Accountability, Ideology, and Judicial Review[*]

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Abstract

We analyze a model of executive policymaking with (i) repeated elections, (ii) a court that can overturn the executives policy choice, and (iii) ideological conflict between the court, voters, and politicians. We study how incumbents balance electoral motivations against the possibility of judicial review. Our findings point to the important role of ideology in determining when the court's threat of review influences policy. Asymmetric constraint arises endogenously, as anti-court politicians moderate policy while pro-court politicians are freed to make extreme proposals. We also show that electoral accountability and judicial review interact with one another. This interaction may produce levels of constraint that exceed those achieved by either electoral accountability or judicial review in isolation. We identify conditions under which this interaction moderates policy, improving voter welfare. Finally, we consider optimal judiciaries, finding that a status-quo biased court can be better for voters than an unbiased court.

In democratic polities, incumbents choose policy in the shadow of electoral constraints. Voters, leveraging the threat of electing a challenger, exert some influence over the chosen policy when executives value reelection. This *electoral* mechanism serves to constrain policy decisions. Indeed, this channel of influence has been lauded as an appealing feature of representative democracy since at least Madison (1788). However, Madison's contemporaries also anticipated the potential benefits of constraints arising outside of the electoral process. Arguing to free the judiciary from oversight by the electorally-constrained legislature, Alexander Hamilton stated that judicial independence provided the "essential safeguard against the effects of occasional ill humors in society" (1788). Hamilton's argument points to *judicial* constraint and its important role in shaping and constraining policy decisions.

However, the conception of judicial review as a force for moderation and accountability has been called into scrutiny. Concerns point to the double-edged sword of judicial review; judges may overrule unpopular, extreme, or harmful policy, but they may also rule against policies favored by a majority of citizens. Prominent among these critics, Bickel (1986) termed this the "counter-majoritarian difficulty," as judges are not precluded from overturning policy favored by the voters. In the face of these competing visions of the role of judicial review in democratic societies, our paper asks a simple question: how do electoral and judicial constraints interact to influence the behavior of politicians, voters, and the judiciary?

Indeed, despite the empirical prevalence of judicial and electoral constraint, their simultaneous influence on policymaking is not well understood. How do these forces interact with one another? Are these mechanisms complementary in terms of disciplining politicians, or do they work against one another? Under what conditions, if any, does one source of influence dominate? Given the availability of elections, when will the threat of review influence policy choice? To pursue these questions, we provide a formal model of repeated elections that incorporates both electoral accountability and judicial review.

We model ideology as the motivating factor for the players. In particular, the court is motivated by policy preferences. While perhaps a stark assumption, this allows us to isolate how ideologically driven judicial review influences policymaking by elected executives. Furthermore, this assumption is consistent with a large literature estimating ideal points for Supreme Court justices, and showing that these ideal points are effective at predicting votes, e.g., Martin and Quinn (2002); Epstein et al. (2007).

Our findings suggest that judicial review can interact with electoral accountability to produce benefits for voters, but that pessimism is warranted in some cases. Importantly,

which effect dominates depends upon judicial ideology. With a judge aligned with the median voter, judicial and electoral constraint interact, resulting in levels of moderation unobtainable under mere electoral or judicial constraint alone. Further, we show that the optimal judge may be biased slightly in favor of status quo policy. However, in keeping with concerns over the role of judicial review, we find that extremist judges can have deleterious effects, pulling policy against majority-preferred alternatives.

In our model, politicians, voters, and an outside actor interact repeatedly over an infinite time horizon. In each period, the incumbent first selects a policy. Next, a judge decides whether to overrule the policy. An election is then held between the incumbent and a challenger. In the model, elections are subject to pure adverse selection: voters observe policy choices, judicial rulings, and outcomes, but not the ideological preferences of either candidate. Play then proceeds to the next period with the majority winner of the election as the incumbent.

Our setup captures the distinct types of sanctions imposed on politicians by voters and the court. Voters have no direct control over policy. Rather, voters are only able to sanction politicians by removing them from office. This means that voters may have to endure extreme or unfavorable policy in the short term, as their only tool for correcting unfavorable policy is through removal and replacement of the incumbent. In contrast, the court can directly intervene to overturn policy, but is unable to remove an incumbent from office. Unlike the voters, the court can prevent unfavorable policy in the short-term, but is unable to enact long-run change by replacing the incumbent. Our analysis reveals that these channels of influence have distinct effects on politician behavior, and that they interact to produce nuanced effects.

In analyzing the model, we define and establish existence of a class of perfect Bayesian equilibrium. Our equilibrium notion allows us to study the strategic tradeoffs faced by outside actors, voters, and politicians when policymaking is subject to electoral and judicial constraint. The court's review choices have a direct effect on implemented policy, as well as an indirect effect on future policy through its influence on voter choice. Because elections are subject to adverse selection, voters look to past policy choices to learn about an incumbent's preferences and future policy choices, while anticipating a challenger's likely behavior. Whether politicians will aim to satisfy the court, voters, both, or neither depends upon a complex web of incentives arising from both electoral and judicial influence.

Given our interest in disentangling the web of electoral and judicial constraints, we first isolate the judicial channel. We find that review has a constraining effect, binding

politicians to policy proposals acceptable to the court. The prospect of judicial review leads officeholders to always choose policies that are not overruled, as they weakly prefer to enact their favorite policy that will not be struck down. Consequently, changes in judicial ideology weakly pull equilibrium policy proposals toward the judge.

Next, we highlight the consequences of electoral accountability. A byproduct of our equilibrium existence result is that equilibrium policymaking has a straightforward partitional characterization. Which policies are proposed and which policies result in reelection depend in important ways upon the congruence of the ideal policies of the median voter and the court. For example, our analysis highlights an endogenous asymmetry in the constraint imposed on politicians by the interaction of electoral accountability and judicial review. Politicians aligned with the court are freed to make relatively extreme proposals, while those opposed to the court are significantly more constrained, forced by the threat of review to enact moderate policy. This results in an asymmetry in reelection rates. By forcing moderation, judicial review disproportionately increases the rate at which anti-court politicians are reelected in comparison to their pro-court peers.

Furthermore, we show that when office benefit is sufficiently high, policy converges to the median voter's optimal policy that satisfies the court. Due to the possibility of override, this policy may or may not correspond to the median's ideal point. This provides an analogue to the dynamic median voter theorem found by Duggan (2000).

As a baseline, we study an unbiased court that shares the median voter's ideal point. We demonstrate that even in the absence of electoral accountability, judicial review fulfills Hamilton's original promise, moderating policy and improving voter welfare. Moreover, we find an interaction between judicial and electoral influence; under some conditions *both* electoral and judicial influence are necessary for policy outcomes to converge to the median's ideal. Next, we discuss how introducing ideological bias into the court affects policy outcomes. Finally, we characterize the optimal judicial bias from a voter-welfare perspective. Counter-intuitively, we find that when politicians are myopic a judge biased towards the status quo and away from the median voter maximizes welfare.

By studying ideological conflict between an executive policymaker, the court, and voters, we contribute to the study of judicial review and its effects on democratic representation. Our key innovation lies in our focus on the role of judicial review in ideological, spatial policy. In our setup, voters have no uncertainty about which policies they most desire. Further, voters, politicians, and the judge may disagree about the optimal policy. This contrasts with existing work, which focuses on policymaking under uncertainty. For example, Fox and Stephenson (2011) study the effect of judicial review on incentives to

pander in an environment where voters are uncertain about which policy is appropriate. In their setting, voters and politicians always agree on appropriate policy, conditional on knowledge of the state of the world. As such, their analysis focuses on a common-values framework, while the present analysis focuses on spatial policy. Others such as Le Bihan (2016) have incorporated the flavor of ideological conflict by modeling the possibility of "incongruent" politician types who wish to implement policy out of line with voter's desires, conditional on the state of the world. However, in these models policy is binary and there is uncertainty about the "correct policy." This contrasts with our spatial approach in which policy conflict is ideological, with judicial and voter preferences common knowledge.

By incorporating an actor that can initiate policy disputes into the accountability framework, we also build a bridge between the electoral accountability literature and existing work on policymaking with veto players. In practice, veto players impose constraints on policy decisions and are often either outside the electoral process or beholden to different constituencies. Accordingly, one interpretation of the disputant in our model is that of a veto player. The existing literature covers the influence of veto players across a wide range of policy spheres. Fox and Van Weelden (2010) study veto power in a model of partisan policymaking, showing that partisanship can improve the efficacy of oversight. Battaglini and Harstad (2016) study environmental agreements, where signatories can effectively exercise veto power by failing to implement the agreement.

We also contribute to a longstanding literature on electoral accountability.[1] In particular, we augment the model of Duggan (2000) to incorporate the possibility of extra-electoral policy disputes. Thus, our model builds on a literature studying elections subject to pure adverse selection, and contrasts with work focusing on moral hazard.[2] Other studies have augmented this framework by incorporating additional forces which shape policymaking and voter decisions such as partisanship (Bernhardt, Campuzano, Squintani and Câmara, 2009) or valence (Bernhardt, Câmara and Squintani, 2011). In an approach that is particularly close to ours, Bils, Duggan and Judd (2018) build upon the repeated elections framework by incorporating a lobby group, demonstrating that quid pro quo lobbying can result in policy extremism. We contribute to this growing literature by analyzing how electoral accountability interacts with extra-electoral constraints to shape policy decisions.

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[1]This literature is expansive. For brevity, we focus on the papers closest to ours and refer the interested reader to excellent surveys by Ashworth (2012) and Duggan and Martinelli (2018).

[2]Examples of models of electoral accountability including moral hazard include Fearon (1999), Ashworth (2005), and Duggan and Martinelli (2017).

Model

Elections take place in discrete time over an infinite horizon. Society consists of a democratic polity where citizens are enfranchised with voting rights and politicians have policymaking power while in office. Additionally, there is a court that does not participate in the electoral process but possesses veto power. Thus, consistent with previous models of judicial review, e.g., Fox and Stephenson (2011), the court has the power to uphold or strike down the executive's policy choice but is unable to directly choose policies.

The policy space is modeled as the interval $X = [0, 1]$. There is a continuum of citizen candidates and each citizen is indexed by an ideal point $\hat{x} \in X$. The distribution of citizen ideologies, denoted H, has an associated density function $h(\hat{x})$ with full support on X. The ideal point $\hat{x}_m$ denotes the unique median of the voters' ideal points. Citizen types are private information, so that neither J nor the voters directly observe a politician's type.

The court is represented by the median justice, J, and also has policy preferences, with $\hat{x}_J$ denoting her ideal point.[3] All players are fully aware of J's preferences and, specifically, $\hat{x}_J$ is common knowledge.

Players have quadratic utility over policies.[4] Formally, the payoff of a type $\hat{x}$ citizen from policy x is given by the utility function $u_{\hat{x}}(x) = -(x - \hat{x})^2$. To spare notation, we denote J's utility from policy x as $u_J(x) = -(x - \hat{x}_J)^2$ and similarly denote the median citizen's utility from x as $u_m(x) = -(x - \hat{x}_m)^2$.

To capture re-election motivations, politicians receive benefit $\beta \geq 0$ in each period they hold office. Therefore in any period that $x \in X$ is implemented, the utility of a type $\hat{x}$ officeholder is $u_{\hat{x}}(x) + \beta$.

Each period t begins with a politician $\hat{x}_t$, the *incumbent,* in office. Figure 1 illustrates the per-period interaction. The timing of moves in period t is as follows:

(1) The officeholder chooses policy x_t, which is observed by voters and the judge, J.

(2) Next, J decides whether to overturn x_t. If J overrules then the reservation policy,

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[3]In our model, if the decision to uphold the executive's policy is determined by multiple justices and majority rule then the median is decisive.

[4]We assume players have quadratic policy utility in the main text, but the results hold for a more general class of utility functions that we analyze in the appendix.

Figure 1: Illustration of per-period interaction
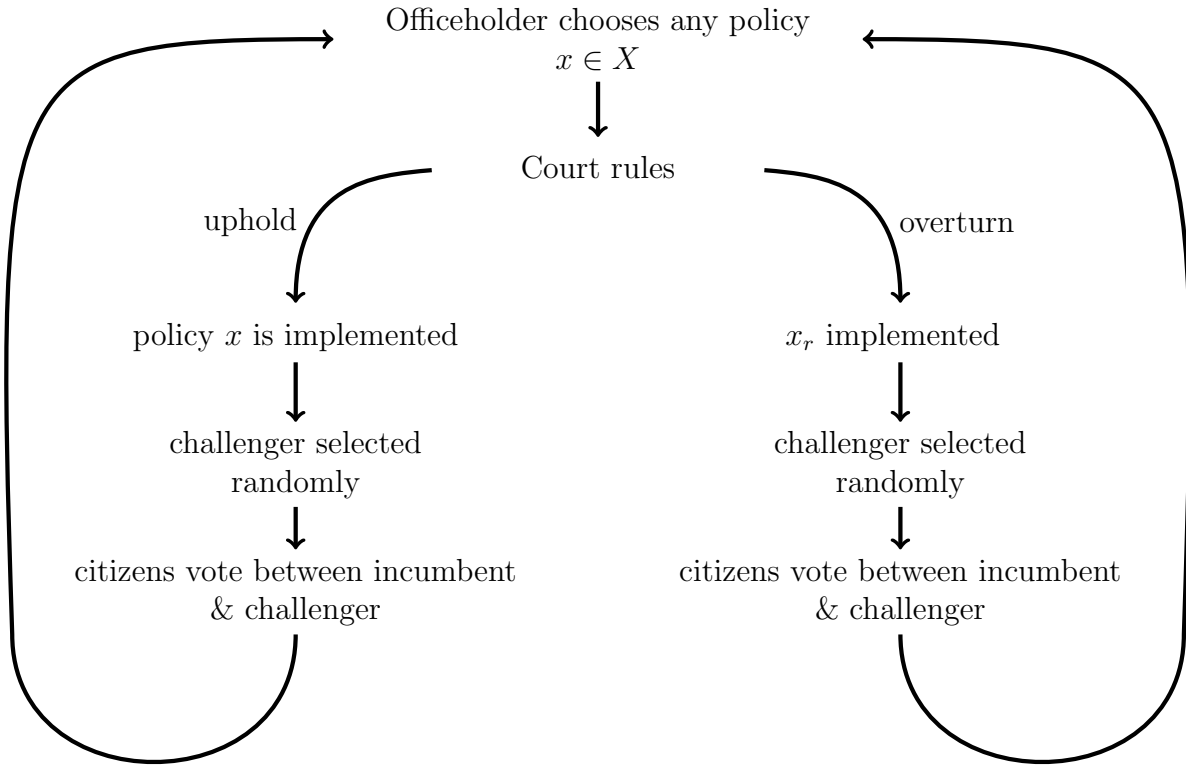
x_r, is implemented.[5] Otherwise, x_t is implemented.[6]

(4) A candidate $\hat{x}'_t$, the *challenger,* is drawn from the density function $h(\hat{x})$ to oppose the incumbent in an election. Voters do not directly observe politician types.

(5) Each voter casts a ballot in an election between the incumbent and challenger. The majority winner takes office at the beginning of period $t+1$.

As described above, a politician's type is private information and not directly observable by voters. Yet, voters do observe the policy choices of the incumbent politician and

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[5]In our model, this reservation policy is fixed across periods. One way to interpret this is that the court, after overturning policy, is able to author an opinion that shifts the policy outcome. In this case, x_r represents the best policy the median is able to obtain for itself subject to legal constraints or inter-court bargaining. As the court's preference is fixed over time, the outcome of this ruling would also remain static.

[6]Similar results obtain if the court incurs costs for overturning policy, e.g., because it forgoes ruling on a different case.

thus elections are characterized by pure adverse selection. All players discount flow pay-offs by the common factor $\delta \in [0, 1)$. Let $a_t \in \{0, 1\}$ denote J's ruling in period t, where $a_t = 1$ indicates that x_t was overruled. Given a sequence $x_1, x_2, \ldots$ of policy choices and a sequence of rulings $a_1, a_2, \ldots$, the discounted sum of per period payoffs for a type $\hat{x}$ citizen is

$$\sum_{t=1}^{\infty} \delta^{t-1} \bigg(a_t u_{\hat{x}}(x_r) + (1 - a_t) u_{\hat{x}}(x_t) \bigg).$$

Similarly, the discounted sum of payoffs for a type $\hat{x}$ politician is

$$\sum_{t=1}^{\infty} \delta^{t-1} \bigg(a_t u_{\hat{x}}(x_r) + (1 - a_t) u_{\hat{x}}(x_t) + I_t \beta \bigg),$$

where $I_t \in \{0, 1\}$ indicates whether the politician held office in period t. Thus, politicians accrue office benefit only while they hold office ($I_t = 1$). Finally, the discounted sum of per period payoffs for the outside actor, J, is identical to that of a citizen with type equal to $\hat{x}_J$.

Analysis

We study a selection of perfect Bayesian equilibrium (PBE). We highlight several key features, deferring a formal definition to the appendix. Before establishing existence and characterizing equilibrium, we describe the subset of PBE that we focus on.

First, players use stationary strategies in the equilibria we analyze. In repeated games, many equilibria can be supported by players conditioning on previous behavior in complex ways. These intricate strategies are less realistic in electoral models and thus we focus on strategies in which citizens use simple rules. Specifically, we analyze equilibria that are stationary in the following ways: (i) the judge conditions its decision on only the contemporary policy choice by the officeholder, (ii) the current officeholder's policy choice is independent of the preceding history, and (iii) each citizen conditions her vote only on an incumbent's policy choice in current term.

Next, we further refine our equilibrium notion by assuming that citizens use voting strategies with a retrospective form: for each $\hat{x} \in N$, a type $\hat{x}$ voter votes for an incumbent if and only if the incumbent's policy choice in the current period is weakly better than this voter's continuation value of a challenger. This condition accords with the assumption of *sincere voting*, but it does not assume voter myopia. Instead, each voter calculates

her expected payoffs from the incumbent and challenger in a dynamically sophisticated way before choosing optimally.[7] Under our assumptions on policy utility, these strategies imply that the median voter type is a representative voter. Consequently, the incumbent is re-elected if and only if she offers the median voter an expected discounted payoff from re-election that is weakly greater than the median voter's continuation value of a challenger.

In each period, J vetoes policy in equilibrium if and only if its dynamic expected payoff from doing so is weakly greater than not vetoing that period's policy. Furthermore, officeholders always choose the policy that provides the greatest dynamic expected payoff, anticipating possible electoral consequences and the potential for judicial review. Finally, the incumbent is re-elected if and only if the median voter weakly prefers her relative to an untried challenger. As is standard in PBE, we require that players update their beliefs consistent with equilibrium strategies.[8]

Before proceeding, we have several comments. First, we assume that J does not overturn when indifferent, which is without loss of generality.[9] Second, we noted that in a stationary equilibrium, every policy in the win set is weakly better for the median voter than a challenger. Thus, our equilibrium definition is the most permissive possible: the incumbent is re-elected if the median voter is indifferent between the incumbent and challenger.[10] Finally, while we study a selection of stationary PBE, the fairly simple rules players use in equilibrium are optimal even considering deviations to more complex strategies.

To embark on the analysis, we establish that an equilibrium satisfying the conditions we have just outlined exists.

Proposition 1. *An equilibrium exists.*

While it is reassuring that an equilibrium exists, an important question remains unanswered. What is the form of behavior in this equilibrium? Fortunately, a byproduct of our existence argument is a sharp characterization of behavior and policy outcomes. In the following section, we characterize equilibrium behavior with an eye towards highlighting the relevant strategic tensions.

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[7]This refinement is in the spirit of eliminating undominated strategies in voting subgames. Voters cannot affect electoral outcomes in our model, however, because they are massless. Therefore voting for the inferior candidate is not dominated, but this refinement precludes this seemingly unlikely behavior.

[8]We provide a more complete discussion of beliefs in the appendix.

[9]Otherwise, certain politician types face a best response problem. See the appendix for more details.

[10]This requirement is essentially without loss of generality. See the appendix for details.

Characterization of equilibrium behavior

To get a feel for equilibrium behavior, there are several forces to consider. First, which policies will J overturn? Second, who will voters re-elect, given expectations about future policy choices subject to judicial review? Finally, which policies will different types of politicians choose, anticipating electoral consequences and judicial oversight?

We unravel these strategic considerations to tease out their consequences for equilibrium behavior. First, we show that dynamic considerations wash out of J's equilibrium review choices in our stationary setting. This observation provides a sharp, partitional characterization of the policies that satisfy judicial review in equilibrium. Second, we study equilibrium voting behavior and highlight that electoral outcomes are fully characterized by the decision of the median voter. Moreover, in equilibrium the set of re-electable policies has a simple partitional form.

Judicial review. We first establish that the set of policies that the judge upholds under stationarity coincides with its static set of acceptable policies. The result facilitates the subsequent analysis.

Lemma 1. *In every stationary equilibrium, the judge's acceptance set is equivalent to its static acceptance set. That is, the judge upholds policy x_t if $u_J(x_t) \geq u_J(x_r)$ and overturns it if $u_J(x_t) < u_J(x_r)$.*

Lemma 1 implies that in every period $t = 1, 2, \ldots$ the judge, J, overturns period-t policy x_t if and only if x_t lies outside her static acceptance set. This yields an interval of acceptable policies $A = [\underline{a}, \overline{a}]$ where the end-points satisfy $u_J(x) = u_J(x_r)$. The intuition for Lemma 1 is that in a stationary strategy profile any deviation by J does not affect the voters' expectations about future outcomes. Thus, J cannot credibly overturn policies within her static acceptance set or uphold policies outside of it. Importantly, this does not mean that J's behavior is inconsequential for policymaking or electoral outcomes. Indeed, despite the myopic nature of J's behavior, judicial review interacts with politicians' dynamic incentives to exert a strong influence over both policy choices and election outcomes.

Because A has a simple characterization, it is straightforward to perform comparative statics. Given the similarity to previous applications of take-it-or-leave-it bargaining, changing the parameters of the model affects J's decision as expected. As in Romer and Rosenthal (1978), J's acceptance set expands if the distance between her ideal policy and the reservation policy, $|x_J - x_r|$, increases.

Voting behavior. We now turn our attention to voters. Under our functional form

assumption on policy utility, the median voter is decisive over streams of policies. Consequently, analyzing electoral outcomes in equilibrium boils down to characterizing the set of policies which m finds re-electable. This decision depends on the assessment, Ψ, via (i) rationally updated beliefs and (ii) expectations about future policy choices. Let $V_m^C(\Psi)$ denote m's continuation value from electing an unknown challenger under Ψ. The *win set*, denoted $W(\Psi)$, is the set of policies for which officeholders win re-election, which is given by the $x \in X$ satisfying

$$u_m(x) \geq V_m^C(\Psi). \tag{1}$$

In equilibrium, the win set is characterized by an interval of policies $[\underline{w}, \overline{w}]$, where the end-points solve equation (1) at equality. If the implemented policy is in this interval then the incumbent wins re-election, otherwise the challenger is elected.

Policymaking. In our model, politicians are unable to commit to policy choices ahead of time. Thus, in analyzing policymaking behavior we can investigate the effectiveness of elections in producing "good" behavior from politicians. Early work on electoral accountability without policy commitment includes Barro (1973) and Fearon (1999). Unlike previous work, however, in our model the disciplining effect of elections contends and interacts with J's veto power.

In equilibrium, officeholders never strictly prefer to enact policies that fail judicial review. Consequently, all politicians cater to the court - even those who are not re-elected. Judicial review prevents voters from ever receiving policy that is too unfavorable for the court. Thus, equilibrium, the set of re-electable policies is a subset of the court's acceptance set. Given these observations, lemma 2 makes clear that it is without loss of generality to focus on policies in A.

Lemma 2. *Every equilibrium is equivalent in outcome distribution to one in which every politician type chooses policy that survives judicial review.*

Naturally, any office holder whose optimal veto-free policy results in re-election will simply choose that policy. Other politicians trade off (i) appealing to electoral concerns by choosing the best policy acceptable to the median or (ii) shirking by choosing their favorite policy that survives judicial review but lose re-election. This trade off determines two "compromise" cut-points, and together with the win set these cut-points characterize policymaking. First, if $\hat{x} \in [\underline{w}, \overline{w}]$ then the incumbent chooses her ideal point, $x = \hat{x}$. Second, if $\hat{x} \in [\overline{w}, c_{\overline{w}}]$ then she chooses the upper-bound of the win set, $x = \overline{w}$. Third, if $\hat{x} > c_{\overline{w}}$ then she chooses the upper-bound of the judge's acceptance set, $x = \overline{a}$.

Similarly, the cut-point $c_{\underline{w}}$ determines whether an incumbent with ideology $\hat{x} < \underline{w}$ chooses to compromise to $\underline{w}$ or to $\underline{a}$

Figure 2 illustrates equilibrium behavior for the case with an unbiased judge, $x_J = x_m$. This case allows us to cleanly illustrate the partitional form of equilibrium. Starting at the left of the figure, all politicians with $\hat{x} < c_{\underline{w}}$ propose $\underline{a}$. For these extreme left-leaning politicians, winning reelection is not worth the extra loss in policy utility resulting from proposing $\underline{w}$, the closest policy within the win set. Accordingly, these politicians satisfy the judge, but lose office.

In contrast, politicians slightly closer to the median, with $\hat{x} \in [c_{\underline{w}}, \underline{w})$ find the extra policy concessions necessary for reelection worth it, and propose $\underline{w}$, which wins them reelection. Finally, politicians within the win set, that is $x \in [\underline{w}, \overline{w}]$ have the best of both worlds, as their ideal policies are located within both the judge's acceptance set as well as the win set. Such politicians propose their ideal point and are reelected. Continuing to the right, equilibrium policy choices mirror those for left-leaning extremists. Some less extreme types compromise to $\overline{w}$, winning reelection, while the most extreme find compromise so distasteful that they do the bare minimum, satisfying the judge and losing office.

Figure 2: Equilibrium behavior
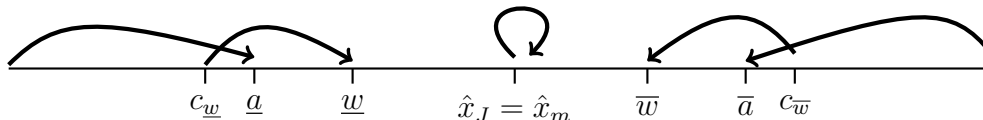
Note: Figure 2 summarizes policy choices, reelection, and acceptable policies when the judge shares the median voter's preference.

These cut-points show how, even in the absence of high electoral accountability, i.e. for low β, courts are able to discipline the choices of politicians and improve voter welfare. Electoral accountability is not without benefits, however, as it further moderates the choices of politicians with moderately extreme ideologies.

With the basic contours of equilibrium play outlined, we move on to consider how shifts in judicial ideology affect equilibrium play. Our analysis reveals that judicial review interacts with electoral incentives, producing an endogenous asymmetry in the level of constraint imposed upon pro and anti-court politicians.

Asymmetric policy constraints

With the features of equilibrium play characterized, we turn to consider how the possibility of judicial review affects equilibrium policy choices. Recall that policies are never overturned along the equilibrium path of play. Given this, one may expect that J has little influence on policy. This is not the case. Rather, the threat of judicial review can significantly constrain policy choices. We have already seen this in Lemma 2 and in the characterization of policymaking. However, we have yet to consider precisely what form does this constraint takes, and how it influences policymaking.

In this section, we find that the form of constraint is driven by an important nuance in the interaction of judicial, voter, and executive ideology. In particular, the constraint imposed by judicial review is not equivalent for all politicians. Rather, judicial review imposes *asymmetric* policy constraints. More specifically, the median voter's location separates the policy space and determines the asymmetry in constraint. We find that politicians with ideal policies on the same side of the median as J are subject to less stringent constraints on policy than those on the opposite side of the median. In this way, pro-court politicians have more leeway with their policy proposals than anti-court politicians.

In what follows, we demonstrate that this effect creates an asymmetry in policy constraint that operates both directly through the threat of review, as well as indirectly through equilibrium effects on the policies proposed by pro-court politicians. Further, the asymmetry in policy implies an asymmetry in reelection rates, with anti-court politicians winning reelection more often than their pro-court counterparts.

To facilitate our asymmetry results, we first define formally what constitutes a *pro-court* politician. Given $\hat{x}_J$ and $\hat{x}_m$, say that a type-$\hat{x}$ politician is *pro-court* biased if $\hat{x}$ and $\hat{x}_J$ are on the same side of $\hat{x}_m$. Otherwise, we say that the politician is *anti-court* biased. The following result establishes that such politicians weakly benefit from the constraints imposed by judicial review.

Proposition 2. *Pro-court politicians have weaker constraints on re-electable policy.*

Why does this asymmetry arise? Recall that in equilibrium all politicians make proposals that lie within J's acceptance set. This means that J's acceptance set binds policy choices above and below. However, policies at the edge of this acceptance set may or may not win reelection. Which is the case depends upon how J's acceptance set interacts with the position of $\hat{x}_m$ to determine how the set of policies that survive judicial review overlaps with the set of re-electable policies.

This interaction of electoral and judicial constraints endogenously produces the asymmetry. In particular, the judge's acceptance set can bind re-electable policies skewed away from $\hat{x}_J$, so that satisfying the judge is the active constraint for sufficiently anti-court politicians. Figure 3 demonstrates an example of this asymmetry when $x_r < \hat{x}_m < \hat{x}_J$. Turning to the figure, recall that the set of policies that the median voter is willing to reelect is symmetric around $\hat{x}_m$. This means that the median voter would be willing to reelect politicians proposing policy slightly to the left of the status quo, as she is wiling to reelect policy to the right extending further than the status quo distance. However, J can always achieve x_r by overruling policy that lies to the left.

Accordingly, the constraint imposed by judicial review harshly binds politicians to the left of $\hat{x}_m$, requiring them to propose policies much closer to the median than their counterparts on the right. On the other hand, pro-court politicians are never constrained in this fashion if $\hat{x}_m$ and $\hat{x}_J$ are on the same side of x_r. For pro-court politicians, such as those to the right of the policy space in figure 3, the relevant edge of the win set, $\overline{w}$, is not bound by the upper edge of J's acceptance set. Accordingly, these politicians face the tradeoff discussed in the previous section between appeasing the median voter and winning reelection, or only satisfying the judge, proposing a relatively extreme policy, and being kicked out of office.

Figure 3: Asymmetric policy constraint
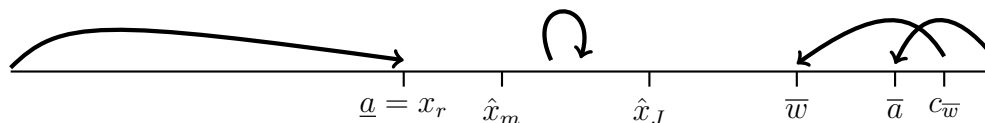
Note: Figure 3 depicts the asymmetric policy constraints imposed by judicial review. J's acceptance set binds the lower end of the win set to the location of the status quo. Consequently, policy to the left of x_r is never proposed. In contrast, politicians to the right of the median are much less constrained.

While the asymmetry is most clearly illustrated when $\hat{x}_m$ and $\hat{x}_J$ are on the same side of the status quo policy, a similar result holds if they straddle x_r. If $\hat{x}_m$ and $\hat{x}_J$ are on opposite sides of x_r, then it is possible that some pro-court politicians may still be constrained by judicial review.

But all anti-court politicians are fully constrained to propose x_r, as the set of policies J finds acceptable binds their choices. Even in this case, judicial veto power can stymie anti-court politicians by constraining their policy choices to a greater degree than their pro-court counterparts.

So far, we have described an important source of asymmetric policy constraint that arises due to the direct effect of J's threat of review on the set of policy proposals. This constraint may bind politicians farther from the status quo, precluding them from choosing policy as far from the median as their pro-court counterparts. However, we have not yet discussed an important second-order asymmetry. In addition to directly encouraging compromise from anti-court politicians, the threat of review also discourages policy compromise from pro-court politicians. What accounts for this?

The logic of this effect hinges on pro-court politicians' evaluations about how a potential anti-court successor would behave. When anti-court officeholders are constrained in the manner depicted in figure 3, then pro-court politicians are better off whenever anti-court politicians hold office than when anti-court politicians are less constrained. This is precisely because of how $\underline{a}$ binds policy inwards, moderating anti-court politicians by preventing policy proposals far from the status quo. Looking ahead, pro-court politicians internalize this and become less willing to compromise, as the court-imposed constraint on anti-court politicians means they will suffer relatively little if they are replaced in the future. Therefore forward-looking pro-court politicians are less inclined to compromise to re-electable policies than if they were myopic.

This finding also highlights the benefits of our dynamic setup. Judicial review has a first-order effect, constraining policy directly for anti-court politicians irrespective of dynamic considerations. But the asymmetry is exacerbated when politicians are forward looking. The additional, second-order effect is driven by pro-court politicians' concern for the future. When policy from their ideological rivals is moderated by the possibility of review, pro-court politicians are less concerned with future policy in the event that they lose office. Thus, they are more willing to propose extreme policies that satisfy the court, but do not result in reelection. Without considering a model with forward-looking politicians, this second-order effect would not be apparent.

An implication of this discussion is that the model predicts an asymmetry in the re-election rates of pro and anti-court politicians. The following result establishes this second asymmetry formally.

Proposition 3. *If the judge is sufficiently status quo biased, then all anti-court office-holders win re-election with probability one.*

Our discussion of asymmetric policy constraint foreshadowed the logic of this result. Recall that judicial review creates asymmetry by binding in the lower edge of the set of policies that the median voter is willing to reelect. In this case, the lower bound of J's acceptance set, $\underline{a}$, always results in reelection. This implies that *all* anti-court politicians

are proposing policy that results in reelection. In contrast, pro-court politicians are less constrained, and consequently are not precluded by the threat of judicial review from proposing extreme policies that do not win reelection.

Returning to figure 3 illustrates this. All politicians to the left of the median voter compromise in at least to $\underline{a}$. Because $\underline{a}$ pulls in the win set, even policies on the extreme leftward edge of the acceptance set result in reelection. This means that even the most extreme left-leaning politician at $\hat{x} = 0$ will win reelection by proposing $x_t = \underline{a}$. Contrasting this with the variation in behavior on the right side of the median illustrates the asymmetry. Politicians at the extreme right end of the policy space are not as bound by review. Accordingly, the upper bound of the court's acceptance set does not result in reelection. Indeed, in the figure the only politicians not winning reelection are those lying above $c_{\overline{w}}$. These extreme pro-court politicians propose the upper edge of the acceptance set and lose office. Thus, as in Proposition 3, the only politicians failing to win reelection are pro-court politicians.

The asymmetry in reelection rates indicates that the judiciary may not only influence policy, but electoral outcomes as well. The threat of review works against the desires of politicians, preventing them from proposing policy that is biased too far from the court. While this prevents anti-court politicians from achieving their policy goals, it increases their electoral prospects by forcing them to take moderate positions. The opposite is true of politicians that are ideologically aligned with the court. They are freed to propose extreme policies, but face backlash from the voters as a result, failing reelection.

Thus, the model produces a clear empirical implication. Ideological allies of the court should be expected to propose more extreme policies, and sometimes these policies will result in backlash from the voters. In contrast, politicians biased away from the court should propose relatively centrist policy, and win reelection more often than their pro-court peers.

The interaction of accountability & judicial review

Our discussion of asymmetric constraint showed how electoral accountability and judicial review may interact to produce interesting and subtle effects. In this section, we continue with our focus on such interaction, demonstrating that electoral accountability and judicial review interact to constrain policy choices. In particular, we find that while each source of constraint alone does shape policy, the combined effect of simultaneous judicial and electoral constraint can moderate policy to a greater degree than either in isolation.

Figure 4: Politician behavior for high office benefit

(a) Convergence for $x_m \in A$ (b) Convergence for $x_m \notin A$
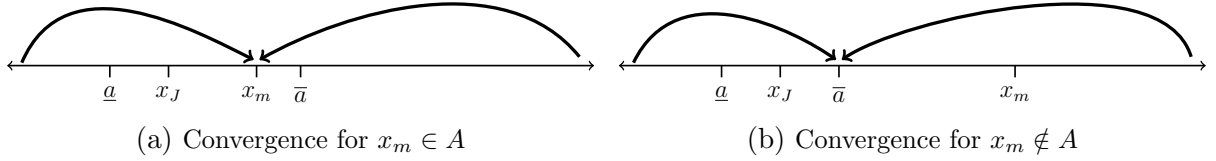
Note: Figure 4 depicts convergence to the median's induced ideal policy, for β sufficiently high. Each subcase highlights how the observed policy outcome depends on the location of x_m.

Further, this interaction can have normatively appealing consequences. When the judge is aligned ideologically with the median voter, policy converges to the median voter's ideal point under the weakest set of conditions if both judicial and electoral constraints are present. Continuing on to study the welfare effects of judicial review and its interaction with electoral accountability, we characterize the socially optimal judge. Counter-intuitively, the socially optimal judge may not be located at the median in some cases. Rather, when electoral constraints are relatively weak, the socially optimal judge is biased away from the median in favor of the status quo.

Formally, we study the conditions under which politicians will converge to the median's induced ideal point. Specifically, we say that *policy proposals converge to x_m^** if all politician types choose x_m^* in every period while in office. Consequently, if policy proposals converge then the incumbent is always re-elected in equilibrium.

Figure 4 illustrates policy proposals converging to x_m^*. In particular, it shows how the possibility of judicial review can shift the median voter's induced ideal point. On the left of the figure, $\hat{x}_m$ lies within the set of policies that J finds acceptable. Accordingly, when office benefit becomes sufficiently high, the median voter's ideal policy is consistent with the policies that will survive judicial scrutiny. Accordingly, policy converges directly to $\hat{x}_m$. However, on the right side of the figure $\hat{x}_m$ lies to the right of the acceptance set, whose upper bound is denoted $\bar{a}$. In this case, two forces from our equilibrium characterization interact as β grows large. First, politicians become increasingly responsive to the median voter's policy desires, as they highly value holding office. A second force prevents them from catering directly to the median voter: the threat of judicial review. If a politician catered directly to the median voter, proposing $\hat{x}_m$, such a policy would be disputed, and x_r would be implemented. Anticipating this, politicians instead strike a balance, compromising to the median's most favored policy that lies within J's acceptance set. Overall, this implies that high electoral accountability eliminates distinct policy choices. However, the possibility of judicial review means that the uniquely proposed policy may

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not lie directly at the median's ideal point.

We begin our discussion of welfare by assuming that the court shares an ideal point with the median voter, $\hat{x}_J = \hat{x}_m$. Although we recognize that courts may be biased, this provides a useful benchmark and yields a sharp characterization of equilibrium behavior. In particular, this case most cleanly illustrates the potential synergy of electoral and judicial constraint. Additionally, this case renders our setting comparable to previous work assuming that courts hold public interests at heart and seek to maximize social welfare.

To isolate the effects of electoral and judicial constraint, we study three cases in turn. First, we isolate judicial constraint, considering the model without elections. Next, we remove the judiciary, characterizing the conditions necessary for policy convergence under pure electoral accountability. The first two cases serve to establish a benchmark, providing a comparison for the final case in which we study the full model in which politicians are subject to both electoral and judicial constraint. Of the three cases, policy converges to the median under the weakest conditions in the model with simultaneous electoral and judicial constraint. The following proposition establishes this formally.

Proposition 4. *Suppose that $x_r \neq \hat{x}_m$ and that $\hat{x}_m = \hat{x}_J$.*

1. *In the model without electoral accountability, policy proposals never converge to $\hat{x}_m$.*

2. *In the model without judicial review, there exists $\overline{\beta}_E$, such that if $\beta \geq \overline{\beta}_E$ then there exists an equilibrium in which policy proposals converge to $\hat{x}_m$.*

3. *In the model with both judicial review and elections, there exists $\overline{\beta}_I$, such that if $\beta \geq \overline{\beta}_I$ then there exists an equilibrium in which policy proposals converge to $\hat{x}_m$. Furthermore, $\overline{\beta}_I < \overline{\beta}_E$.*

In general, if politicians are sufficiently office motivated and $\hat{x}_m = \hat{x}_J$ then all types choose the median voter's ideal policy, $\hat{x}_m$.[11] This implies that for high office benefit or patience, the median's ideal policy is the only re-electable policy, that is $W(\Psi) = \{\hat{x}_m\}$. Thus, politicians become fully responsive to the median voter even under the veto threat. However, as proposition 4 demonstrates, the judiciary influences the conditions under which convergence occurs.

The logic of this result is driven by the different kinds of sanctions imposed by elections and judicial review. Recall that, in the presence of both constraints and sufficiently high

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[11]Although proposition 4 only explicitly considers the case where $x_m^* = \hat{x}_m$, when office benefits are large policies converge to the median's induced ideal point as in the preceding discussion even if $\hat{x}_J \neq \hat{x}_m$ or $x_m^* \neq \hat{x}_m$.

office benefit, all policy choices converge to the median's ideal point as the distance between the reservation policy and the court's ideal point shrinks. However, with only judicial review and no elections, policy outcomes are bounded away from the median's ideal point for $\hat{x}_r \neq \hat{x}_m$, even when $\hat{x}_m = \hat{x}_J$, as assumed. Why is judicial review alone unable to achieve policy convergence? The reason lies in the judge's inability to sanction politicians with removal from office. Absent the threat of a looming election, politicians only subject to judicial review know that they will hold office in the next period no matter which policy they propose. Consequently, the worst that can happen is that their policy is subject to review, and x_r is implemented. This means that extremists compromise to the closest edge of the judicial acceptance set, and no further. This implies that convergence never occurs when the judicial acceptance set is non-degenerate.

Moving on to the second case, for any $\beta < \overline{\beta}$ if there are elections but not judicial review, then policy outcomes also do not converge to the median's ideal. However, electoral constraint can achieve convergence to the median. If $\beta > \overline{\beta}$, then the allure of reelection is irresistible, and all policy converges to $\hat{x}_m$. When the judge is aligned with the median voter, electoral accountability pulls policy directly to the median's ideal point for sufficiently high office benefit. While electoral constraint can pull in policy, can it be improved upon by adding judicial review?

Proposition 4's final point indicates that the answer is yes. All else equal, policy converges to the median under a weaker set of conditions with dual constraint than under pure electoral constraint. Of course, as office benefits grow arbitrarily high, policy will converge without judicial constraint. However, if $\delta\beta \in [\delta\beta_I, \delta\beta_E)$, convergence to the median *only* occurs under dual constraint.

The conditions for convergence are weaker under dual constraint because of how the threat of review binds policy to an interval around $\hat{x}_J$. Without review, politicians are not required to satisfy J. Accordingly, they are not bound by the judicial acceptance set. However, with judicial review politicians *must* compromise at least to the closest edge of the judicial acceptance set, which is centered at $\hat{x}_J = \hat{x}_m$ in this case. As extremists are already required to compromise to satisfy J, compromising further to obtain reelection entails a smaller loss of policy utility than in the case when they are unconstrained by review. Thus, less office benefit is required to induce politicians to view further moderation as worth it. This implies that when office benefit is relatively low, it is only by having both constraints that outcomes converge to the median.

This discussion provides a clear implication: the threat of judicial review can improve welfare in ways that electoral accountability alone cannot. To do this, we held judicial

ideology fixed at the median's ideal point to allow all-else equal comparisons. But this means that we have had little to say about how variation in the judge's ideology impacts voter welfare.

To address this, we conclude this section by examining the effect of judicial bias on policy outcomes. Intuitively, moving the ideal point of the judge away from the median voter's ideal point shifts policy choices in that direction. Given this, one might anticipate that the optimal judge from the median voter's perspective has an ideal point located at $\hat{x}_m$. Contrary to this intuition, we find that under some conditions the socially optimal judge is not located at the median's ideal point.

First, we comment on the optimal judicial ideology from the median voter's perspective. To clarify the incentives at play, we assume that politicians are not dynamically sophisticated, i.e, for politicians $\delta = 0$. Focusing on this case allows us to isolate how the threat of review constrains policy in unexpected ways to improve voter welfare when $\hat{x}_J \neq \hat{x}_m$.

Proposition 5. *If politicians are sufficiently impatient, then the socially optimal judge is biased strictly towards the status quo.*

This result implies that the median voter does best when the court is conservative in the sense that, relative to the median, it is biased in favor of retaining the status quo. The logic of the result lies in the mechanics of the judge's acceptance set. By overruling policy, the judge can always obtain a payoff that is at least as good as her payoff from the status quo policy x_r. This implies that one end of the acceptance set lies at x_r. However, the other end of the acceptance set may move in response to a shift in judicial ideology.

Thus, moving $\hat{x}_J$ towards x_r and away from $\hat{x}_m$ shifts the upper-bound of the acceptance set towards $\hat{x}_m$, while leaving the reservation policy x_r, which is also the lower-bound, unchanged. Given this logic, as shown in Figure 5, the optimal choice must set the upper-bound $\bar{a}$ equal to the median's ideal point $\hat{x}_m$.

Consider the effect of a slight shift in the judge's ideology toward $\hat{x}_m$ in figure 6. The lower bound of the acceptance set would remain at x_r, while the upper bound would shift to a point to the right of $\hat{x}_m$. Thus, the median voter's ideal point is still within the acceptance set and behavior is similar to the case where the judge and median share an ideal point. As always, all politicians compromise into the disputant's acceptance set. Additionally, some will compromise to winning policies within the acceptance set. Depending on the shift, however, some politicians may be compromising closer to or further away from the median's ideal point. Thus, slight shifts away from the optimal judicial ideology towards the median do not lead to a massive deterioration in welfare.
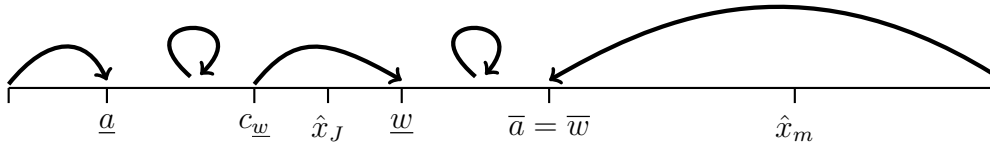
Figure 5: Optimal Judiciary
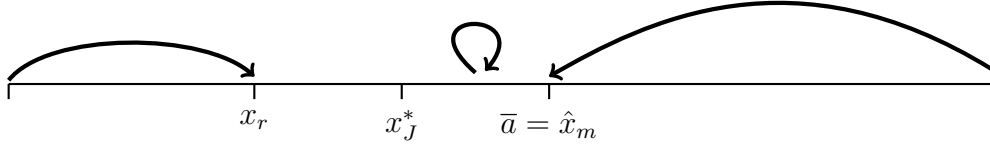
Note: Figure 5 depicts policy choices by sufficiently impatient politicians under a socially optimal judge, x_J^*, who is biased strictly towards the status quo, q.

As long as the judge is relatively close to the median voter, the constraining effect is beneficial.

Figure 6: Biased Judiciary

Note: Figure 6 demonstrates optimal policy choices by forward looking politicians under a biased judge.

While the optimal judge is slightly biased, too much bias can have deleterious effects on voter welfare. To see this, consider when the judge's ideal point is moved far away from the median voter. This is depicted in Figure 6.

As the figure illustrates, when the judge is sufficiently biased, the median's ideal point will not lie within the acceptance set. If the median is to the right of the acceptance set then the upper-bound of the win set is equivalent to $\bar{a}$. This results in all politicians with ideal points the right of $\bar{a}$ compromising to $\bar{a}$ and getting reelected. However, they are choosing policies that are shifted further left away from the median's ideal point. As the judge moves farther away, $\bar{a}$ continues to shift, pulling politicians to the right to propose policy farther and farther away from the median's ideal. Thus, social welfare becomes worse and worse as the judge's bias grows extreme.

Discussion & Conclusion

Does judicial review work in tandem with elections to improve democratic accountability, or does it empower an unaccountable judiciary to shape policy against the will of the people? Despite the importance of this question, the interaction of electoral accountability and judicial review is not well understood in the context of spatial policymaking. To study this interaction and its consequences for policymaking and elections, we developed a dynamic model where executive policymakers are subject to both elections and judicial review in each period.

By characterizing equilibrium policymaking in this model, we showed that when electoral and judicial constraint operate simultaneously, they interact with one another to create nuanced effects. Our model allowed us to highlight and study the relevant trade-offs politicians face when subjected to these simultaneous constraints. A key takeaway is that not all politicians are subject to the same level of constraint by the judiciary.

Indeed, courts biased towards the status quo endogenously produce an asymmetry, with anti-status quo politicians (i) enacting more popular policies and (ii) winning re-election at higher rates, relative to pro-status quo politicians. To satisfy the judge, anti-status quo officeholders are forced to enact popular policies that result in re-election. On the other hand, pro-status quo officeholders can satisfy the judge with policies that do not necessarily result in re-election. Accordingly, pro-status quo judges endogenously produce an asymmetry in equilibrium policies and re-election rates even though voters do not intrinsically favor politicians in either direction. This asymmetry also produced a stark empirical implication: under a status-quo biased judiciary, pro-court politicians should win re-election less frequently than anti-court politicians.

With the mechanics of equilibrium play under judicial and electoral pressure pinned down, we returned to our original question: does judicial review enhance or undermine democratic accountability? When office benefits are low, we showed that judicial review can improve voter welfare. Without large office benefits to create incentives for moderation, politicians may be unresponsive to the voters. In this case, equilibria in which all politicians cater to the median can fail to exist in the absence of judicial review. All else held equal, the introduction of judicial review can allow for the existence of responsive equilibria in which policymakers all cater to the median, improving social welfare.

Substantively, this suggests that judicial review is particularly important in state and local elections. In these cases, the benefits of office may be lower than in comparable elections at the federal level. Accordingly, our results suggest that judicial review can increase policy responsiveness to the public in these settings.

Counter-intuitively, we found that the socially optimal judge may not share the same policy preferences as the median voter. This occurs when politicians care little about the future and are consequently unconcerned with reelection. In this case, a judge with a mild status quo bias is preferable. Such judges constrain anti-status quo officeholders to propose policy close to the median voter. Consequently, voters are more demanding of incumbents and, in turn, pro-status quo officeholders must propose more favorable policies to win re-election. This provides further evidence that when electoral accountability is low, judicial review biased toward preventing changes from the status quo can serve the interests of the voters.

In line with concerns about the potentially undemocratic nature of judicial review, we found that its consequences are not uniformly good for voters. Indeed, when office benefits are very high, judicial review can only serve to undermine voter welfare. As office benefits grow arbitrarily large, politicians do their best to satisfy the median voter in order to win reelection. Without judicial constraints, all politicians cater directly to the median, proposing her ideal policy directly. However, the threat of judicial review can prevent policymakers from fully appealing to the median voter when the judge is biased away from the median.

Appendix

To begin, we generalize the class of utility functions studied in the main text.

Voters and politicians belong to a continuum $N = [\underline{\theta}, \overline{\theta}]$ of citizen types, and we normalize $0 \leq \underline{\theta} < \overline{\theta}$. Each type $\theta \in N$ is associated with an ideal point $x(\theta)$ in the policy space $X = [0, 1]$. The distribution of citizen types, denoted H, has an associated density function $h(\theta)$ with full support on N and a unique median denoted θ_m. The ideal point $x_m = x_{\theta_m}$ denotes the median of the voters' ideal points. Citizen types are private information, so that neither J nor the voters directly observe a politician's type. Players can use observed behavior, however, to draw inferences about types.

Suppose $u_\theta(x)$ is differentiable, strictly concave with unique maximizer $x(\theta)$, and has the following functional form:

$$u_\theta(x) \quad = \quad \theta v(x) - c(x) + k_\theta, \qquad (2)$$

where $v' > 0$ and $v'' \leq 0$, and $c' \geq 0$ and $c'' > 0$, and k_θ is a term that possibly depends on type but does not depend on policy.[12] Thus, v is concave and c is strictly convex. The ideal point $x(\theta)$ of citizen θ uniquely solves the first order condition $\theta v'(x) = c'(x)$, and the implicit function theorem implies that $x(\theta)$ is differentiable and strictly increasing. Consequently, citizen types are ordered with respect to policy preferences: higher types corresponding to higher ideal points. Let $x_m = x_{\theta_m}$ denote the median of the voters' ideal points.

We assume WLOG that m weakly prefers policy $x = 1$ to $x = 0$, i.e., $u_m(1) \geq u_m(0)$. This specification of utilities captures the model analyzed in the text with quadratic utility via the functional form $u_\theta(x) = -(x - \theta)^2$, where θ corresponds to an ideal point.

Equilibrium definition

A stationary strategy for a type θ politician is a policy choice $\xi_\theta \in X$, where the politician chooses ξ_θ in each period while in office. A stationary voting strategy for a type θ voter is a mapping $\nu_\theta \colon X \to \{0, 1\}$, where $\nu_\theta(x) = 1$ if and only if type θ citizens vote to re-elect an incumbent who chooses x in the preceding period. Finally, stationary acceptance strategy for J is a mapping $\alpha : X \to \{0, 1\}$, where $\alpha(x) = 1$ if and only if J disputes the

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[12]The functional form in (2) is used by Duggan and Martinelli (2018) and Bils et al. (2018). See Duggan and Martinelli (2018) for more details.

policy x.[13]

In addition to strategies that specify the actions of all players after all histories, we must specify a belief system for the voters. These beliefs are represented by the mapping $\kappa \colon X \to \Delta(N)$, where $\Delta(N)$ is the set of probability distributions over citizen types, and $\kappa(x)$ represents the voters' beliefs about the type θ of an incumbent following policy choice x in the preceding period.[14]

A stationary strategy profile $\sigma = (\xi, \nu, \alpha)$ is *sequentially rational* given belief system κ if the following conditions are satisfied in every period: (i) for every policy x, $\alpha(x)$ is an optimal response for the outside actor, (ii) for every type θ, a politician cannot profitably deviate from ξ_θ to another policy choice, and (iii) for all policy choices x, each type θ voter votes for the candidate who provides the highest expected discounted payoff conditional on their information.

Beliefs κ are *consistent* with σ if, for all $x \in X$, $\kappa(\cdot|x)$ is derived via Bayes rule on the path of play determined by σ. If citizens observe a policy that occurs with probability zero under σ, then stationarity is the only restriction on beliefs that consistency imposes. Specifically, we incorporate stationarity into our formulation of beliefs in the following way: after any two histories, if an incumbent chooses policy x, then voters update beliefs identically to $\kappa(\cdot|x)$. Consequently, deviations to off-path policies do not affect how voters update their beliefs about future office holders.

An assessment $\Psi = (\sigma, \kappa)$ is a *stationary perfect Bayesian equilibrium* if σ is sequentially rational given κ and κ is consistent with σ. Next, we define several useful technical concepts. Furthermore, we specialize stationary PBE to refine voting and policy choices.

Given an assessment $\Psi = (\sigma, \kappa)$, we denote a type-θ citizen's expected discounted payoff, conditional on a policy choice x, as $V_\theta^I(x|\Psi)$. Similarly, let $V_\theta^C(\Psi)$ denote a type-θ citizen's continuation value from electing the challenger. Stationarity implies that $V_\theta^I(x|\Psi)$ and $V_\theta^C(\Psi)$ are constant over time.

Define the type-θ voter's expected period payoff from policy choice x as

$$\pi_\theta(x) = \begin{cases} u_\theta(x) & \text{if } x \in A, \\ u_\theta(x_r) & \text{if } x \notin A. \end{cases} \tag{3}$$

Using (3), we can express the continuation value of a type-θ voter from retaining the

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[13]Throughout, we assume that strategies are jointly measurable. That is, ξ_θ is measurable in θ, $\alpha(x)$ is measurable in x, and $\nu_\theta(x)$ is measurable in (θ, x). We suppress technical measurability issues throughout.

[14]To avoid problems in applying Bayes's rule, we focus on strategy profiles such that for each policy x, the set of types θ for which $x = \xi_\theta$ is an interval, and thus either finite or has positive measure.

incumbent as the voter's expected payoff with respect to a particular probability distribution (Banks and Duggan, 2008). Let P_x^I denote the *incumbent continuation distribution* following policy choice x. We have

$$V_\theta^I(x|\Psi) = \frac{\mathbb{E}_{P_x^I} \pi_\theta(z)}{1-\delta},$$

where the expectation is with respect to the distribution P_x^I over policies z. Similarly, we express the voter's continuation value from electing a challenger as the expected payoff with respect to the *challenger continuation distribution, P^C*. Formally,

$$V_\theta^C(\Psi) = \frac{\mathbb{E}_{P^C} \pi_\theta(z)}{1-\delta}.$$

The distributions P_x^I and P^C depend on the underlying assessment Ψ, but are independent of citizen type. Therefore all citizens view the incumbent as the same lottery over policy and similarly for the challenger.

The functional form in (2) implies that θ_m is decisive in majority voting over lotteries (Duggan, 2014). Therefore a majority of voters strictly prefer the challenger to the incumbent if and only if $V_m^C(\Psi) > V_m^I(x|\Psi)$, and weak preference is analogous. Thus, in a stationary PBE an incumbent is re-elected following the policy choice x only if $V_m^I(x|\Psi) \geq V_m^C(\Psi)$. The *win set*, denoted $W(\Psi)$, is the set of policy choices for which an incumbent is re-elected after choosing policy in that set. Stationarity implies that an incumbent who chooses x and is re-elected will continue to choose x and thus be re-elected. This implies that $V_m^I(x|\Psi) = \frac{\pi_m(x)}{1-\delta}$, and we can shown that

$$W(\Psi) \subseteq \left\{ x \in X \mid \frac{\pi_m(x)}{1-\delta} \geq V_m^C(\Psi) \right\}.$$

Therefore if an incumbent is re-elected after the policy choice x, then x must provide m with a payoff weakly greater than m's value of a challenger.

We now provide notation to formally express equilibrium conditions. First, denote the *dynamic expected payoff* of a type θ citizen from policy choice x as $U_\theta(x|\Psi)$. Next, let $U_J(x, \alpha|\Psi)$ denote the expected dynamic payoff to J from the action $\alpha \in \{0, 1\}$ following policy x. Finally, let $B(x|\Psi)$ denote the *dynamic office rents* from policy choice x.

The conditions of an *equilibrium,* are as follows: (i) for each policy x, $\alpha(x) = 1$ if and

only if

$$U_J(x,1|\Psi) \geq U_J(x,0|\Psi);$$

(ii) for each politician type θ, the policy ξ_θ solves

$$\max_x U_\theta(x|\Psi) + B(x|\Psi);$$

and (iii) the win set satisfies

$$W(\Psi) = \left\{ x \in X \mid \frac{\pi_m(x)}{1-\delta} \geq V_m^C(\Psi) \right\}.$$

We note two features. First, assuming J does not veto when indifferent is WLOG. Otherwise, some politician types face a best response problem. Specifically, they are strictly better off shifting their policy choice in J's favor by $\varepsilon > 0$, but there is always a smaller shift $\varepsilon' \in (0, \varepsilon)$ that is strictly better.

Second, we assume the incumbent is re-elected if the median voter is indifferent between the incumbent and challenger. In the same vein as the preceding comment, this requirement is essentially WLOG. Otherwise, an optimal policy will not exist for some politician types, except in the extreme case in which the winset is a singleton consisting of the median policy.

Proposition 1. *In any stationary equilibrium, J accepts x if and only if $u_J(x) \geq u_J(x_r)$. That is, J accepts a policy if and only if it lies in its static acceptance set.*

Proof. Let σ be a stationary equilibrium and let A_σ denote the set of policies that the outside actor accepts under σ.

Any one stage deviation by J does not alter the voting behavior of the citizens or the policy choices of a politician, because the players will expect J to continue acting in accordance with A_σ after any one-stage deviation. Thus, a one-stage deviation does not affect the J's continuation value.

First, we show that accepting or rejecting policies according to A is an optimal strategy for J. This requires that J does not have a profitable one-shot deviation from playing A, given strategy profile σ. The utility to J from accepting a policy x is $u_J(x) + \delta V_J(x|\sigma)$, and J's dynamic expected payoff from rejecting is $u_J(x_r) + \delta V_J(x|\sigma)$. Because $\delta V_J(x|\sigma)$ does not depend on J's action, it drops out. Therefore J does not deviate from accepting a policy if $x \in A$ (or rejecting if $x \notin A$).

Next, assume A_σ contains a policy $x \notin A$. If the politician chooses x, then in equilibrium J accepts the policy and receives dynamic expected payoff $u_J(x) + \delta V_J(x|\sigma)$. On the other hand, deviating to overrule the policy yields $u_J(x_r) + \delta V_J(x|\sigma)$. Comparing and canceling like terms, J has a profitable deviation if and only if $u_J(x) < u_J(x_r)$, which holds because $x \notin A$.

Finally, assume there exists a policy x such that $x \in A$ and $x \notin A_\sigma$. For J to have a profitable deviation to rejecting x in this case requires $u_J(x_r) + \delta V_J(x|\sigma) < u_J(x) + \delta V_J(x|\sigma)$, which holds because $x \in A$. Consequently, under σ the outside actor must accept all policies in A and reject all policies not in A. That is, $A_\sigma = A$, as desired. $\square$

Lemma 2 *Every equilibrium is equivalent in outcome distribution to one in which every politician type chooses policy in A.*

Proof. Let Ψ denote an equilibrium. WLOG suppose $x_r < x_J$.

Lemma 1 implies that $\underline{a} = x^r$; and that any policy $x \notin A$ is vetoed under Ψ, resulting in x^r. Therefore no politician type satisfying $x(\theta) > \underline{a}$ has a profitable deviation to $x \notin A$.

Suppose Ψ is such that there exists some type-θ satisfying $x(\theta) < x_r$ that chooses $x = x(\theta)$. In this case, choosing $x = x(\theta)$ or $x = x_r$ in any period leads to the same policy outcome, x^r, for that period. Thus, $x(\theta) \in W(\Psi)$ if and only if $x_r \in W(\Psi)$. Therefore Ψ is equivalent in outcome distribution to an equilibrium in which type-θ politicians choose $x = x_r \in A$. $\square$

Existence and Characterization

Our existence argument is similar to that of Bils, Duggan and Judd (2018). We show existence of a fixed point in the space of continuation distributions and verify that it satisfies the equilibrium conditions. As a byproduct, we obtain a partitional characterization of policies.

Let $\Delta(X)$ denote the space of probability distributions on X, endowed with the topology of weak convergence. Let $P \in \Delta(X)$ be a probability distribution on X that represents the continuation lottery of a challenger running against the incumbent. We define a mapping, ϕ, that maps a nonempty, compact, and convex subset of $\Delta(X)$ into itself. Our construction requires several steps and we keep an eye on crucial continuity properties throughout.

Continuation values: Recall $\pi_\theta(x)$, the expected period payoff from policy choice x to

a voter of type θ, as defined in (3). Next, continuation values for challengers are

$$V_\theta^C(P) = \frac{\mathbb{E}_P \pi_\theta(x)}{1 - \delta}, \tag{4}$$

where the expectation is with respect to the continuation distribution P. Because π_θ is bounded and a.e. continuous, $V_\theta^C(P)$ varies continuously as a function of P with the weak topology on $\Delta(X)$. Moreover, because $\pi_\theta(x)$ is a.e. jointly continuous in x and θ, a version of Lebesgue's dominated convergence theorem implies that $V_\theta^C(P)$ is jointly continuous in θ and P.

Win set: The continuation values defined in (4) and median decisiveness determine a win set,

$$W(P) = \left\{ x \in X \mid \frac{\pi_m(x)}{1 - \delta} \geq V_m^C(P) \right\}.$$

As is standard in models of electoral accountability, $W(P) \subset X$ is an interval.

Let $\bar{\theta}_w$ be the unique citizen type whose ideal point equals the upper bound of $W(P)$, so that $x(\bar{\theta}_w) = \overline{w}(P)$. Define $\underline{\theta}_w$ analogously so that $x(\underline{\theta}_w) = \underline{w}(P)$. We express these types as $\bar{\theta}_w(P)$ and $\underline{\theta}_w(P)$ to make explicit the dependence on P. Under our assumptions, continuity of $V_m^C(P)$ ensures that the endpoints of $W(P)$ are continuous in P, as are these cutoff types. Consequently, $W(P)$ is a continuous correspondence in P.

Dynamic Payoffs: A type-θ politician's dynamic policy utility from policy choice x is

$$U_\theta(x|P) = \begin{cases} \frac{\pi_\theta(x)}{1-\delta} & \text{if } x \in W(P), \\ \pi_\theta(x) + \delta V_\theta^C(P) & \text{else,} \end{cases}$$

and dynamic office rents are

$$B(x|P) = \begin{cases} \frac{\beta}{1-\delta} & \text{if } x \in W(P), \\ \beta & \text{else.} \end{cases}$$

We know $x \in W(P)$ if and only if θ_m's dynamic payoff from x is at least as good as her continuation value from a challenger. Importantly, $U_\theta(x|P)$ is jointly continuous on triples (x, θ, P) such that: (i) $x \in W^A(P)$, (ii) $x \in A \backslash W(P)$, and (iii) $x \notin A$. Similarly, $B(x|P)$ is jointly continuous on pairs (x, P) for (i-iii).

Optimal policies: For each politician type, optimal policy choices $\xi_\theta(P)$ solve

$$\max_x U_\theta(x|P) + B(x|P). \tag{5}$$

Define $x_\theta^A = \arg\max_{x \in A} u_\theta(x)$, where A is J's acceptance set. Therefore $x_\theta^A = x(\theta)$ if and only if $x(\theta) \in A$. Otherwise, if $x(\theta) \notin A$, then x_θ^A solves $\min_{x \in \{\underline{a}, \overline{a}\}} |x - x(\theta)|$ because $u_\theta(x)$ is strictly decreasing away from $x(\theta)$.

There are three cases.

Case 1: Suppose $x(\theta) \in W(P)$. A type-θ politician's optimal policy is simply her ideal point.

Case 2: Suppose $x(\theta) \in (\overline{w}(P), \overline{a}]$. The officeholder chooses between compromising to $\overline{w}(P)$ or choosing $x(\theta)$ and losing re-election. Compromise is weakly preferred if and only if

$$\frac{u_\theta(\overline{w}(P)) + \beta}{1 - \delta} \geq u_\theta(x(\theta)) + \beta + \delta V_\theta^C(P). \tag{6}$$

Equality holds in (6) for at most one type $\overline{\theta}_c > \overline{\theta}_w(P)$, the inequality holds strictly for θ between $\overline{\theta}_w(P)$ and $\overline{\theta}_c$, and the reverse inequality holds strictly for $\theta > \overline{\theta}_c$. To see this, write the equality as

$$\frac{u_\theta(\overline{w}(P)) + \beta}{1 - \delta} - [u_\theta(x(\theta)) + \beta + \delta V_\theta^C(P)] = 0. \tag{7}$$

The first derivative of the LHS with respect to θ is

$$\frac{v(\overline{w}(P))}{1 - \delta} - v(x(\theta)) - \delta\mathbb{E}_P[v(x)],$$

where the indirect effect on $u_\theta(x(\theta))$ washes out by the envelope theorem. The LHS of (7) is strictly concave in θ because $v(x(\theta))$ is strictly increasing. Furthermore, (6) holds strictly for type $\overline{\theta}_w(P)$. Because the LHS is strictly concave, (6) holds with equality for at most one type greater than $\overline{\theta}_w(P)$, and the claim follows.

Let $\overline{\theta}_{c_1}(P)$ denote the type that solves (7), leaving dependence on P explicit. Because (7) is continuous in P, continuity of $\overline{\theta}_{c_1}(P)$ follows. Let $\overline{c}_1(P) = x(\overline{\theta}_{c_1}(P))$ denote the corresponding ideal point. A similar analysis for $\theta < \underline{\theta}_w(P)$ yields a unique indifferent type $\underline{\theta}_{c_1}(P)$, and we define $\underline{c}_1(P)$ as the corresponding ideal point.

Case 3: Suppose $x(\theta) < \overline{a}$. If $\overline{w}(P) = \overline{a}$, then the officeholder optimally compromises to $\overline{a}$ and wins re-election.

Next, assume $\overline{w}(P) < \overline{a}$. The officeholder chooses between (i) compromising to $\overline{a}$ and losing re-election, or (ii) compromising to $\overline{w}(P)$ and winning re-election. Compromising to $\overline{w}(P)$ is weakly preferred if only if

$$\frac{u_\theta(\overline{w}(P)) + \beta}{1 - \delta} \geq u_\theta(\overline{a}) + \beta + \delta V_\theta^C(P). \tag{8}$$

The indifferent type satisfies

$$u_\theta(\overline{w}(P)) + \delta\beta - (1 - \delta)[u_\theta(\overline{a}) + \delta V_\theta^C(P)] = 0. \tag{9}$$

The LHS of (9) is linear in θ. Therefore it is either strictly monotone in θ or constant. It is immediate that (8) holds strictly for type-$\overline{\theta}_w(P)$ officeholders. Therefore equality holds in (8) for at most one type $\overline{\theta}_{c_2}(P) > \overline{\theta}_w(P)$, (ii) the inequality holds strictly for $\theta \in [\overline{\theta}_w(P), \overline{\theta}_{c_2}(P))$, and (iii) the opposite strict inequality holds for $\theta > \overline{\theta}_{c_2}(P)$. Define $\overline{c}_2(P) = x(\overline{\theta}_{c_2}(P))$. Analogously, there is a unique ideal point $\underline{c}_2(P)$ denoting the unique indifferent type $\theta < \underline{\theta}_w(P)$.

To conclude our characterization of optimal policies, we show that the set of types compromising to $\overline{w}(P)$ is convex and similarly for the types compromising to $\underline{w}(P)$. First, assume $\overline{c}_1 \geq \overline{a}$. If $\theta \in (\overline{\theta}_w(P), \overline{\theta}_{c_2}(P))$, then type-$\theta$ politicians compromise to $\overline{w}(P)$. If $\theta > \overline{\theta}_{c_2}(P)$, then they choose x_θ^A and lose. Second, assume $\overline{c}_1 < \overline{a}$. It follows that (8) is strictly reversed for $\overline{\theta}_a$. Thus, (8) is also strictly reversed for all $\theta > \overline{\theta}_a$ because (8) holds strictly at $\overline{\theta}_w < \overline{\theta}_a$ and (8) is monotonic in θ.

Define

$$\overline{c}(P) = \begin{cases} \overline{c}_1(P) & \text{if } \overline{c}_1(P) < \overline{a} \\ \overline{c}_2(P) & \text{else,} \end{cases} \tag{10}$$

and define $\underline{c}(P)$ analogously. Next, define the partition

$$\begin{aligned} W(P) &= [\underline{w}(P), \overline{w}(P)] \\ C(P) &= [\underline{c}(P), \underline{w}(P)) \cup (\overline{w}(P), \overline{c}(P)] \\ S(P) &= [0, \underline{c}(P)) \cup (\overline{c}(P), 1], \end{aligned}$$

which consists of the sets of ideal points of winners, compromisers, and shirkers. We can

characterize the politician's default policy choices as

$$
\xi_\theta(P) \;=\; \begin{cases} x_\theta^A & \text{if } x(\theta) \in W(P) \cup S(P) \\ \underline{w}(P) & \text{if } x(\theta) \in [\underline{c}(P), \underline{w}(P)) \\ \overline{w}(P) & \text{if } x(\theta) \in (\overline{w}(P), \overline{c}(P)]. \end{cases}
$$

Thus, winners and shirkers optimally choose their ideal veto-proof policies, with winners being re-elected and shirkers being removed from office, whereas compromisers choose the winning policy closest to their ideal veto-proof policy.

Updating probability distributions: We now update the continuation distribution, P, fixed initially. Define the probability measure $\tilde{P}$, where for every measurable set $Z \subseteq X$, $\tilde{P}(Z)$ represents the (appropriately discounted) probability of a policy in the set Z conditional on replacing the incumbent with a challenger. We use the preceding analysis to update P in the period immediately after a challenger takes office, and then use the original distribution P to evaluate the probability mass in Z corresponding to future policy choices if the challenger loses reelection after her first term.

Define the measures $Q_w(\cdot|P)$ and $Q_\ell(\cdot|P)$ on policies so that for all measurable $Z \subseteq X$,

$$
\begin{aligned}
Q_w(Z|P) &= \int_{\theta:\xi(\theta)\in Z\cap W(P)} h(\theta)d\theta \\
Q_\ell(Z|P) &= \int_{\theta:\xi(\theta)\in Z\setminus W(P)} h(\theta)d\theta,
\end{aligned}
$$

where $Q_w(Z|P)$ represents probability mass on winning policies and $Q_\ell(Z|P)$ will be used to assign probability mass to losing policies. Define the updated distribution as

$$
\tilde{P} \;=\; Q_w(\cdot|P) + (1-\delta)Q_\ell(\cdot|P) + \delta Q_\ell(X|P)P. \tag{11}
$$

Fixed point argument: We have constructed a mapping $\phi\colon \Delta(X) \to \Delta(X)$ as follows: for each $P \in \Delta(X)$, $\phi(P)$ consists of the updated continuation distributions, revised to account for policy choices, judicial review, and voting given P, as in (11). Thus far, P is arbitrary. To show existence of an equilibrium, we use ϕ to obtain a fixed point and verify it is an equilibrium.

We apply Schauder's fixed point theorem, which imposes two requirements. First, $\Delta(X)$ must be a non-empty, convex, compact subset of a locally Hausdorff linear space. Second, ϕ must be continuous. The first requirement follows from well-established properties of the set of Borel probability measures on a compact subset of finite-dimensional

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Euclidean space, endowed with the topology of weak convergence.

To demonstrate continuity of ϕ, we consider a convergent sequence $\{P^m\}$ where $P^m \in \Delta(X)$ for all m. Let P denote the limit of this sequence. We have $P^m \to P$ weakly. We must show that $\phi(P^m) \to \phi(P)$ weakly. We denote the values of ϕ along the sequence as $\phi(P^m) = \tilde{P}^m$ and the value at P as $\phi(P) = \tilde{P}$. Thus, we show that $\tilde{P}^m \to \tilde{P}$ weakly. To do so, we can consider any closed set $Z \subseteq X$ and check that

$$\limsup \tilde{P}^m(Z) \ \leq \ \tilde{P}(Z).$$

Because $P^m \to P$ weakly, $\limsup P^m(Z) \leq P(Z)$. Thus, it suffices to show that $Q_w(Z|P^m) \to Q_w(Z|P)$ and $Q_\ell(Z|P^m) \to Q_\ell(Z|P)$.

Define the indicator functions $I\colon N \to \mathbb{R}$ and $I^m\colon N \to \mathbb{R}$ by

$$I_w(\theta) \ = \ \begin{cases} 1 & \text{if } \xi(\theta|P) \in Z \cap W(P) \\ 0 & \text{else,} \end{cases}$$

and

$$I_w^m(\theta) \ = \ \begin{cases} 1 & \text{if } \xi(\theta|P^m) \in Z \cap W(P^m) \\ \\ 0 & \text{else,} \end{cases}$$

$m = 1, 2, \ldots$. Then we can write

$$Q_w(Z|P) \ = \ \int_N I_w(\theta)h(\theta)d\theta \quad \text{and} \quad Q_w(Z|P^m) \ = \ \int_N I_w^m(\theta)h(\theta)d\theta.$$

Next, consider any $\theta \in N$ such that $\theta \neq \bar{\theta}_w(P)$, so that a type-$\theta$ officeholder strictly prefers to choose either a re-electable policy, $\xi(\theta|P) \in W(P)$, or a losing policy $\xi(\theta|P) \notin W(P)$. In either case, continuity of optimal policies implies $\xi(\theta|P^m) \to \xi(\theta|P)$. Thus, if $\xi(\theta|P)$ is winning, then $\xi(\theta|P^m)$ is winning for high enough m; and, if $\xi(\theta|P) \notin W(P)$, then $\xi(\theta|P^m) \notin W(P^m)$ for sufficiently high m. Likewise, for all $\theta \neq \underline{\theta}_w(P)$, $\xi(\theta|P^m)$ is winning for sufficiently high m if $\xi(\theta|P)$ is winning, and $\xi(\theta|P^m)$ is losing for sufficiently high m if $\xi(\theta|P)$ is.

We have shown that the functions I_w^m converge pointwise a.e. to the function I_w. By Lebesgue's dominated convergence theorem, the integrals converge, and therefore $Q_w(Z|P^m) \to Q_w(Z|P)$. An analogous argument, defining I_ℓ and I_ℓ^m using the set of losing policies, $X \setminus W(P)$ and $X \setminus W(P^m)$ respectively, shows that $Q_\ell(Z|P^m) \to Q_\ell(Z|P)$.

Therefore, ϕ is a continuous map from $\Delta(X)$ into itself, and Schauder's fixed point theorem implies existence of a fixed point P^*, i.e., $\phi(P^*) = P^*$. Formally,

$$P^* \;=\; Q_w(\cdot|P^*) + (1-\delta)Q_\ell(\cdot|P^*) + \delta Q_\ell(X|P^*)P^*. \qquad (12)$$

Equilibrium existence: Given the fixed point $P^* = \phi(P^*)$, we define the assessment $\Psi = (\sigma, \kappa)$ so that the strategy profile $\sigma = (\alpha, \xi, \nu)$ is such that all citizens use the optimal strategies derived above given P^*, and κ is derived from Bayes rule when possible. That is, the judge accepts a policy x if and only if $u_J(x) \geq u_J(x^r)$; for each type θ, the officeholder's policy choice is $\xi_\theta = \xi_\theta(P^*)$; and the win set is $W(\Psi) = W(P^*)$. The belief system κ_θ is pinned down by Bayes rule unless the policy chosen by the incumbent is off the path of play.

We now describe the updating of voter beliefs off the path of play, and we specify voting strategies that generate the win set $W(\Psi)$. Observe that off-path policies are a union of intervals, denoted

$$O(P^*) \;=\; \left[0, \underline{a}\right) \cup \left[y_\ell(\underline{\theta}_e(P^*)), \underline{w}(P^*)\right) \cup \left(\overline{w}(P^*), y_\ell(\overline{\theta}_e(P^*))\right] \cup \left(\overline{a}, 1\right].$$

Notably, off-path policies are always losing unless they are payoff equivalent to a re-electable status quo due to judicial review. We consider two cases.

In case there are some politician types that do not choose winning policies, i.e., $\mathcal{E}(P^*) \subsetneq [\underline{\theta}, \overline{\theta}]$, we specify beliefs following an off-path policy choice $x \notin W(P^*)$ so that voters place probability one on the incumbent being a type θ' such that $\theta' \notin \mathcal{E}(P^*)$. We then specify that each type θ citizen votes for the incumbent if and only if the incumbent provides an expected discounted payoff weakly greater than the challenger, i.e.,

$$\nu_\theta(x) \;=\; \begin{cases} 1 & \text{if } x \notin O(P^*) \text{ and } \pi_\theta(x) \geq (1-\delta)V_\theta^C(P^*), \\ 1 & \text{if } x \in O(P^*) \text{ and } \pi_\theta(x(\theta')) \geq (1-\delta)V_\theta^C(P^*), \\ 0 & \text{else.} \end{cases}$$

For $x \notin W(P^*)$, this specification requires the voter to vote for a candidate that delivers the greatest expected discounted utility, and because the median voter type is pivotal, the challenger prevails.

When $\delta > 0$ and β is sufficiently large, all politician types may choose winning policies, so that $\mathcal{E}(P^*) = [\underline{\theta}, \overline{\theta}]$. In this case, all politician types choose either $\underline{w}(P^*)$ or $\overline{w}(P^*)$ on the path of play. We specify beliefs $\kappa_\theta(x)$ so that the type $\theta \leq \theta_m$ voter places probability

one on the incumbent being a right-leaning type θ', $\theta_m \leq \theta'$, and the type $\theta > \theta_m$ voter places probability one on the incumbent being left-leaning, $\theta_m < \theta'$. We again specify that each type θ citizen votes to re-elect the incumbent if and only if she provides an expected discounted payoff weakly greater than that of the challenger, so that for $\theta \geq \theta_m$,

$$
\nu_\theta(x) = \begin{cases} 1 & \text{if } x \notin O(P^*) \text{ and } \pi_\theta(x) \geq (1 - \delta)V_\theta^C(P^*), \\ 0 & \text{else,} \end{cases}
$$

and similarly for $\theta > \theta_m$. If x is off-path, then each voter supports the challenger, who offers an expected discounted payoff at least as high as the payoff from re-electing the incumbent.

To check that Ψ is an equilibrium, we verify that the induced continuation values in (4) are equivalent to the challenger continuation values determined by Ψ. To check that $V_\theta^C(P^*) = \frac{\mathbb{E}_{P^*}[u_\theta(x)]}{1-\delta}$, we integrate $u_\theta(x)$ with respect to P^* from (12) to obtain

$$
\begin{aligned}
\frac{\mathbb{E}_{P^*}[u_\theta(x)]}{1 - \delta} = & \int_{\theta' \in \mathcal{E}(P^*)} \frac{u_\theta(\lambda_{G(\theta')}(\theta'))}{1 - \delta} h(\theta')d\theta' \\
& + \int_{\theta' \notin \mathcal{E}(P^*)} \left[u_\theta(\lambda_{G(\theta')}(\theta')) + \delta \frac{\mathbb{E}_{P^*}[u_\theta(x)]}{1 - \delta} \right] h(\theta')d\theta',
\end{aligned}
$$

where we use a change of variables to integrate with respect to the density $h(\theta')$, rather than the distribution $Q(\cdot|P^*)$. Because $\mathcal{E}(P^*) = \mathcal{E}(\Psi)$, it follows that $V_\theta^C(P^*)$ satisfies the recursion uniquely identifying challenger continuation values induced by the assessment Ψ. Therefore $V_\theta^C(\Psi) = V_\theta^C(P^*)$, as required.

Partitional Form:

Let $\Psi = (\sigma, \mu)$ be any equilibrium, and let P^C be the corresponding challenger continuation distribution. Our existence proof takes an arbitrary distribution as given and shows that $W(\Psi) = [\underline{w}, \overline{w}] \subseteq A$, and that the cutoffs $\underline{c}$ and $\overline{c}$ pin down optimal policies so that a politician with an ideal point in $[\underline{c}, \overline{c}]$ chooses the winning policy in A closest to her ideal point. Thus, the Ψ is pinned down by 4-tuples $(\underline{c}, \underline{w}, \overline{w}, \overline{c})$. By construction, $\underline{c} \leq \underline{w}$ and $\overline{w} \leq \overline{c}$, so the equilibrium has the partitional form.

Proposition 2. *Pro-court politicians have weaker constraints on re-electable policy.*

Proof. Let Ψ denote an equilibrium. There are two cases.

$\quad$ *Case 1:* Assume x_m and x_J are on the same side of q. Specifically, suppose $q \leq x_m < x_J$. Symmetry of u_J implies $A = [q, 2q - x_J]$. By symmetry of u_m, $x_m \in [q, x_J)$ implies that either $W(\Psi)$ is symmetric about x_m or $W(\Psi)$ is asymmetric about x_m with lower bound $\underline{a} = q$. Therefore anti-court politicians have weakly smaller set of re-electable policies on their side of x_m.

$\quad$ A similar argument applies if $q < x_J < x_m$ and the assumption that $x_m, x_J > q$ is WLOG.

$\quad$ *Case 2:* Assume x_m and x_J are on opposite sides of q. It follows that anti-court politicians are constrained to propose the boundary of A equal to q. Thus, the set of re-electable policies on their side of x_m is empty. It is immmediate that pro-court officeholders are weakly less constrained. $\qquad\square$

Proposition 3. *If the judge is sufficiently status quo biased, then all anti-court office-holders win re-election with probability one.*

Proof. Let Ψ denote an equilibrium. WLOG fix $x_m < q$. By symmetry of u_J, $x_J \geq \frac{x_m + q}{2}$ implies $\underline{a} \geq x_m$ and, consequently, $\underline{a} = \underline{w}(\Psi)$. It is immediate that $x_\theta < x_m$ implies $\xi_\theta(\Psi) = \underline{a}$, which is re-elected. $\qquad\square$

Proposition 4. *Suppose that $x_r \neq \hat{x}_m$ and that $\hat{x}_m = \hat{x}_J$.*

1. *In the model without electoral accountability, policy proposals never converge to $\hat{x}_m$.*

2. *In the model without judicial review, there exists $\overline{\beta}_E$, such that if $\delta\beta \geq \overline{\beta}_E$ then there exists an equilibrium in which policy proposals converge to $\hat{x}_m$.*

3. *In the model with both judicial review and elections, there exists $\overline{\beta}_I$, such that if $\delta\beta \geq \overline{\beta}_I$ then there exists an equilibrium in which policy proposals converge to $\hat{x}_m$. Furthermore, $\overline{\beta}_I < \overline{\beta}_E$.*

Proof. We want to find when an equilibrium exists in which every type of politician chooses the median's induced ideal policy. For converging to the median's induced ideal point to be an equilibrium, it must be that for every type θ

$$\frac{u_\theta(x_m^*) + \beta}{1 - \delta} \geq u_\theta(y_\theta) + \beta + \delta\frac{u_\theta(x_m^*)}{1 - \delta}, \tag{13}$$

where y_θ represents the policy in J's acceptance set that yields the highest policy payoff to the θ type. When $x(\theta_J) = x(\theta_m)$ we have $x_m^* = x(\theta_m)$. Rearranging, we have that equation (13) holds if

$$\delta\beta \geq (1-\delta)[u_\theta(y_\theta) - u_\theta(x_m^*)]. \tag{14}$$

We can mimic the model with no judicial review by setting x_r as the policy in X that gives J its lowest policy utility because this implies that J upholds every policy. As we have assumed $u_m(0) \leq u_m(1)$, this is $x_r = 0$. In this case, equation (14) reduces to

$$\delta\beta \geq (1-\delta)[u_\theta(0) - u_\theta(x_m)]. \tag{15}$$

The only term in (15) changing in θ is $u_\theta(x_m)$, thus, this condition is hardest to satisfy at $\theta = 0$. Therefore, $\overline{\beta}_E = \frac{1-\delta}{\delta}[u_0(0) - u_0(x_m)]$. In fact, given the structure of preferences, for any x_r the type for which inequality (15) is hardest to satisfy is the $x(\theta) = 0$ type. Thus, $\overline{\beta}_I = \frac{1-\delta}{\delta}[u_0(\underline{a}) - u_0(x_m)]$. Because $\underline{a}$ is strictly increase as $u_J(x_r)$ increases $\overline{\beta}_I$ is strictly decreasing as $u_J(x_r)$ increases. As $u_J(x_r)$ is minimized at $u_J(0)$ this implies, in particular, that $\overline{\beta}_I < \overline{\beta}_E$ for all $x_r \notin \{0,1\}$, where the restriction on $x_r = 1$ is relevant only if $u_\theta(x)$ is symmetric. $\qquad\square$

Proposition 5 *If politicians are sufficiently impatient, then the socially optimal judge is biased strictly towards the status quo.*

Proof. We prove the result by showing that if politicians are myopic then there is a unique $x_J^* \in (x_r, x_m)$ that maximizes the median voter's welfare. Specifically, x_J^* is such that one boundary of J's acceptance set is equal to x_m. By continuity of equilibrium in δ, we conclude that the optimal judge must be biased for all δ sufficiently close to 0.

First, note the following lemma:

Lemma 3. *D's acceptance set expands if (i) D's costs for disputing, c_D, increase (ii) the probability it loses a dispute, p, increases (iii) the distance between D's ideal policy and the reservation policy, $|x_D - x_r|$, increases.*

At $x_J = x_r$ we have $\underline{a} = \overline{a} = x_r$ and at $x_J = x_m$ we have $\overline{a} > x_m$. As x_J moves away from x_r, A expands. For $x_J > x_r$ this implies that $\overline{a}$ is strictly increasing in x_J. By continuity of $\overline{a}$ in x_J a unique $x_J^* \in (x_r, x_m)$ exists such that $\overline{a} = x_m$. Additionally, recall throughout the proof that politicians are myopic and judicial review implies veto power.

Therefore, $x(\theta) < \underline{a}$ implies $x = \underline{x}$, $x(\theta) \in [\underline{a}, \overline{a}]$ implies $x = x(\theta)$, and $x(\theta) > \overline{a}$ implies $x = \overline{a}$. We consider each case in turn.

Case 1: Suppose $x_J > x_J^*$ and let $\overline{a}$ be the upper-bound of the acceptance set under x_J. We show that the distribution over policy outcomes is strictly better for the median voter for any $x_J' \in (x_J^*, x_J)$, with corresponding upper-bound $\overline{a}'$, than under x_J. Lemma 3 and $x_J^* < x_J' < x_J$ together imply $x_m < \overline{a}' < \overline{a}$. If $x(\theta) \in [x(\underline{\theta}), x_r]$, then the policy choice is x_r under both x_J and x_J'. If $x(\theta) \in [x_r, \overline{a}']$, then the politician again chooses the same policy, $x(\theta)$, under both x_J and x_J'. Next, consider a politician such that $x(\theta) \in (\overline{a}', \overline{a}]$. Under x_J', the politician chooses $\overline{a}'$. Under x_J, however, this type of politician chooses $x(\theta)$, which is strictly worse for m than $\overline{a}'$ for $x(\theta) \in (\overline{a}', \overline{a}]$. Furthermore, if $x(\theta) \in (\overline{a}, x(\overline{\theta})]$, then under x_J these types choose $\overline{a}$, which is strictly worse for m than $\overline{a}'$. Thus, the m's payoff is strictly decreasing in x_J for $x_J \in (x_J^*, x(\overline{\theta})]$.

Case 2: Suppose $x_J \in [x_r, x_J^*)$ and assume $x_J' \in (x_J, x_J^*)$. Lemma 3 and $x_J' < x_J^*$ together imply $\overline{a} < \overline{a}' < x_m$. For $x(\theta) < x_r$, the politician chooses x_r under x_J and x_J'. For $x(\theta) \in [x_r, \overline{a}]$, the politician chooses $x(\theta)$ under x_J and x_J'. For $x(\theta) \in (\overline{a}, \overline{a}']$, the politician chooses $\overline{a}$ under x_J and chooses $x(\theta)$ under x_J'. As $|x(\theta) - x_m| < |\overline{a} - x_M|$ for all $x(\theta) \in (\overline{a}, \overline{a}']$, m does better in this range of politician ideal points under x_J' compared to x_J. For $x(\theta) > \overline{a}'$, politicians choose $\overline{a}$ under x_J and choose $\overline{a}'$ under x_J'. Again, this implies that m does strictly better under x_J' for politicians in this interval. Taken together, this implies that m's payoff is strictly increasing in x_J for $x_J \in [x_r, x_J^*)$.

Case 3: Suppose x_J and x_J' such that $x_J < x_J' < x_r$. In this case, we have $\underline{a} < \underline{a}' < x_r$. For a politician such that $x(\theta) < \underline{a}$, the optimal policy choice is $x = \underline{a}$ under x_J. This is strictly worse for m than $\overline{a}'$, which is the corresponding policy choice for the same type of politician under x_J'. For $x(\theta) \in [\underline{a}, \underline{a}')$, a politician with ideal point $x(\theta)$ chooses $x(\theta)$ under x_J and chooses $\underline{a}'$ under x_J'. As $x(\theta) < \underline{a}' < x_m$, the median voter does better under x_J' for these types of politicians. If $x(\theta) \in [\underline{a}', x_r]$, then the politician's policy choice is $x(\theta)$ under both x_J and x_J'. Similarly, for $x(\theta) > x_r$, these politicians choose $x = x_r$ under both x_J and x_J'. Thus, m's expected payoff is increasing in x_J for $x_J < x_r$.

In sum, our Case 1 yields that the distribution over outcomes is becoming strictly worse for m as x_J increases for $x_J > x_J^*$. Cases 2 and 3 together imply that the distribution over policy outcomes is strictly better for m as x_J increases for $x_J < x_J^*$. Thus, as payoffs are continuous in x_J, m's welfare is maximized at x_J^*, as required.

The utilities of the players are continuous in δ. Thus, the equilibrium cut-points $(c_{\underline{w}}, c_{\overline{w}}, \underline{w}, \overline{w})$ are continuous in δ as well, as they are determined by politician and voter indifference conditions. Therefore, as δ goes to 0 the median voter's equilibrium payoffs

converge to her equilibrium payoffs at 0. Therefore, because the voter's payoff for x_J^* is strictly greater than her payoff for any $x_J \neq x_J^*$ at δ, then the optimal judge is close to x_J^*, i.e., it lies in (x_r, x_m), for δ sufficiently small. $\qquad\qquad\square$

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