A Model of Federal Judicial Retirements, 1789–2002[†]

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1 Introduction

It has long been established that judges are political actors with ideological beliefs and policy preferences, and that they pursue those preferences during their careers (Epstein and Knight 1998). As a result, the composition of the U.S. federal court system has a substantial impact on the decisions reached by each of the benches, and a correspondingly important influence on the public policy that emanates from the U.S. federal courts. Moreover, as federal judges are political appointees, the political ideologies and policy preferences of judges are often prime considerations of presidents, and of senators, in evaluating judicial nominees (Yalof 1999).

Not surprisingly, because of this significance the judicial appointment and confirmation process has garnered a great deal of deserved scholarly attention (e.g., Binder and Maltzman 2002; Caldeira and Smith 1996; Caldeira and Wright 1998; Cameron, Cover and Segal 1990, 1992; Martinek et. al. 2002; Shipan and Shannon 2003). At the same time, however, there have been correspondingly fewer rigorous examinations of the necessary antecedent to appointments: federal court vacancies. Yet because significant ideological shifts – and concomitant changes to public policy – can occur on courts when vacancies are filled, explanations of when vacancies are more or less likely can lead to a better understanding of whether policy outcomes are likely to be affected in a given period (Baum 1992, Canon and Johnson 1984).

This research analyzes the factors influencing federal judges in their decisions to retire. We submit that, as with those employed in any other position, judges consider personal factors – such as age, health, and income – as well as influences related to their conditions of employment – such as workload and job satisfaction – in their retirement calculi. Additionally, however, we also consider the possibility that judges consider political motivations, primarily in the form of how their retirement would affect the decisions produced by that

judge's court, in their retirement decisions as well. To the extent that judges pursue policy-related and ideological goals throughout their careers, it is plausible that they also evaluate the likely effects their retirement would have on the attainment of these same objectives.

We begin our paper with a simple decision–theoretic model of a judge's retirement calculus, one that incorporates both personal and political considerations. We go on to evaluate our model using data on all federal judges serving between 1789 and 2002, inclusive, operationalizing variables consistently across all three court levels in order to maximize the comparability of our findings. Our results suggest that while both political and personal variables exert significant influences on the retirement decisions of lower federal court judges, only personal variables exert any nontrivial impact on the retirement decisions of justices of the U.S. Supreme Court.

2 A Simple Model of Judicial Retirement Decisions

We describe the retirement of a federal judge by a simple decision–theoretic model, which expresses a judge's utility for retirement during a given year. This model includes both personal and institutional components; formally, we write:

$$U_{jt}(R) = \alpha_t L_{jt} + \beta_t P_{jt} \tag{1}$$

where L_{jt} represents the component of judge j's utility for retirement at time t due to policy–related factors, P_{jt} is the component of utility due to personal factors, and α_t and β_t are (potentially time–varying) weights given to L_{jt} and P_{jt} respectively.

Judges demonstrate the political preference component of their utility structures in the strategic ideological decisions that they make throughout their careers. Accordingly, the utility functions of judges are generally structured such that retiring at an ideologically optimal time increases a judge's utility, which means that strategic ideological considerations should logically have some impact on the decisions that judges make in deciding when to retire.

I predict that many of the personal, institutional, and political influences studied in other research will be integral in the utility structures of judges and, will, consequently, contribute to the retirement decisions of federal judges. Therefore, I hypothesize that strategic political preferences along with other factors will influence the retirement decisions of judges.

More specific hypotheses can be derived directly from the equation expressing the utility derived by a judge due to his or her retirement at a point in time in (1). Without loss of generality, we normalize the utility derived by a judge from staying on his or her court (that is, not retiring) to equal zero:

$$U_{jt}(N) = 0$$

To specify more completely the components of (1), we must make some assumptions about judges' policy preferences. In considering whether or not to leave the bench, we assume that policy-oriented judges would prefer that their successor adopt positions which are as close to their own, ideologically speaking, as possible. We formalize this intuition by assuming a quadratic loss function for L_{jt}, based on the distance between the judge's own ideological position I_j and that of his or her likely successor (dubbed I_s) at time t:

$$L_{jt} = -(I_j - I_s)_t^2 \tag{2}$$

This means that equation (1) can be rewritten as

$$U_{jt}(R) = \alpha_t[-(I_j - I_s)_t^2] + \beta_t P_{jt} \tag{3}$$

The probability that a given judge will retire at time t is then simply the probability that his or her utility for retirement is greater than that for staying on his or her court:

$$\begin{aligned} Pr(R_{jt}) &= Pr\{U_{jt}(R) > U_{jt}(N)\} \\ &= Pr\{\alpha_t[-(I_j - I_s)_t^2] + \beta_t P_{jt} > 0\} \end{aligned} \tag{4}$$

From the probability statement in (4), we can derive expectations about the marginal impact of various factors on judges' retirement decisions. In particular, note:

$$\begin{aligned} \frac{\partial Pr(R_{jt})}{\partial L_{jt}} &= \alpha_t \\ \frac{\partial Pr(R_{jt})}{\partial \alpha_t} &= L_{jt} \\ \frac{\partial Pr(R_{jt})}{\partial P_{jt}} &= \beta_t \end{aligned}$$

The first partial derivative illustrates an important but unsurprising property of this model: that relationship between the probability of a judge's retirement and the ideological distance between him or her and his or her likely successor depends on the likelihood the weight that judge gives to such factors in his or her retirement decision. More concretely, this result suggests that, in circumstances when α_t is likely to be high, judges will give correspondingly greater consideration to ideological factors in their retirement decisions. Similarly, the relative weight of the contextual factors determining α_t will in turn be dependent on the ideological position of each judge's likely successor.[1] Finally, note that the assumption of the separability of personal and policy considerations implies that changes in P_{jt} will influence the probability of retirement independently of shifts in policy considerations.

[1]We will return to this point in greater length below.

3 Data and Operationalization

To examine empirically the expectations of our model, we draw on previous studies of retirement decisions in general (e.g. Hayward et al 1989; Feldman 1994), as well as on existing work on judicial vacancies, to operationalize a series of personal and political influences on the retirement decision. To maximize the comparability of our results, we endeavor to create measures which are, to the extent possible, identical across the three levels of the federal courts we study.

3.1 Data

We analyze our model empirically using data on all federal district, appellate and Supreme Court judges since the beginning of the federal court system in 1789; these include United States Supreme Court justices as well as federal court of appeals judges and federal district court judges. The bulk of our data are drawn from the Federal Judiciary Center's biographical database, from which we obtain comprehensive data on the judges of the federal judiciary from 1789 through January 2003. Our data include a total 2,688 federal district court judges (30,654 judge–years, after omitting cases with missing data), 666 federal appellate court judges (7,605 judge–years) and 113 Supreme Court justices (1,740 judge–years). Because federal circuit court judges were a precursor to district court judges, we consider the two to be essentially the same, and so include circuit court judges in the analyses of district court judges.

Figure 5 presents the Kaplan–Meier survival estimates for retirement for each of the three courts in our study. In general, Supreme Court justices tend to stay on their Court for longer durations before retiring than do other federal judges; moreover, while the survival functions of the appellate and district courts are relatively similar, the district court survival curve remains slightly above that of the appeals court judges, meaning that district judges tend to "survive" on their courts for relatively longer tenures than do appellate judges.

3.2 Personal Influences

3.2.1 Salary

Not surprisingly, research has shown that the single most important set of factors relating to an individual's retirement decision are financial considerations (e.g. Walker and Price 1976). Chief among these considerations is the individual's salary, and previous work on judicial retirements have routinely considered judges' remuneration among the influences on their retirement decisions. In their examination of the retirements of lower federal court judges, Barrow and Zuk (1990) measure salary as a dichotomous variable, coded to indicate the presence or absence of a raise in salary during a given year. They find that major salary increases significantly reduce rates of retirement among district court judges, but have no substantial impact on retirements among appeals court judges. Nixon and Haskin (2000) incorporate each judge's inflation–adjusted salary into their analysis, finding that compensation is an insignificant predictor of retirements among federal appeals court judges. Importantly, Nixon and Haskin note that "(T)he insignificance of salary to retirement decisions should not be surprising because the potential private sector salaries for appellate judges far exceed their federal salary, (and) thus, wages are not likely to affect retirements because they do not clearly affect acceptance of nominations in the first place" (2000, 472).

With these findings and comments in mind, we operationalize a variable for judicial compensation that endeavors to remedy these considerations. We operationalize *Salary* as a judge's inflation-adjusted salary, divided by the annual U.S. per capita gross domestic product (GDP); this yields a measure of the approximate number of average per capita incomes that they judge is earning during the time period examined.[2] This rescaled salary measure captures not only raw salary numbers, but rather, the degree to which the judge forfeits or gains some amount of real purchasing power. Because this scaled salary measure

[2]Raw salary data are gathered from Posner (1985, 1996) and from data from the Federal Judicial Center; we scale this measure using data on GDP from Economic History Services (2003).

compares the salaries of federal judges to the average American income, it provides an estimated representation of utility lost or gained due to monetary earnings as a result a judge's decision to continue serving on his bench. We expect this variable to be negatively related to the probability that a judge will retire, because of the increased monetary benefit associated with a higher salary that a judge must forgo upon retirement.

3.2.2 Pension Eligibility

A second economic variable in our model is a measure of pension benefits. It is well–understood that eligibility of pension benefits is a key component in retirement decisions (e.g. Rust and Phelan 1997). Interestingly, prior to the Civil War, there was no provision granting retirement benefits to federal judges. Congress passed the first piece of judicial retirement legislation in 1869, allowing federal judges who were at least seventy years old and who had served at least ten years in the federal judiciary to retire and receive yearly pension benefits equal to their annual salary at the time of their retirements. Subsequent retirement legislation has been passed throughout the twentieth century, refining and expanding the conditions under which federal judges can retire with pension benefits, or continue to receive salary in the case of judges who continue to serve the federal judiciary after retiring with "senior status," an option created for judges by Congress in 1919. The most notable additions to the judicial retirement legislation occurred in 1954, when the senior status option was extended to judges at least sixty-five years old with at least fifteen years of service, and in 1984, when Congress passed legislation establishing the "rule of eighty." This rule allows a judge who is at least sixty–five years old to retire from the judiciary if the sum of his or her age and tenure of service is greater than or equal to eighty.

Pension eligibility is a common influence investigated by scholars in explaining the retirements of federal judges. Barrow and Zuk (1990), Nixon and Haskin (2000), Squire (1988), and Zorn and Van Winkle (2000) all incorporated pension measures into their various studies

of judicial retirement. In each of these studies, an indicator of pension eligibility was found to be positively related to the probability of a judicial retirement. Here, we adopt a similar, but slightly altered, version of the measure used in previous research. Rather than a simple indicator for pension eligibility, we include instead a measure of the inflation–adjusted amount of compensation a judge will receive upon retirement in a given year. Our *Pension* variable is thus coded zero for the years in which judges are not eligible for pension benefits and, similar to the scaled salary measure, coded as a percentage of the gross domestic product per capita that a judge is eligible to receive yearly upon retirement. In this manner, we account not only for the eligibility or non–eligibility of the judge in question, but also for the amount of compensation that the judge will receive upon retirement; additionally, the used of the per capita GDP–scaled measure has the same benefits for the pension variable as those described above for the salary variable. All else equal, we expect this pension measure to be positively related to a judge's hazard of retirement.

3.2.3 Job Satisfaction

Another key element of the personal and institutional component of the model that we use is a measure of job satisfaction. While a difficult concept to quantify, job attitudes are clearly related to job-related decisions made by all individuals (cf. Schmitt and McCune 1981; Reitzes et al 1998), and so cannot be overlooked in an analysis of judicial retirements. Here, we consider job satisfaction using two components, both of which have their roots in our assumption that judges are, to a large extent, policy-motivated.

The first such variable is a measure of the extent of ideological congruence between the judge in question and the other members of his or her court. It is logical that judges who are sitting on courts with higher percentages of ideological allies will feel a greater sense of job satisfaction than those working in less ideologically friendly environments. At the appellate and Supreme Court level, a judge sitting on a court with a large amount of

ideological friendliness will most likely feel more satisfied with his or her ability to reach majority decisions that express his or her public policy preferences. In addition to this heightened sense of productivity, it seems likely that there may be additional benefits to serving on an ideologically friendly court; for example, judges in this situation will be more likely to be surrounded by fellow judges who share their values than judges on a ideologically unfriendly courts, a fact which will likely contribute to a more pleasant work environment and cooperative atmosphere. This type of phenomenon would indicate a benefit associated with a high percentage of like–mindedness on one's court for district as well as appellate and Supreme Court judges.

We measure the ideology of each judge by assuming it to be generally similar to that of the president who appointed him or her; we further assume that members of the same party are generally similar ideologically, and, therefore, that liberal or conservative judges, presidents, and senators will be in the same respective parties during periods of time. Because of the changes in variety of political parties that have existed throughout the history of the federal judiciary, we divide the parties into two categories, Democrats and non–Democrats. We then calculate the proportion of judges on a particular judge's court who are of the same general ideological "type" for each year in the data.[3] We expect this *Own Court Congruence* variable to have a negative relationship to a judge's hazard of retirement because of the increased job satisfaction that we believe a judge sitting on a likeminded court will experience.

Our second variable for job satisfaction is an indicator of the ideologies of recent U.S. Supreme Court decisions. Because the decisions made by appeals and district court judges, as well as those made by the Supreme Court itself, are constrained by the precedent set by the Supreme Court, it is reasonable to expect that judges who agree with those precedents will experience higher job satisfaction, as they are implementing precedent with which they

[3]We borrow this approach from Nixon and Haskin (2000), who measure the circuit strength of a judge's own party this same manner.

agree. Conversely, we would expect judges who disagree with the decisions made by the Supreme Court to be less satisfied, as their future decisions will be constrained by precedent with which they do not agree. Barrow and Zuk (1990) suggest the influence of Supreme Court decisions on the lower federal courts, noting that U.S. Supreme Court decisions might set precedents that create pressures for lower federal judges to make decisions that they do not support ideologically. Their measure of the effect of Supreme Court decisions evaluates the impact of six major liberal civil liberties decisions handed down by the Court on the retirements on lower federal judges.

To create a more all-encompassing measure of the decisions of the Supreme Court, rather than focusing on a few individual cases we construct a measure of the general ideology of the decisions handed down by the Supreme Court. Because commonly–used indices the Court's ideology are not available for periods earlier than the middle of the twentieth century, we instead create a proxy for the ideological balance of the decisions rendered by the Supreme Court each year by measuring the proportion of the justices on the Court each year that are of the same general ideological type as the judge in question.[4] In line with our previous discussion, we expect this *Supreme Court Congruence* variable to have a negative influence on the hazard of retirement.

3.2.4 Age

Our final component of judges' personal factors influencing retirement is age.[5] Even accounting for age–related factors such as pension eligibility, one might still expect age to exert an independent effect on judges' retirement decisions. But while age has frequently been incorporated into analyses of judicial retirements, analyses of the effects of age on ju-

[4]The validity of this proxy relies on the well–established fact that the Court's decisions tend to reflect the ideological predilections of its members (cf. Segal and Spaeth 2002).

[5]Following Atkinson (1999), among others, one might also expect a judge's health to be an important factor in retirement decisions. However, because the of the tremendous difficulty of collecting health data for all federal judges in each year, we am unable to incorporate a direct measure of judges' levels of health in our model. Instead, we consider age to be, in part, a proxy for declining health late in life.

dicial retirement have produced mixed results at best. Both Squire (1988) and Zorn and Van Winkle (2000), measuring age simply as the actual age in years of each Supreme Court justice, find it to be an insignificant predictor retirement. Similarly, Nixon and Haskin find age to be "a significant consideration only for those (appeals court judges) who are facing the necessity of hurting their part(ies) if they retire" (2000, 472).

While there are several plausible reasons for the lack of importance of age in prior work on judicial retirements, one explanation stands out: the fact that human life expectancy has changed so dramatically since the creation of the federal courts in 1789. Because of this increased life expectancy, average retirement ages of judges during the eighteenth and nineteenth centuries are very different from the ages of the judges of the twentieth and twenty–first centuries, with the result of producing an inaccurate picture of the aggregate influence of age on retirement.[6]

In order to account for this change in human life expectancy throughout the existence of the federal court system, we develop an alternative expression of the age variable. Our *Age* variable is operationalized as the age of the judge divided by the median life expectancy during the year in question.[7] This measure, in effect, standardizes the measure by expressing age as the number of "median lives" that a judge has lived; our measure thus more effectively describes the effects of human aging on judicial retirement.[8] For obvious reasons, we expect the age variable to be positively correlated with a judge's hazard of retirement.

[6]For example, a regression of judges age on year indicates that the average age at which judges retire increases by approximately one year every twenty years; the model's predicted age of retirement, which begins at around 57 years in 1789, increases to 67.6 years by the year 2003.

[7]Judges' ages are calculated from the Federal Judicial Center biographical data; median life expectancy data used to scale the age variable were taken from Kurian (1994) and Woods (2000). Because we were unable to obtain median life expectancy data for the U.S. for years prior to 1900, for those years we instead use median life expectancies for England and Wales, which are generally similar to the statistics for the U.S.

[8]An examination of our rescaled measure makes clear that "average judges" are becoming younger over time. While the earliest federal judges typically sat on their courts until they reached 1.25 or even 1.50 times the average life expectancies of their respective periods, justices serving towards the end of the twentieth century are significantly younger, frequently serving for a bit less that one average life expectancy.

3.3 Policy–Related Influences

3.3.1 Ideological Distance (L)

The influence of political factors on judicial retirements have been central to nearly all previous studies of judicial retirements (e.g. Squire 1988; Hagle 1993; Brenner 1999; Zorn and Van Winkle 2000; Nixon and Haskin 2000), and have been operationalized in numerous ways. At heart, however, these analyses all rest on the assumption that the basis for any judge's efforts to retire strategically is to increase the chances that a like–minded successor will be appointed in his or her place. We therefore simplify the political considerations of judges by considering only the distance between the ideology of the judge who is considering retirement and the expected ideology of his or her successor.

Recall that, in the model presented above, the policy-related component of each judge's utility function associated with retirement L is a function of the distance between the ideology of the judge in question and the expected ideology of his or her successor. We derive these two indicators from a simple bargaining game between the president and the senate over the appointment and confirmation of federal judges. In particular, we operationalize each judge's own ideological position, as well as his or her expectation about the ideology of his or her successor, as the outcome of Moraski and Shipan's (1999) model of federal judicial appointments.[9]

The results of this simple game between the president and the Senate, with the ideology of the Senate normalized to zero, reveal the expected ideology of the new judge to be equal to the ideology of the president if the absolute value of the court's ideology is greater than or equal to the absolute value of the president's ideology. The expected ideology of the new judge is equal to the ideology of the court when the absolute value of the difference between

[9]In this model, the president seeks to appoint judges who are as close to his own ideology as possible, while the Senate similarly wants to confirm judges who are close to its median ideology. Generally speaking, the Senate is unwilling to confirm judges who will move the ideology of the court further than it already is from the ideology of the Senate, and the president is unwilling to appoint those who will move the ideology of the court further from his own ideology.

the president's ideology and the court's ideology are less than or equal to the absolute value of the ideology of the president. Finally, the expected value of the ideology of the new judge will be equal to the negative of the ideology of the court when the absolute value of the difference between the ideology of the president and the ideology of the court is greater than or equal to the absolute value of the ideology of the president.

We use political party to fix the ideologies of the president and Senate, with Democrats scored as zeros and Republicans scored as ones. For each judge in the data, we then use this approach to calculate his or her own ideological position ($\hat{I}_j$); subsequently, for each year in which a judge sits on the bench, we use the same procedure to calculate a variable for the ideology of each judge's successor ($\hat{I}_s$), based on that year's equilibrium outcome in Moraski and Shipan's (1999) appointment model described above. From these scores, we then calculate L – our measure of ideological distance between a judge and his or her likely successor – as equal to $-(\hat{I}_j = \hat{I}_s)^2$.

3.3.2 Court Balance (α)

The other key factor for consideration among our policy variables is a weight, dubbed α in the model above, that denotes the importance of the policy component of a judge's retirement utility function in determining his or her overall expected utility for retirement. The intuition behind this variable is that, while a judge may want to work to ensure that his or her successor is similar, ideologically speaking, to him or herself, the extent to which this will be a factor in his or her retirement decision also hinges critically on the composition of the court on which he or she currently sits. On a closely–divided court, where even a single appointment can tip the balance in many cases, we would expect a judge to weigh policy–related factors to a far greater extent than on a court where his or her retirement will have little effect on the court's ideological balance.

Thus, to operationalize α, we examine the court on which each judge in our sits, assigning "liberal" and "conservative" labels to the judges in the same manner as above. We create a measure of the ideological balance on the court in each year by taking the number of liberal judges on a court in a give year (L_t) divided by the total number of judges on the same court (T_t), subtracting 0.5 from this figure, and then taking two times the absolute value of the resulting quantity; the latter transformation has the effect of setting the scale of the measure to range between zero and one. Formally, we write:

$$B = 2 \times |\frac{L_t}{T_t} - 0.5| \tag{5}$$

This calculation produces a score – dubbed B – indicating the degree to which the court is ideologically (im)balanced; smaller values of B correspond to more ideologically balanced the courts, while larger values reflect greater homogeneity in ideological preferences on the court in that year. From B, we create a measure of α which reflects the expected effects of ideological balance on retirement decisions:

$$\alpha = 1 - B \tag{6}$$

The α weight then has the effect of expressing the probability of an ideological shift on a judge's court during a given year due to his or her retirement.[10] Note, however, that the theory outlined above suggests that the impact of both α and L will depend on the value of the other. Accordingly, we include the two component measures L and α, as well as their interaction αL, in our model. Intuitively, this interaction term measures the balance–weighted negative distance between a given judge's ideology and that of his or her likely

[10]Taking the Supreme Court as an example, a Court with nine liberal and zero conservative justices (or vice–versa) would receive a B score of one, producing an α value of zero and indicating that there is virtually no chance of an aggregate ideological shift occurring due to any single judicial appointment. At the other extreme, a Court with five liberals and four conservatives would have a B score of .11 and α value of .89, presenting a situation in which there is a significant chance that an appointment will affect the court ideologically.

successor in any given year. To the extent that lower (more negative) values reflect both a large ideological distance between the sitting judge and his or her likely successor, and/or a greater degree of ideological heterogeneity on that judge's court, we expect that larger values of αL will be associated with higher hazards of judicial retirement. Table 1 presents summary statistics for our covariates for each of the three types of courts in our analysis.

4 Analysis and Results

Cox (1972) proportional hazards estimates for judicial retirements in each of the three levels of the federal courts are presented in Table 2. Most striking over all are the similarities between the findings for the district and appellate courts; in nearly every case, the sign, significance and relative magnitude of the coefficients across these two courts are identical, suggesting that the process by which judges at the two levels make their retirement decisions are fundamentally similar. In contrast, those for the U.S. Supreme Court show marked differences from those for the lower courts.

Turning to individual variable effects, we find our indicator of judicial salary to have a significant relationship to retirements, with judges receiving higher salaries at lower risk for retiring. The effect is, however, relatively small; a salary increase equal to 10 percent of the current per capita GDP is associated with decreases in the hazard of retirement of 0.7, 1.0, and 0.4 percent for district, appellate and Supreme Court jurists, respectively. The effects of pensions are also as we expected, and are also significantly larger; a change in pension eligibility equal to 100 percent of the current per capita GDP (e.g., going from zero to one on the variable in the model) corresponds to increases in the hazard of retirement of 13.7, 17.6 and 4.4 percent for judges on the three courts. In both cases, and in the model more generally, the strongest effects are for judges on the U.S. Courts of Appeals, while the weakest are for the U.S. Supreme Court. This is, in some respects, unsurprising; given the

position which judges attain upon reaching the highest bench, retirement from the Supreme Court is unlikely to be significantly affected by material concerns.

The two job satisfaction measures also show interesting results. While ideological congruence with one's own court has consistently negative effects on the hazard of retirement, those effects fail to attain statistical significance for the Supreme Court. For the district and appeals courts, however, the magnitude of the influence of these variables is large. Also, and somewhat unexpectedly, the estimates for Supreme Court congruence are positive, indicating that (among district and court of appeals judges) greater ideological agreement with the Supreme Court increases the hazard of retirement, rather than lowering it. All else equal, a district court judge with one hundred percent of the U.S. Supreme Court sharing his or her ideology is 1.69 times more likely to retire than a district court judge with zero percent of the U.S. Supreme Court sharing his or her ideology. Similarly, with all other factors held constant, an appeals court judge with perfect ideological congruence with the U.S. Supreme Court is 2.07 times more likely to retire than an appeals judge with total ideological incongruence. Perhaps this result, which is counter to our expectations, is an indication that lower federal judges feel more comfortable retiring when they know that the highest court in the land shares their ideological values and that, as a result, their beliefs will be protected to some extent by the Supreme Court itself; in the same vein, this result may indicate an aversion among lower court judges to retiring when the Supreme Court is opposed to their ideology.

More generally, a number of explanations might exist for the general phenomenon of these differences between the lower federal courts and the Supreme Court. It is plausible that party support might be more critical to job satisfaction at the lower federal court levels because, due to the lesser amount of attention that the lower courts receive, dissenting opinions and other forms of disagreement on the lower courts likely have less impact than do dissents at the Supreme Court level. In addition, the fact that Supreme Court dissents have more

potential for receiving attention in political, legal, and academic arenas might make it less frustrating for Supreme Court justices to be in the ideological minority of their court than for lower federal court judges.

The final personal element of the model is age, the effects of which, while in the expected direction, fail to achieve statistically significance in any of the three models. Although counterintuitive, the insignificance of the age variable is consistent with nearly all previous research (e.g. Squire (1988), Zorn and Van Winkle (2000)). It seems likely that the effects of age are being captured by other variables in the model, most likely the *Pension* measure. As discussed earlier, the measure of pension eligibility is extremely significant for federal judges at all three levels; moreover, because age is a component of the judicial pension eligibility requirements, it seems very likely that the effects of age are being captured effectively by the pension indicator.

The effect on retirement hazards of our central indicator of the impact of policy considerations, αL, is estimate to be positive across all three models, but varies substantially between the U.S. Supreme Court and the lower courts. For the latter, the effect of αL is both substantively small and statistically indistinguishable from zero, indicating an effective absence of political influence on U.S. Supreme Court retirements. Conversely, the effects of politics on retirements from the lower federal courts are both large and statistically significant; a one–unit change in the αL measure yields increases in the hazard ratios of 11.65 and 11.51 for the district and appeals courts, respectively.[11]

This finding – that political factors are influential in lower federal court retirements, but not on those in the U.S. Supreme Court – is as puzzling as it is consistent with previous work. With respect to the latter, extant studies on the lower courts has persistently showed

[11] As a check on the robustness of these findings, Table 2 also includes results for models which include the measures for α and L individually, along with their multiplicative interaction. The results are largely consistent with those omitting the direct effects. We also estimated models which included variables for the race and gender of the judges in question, and found negligible effects of either variable.

an influence – occasionally conditional, but present just the same – of political factors on retirements (e.g., Barrow and Zuk 1990; Nixon and Haskin 2000). Likewise, the lack of importance of political and policy-related influences on Supreme Court justices are consistent with almost all of the research that has been conducted previously. Although Hagle (1993) does find some minor political influences in his aggregate study, the neither individual–level analyses by Squire (1988) nor by Zorn and Van Winkle (2000) nor by Brenner (1999) uncover any indication of political effects among Supreme Court justices's retirement decisions.

5 Conclusion

We have presented and examined empirically a decision–theoretic model of federal judicial retirements. That model, which incorporates both personal and political considerations, offers a number of expectations which are consistent with those present in previous studies; additionally, our empirical analysis finds support for nearly all of those expectations. Our study improves in several significant ways on existing research. For example, we offer improved measures of key influences on federal retirements, including age, salary, and pension eligibility. We also present and analyze a measure of political considerations which, we believe, better captures the Most important, we specify, operationalize, and estimate a unified model across all three levels of the federal judiciary. Doing so allows us, to a far greater extent than in previous work, to make comparisons in the retirement calculi of federal judges throughout the judicial hierarchy.

But while most of our findings are consistent with previous research, there remain some important differences between our results and the existing body of scholarly literature. In most cases, we have reason to believe our findings are more persuasive than those in earlier work. For example, previous studies by Squire (1988) and by Nixon and Haskin (2000) concluded that judicial salaries had little effect on judicial retirements. By contrast, our findings show salary to be a small, but significant, influence on retirement decisions at all

three levels of the federal judiciary. It is probable that this difference in results with respect to the salary variable is a reflection of scaling of the salary variable that we use compared to the non-scaled measure used by others previously, and that our salary measure – scaled in terms of the per capita gross domestic product – is a more accurate measure with which to compare the salaries of judges over time. At the same time, in at least two instance – the strong influence of pension eligibility, and the unimportance, conditional on other variables, of age as a factor in motivating retirement decisions – our improved measures work to reaffirm those of previous researchers.

Most interesting, however, are our findings for political influences on judicial retirements. Taken together, the strong influence of political factors at the district court and court of appeals levels, and the absence of those effects in the Supreme Court, are puzzling. One might expect that, due to the higher visibility associated with the Supreme Court and the increased level of gravity associated with decisions handed down from the "highest court in the land," the activities of the Supreme Court tend to be much more politicized than those of the lower federal courts; accordingly, it would seem reasonable to expect the actions of the justices to be more politically oriented than those of judges in the lower federal courts. It may be the case, as Brenner (1999) suggests, that justices are "unwilling to give up a present advantage in order to gain a future advantage." Alternatively, it may be that the discount rate that justices place on future policy outcomes is great enough that they gain a larger amount of utility by influencing current policy than they acquire by attempting to influence future policy formation. A final possibility is that, at the Supreme Court level, with the increased amount of public attention on Court vacancies and appointments, justices may simply be less able to predict accurately the ideologies of their potential successors. In other words, due to the multitude of political factors surrounding Supreme Court appointments, it is possible that the simple game developed here to predict the ideology of a justices's successor does not account for all of the influences involved, making a successor's ideology

more difficult to predict, and therefore making strategic retirement more difficult, or even impossible, for Supreme Court justices.

On the whole, we believe our work yields important new insights on the politics of federal judicial retirements, as well as adding validity to many earlier studies. Because of these improvements, we believe we present the most conclusive evidence yet of the impact of political factors on the retirements of federal district and appellate judges, and of the lack thereof in the Supreme Court.

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Table 1: Summary Statistics

Variables	District Courts	Courts of Appeals	Supreme Court
Court Tenure	9.46	8.95	11.73
	(7.21)	(6.59)	(8.26)
Salary	10.2	10.6	30.76
	(6.0)	(6.9)	(0.019)
Pension	1.03	2.04	5.56
	(3.25)	(4.73)	(13.3)
Own Court Congruence	0.73	0.65	0.70
	(0.26)	(0.24)	(0.25)
Supreme Court Congruence	0.60	0.58	–
	(0.28)	(0.27)	
Rescaled Age	0.94	0.94	1.24
	(0.24)	(0.20)	(0.30)
α	0.42	0.55	0.43
	(0.38)	(0.33)	(0.28)
L	-0.21	-0.15	-0.20
	(0.33)	(0.25)	(0.30)
αL	-0.05	-0.06	-0.08
	(0.11)	(0.11)	(0.15)
NT	30654	7605	1740

Note: Cell entries are variable means; numbers in parentheses are standard deviations.

Table 2: Cox Proportional Hazards Model Estimates

Variables	District Courts		Courts of Appeals		Supreme Court	
Salary	-0.07**	-0.08**	-0.10**	-0.11**	-0.04*	-0.04*
	(0.01)	(0.01)	(0.03)	(0.03)	(0.02)	(0.02)
Pension	0.13**	0.13**	0.16**	0.16**	0.04**	0.04**
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)
Own Court Congruence	-2.41**	-2.67**	-2.15**	-2.43**	-0.78	-0.93
	(0.14)	(0.12)	(0.31)	(0.30)	(0.68)	(0.69)
Supreme Court Congruence	0.52**	0.73**	0.73**	0.75**	–	–
	(0.12)	(0.25)	(0.25)	(0.26)		
Rescaled Age	0.30	0.08	0.21	0.03	-0.20	-0.27
	(0.24)	(0.25)	(0.46)	(0.47)	(0.81)	(0.81)
α	–	-1.30**	–	-0.74**	–	-0.60
		(0.13)		(0.30)		(0.77)
L	–	0.79**	–	0.44	–	0.57
		(0.12)		(0.31)		(0.80)
αL	2.46**	0.33	2.44**	1.45*	0.25	-0.85
	(0.42)	(0.44)	(0.63)	(0.80)	(1.12)	(1.62)
NT	30654		7605		1740	

Note: Cell entries are coefficient estimates; numbers in parentheses are robust standard errors. One asterisk indicates $p < 0.05$, two indicate $p < 0.01$ (one–tailed).

Figure 1: Kaplan–Meier Survival Function Estimates