# 'While there's a breath in my body': The systemic effects of politically motivated retirement from the Supreme Court 

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#### Abstract

Many observers of the US Supreme Court suspect that justices time their departures from the Court based on ideological and political factors. This paper assesses the theoretical effects of such behavior. Does political timing of retirement devalue the appointment process and thereby make the Court less responsive to the public? Do politically motivated retirements lead to more justices serving beyond their productive years? Based on a formal model of retirements, we find that politically motivated retirements have little effect on political influence on the Court because, on average, for every liberal justice who declines to retire because there is a Republican president, there is a conservative justice who retires early because there is a Republican president. The model also implies modest, but non-linear effects of politically motivated retirement on the age composition of the Court as small amounts of such behavior leads to an older Court, but large amounts of politically motivated behavior lead to a younger Court. Imposing term limits on justices would increase responsiveness to electoral outcomes, lower the age of justices and dramatically increase Court turnover.


## Keywords

formal models; judicial term limits; retirement; Supreme Court

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## I. Introduction

The 'counter-majoritarian difficulty' is central to the role the Supreme Court plays in the US political system (Bickel, 1986; Friedman, 1998). The Court should be independent enough to stand up to majority pressure to ignore the Constitution, but not be so far beyond control that nine life-tenured and unelected individuals can impose their will on the nation. In assessing this latter point, whether the nation can control or at least influence the Court, most scholars focus on the Supreme Court appointment process as the best, and perhaps only, opportunity for democratically elected leaders to substantially influence the Court (Baum, 1992; Dahl, 1957; Krehbiel, 2007; Moraski and Shipan, 1999; Rohde and Shepsle, 2007; Snyder and Weingast, 2000).

However, Supreme Court justices are not passive actors in the appointment process. They enjoy lifetime tenure and, if politically strategic, can time their departures to facilitate appointment of desirable successors. If this occurs, the political import of the appointment process is overstated and perhaps illusory: the president and senate may merely be actors in a drama directed by each departing justice. Political factors may also lead some justices to delay retirement so long that they are no longer productive on the Court (Calabresi and Lindgren, 2006; Garrow, 2000).

In contrast to the existing largely empirical literature on Supreme Court retirements, this paper looks at a foundational question. Why should we care if justices time their decisions politically? What are the consequences of such behavior on the role of the Court in the US political system and its ability to function effectively? We assess how life tenure and politically motivated retirements can affect the responsiveness of the Court to electoral outcomes, the variability of member preferences, the age profile of the Court and membership turnover.

This paper uses a formal model and simulations to address these questions. Politically strategic retirements have only a modest effect on the responsiveness of Court preferences to who is elected. We find modest, but non-linear effects of strategic retirement on the age composition of the courts as small amounts of strategic behavior lead to an older court, but large amounts of strategic behavior lead to a younger court. Moving to 18 -year fixed terms for justices, as recently suggested by Calabresi and Lindgren (2006) and DiTullio and Schochet (2004) would increase Court responsiveness to electoral outcomes, lower the Court's age profile and dramatically increase turnover.

## 2. Literature

The stakes of personnel decisions for the Supreme Court are extremely high. As Justice Walter Clark said in 1907 'If five lawyers can negative the will of one hundred million intelligent people then the art of government in this country is reduced to the selection of those five lawyers' (Friedman, 2009: 178). Research has supported the view that Supreme Court appointments are the most effective mechanism for the public to influence the direction of the Court (Peretti, 1999) and, not surprisingly, scholars have produced a large amount of literature analyzing the appointment process, typically focusing on who the president chooses and why (Abraham, 1999; Krehbiel, 2007; Moraski and Shipan, 1999).

But surely a justice's decision to retire is endogenous to the appointments process: if a justice cares about policy, his or decision to retire will depend, at least in part, on the political composition of the sitting president and senate. Hence, scholars have also developed a large amount of literature assessing the role of politics in Court retirements. Judicial scholars generally agree that justices pursue policy goals while on the Court (Maltzman et al., 2000; Segal and Cover, 1989; Wahlbeck et al., 1998), they disagree as to whether justices time their retirements to advance policy goals.

Ward (2003) and others present instances in which politics appeared to play an important role in decisions to leave the court. In the early 20th century, Chief Justice Taft allegedly delayed his retirement from the Court because he thought President Hoover was 'a Progressive just as [Justice] Stone is, and just as [Justice] Brandeis is and just as [Justice] Holmes is’ (Ward, 2003: 120-121). Justice McReynolds, a conservative justice and long-time foe of President Franklin Roosevelt, is reported to have said 'I'll never resign as long as that crippled son-of-a-bitch is in the White House' (Ward, 2003: 133). ${ }^{1}$ Chief Justice Earl Warren reportedly retired in the last months of the Johnson presidency because he believed that Richard Nixon would win the 1968 presidential election (Whittington, 2006). Justice Douglas, who has the longest tenure of any justice on the Court, remained on the Court despite ill health, reportedly telling a friend that 'I won't resign while there's a breath in my body, until we get a Democratic president' (Ward, 2003: 186).

Toobin (2007) provides similar accounts of political motivations behind recent departures from the Court. While known to hold moderate, even conservative views on the Court, Justice White retired in 1993 in good health, during President Clinton's first term, because he 'remained a Democrat, and ... wanted a Democrat to appoint his successor' (Toobin, 2007: 73). On election night in 2000, John O’Connor, husband of Justice O'Connor, revealed that his wife wanted to retire, but not under a Democratic president (Toobin, 2007). Her departure from the Court in 2006, while in good health, ensured President George W Bush would appoint her successor. Chief Justice Rehnquist 'had spoken candidly of his belief that justices should hand their seats to the party of the president who appointed them' (Toobin, 2007: 277). Rehnquist fulfilled this commitment in 2005, albeit through death. Most recently, Toobin (2010) suggests Justice Stevens timed his retirement because he wanted President Obama to appoint his successor.

Not everyone agrees that justices strategically time their retirements. Brenner (1999) classifies each retirement as strategic or not and, by his classification, finds very few examples of politically motivated retirement. Squire (1988) estimates a probit model of individual retirement decisions and finds no effect of politics, concluding that 'we should not expect justices to retire unless they are forced to by ill health'. Zorn and Van Winkle (2000: 157) estimate a competing risk model of Supreme Court retirements from 1789 to 1992 and conclude 'justices pay little attention to partisan factors'.

However, the statistical evidence is not all against strategic retirement. Simply tabulating who retired and who died in office suggests justices retire when they agree with the president and hold off retiring under presidents they do not agree with (and sometimes die in doing so). Of 49 justices who died in office, 29 died when the president was of the opposing party of the president who nominated the justice. In contrast, of the 54 justices who resigned, 35 resigned during the term of a president of the same party as who appointed them (Calabresi and Lindgren, 2006). King (1987) and Hagle (1993) find
political factors partially explain the number of seats that open up in each administration and Stolzenberg and Lindgren (2010) find that political factors partially explain decisions to retire.

Bailey and Yoon (2009) discuss how the lack of consensus reflects, in part, the complexity of specifying the relationship between politics and retirement. First, one needs to measure the affinity of justices and presidents over time, a non-trivial task (Bailey, 2007; Fischman and Law, 2009). Second, one needs to capture the changing context of the retirement decision. Yoon (2006) shows that the vast majority of all Article III judges remain in active status until they vest in their pension, which provides them their existing salary for the remainder of their lives. ${ }^{2}$ Moreover, justices are more likely than lower federal judges to remain on active status after vesting in their pension (Yoon, 2006), suggesting the justices may view their jobs differently than lower federal judges. Life expectancy has changed too, increasing steadily over the past century. For individuals reaching 65 years of age, which nearly every justice reaches, the life expectancy increases to 83.5 (Centers for Disease Control and Prevention, 2009: Table 24).

Looming behind this empirical debate, however, is a fundamental question: why do we care? How does a Court filled with justices who depart based on political factors differ from one with justices who depart based only on personal reasons? Do politically strategic retirements affect the manner in which elected branches influence the Court via the appointment process? Does it affect the functioning of the Court by influencing the age composition of the Court (Garrow, 2000)? If the effects are significant, should we amend the Constitution to fix the timing of Supreme Court appointments, as advocated by some legal scholars (DiTullio and Schochet, 2004; Calabresi and Lindgren, 2006)?

## 3. A model of retirements

In order to assess such questions, we develop a model of retirement to assess the systemic effects of strategic retirement. We start with a simple premise: a justice will retire if his or her utility of retiring is greater than the utility of continuing to serve. The utility of retiring is potentially determined by non-ideological and ideological costs and benefits of retiring. The ideological component of utility depends on Court output which, in turn, depends on the Court median, which can change when justices retire or die on the bench. We use the model of Moraski and Shipan (1999) to identify these ideological consequences of Court departures: if the president and senate median are on opposite sides of the Court median, a retirement will lead to a nominee who will maintain the status quo. Similarly, if a liberal president and senate replace a liberal justice or a conservative president and senate replace a conservative justice, a retirement will lead to a nominee who will maintain the status quo. On the other hand, if the successor to a conservative justice is chosen by a liberal president and senate, the median will move to the currently fourth most liberal justice. Conversely, the Court median will move to the currently sixth most liberal justice if the successor to a liberal justice is chosen by a conservative president and senate. ${ }^{3}$

## 3.I. Players and utility

There are nine justices, ordered from most liberal (Justice 1) to most conservative (Justice 9). We model the utility of justice $i$ over two periods as:

$$
\begin{equation*}
u_{i}=N_{i 1} S_{i 1}-\omega_{i}\left(\theta_{i}-\theta_{1}^{\text {Median }}\right)^{2}+\delta\left[N_{i 2} S_{i 2}-\omega_{i}\left(\theta_{i}-\theta_{2}^{\text {Median }}\right)^{2}\right] \tag{1}
\end{equation*}
$$

where $N_{i t}$ is non-ideological utility of serving on the court in period $t, S_{i t}$ is an indicator for justice $i$ serving in period $t$ (as opposed to retiring), $\theta_{i}$ is ideal point of justice $i, \theta_{t}^{\text {Median }}$ is ideal point of Supreme Court median justice in period $t$ (which depends on $S_{i t}$ ), $\delta$ is a time discounting parameter, and $\omega_{i}$ is the weight justice $i$ places on the ideological location of the Court. The president has spatial utility over the location of the Court median. The justices' non-ideological utility of serving on the Court includes factors such as intellectual stimulation, respect accorded to justices, and a desire to avoid the poorer physical and mental health associated with retirement (Dhavel et al., 2008; Rigwedder and Willis, 2010).

### 3.2. Sequence

Figure 1 displays the sequence of the game when starting with a Democratic president (the nodes are analogous when starting with a Republican).

1. Justice $i$ decides whether to retire or serve in period 1 .
2. If Justice $i$ retires, the president and senate median play the Moraski and Shipan appointment game.
3. Nature chooses whether president will be Democratic or Republican for period 2 (Democratic with probability $p^{D e m}$ ). We assume for now that the senate shares the president's ideology. Relaxing this assumption (i.e. divided government) changes the ideological bargaining space for the president and senate, but does not otherwise change the game form.
4. Nature chooses whether the justice dies at the start of period 2; if Justice $i$ dies, the president and senate median play the Moraski and Shipan appointment game.
5. If Justice $i$ served in period 1, Justice $i$ chooses to serve or retire in period 2. If Justice $i$ retires, the president and senate median play the Moraski and Shipan appointment game.

The game is solved using backward induction (see appendix A for calculations). Figure 2 displays an illustrative example of the equilibrium behavior of justices as a function of the non-policy utility of serving in period 1 (the $x$-axis) and the non-policy utility of serving in period 2 (the $y$-axis). A justice who has high non-policy utility of serving in both periods will be in the upper right portion of each figure; a justice who has a high non-policy utility of serving in period 1 but a low non-policy utility of serving in period 2 will be in the lower right and so forth.

The top part of Figure 2 plots decisions of a justice who is not interested in policy (for whom $\omega_{i}=0$ ). Such a justice simply retires when the net utility of serving drops below zero. The net utility is the discounted utility across two periods; the slope of the top edge of the shaded region in the figure's upper left is a function of $\delta$, the discount parameter (which is 0.9 in this example) and the probability of surviving to the next period. If non-policy utility in period 1 is less than zero, the justice will continue serving only if expected non-policy utility in period 2 is sufficiently greater than zero. (To the extent we believe that non-policy utility declines over time due to declining health, this


Figure I. Supreme Court retirement 'game’
is unlikely.) Figure 1 provides our baseline against which to compare justices' politically motivated behavior.

The middle figure plots decisions by a liberal justice (defined as any justice to the left of the Court median) when a Democrat is president in period 1. In this case, a liberal justice retires whenever a non-strategic justice would, but there is an additional region in which a liberal justice retires pre-emptively in order not to be stuck serving (or dying) under a Republican administration. In this region a justice likes his or her job (having a positive non-policy utility) but retires nonetheless; this region is indicated with crosshatching of the darker shaded 'Period 1: retire' region. There is also a range of non-policy utilities in which the liberal justice serves in period 1 but conditionally retires in period 2, retiring if the president is a Democrat in period 2 but not if the president is Republican. A justice with no interest in policy would retire unconditionally in period 2 given the same non-policy utility levels. The overall influence of strategic behavior is apparent when one compares this middle plot to the plot above it; the cross-hatched regions are regions in which behavior differs from the behavior of a justice who does not care about policy.

The bottom figure plots retirement decisions by a conservative justice. He or she is much less likely to retire than a non-political justice, serving even in periods where non-policy utility of serving is quite negative. This justice is willing to suffer through serving on the Court in order to prevent the Democratic president from moving the Court median to the left. There is also a range of non-policy utilities in which the conservative justice serves in period 1 but retires conditionally in period 2 if the president is a Republican. Again, the cross-hatched regions indicate regions in which behavior differs between justices who care and do not care about policy.

When the president is a Republican in period 1, the plots are conceptually very similar to Figure 2. The plot for a non-strategic justice is identical. For justices who care about


Figure 2. Retirement decisions when a Democrat is president in period I
policy, a Republican president in period 1 flips the behavior for the liberal and conservative justices. The liberal is now the one who is unlikely to retire and the conservative is more likely to retire. Again there is considerable variation relative to the non-politically motivated baseline, which does not change in response to the party of the president.

Proposition 1. Liberal justices are more likely to retire under a Democratic president as the weight on policy $(\omega)$ increases, the ideal point of the justice $\left(\theta_{i}\right)$ moves left, the ideal point of the justice to the right of the median $\left(\theta_{6}\right)$ increases and the probability a Democrat wins the next election ( $p^{\text {Dem }}$ ) decreases. Conservative justices are less likely to retire under a Democratic president as the weight on policy ( $\omega$ ) increases, the ideal point of the justice $\left(\theta_{i}\right)$ moves right, the ideal point of the justice to the left of the median $\left(\theta_{4}\right)$ decreases and the probability a Democrat wins the next election $\left(p^{D e m}\right)$ decreases.

The proposition indicates a number of factors that affect retirement. Proofs are in the appendix and the patterns are simply reversed under a Republican president. As the weight justices place on policy $(\omega)$ increases their retirement decisions become more distinctive from decisions of justices with no interest in policy. Liberal justices become more likely to retire early under Democratic presidents and conservative justices become
more likely to delay retiring under Democratic presidents. We should note that while this answers the question of how policy motivations affect the behavior of individual justices, this proposition does not address the systemic effects of policy-motivated retirements, a topic we address with simulations in the following.

The ideal points of justices also matter. The more ideologically extreme a justice is, the more likely he or she is to base his or her retirement decision on the party of the president. In addition, the ideal points of other justices matter. Liberal justices become more likely to retire under a Democratic president as the 6th most conservative justice becomes more conservative. This is due to fear: if a Republican were president and the liberal justice retired, the new median would be this 6th most conservative justice. The more threatening this is to the liberal justice, the more likely he or she will pre-emptively retire so as to forestall the threat of dying or becoming incapacitated under a possible future Republican president. Conversely, a conservative justice will fear letting the Democratic president move the Court median to the ideal point of the justice to the left of the current median (the 4th most conservative justice); the more liberal this justice is, the less likely the conservative justice will retire under a Democratic president.

Justices also respond to expected political outcomes. Increasing the probability that a Democrat wins the next presidential election makes a liberal justice less worried about remaining on the Court and having to subsequently leave under a Republican president. This reduces the necessity of getting out now and reduces the likelihood of early retirement. On the other hand, a higher probability of a future Democratic president makes a conservative justice less interested in trying to hold out for a future Republican president under which to retire. If this conservative justice is serving in a period when he or she would rather not (meaning the non-policy utility of serving is less than 0 ), a higher probability of reelecting a Democrat president means that the less hope there is for this justice of making it to a Republican president, making delaying retirement less attractive.

The model also indicates that justices time their retirement not based on proximity to presidents, but on relative proximity to the justices on either side of the Court median. This means that the marginal effect of each vacancy on the Court is constrained by the ideological position of these two justices. This result also sheds light on a dispute between Calabresi and Lindgren (2006) and Brenner (1999) over the coding of Justice White's retirement. Brenner argued that White was conservative and that his retirement under President Clinton was inconsistent with the politically motivated strategic retirement perspective. Calabresi and Lindgren counter that White was loyal to the Democratic party and that his retirement under a Democratic president was consistent with the strategic retirement perspective.

At first blush, Brenner seems to have the better argument as White was, indeed, ideologically conservative. His ideology score from Bailey and Maltzman (2011) is 0.53 , which is much closer to Republican presidents (typically around 1.1) than Democratic presidents (typically around -1.0 ). Again, note that in our model retirement does not depend directly on the ideological difference between a justice and a president. Instead it is the difference between a justice and either the fourth or sixth most conservative justices. If a conservative justice retires under a Democratic president, the Court median shifts to $\theta_{4}$; if a liberal justice retires under a Republican president, the Court median shifts to $\theta_{6}$. What makes White's case interesting is that he was the sixth most conservative justice and he was quite close to the two justices to his left (Kennedy with an ideal
point of 0.48 and O’Connor with an ideal point of 0.36) and quite far from the justices to his right (Rehnquist, Scalia and Thomas with ideal points of 1.04, 0.94 and 1.08 , respectively). Hence, the threat of retiring under a Democrat was to allow President Clinton to move the median modestly to the left (from Justice Kennedy to Justice O’Connor). On the other hand, if White were to retire under a Republican president, the median would in the short term stay the same, but if White's replacement were as conservative as the justices to his right it would open a future possibility of moving the Court substantially to the right. Hence, our model offers an explanation for why a moderately conservative justice like White would be comfortable, on policy grounds, to retire under a Democrat even though his ideal point was closer to Republican presidents.

Allow senate party to differ from president party. The model we present above assumes that the president and senate move together: electing a Democratic president implies a Democratic senate; the same for a Republican president and senate. We did this for simplicity; we discuss the implications of relaxing this assumption in appendix B. Allowing the senate to differ in ideology will generally dampen the effects of ideology on retirement. Following Moraski and Shipan (1999), when a justice departs under divided government, the court median remains constant, the same ideological outcome when a justice remains on the bench. If, however, the president is able to use his agenda-setting power and select justices with politically valuable non-ideological attributes that offset ideological loss to the senate, then the president may act as a relatively unconstrained actor (Bailey and Chang, 2003).

## 4. Systemic effects of politically strategic retirement

Our goal is to use the model to assess the systemic effects of politically motivated retirement. We do this by using the model as a basis for a series of simulations in which we explore the consequences of increasing politicization of retirement decisions and of replacing life tenure with fixed terms for justices. Analyzing these simulations allows us to assess how these factors affect the functioning of the Court. In the following we discuss the four relevant dimensions of Court behavior: its responsiveness to electoral outcomes, the variability of member preferences, its age composition, and turnover of membership.

One major interest is assessing the consequences of politically motivated retirement decisions. By running the simulations many times we can compare what happens when justices care about policy ( $\omega$ is high) to when they do not ( $\omega$ is zero). In the non-political simulations, justices retire and die probabilistically based only on age and a random nonideological element of utility. The sitting, or anticipated, president has no effect on their decisions. In simulations where justices are politically motivated, justices may retire early (compared with a non-strategic doppelganger) when a friendly president is in office or may delay retiring under an unfriendly administration.

Another major interest is assessing the consequences of life tenure. We do this by also running simulations in which justices are given fixed 18-year terms (Calabresi and Lindgren, 2006; DiTullio and Schochet, 2004). If a justice dies or retires in the middle of a term, a justice is appointed to fill out the term and then a new justice is appointed when the original 18 -year term ends.

Each simulation begins with nine justices whose ideologies are evenly spaced from -2 (liberal) to +2 (conservative). The initial age distribution is symmetric; going left to right the justices are $60,64,62,72,70,72,62,64,60$ years old, respectively. We base the probability of dying from the 2005 US life tables (Arias et al., 2010: 9). Elections occur every fourth year with Democrats and Republicans each having a $50 \%$ chance of winning; we also discuss the case in which one party has a decided electoral advantage. When there is a departure, the ideological preferences of the new justice is determined based on the Moraski and Shipan model in which the president seeks a justice as close as possible to his ideal point given what the senate allows. A Democratic president will appoint someone to the left of $\theta_{4}$, the ideal point of the justice immediately to the left of the Court median. How far to the left of the fourth justice depends on what the senate will allow and we simulate this with a random variable. A Republican president will appoint someone to the right of $\theta_{6}$, the ideal point of the justice immediately to the right of the median. How far to the right of this point the president can go, again, depends on what the senate will allow and we simulate this with a random variable. We experimented with various random variables and the substantive inferences did not change; in the simulations we report the random variable is drawn from a uniform distribution on [0, 0.5]. We assume that each justice is 55 years old in his or her first year on the Court, close to the average age 53.2 of appointed justices across history (which, surprisingly perhaps, has remained relatively constant over time) (Calabresi and Lindgren, 2006). Each simulation has 100 years of history.

We modeled the non-ideological component of utility ( $N_{i t}$ in Equation (1)) in several ways, but the results did not change materially. We report simulation results based on a model in which non-ideological utility is initially random with an expected value of 1.5 and then decays as a linear function of the probability of death (generating a non-linear and increasing disutility of working as one ages that does not correspond one to one with age due to the initial randomness). The decay function is set such that the expected nonideological utility of working for a 75 -year-old justice is zero. We also ran simulations in which the initial non-ideological utility was a fixed function of age and the year-to-year decline was random; the results are essentially the same.

## 4.I. Examples

Figure 3 provide a sense of how the simulations work by displaying two simulations. In Example 1a, justices are uninterested in policy and in Example 1b justices care about policy (with a weight of $\omega=40$ ). Time is on the horizontal axes and ideology is on the vertical axes. The ideology of the court median is indicated with a solid dark line. The ideology of the president is indicated with squares located at the top and bottom in each plot: probabilistically alternating between liberal Democrats and conservative Republicans. When justices retire, a solid diamond appears in the year at the ideological level of the justice retiring. An open diamond indicates that the justice would retire if the president were of the other party, but chooses to stay on. A circle indicates that a justice strategically retires early, that is, he or she retires at a point he or she would not retire if the president was of the other party. A triangle marks the ideology of justices who die. We plot only 60 years of the 100-year simulation to make the figure easy to read.


Figure 3. Simulation examples

In both simulations the political trajectory is the same. That is, we simulate some progression of Democratic and Republican presidential victories and then use that progression in both figures to get a sense of how policy-oriented justices change outcomes conditional on the same electoral results. In the simulation with non-politically oriented justices the death of a liberal justice under a Republican president in year 5 (the triangle below the Court median line) leads to a conservative move in the Court median. The retirement of the median justice in year 12 under a Democratic president (a solid diamond on the Court median line) leads to a more liberal Court. And so it goes as deaths and retirements push and pull the Court over the 60 years.

In Example 1b in which justices place a weight of 40 on policy in their utility function, the Court median evolves differently. However, note that politically strategic justices are not the only difference; the deaths are random and account for variation as well. In year 8, two conservative justices retire early under a Republican president (solid circles); these justices still had positive utility of serving, but the weight they place on policy leads them to retire under the Republican president whom they find more politically acceptable. That, coupled with the death of the median justice in year 8 pushes the Court to the right. However, the death of a conservative justice under a Democratic president in
year 9 pushes the Court back to the left. In year 12, three liberal justices retire early and a conservative justice dies, pushing the Court a bit more to the left. In year 30, a conservative justice begins delaying retirement (open diamonds); another conservative justice joins him or her in year 32. They are able to hold out until year 33 when a Republican president takes office and then they retire. They are offset by liberal justices who retire early under Democratic presidents in years 28 and 32.

### 4.2. Results

We assess the implications of political timing of retirement and term limits by looking at four outcome variables in each simulation. First, we look at the responsiveness of the Court to electoral outcomes. As discussed earlier, this relationship is a central, if subtle, aspect of how the Court operates in the US political system. If the Court is too responsive, it loses the independence necessary for being an effective judicial branch; a completely unresponsive Court, however, threatens the democratic foundations of government. We measure responsiveness in two ways. First, we estimate a regression model in each simulation in which changes in the Court median in each year is the dependent variable and a dummy variable indicating a Democratic president in each year is the sole independent variable. This regression allows us to observe any differences between Democratic and Republican presidents. Second, for each value of $\omega$ in our simulations we simulate a history of electoral outcomes and then run two sets of simulations, one in which justices are unconcerned with policy ideology $(\omega=0)$ and another in which justices are concerned with policy ideology at the given value of $\omega$. We can then calculate the correlation of the Court medians over time across these two scenarios. This correlation measures how much politically motivated retirements affect the evolution of Court medians holding election results constant. In the simulations justices' deaths are randomly determined (with probabilities associated with census mortality tables). Randomizing death introduces variation in retirement unrelated to the political motivation of justices, so even when justices are not politically strategic, there will be variation in how the Court median evolves over time. Therefore, we also run simulations in which justices do not care about policy $(\omega=0)$ twice for the same electoral outcomes to provide a baseline level of variability unrelated to the level of political motivation.

The second outcome we look at is the variability of Court outcomes over time. Many advocate stability as a central goal of the Court; as Justice Brandeis famously argued, 'in most matters it is more important that the applicable rule of law be settled than that it be settled right' (Brandeis, 1932: 406). We therefore look at the variance of Court medians across time as a function of the weight justices place on policy. We also compare variance over time in a system with life tenure and with fixed terms. If politically motivated retirements increase the variance the Court median, this would typically be viewed as an unfortunate outcome.

The third outcome we look at is the age composition of the Court. Instances in which justices serve beyond their productive and even functioning years are well known (Garrow, 2000). Often these instances are associated with political factors, such as Justice Douglas, who resisted retiring under a Republican president. There is also a concern that justices who serve too long fall out of sync with the political system. Bailey and Maltzman $(2008,2011)$ document how the legal values of justices are related to the political
regime in which they were appointed; if justices serve too long they may be out of touch. President Franklin Roosevelt voiced such a concern when he attacked the Court during the Court-packing controversy. He did not simply say that justices were too old or too conservative, but that they had a 'horse-and-buggy interpretation of the constitution' that did not fit the automobile-driving 1930s (Friedman, 2009: 216). We look at how politically strategic retirements affect the age composition of the Court in two ways. First, we assess the average age of the Court as a function of weight justices place on policy. Second, we look at the portion of justices who are over 80 which gives a more direct measure of the potential for mental decrepitude. (We also recorded maximum age of justices; this tracked closely with the percentage of justices who were over 80 and we therefore do not report it here.)

The final outcome we examine is turnover on the Court. In our view, this is important in light of the extensive idiosyncrasy in how justices approach their jobs. While a high turnover on the Court could be associated with instability of the ideological preferences of the Court, this is not necessarily the case and this is something we measure in our analysis of the variability of Court preferences over time. Instead, following Bailey and Maltzman (2011) we believe that the legal views of justices matter and that these can be highly idiosyncratic. Accordingly, a high turnover of justices could lead to unstable legal doctrines, whether or not the political preferences of justices are systematically affected. This could result in higher rates of overturning precedent or, less dramatically, more rapid evolution in legal doctrines over time. For some this would be a positive development, but most would consider this an unfortunate source of instability and uncertainty.

Figure 4 presents results for the responsiveness of the Court median to the party of the president. Each of the two plots indicates the median coefficient on party of the president in models predicting change in the Court median across 1000 simulations. On the $x$-axis are varying levels of $\omega$, the weight justices place on policy ideology. The figure on the left is for life-tenured justices; the figure on the right is for a system in which justices have fixed 18 -year terms. The light grey lines indicate the 5 th and 95 th percentile of results for each set of simulations. In the life-tenure figure, the responsiveness drops as the weight on policy initially increases, but levels out quickly. The effect, however, is modest. The coefficient on party of the president is 0.075 when $\omega=0$ and 0.064 when $\omega=50$. Over a 4 -year term of a Democratic president, this 0.011 difference in expected Court medians translates into a 0.044 decline in the movement left associated with a Democratic president when justices are politically strategic than when justices do not care about policy. This change in responsiveness is about one-tenth of a standard deviation in Court medians over time.

In the term-limit scenarios, the level of responsiveness is uniformly higher than for the life tenure. The coefficient on party of the president is close to 0.10 for all values of $\omega$. For example, when $\omega=50$ the Court would be expected to move 0.036 more in a liberal direction under a Democratic president when there are term limits than when there are no term limits. This is about one-third of a standard deviation in Court medians over time. The level of responsiveness does not change as the weight on policy increases because the term limits severely limit chances for policy-motivated justices to time their retirements according to political factors.

Figure 5 plots the median correlations across the simulations of the evolution of Court outcomes when justices do not care about policy and when they do care about policy


Figure 4. Responsiveness of court medians to presidential party


Figure 5. Correlation between court medians for non-policy and policy-motivated justices
(i.e. when $\omega$ equals the value on the $x$-axis). In each simulation, the electoral outcomes were fixed across both scenarios allowing us to simulate what would happen with and without politically motivated retirement for identical patterns of electoral results. If these correlations are high, then politically motivated retirement matters little as Court medians evolve in similar patterns as without non-politically motivated retirements. In the life-tenure figures on the left, the correlations are around 0.6 and do not change much depending on the weight justices place on ideology. The line is also flat in the termlimited scenario, but the level is higher. Note the vast differences at the lower range of simulated outcomes. In the life-tenured simulations the 5th percentile is solidly negative, implying that in some simulations the Court medians are negatively correlated even though the electoral outcomes were the same. In the term-limited simulations, however, the 5th percentile is substantially higher, indicating that the regularity of appointments dramatically reduce the situations in which Court medians evolve in very different ways.

Figure 6 presents results for the standard deviation of Court medians across varying levels of policy interest by justices. This measures the variability of Court outcomes as a function of politically strategic retirement behavior. Within and across figures there is little change, suggesting that the variance of Supreme Court medians is little affected by whether justices are strategic or by whether there are term limits.

These figures indicate that the effects of strategic retirement on the responsiveness and variability of the Court are modest, at most. This is largely because politically motivated behavior largely offsets itself. Over the 1000 simulations, liberal justices delaying


Figure 6. Standard deviation of court median as function of weight on ideology


Figure 7. Median age of justices as function of weight on ideology
retirement under Republican presidents offset conservative justices retiring early under Republicans, and vice versa. While an ideologically motivated individual justice is indeed trying to influence the Court's composition, in aggregate there is no evidence of systemic effects. The Court is no more responsive or variable when justices retire strategically. Term limits on justices, on the other hand, have large effects, increasing the expected effect a Democratic president has on the Court median and reducing the possibility that a Court facing the same electoral results over time evolves in quite different ways depending either on chance (when the weight on policy is zero) and on the policy-attentiveness of justices.

Politically strategic retirement behavior could also affect the age composition of the Court. Figure 7 plots the average age of justices as a function of the weight justices place on ideology. The figure on the left shows that the average age of justices increases as justices place more weight on policy for the life-tenured case, as more justices are willing to delay retirement in the hopes that a president of their liking is elected. The average levels off as justices become more political because the number of justices who retire early increases as $\omega$ increases as well. The term-limited simulations show a much lower average age, which is not surprising given that the assumed starting age is the same and justices have to retire after 18 years; it is possible that the average age of appointed justices would rise for term-limited justices so one should not read too much into this difference.


Figure 8. Percentage of justices over 80 as function of weight on ideology

The real concern about strategic delays in retirement is that justices will remain on the Court even after they are no longer productive. This outcome is presumably correlated with serving into one's very old age. Therefore, Figure 8 plots the percentage of justices who are over 80 for the simulations in which justices have life tenure. (There is no plot for the term-limited simulations because justices never reach the age of 80 in those simulations.) The number of justices who serve past age 80 increases with the weight justices place on politics. When justices do not care at all about ideology, half the simulations had $1 \%$ or fewer justices who were over 80 . When the weight place on ideology in their utility function reaches 20 , half the simulations had $3 \%$ or more justices who were over 80 .

Figure 9 plots the number of individuals who serve on the simulated Court over the 100-year simulation period as a function of the weight justices place on ideology in their utility function. This measures the turnover on the court, something that may affect the stability of Court doctrine. The figure on the left shows what happens to turnover when justices have life tenure: an increasing weight on ideology initially reduces the number of justices as more justices delay retiring than retire early. As $\omega$ increases, however, the number of justices who retire early also increases, thereby flattening and even increasing the number of justices who serve during the 100-year simulations. The figure on the right shows what happens under judicial term limits: turnover is much higher as the guaranteed appointment every two years leads to an increase of about 20 more justices in 100 years relative to the life-tenure simulations.

We also simulated outcomes when the probability of electing a Democratic president was 0.25 , rather than the 0.5 discussed above. We did this only for the life-tenure case as retirement is not particularly relevant in the term-limited case. None of our conclusions are substantially different. The regression-based responsiveness measure is virtually unchanged in both level and relation to $\omega$. The correlation and standard deviation measures were higher, but had similar shape as in Figures 5 and 6.

## 5. Conclusion

One cannot understand the Court without understanding who is on it and why, and one cannot understand who is on the Court without understanding who left it and why. It



Figure 9. Total number of justices
is conceivable that savvy justices could time their departures in a manner that gives them control over the subsequent composition of the Court, lessening the already limited influence the public has on this powerful institution.

Our goal in this paper was to explore the implications of such behavior by justices. We do not ask whether justices time their retirements strategically; instead we ask why we should care whether they do. Our results suggest politically motivated retirement can have relatively little influence on several important aspects of Court operations. Politically motivated retirements do not substantially decrease the responsiveness of Court preferences to the public will as manifest in who is elected president. Politically motivated retirements also do not substantially affect the correlation of outcomes when justices do and do not care about policy ideology when making retirement decisions. The reason is that the politically motivated behavior offsets itself; for every conservative justice holding out for a Republican president there is, in expectation, a liberal justice retiring early under a Democratic president.

We do find effects with regard to the age profile of the Court which could, in theory, adversely affect the Court's functioning (Calabresi and Lindgren, 2006; Garrow, 2000). We find that small amounts of politically motivated behavior by justices leads to an older Court (as more justices decline to hold out for a president of their liking), but that large amounts of politically motivated behavior leads to a younger Court (as even relatively young justices seek to give presidents they like a chance to appoint younger replacements). We also find that term limits have a larger effect than politically strategic behavior. They increase responsiveness and reduce the number of very old justices. The cost, however, is dramatically increased turnover.

While our results do not directly pertain to the empirical literature on strategic retirements, they help frame the debate. First, based on a pattern that justices almost always retire when they are quite old, we can infer that the non-ideological utility of serving for justices is non-trivial. If justices were solely ideologically motivated, they would retire quite quickly under a friendly president in order to allow the president to nominate a younger person with the same ideology. In fact, of course, it is much more common for quite elderly justices to retire under friendly presidents, something that becomes rare as the weight on ideology in justices utility functions gets very large.

Second, the consequences of strategic retirement are relatively low as long as both sides do it. If either liberals or conservatives were to systematically reject strategic retirements, then the other side of the ideological spectrum would benefit. While there is little
ex ante reason to believe that one side or another is more likely to be politically strategic, idiosyncratically non-strategic behavior by even a few justices could have profound effects on the ideological composition of the Court. We may even be witnessing a situation where justices themselves would rather have term limits. Retiring non-strategically in the current environment is equivalent to unilateral disarmament for one's ideological side and justices could conceivably prefer to be able to retire non-strategically as long as the other side would so as well. Term limits would enforce such an implicit bargain.

## Appendix A: Equilibrium choice for justices

1. Period 2, Democratic president

Find $N_{i 2}^{* D}$ : net utility of serving at which justice $i$ retires in period 2 with Democratic president; this is $N_{i 2}^{* D J 1 J 4}$ such that $U^{\text {Serve2Dem }}<U^{\text {Retire2Dem }}$.

- For Justices 1-4: if they retire, results from Moraski and Shipan appointment game indicate that the Democratic president will replace them with individuals on the left of the court median, meaning that the court median will not change. These justices will retire when net non-ideological utility of serving goes below zero:

$$
\begin{aligned}
U^{\text {Serve2Dem }} & <U^{\text {Retire2Dem }} \\
N_{i t}-\omega\left(\theta_{i}-\theta_{5}\right)^{2} & <-\omega\left(\theta_{i}-\theta_{5}\right)^{2} \\
\Rightarrow N_{i 2}^{* D J 1 J 4} & =0
\end{aligned}
$$

- For Justices 5-9: if they retire, results from the Moraski and Shipan appointment game indicate that the Democratic president will replace them with individuals on the left of the court median, meaning that the court median will change to $\theta_{4}$. These justices will retire when net non-ideological utility of serving goes below a number that is negative, meaning they will serve past when they want to for non-ideological reasons:

$$
\begin{aligned}
U^{\text {Serve2Dem }} & <U^{\text {Retire2Dem }} \\
N_{i t}-\omega\left(\theta_{i}-\theta_{5}\right)^{2} & <-\omega\left(\theta_{i}-\theta_{4}\right)^{2} \\
\Rightarrow N_{i 2}^{* D J 5 . J 9} & =2 \omega\left(\theta_{4}-\theta_{5}\right)\left(\theta_{i}-\frac{\theta_{4}+\theta_{5}}{2}\right)<0
\end{aligned}
$$

2. Period 2, Republican president

Find $N_{i 2}^{* R}$ : net utility of serving at which justice $i$ retires in period 2 with Republican president; this is $N_{i 2}^{* R}$ such that $U^{\text {Serve2Rep }}<U^{\text {Retire2Rep }}$.

- For Justices 6-9: if they retire, results from the Moraski and Shipan appointment game indicate that the Republican president will replace them with individuals on the right of the court median, meaning that the court median will not change. These justices will retire when net non-ideological utility of serving
goes below zero:

$$
\begin{aligned}
U^{\text {Serve2Rep }} & <U^{\text {Retire2Rep }} \\
N_{i t}-\omega\left(\theta_{i}-\theta_{5}\right)^{2} & <-\omega\left(\theta_{i}-\theta_{5}\right)^{2} \\
\Rightarrow N_{i 2}^{* R J 6 J 99} & =0
\end{aligned}
$$

- For Justices 1-5: if they retire, results from the Moraski and Shipan appointment game indicate that the Republican president will replace them with individuals on the right of the court median, meaning that the court median will change to $\theta_{6}$. These justices will retire when net non-ideological utility of serving goes below a number that is negative, meaning they will serve past when they want to for non-ideological reasons:

$$
\begin{aligned}
U^{\text {Serve2Rep }} & <U^{\text {Retire2Rep }} \\
N_{i t}-\omega\left(\theta_{i}-\theta_{5}\right)^{2} & <-\omega\left(\theta_{i}-\theta_{6}\right)^{2} \\
N_{i t} & <\omega\left(\theta_{i}-\theta_{5}\right)^{2}-\omega\left(\theta_{i}-\theta_{6}\right)^{2} \\
\Rightarrow N_{i 2}^{* R J 1 . J 5} & =2 \omega\left(\theta_{6}-\theta_{5}\right)\left(\theta_{i}-\frac{\theta_{6}+\theta_{5}}{2}\right)<0
\end{aligned}
$$

3. Period 1, Democratic president

Find $N_{i 1}^{* D}$ : net utility of serving at which justice $i$ retires in period 1 with Democratic president; this is $N_{i 1}^{* D}$ such that $U^{\text {Serve1Dem }}<U^{\text {Retire1Dem }}$.

- For Justices 1-4: $N_{i 2}^{* R}<N_{i 2}^{* D}$ (see above)
(a) If $N_{i 2}<N_{i 2}^{* R}$ (an individual who always retires in period 2). This justice will retire in period 1 if the utility of retiring is greater than the expected value of retiring in period 2 . If a liberal justice retires in period 2 , the Moraski and Shipan model indicates that a Democratic president will maintain the same court median while a Republican president will shift the median to $\theta_{6}$. Solving yields:

$$
N_{i 1 a}^{* D J 1 J 4}=\omega \delta\left(1-p^{D e m}\right)\left[2\left(\theta_{5}-\theta_{6}\right)\left(\theta_{i}-\frac{\theta_{5}+\theta_{6}}{2}\right)\right]>0
$$

(b) If $N_{i 2}^{* R}<N_{i 2}<N_{i 2}^{* D}$ (an individual who retires in period 2 if president is Democratic but not if president is Republican).

$$
\begin{gathered}
U^{\text {ServelDem }}<U^{\text {Retire1Dem }} \\
N_{i 1}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}+\delta p^{X} p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]+ \\
\delta p^{X}\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{6}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right) p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right)\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]<(1+\delta)\left[N_{i 2}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right] \\
\Rightarrow N_{i 1 b}^{* D J 1 J 4}=\omega \delta p^{X}\left(1-p^{D e m}\right)\left[2\left(\theta_{5}-\theta_{6}\right)\left(\theta_{i}-\frac{\theta_{5}+\theta_{6}}{2}\right)\right] \\
-\delta\left(1-p^{X}\right)\left(1-p^{D e m}\right) N_{i 2}
\end{gathered}
$$

(c) If $N_{i 2}>N_{i 2}^{* D}$ (an individual who serves in period 2 under Democratic or Republican presidents):

$$
N_{i 1 c}^{* D J 1 J 4}=\omega \delta p^{X}\left(1-p^{D e m}\right)\left[2\left(\theta_{5}-\theta_{6}\right)\left(\theta_{i}-\frac{\theta_{5}+\theta_{6}}{2}\right)\right]-\delta\left(1-p^{X}\right) N_{i 2}
$$

- For Justices 6-9: $N_{i 2}^{* D J 5 J 9}<N_{i 2}^{* R J 6 J 9}$ (see period 2 results above).
(a) If $N_{i 2}<N_{i 2}^{* D J S J 9}$ (an individual who always retires in period 2). This justice will retire in period 1 if the utility of retiring is greater than the expected value of retiring in period 2 . If a conservative justice retires in period 2, the Moraski and Shipan model indicates that a Democratic president will move the court median to the left to $\theta_{4}$ while a Republican president will maintain the same court median. Solving yields:

$$
N_{i 1 a}^{* D J 6 J 9}=\omega\left[1+\delta\left(1-p^{D e m}\right)\right] 2\left(\theta_{4}-\theta_{5}\right)\left(\theta_{i}-\frac{\theta_{4}+\theta_{5}}{2}\right)<0
$$

(b) If $N_{i 2}^{* D J 5 J 9}<N_{i 2}<N_{i 2}^{* R J 6 J 9}$ (an individual who retires in period 2 if president is Republican but not if president is Democrat):

$$
\begin{gathered}
U^{\text {Serve1Dem }}<U^{\text {RetirelDem }} \\
N_{i 1}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}+\delta p^{X} p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right]+ \\
\delta p^{X}\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right) p^{D e m}\left[-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right)\left(1-p^{\text {Dem }}\right)\left[N_{i 2}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]<(1+\delta)\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right] \\
\Rightarrow N_{i 1 b}^{* D J 6 J 9}=\omega\left[1+\delta\left(1-p^{X} p^{\text {Dem }}\right)\right]\left[2\left(\theta_{4}-\theta_{5}\right)\left(\theta_{i}-\frac{\theta_{4}+\theta_{5}}{2}\right)\right] \\
-\delta\left(1-p^{X}\right) p^{D e m} N_{i 2}
\end{gathered}
$$

(c) If $N_{i 2}>N_{i 2}^{* R J 6 J 9}$ (an individual who serves in period 2 if alive):

$$
\begin{aligned}
\Rightarrow N_{i 1 c}^{* D J 6 J 9}= & \omega\left[1+\delta\left(1-p^{X} p^{D e m}\right)\right]\left[2\left(\theta_{4}-\theta_{5}\right)\left(\theta_{i}-\frac{\theta_{4}+\theta_{5}}{2}\right)\right] \\
& -\delta\left(1-p^{X}\right) N_{i 2}
\end{aligned}
$$

- For Justice 5 (the median)
(a) If $N_{i 2}<\min \left(N_{i 2}^{* D J 5 J 9}, N_{i 2}^{* R J 1 J 5}\right.$ ) (an individual who always retires in period 2). This justice will retire in period 1 if the utility of retiring is greater than the expected value of retiring in period 2. If the median retires, the Moraski and Shipan model indicates that a Democratic president will move the court median to the left to $\theta_{4}$ and a Republican president will move the court median to the right to $\theta_{6}$ (note that this relies on the assumption that

Democratic president is to left of $\theta_{4}$ and Republican president is to right of $\theta_{6}$ ). Note that $\left(\theta_{i}-\theta_{5}\right)=0$ for the median:

$$
\begin{gathered}
U^{\text {ServelDem }}<U^{\text {RetirelDem }} \\
N_{i 1}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}+\delta p^{X} p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right]+ \\
\delta p^{X}\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{6}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right) p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right)\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{6}\right)^{2}\right]<(1+\delta)\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right] \\
\Rightarrow N_{i 1 a}^{* D J 5}=\omega \delta\left(1-p^{\text {Dem }}\right)\left[2\left(\theta_{4}-\theta_{6}\right)\left(\theta_{i}-\frac{\theta_{4}+\theta_{6}}{2}\right)\right]-\omega\left(\theta_{i}-\theta_{4}\right)^{2}
\end{gathered}
$$

The relationship is rather complicated: if the median is to the left of the midpoint between $\theta_{4}$ and $\theta_{6}$ then the median will be more likely to retire, but this will be offset by the distance from $\theta_{4}$.
(b) If $\min \left(N_{i 2}^{* D J 5 J 9}, N_{i 2}^{* R J 1 J 5}\right)<N_{i 2}<\max \left(N_{i 2}^{* D J 5 J 9}, N_{i 2}^{* R J 1 J 5}\right)$ (an individual who retires in period 2 if president is better of Republican or Democrat, but not otherwise).

If $N_{i 2}^{* D J 5 J 9}>N_{i 2}^{* R J 1 J 5}$ justice retires under Republican president; retire if:

$$
\begin{gathered}
U^{\text {ServelDem }}<U^{\text {Retire1Dem }} \\
N_{i 1}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}+\delta\left(1-p^{X}\right) p^{\text {Dem }}\left[N_{i 2}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right)\left(1-p^{D e m}\right)\left[-\omega\left(\theta_{i}-\theta_{6}\right)^{2}\right]+ \\
\delta p^{X} p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right]+ \\
\delta p^{X}\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{6}\right)^{2}\right]<(1+\delta)\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right] \\
\Rightarrow N_{i 1 b}^{* D J 5}=\omega\left[1+\delta\left(1-p^{X} p^{D e m}\right)\right]\left[-\left(\theta_{i}-\theta_{4}\right)^{2}\right] \\
\\
-\omega \delta\left(1-p^{D e m}\right)\left[-\left(\theta_{i}-\theta_{6}\right)^{2}\right]-\delta\left(1-p^{X}\right) p^{D e m} N_{i 2}
\end{gathered}
$$

If $N_{i 2}^{* D J 5 J 9}<N_{i 2}^{* R J 1 J 5}$ justice retires under Democratic president; retire if:

$$
\begin{gathered}
U^{\text {Serve1Dem }}<U^{\text {RetirelDem }} \\
N_{i 1}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}+\delta\left(1-p^{X}\right) p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right]+ \\
\delta\left(1-p^{X}\right)\left(1-p^{\text {Dem }}\right)\left[N_{i 2}-\omega\left(\theta_{i}-\theta_{5}\right)^{2}\right]+ \\
\delta p^{X} p^{\text {Dem }}\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right]+ \\
\delta p^{X}\left(1-p^{\text {Dem }}\right)\left[-\omega\left(\theta_{i}-\theta_{6}\right)^{2}\right]<(1+\delta)\left[-\omega\left(\theta_{i}-\theta_{4}\right)^{2}\right] \\
\Rightarrow N_{i 1 b}^{* D J 5}=\omega\left[1+\delta\left(1-p^{\text {Dem }}\right)\right]\left[-\left(\theta_{i}-\theta_{4}\right)^{2}\right]-\omega \delta p^{X}\left(1-p^{\text {Dem }}\right) \\
{\left[-\left(\theta_{i}-\theta_{6}\right)^{2}\right]-\delta\left(1-p^{X}\right)\left(1-p^{\text {Dem }}\right) N_{i 2}}
\end{gathered}
$$

(c) If $N_{i 2}>\max \left(N_{i 2}^{* D J 5 J 9}, N_{i 2}^{* R J 1 J 5}\right)$ (an individual who serves in period 2). The results are

$$
\begin{aligned}
\Rightarrow N_{i 1 c}^{* D J 5}= & \omega\left[1+\delta\left(1-p X p^{D e m}\right)\right]\left[-\left(\theta_{i}-\theta_{4}\right)^{2}\right]-\omega \delta p^{X}\left(1-p^{D e m}\right) \\
& {\left[-\left(\theta_{i}-\theta_{6}\right)^{2}\right]-\delta\left(1-p^{X}\right) N_{i 2} }
\end{aligned}
$$

Proof of Proposition 1 The retirement regions for a liberal justice are characterized by the middle figure in Figure 2. The key points are $N_{i 1 a}^{* D J 1 J 4}$ (the vertical line separating the serve/retire region from the retire region) and $p^{X} \times N_{i 1 a}^{* D 11 J 4}$ (the point at which the slope on the upper bound of the retire region changes). For liberal justices, increasing $\omega$ and $\theta_{6}$ and decreasing $\theta_{i}$ push out both these points without affecting the slope of upper boundary on the retire region. This means that for any combination of $N_{i 1}, N_{i 2}$ that would lead a justice to retire under $\omega$ would lead the justice to also retire under $\omega^{\prime}>\omega$. Decreasing $p^{D e m}$ shifts $N_{i 1 a}^{* D J 1 J 4}$ to the right and affects the slope of the boundary separating the serve/retire if Democratic president region but the area is always larger than initial area. For conservative justices the proof is analogous, but showing that increasing $\omega$ and $\theta_{i}$ and decreasing $\theta_{4}$ and $p^{D e m}$ shift boundaries on the retire region to the left.

## Appendix B: Model that allows party of senate to differ from party of president

Suppose that we change the game to allow for a Democratic president and senate (with probability $p^{D e m}$ ), divided government (with probability $p^{Q}$, where $Q$ stands for status quo, which is the result of divided government in the Moraski and Shipan model) and a Republican and senate (with probability $\left(1-p^{D e m}-p^{Q}\right)$ ).

- Period 2: Results are basically the same. For liberal justices, the line for retiring if there is divided government is the same as when there is a Democratic president as both result in maintenance of the status quo. For conservative justices, the line for retiring if there is divided government is the same as when there is a Republican president as both result in maintenance of the status quo.
- Period 1: For liberal justices, the results are similar as the outcome under a unified Democratic and divided government are the same. The equations above are the same, except where there is a $p^{D e m}$ one would replace it with $p^{D Q}=p^{D e m}+p^{Q}$. For conservative justices, the results are similar as the outcome under a unified Republican and divided government are the same. The equations above are the same (except in this model $\left(1-p^{D e m}\right)$ is the probability of either unified Republican rule or divided government.


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## Notes

1. McReynolds served for 28 total years on the Court, but finally retired under Roosevelt after President Roosevelt was reelected in 1940, saying 'any country that elects Roosevelt three times deserves no protection' (Ward, 2003: 142).
2. The exact amount of the pension depends on whether the judge fully retires (in which case the salary is set at the amount at retirement) or takes senior status (which allows the judge to receive any subsequent raises given to active Article III judges).
3. For simplicity, we assume that the president is always located outside the interval connecting the fourth most liberal justice and the sixth most liberal justice; this is very reasonable in light of inter-institutional estimates of preferences for presidents and justices (Bailey, 2007).

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