}|J - \psi - \hat{x}| \geq -|J - \psi + \phi - \hat{x}| = U_{\hat{x}}(\overline{a}^-),$$

   which holds by assumption that $J_2 < \hat{x} + \psi - 2\phi$

3. If $J \in [\hat{x} + \psi - 2\phi, \hat{x} - \psi + \phi]$, then the argument from the previous case implies that the officeholder chooses $x_2 = J - \psi + \phi$, which is always upheld.

4. Next, suppose $J_2 \in [\hat{x} + \psi - \phi, \hat{x} - \psi + \phi]$. In this case, the incumbent chooses $x_2 = \hat{x}$, since this is accepted by the judge following either shock.

5. The proofs for the final three cases follow similar arguments as the first three.

   Suppose $\hat{x} - \psi + \phi < J_2 < \hat{x} - \psi + 2\phi$. In this case, by $\psi > \frac{\phi}{2}$the incumbent chooses $x_2 = J + \psi - \phi$, which is accepted by the judge following either shock.

6. Suppose $\hat{x} - \psi + 2\phi < J_2 < \hat{x} + \psi + \phi$. In this case, the incumbent chooses $x_2 = \hat{x}_m$, which is accepted by the judge following the negative shock and overturned following the positive shock.

7. Finally, assume $\hat{x} + \psi + \phi < J_2$. The incumbent proposes $x_2 = J_2 - \psi - \phi$, which is accepted by the judge following the negative shock and overturned following a positive shock.

Uncertainty over Justice Ideology

Assuming that in each period after the incumbent politician sets policy, but before the judge rules, the judge experiences an additive shock to her ideal point. These shocks are denoted $\epsilon_t \in \{-\psi, \psi\}$ and drawn i.i.d. across periods, with $Pr(\epsilon_t = \psi) = 1/2$.[18] Thus, as in the baseline model, if the judge overturns the policy then policy is set at the judge's ideal point for the period, $J + \epsilon_t$. In period t, a judge with ideal point J upholds the incumbent's policy following a shock of ϵ_t if and only if $x_t \in [J + \epsilon_t - \phi, J + \epsilon_t - \phi]$.

If voters face uncertainty over the judge's ideology, this may undermine the incumbent's ability to use appointments as a commitment device. We find this is not the case; tying hands equilibria continue to exist in the extended model. However, in the face of uncertainty, a new wrinkle arises; incumbents sometimes gamble, risking judicial action in an attempt to implement policies closer to their own ideal point. This may occur even in a tying hands equilibrium, with the judge overruling policy with positive probability, even while the incumbent wins reelection. The following result establishes this formally.

Proposition 7. *If ν is sufficiently low and β is sufficiently high, then there exists a tying hands equilibrium in the extended model with judicial uncertainty. Furthermore, if $2\phi - \psi < e < \psi + \phi$, then first-period policy is overturned with positive probability on the path of play in this equilibrium.*

Proof. The proof proceeds in three steps. First, we characterize the set of safe justices, showing that the maximum judge in this set (1) exists and (2) is such that $J < 0$. Next, we

[18] The tying hands result is robust to more general distributions of this shock. We consider this simpler specification for ease of presentation.

show that if ν is sufficiently low and β is sufficiently high, a tying hands equilibrium exists. Finally, we show that if $2\phi - \psi < e < \psi + \phi$ that first-period policy is overturned with positive probability on the path of play in a tying hands equilibrium.

We begin by characterizing the set of judges that render the election safe for the incumbent. Note that by our characterization of second-period appointments and policymaking above, holding fixed the location of the second period justice J_2, the incumbent sets x_2 to minimize $|\hat{x}_2 - E[x|x_2, J_2]|$, where $E[x|x_2, J_2]$ is the expected policy given the incumbent's policy choice x_2 and the location of the judge J_2.

As an intermediate step, we show that given ideal points $\hat{x}_i \neq \hat{x}_j$, it must be that in equilibrium $|\hat{x}_i - E[x|x^*(\hat{x}_i), J_2]| \leq |\hat{x}_i - E[x|x^*(\hat{x}_j), J_2]|$, where x_i^* and x_j^* are the equilibrium choices of x_2 for players with ideal points $\hat{x}_i$ and $\hat{x}_j$, respectively. For a contradiction, suppose that $|\hat{x}_i - E[x|x^*(\hat{x}_i), J_2]| \leq |\hat{x}_i - E[x|x^*(\hat{x}_j), J_2]|$. However, this contradicts the assumption that x_i^* is an equilibrium policy choice, as $\hat{x}_i$ could deviate to x_j^*. From this, it follows that $E[x|x^*(-m), J| \leq E[x|x^*(-e), J]$ for all J, as $-e < -m$. This implies that the voter's continuation value of a challenger, U_v^c is such that $U_v^c \geq -\nu e - (1-\nu)|E[x|x^*(-e), J|$. Therefore, a sufficient condition for the incumbent to be unsafe for some J is that $|E[x|x^*(e), J]| \geq |E[x|x^*(-e), J]|$.

Using this, we show that all $J \geq 0$ are unsafe for the incumbent. There are two cases to consider. First, consider $J \geq 0$ such that $E[x|x^*(-e), J] < 0$. Note that in this case $|E[x|x^*(-e), J]|$ is decreasing in J, $|E[x|x^*(-e), J]|$ is increasing in J, and $|E[x|x^*(-e), 0]| = |E[x|x^*(e), 0]|$. Thus, the sufficient condition holds and no such J is safe. Second, consider $J \geq 0$ such that $E[x|x^*(-e), J] > 0$. The arguments above imply that in this case $E[x|x^*(-e), J] < E[x|x^*(e), J]$. Consequently, we have that $|E[x|x^*(-e), J]| < |E[x|x^*(e), J]|$, which is sufficient for the incumbent to be unsafe. Therefore, all $J \geq 0$ are unsafe for the incumbent.

Now we show that for sufficiently low $\nu > 0$, the set of safe judges is nonempty. A sufficient condition for the incumbent to be safe for a judge J is if a known extremist incumbent is preferred by the voter to a known moderate challenger. This holds if and only if

$$-\nu m - (1-\nu)|E[x|x^*(-m), J]| \leq -\nu e - (1-\nu)|E[x|^*(e), J]|.$$

Rearranging, this holds if and only if

$$\nu \leq \frac{|E[x|x^*(-m), J]| - |E[x|x^*(e), J]|}{e - m + |E[x|x^*(-m), J]| - |E[x|x^*(e), J]|}.$$

To complete the argument note that for all $J < \psi - \phi$ the right hand of this inequality is strictly positive, as $|E[x|x^*(-m), J]| - |E[x|x^*(e), J]|$ by the arguments above. Therefore, for all such J there exists sufficiently small $\nu > 0$ such that the set of safe justices is nonempty.

We now show that the maximum safe judge exists. The set of safe justices is defined by the set of J such that $U_v^c(J) \leq U_v^e(J)$. Because both $U_v^c(J)$ and $U_v^e(J)$ are continuous, we know that this set is closed. Further, we have already shown that the set of safe justices is bounded above by 0. Therefore, a maximum safe judge exists.

We now show that for sufficiently small $\nu > 0$ and sufficiently large β that a tying hands equilibrium exists. Second period behavior in this equilibrium is pinned down by the behavior above. In the first period, the voter reelects if they observe the maximum safe judge paired with any policy choice and elects a challenger otherwise. After an off-path action, the voter places probability 1 on type e. Both types of the incumbent choose the maximum safe justice and set policy that minimizes the distance between the expected first period policy and their ideal point given the location of the judge.

It is immediate that the voter cannot deviate profitably, given her beliefs. We now show that neither type of the incumbent has a profitable deviation in the first period. Note that a deviation to any other safe judge by either type of incumbent is not profitable, as the equilibrium safe judge maximizes the player's utility, subject to winning reelection. Second, a deviation to any unsafe judge results in losing the election, and so such a deviation cannot be profitable for β sufficiently high.

Finally, note that if $2\phi - \psi < e < \psi + \phi$, then our discussion of incumbent policymaking above implies that for all $J \leq 0$, the judge overturns $x^*(e)$ with positive probability. This completes the proof.

□

To conclude, we discuss how the introduction of this additional uncertainty impacts incentives for both compromising and informative appointments.

As before, there can exist an equilibrium in which the executive's choice of policy and appointments is informative, and leads to the extremist being removed from office. Unlike in the baseline model, however, the extremist now may face a tradeoff between appointing the judge that yields the best expected policy payoff today, versus appointing the judge that constrains the challenger most tomorrow.

The introduction of uncertainty about the judge's ideology does not have a significant impact on the form of compromising equilibria, since the incumbent wins reelection by manipulating the voter's beliefs. In particular, when office benefit is high, there continue to exist compromising equilibria in which the incumbent chooses a moderate policy and appoints an (expected) moderate justice. Although the exact characterization of the optimal policy and appointment shift, the executive faces similar strategic considerations with judicial uncertainty.

Extension: Probabilistic Review

Assume that in each period, after the incumbent sets policy x_t, the judge issues a ruling with exogenous probability $r \in (0, 1)$. If the judge does not rule, then x_t is implemented in period t. If the judge does rule, then he decides to uphold the policy or not, as before.

In the second period, an incumbent with ideal point i can choose a policy x in the judge's acceptance set, $[J_2 - \phi, J_2 + \phi]$ which is always implemented and yields utility $u_i(x)$, or gamble and choose a policy x outside of this set which yields expected utility $r u_{\hat{x}_2}(J_2) + (1 - r) u_{\hat{x}_2}(x)$. Clearly, the officeholder chooses the x in $[J_2 - \phi, J_2 + \phi]$ closest to $\hat{x}_2$ when not gambling and chooses $x = \hat{x}_2$ when gambling. Thus, in the second period I gambles if

$$J < I - \frac{\phi}{1-r},$$

and does not gamble otherwise. Similarly, C gambles if

$$J > C + \frac{\phi}{1-r}.$$

Note, we break indifference as needed to avoid best response problems.

We show that it is easier to support a compromising equilibrium in the extended model. This is because the extremist benefits from having the option to gamble conditional on winning reelection and is hurt from giving the challenger the opportunity to gamble conditional on losing the election, relative to the baseline. Note, at $J = 0$, the conditions above imply the m type gambles if and only if the $-m$ type gambles, and same for the e and $-e$ types. Thus, as in the baseline model, if $J = 0$ and the voter retains the prior belief p that I is an extremist, then the voter is indifferent between I and C, so it is optimal to reelect the incumbent. The condition for the e type to use a compromising strategy over choosing the optimal judge and policy when losing reelection is given by

$$\begin{aligned}
&\beta - |e-m| + \max\Big\{-(1-\nu)|e-\phi|, -r(1-\nu)|e-0|\Big\} \\
&\quad \geq (1-\nu)\max\Big\{-r|e-(-m+\frac{\phi}{1-r})| - (1-r)(p2e+(1-p)(e+m)), \\
&\quad p(-r|e-(-e+\frac{\phi}{1-r})| - (1-r)|e+e|) - (1-p)|e-(-e+\frac{\phi}{1-r}-\phi)|, -|e-(-e+\frac{\phi}{1-r}-\phi)|\Big\} \\
&\quad - \nu[p2e+(1-p)(e+m)].
\end{aligned}$$

The LHS is weakly lower at $r = 1$ than at $r' < 1$, and strictly for r' sufficiently low, while the RHS is weakly higher at $r = 1$ than for $r' < 1$, and strictly for r' sufficiently low. Thus, the office benefit required to support a compromising equilibrium for $r < 1$ is weakly lower than in the baseline, and strictly lower for r sufficiently low.

We also show the tying hands equilibrium from the baseline game always exists in the extended game if $r < 1$ but above some threshold. Assume a tying hands equilibrium exists in the baseline game and let J' be the judge that is appointed by the extremist in this equilibrium. In the second period, e does not gamble if

$$\begin{aligned} J' &> e - \frac{\phi}{1-r} \\ \Leftrightarrow r &> \frac{e - J' - \phi}{e - J'}, \end{aligned}$$

and note that the RHS of the final inequality is always strictly less than 0. Moreover, since e is not gambling and $J' < 0$ this implies that the $-e$ and $-m$ types of C also do not gamble. Thus, the analysis from the baseline model carries through exactly for any r that satisfies the above inequality.