



## Decomposing the Sources of Incumbency Advantage in the U. S. House

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## *Decomposing the Sources of Incumbency Advantage in the U.S. House*

This paper develops a model of incumbency advantage that takes into account candidate quality, and then estimates the parameters of that model using panel data on the U.S. House from 1948 to 1990. Our approach allows us to go beyond the previous literature, which has focused primarily on measurement of incumbency advantage, to a decomposition of its sources. The primary explanation for the rising incumbency advantage appears to be the increasing ability of incumbents to deter high-quality challengers. In contrast, direct officeholder benefits (e.g., franking privileges, media exposure, fund-raising advantages, etc.) have been relatively stable over time and now account for less than half of the overall incumbency advantage.

Incumbency status is a critical determinant of success in elections to the U.S. House of Representatives. Over the last two decades, well over 90% of the incumbents seeking reelection have been successful. Even in 1992, after widespread redistricting and a groundswell of public disillusionment fueled by the House Banking scandal, 93% of the incumbent candidates were successful in the general election. In 1994, over 90% of all incumbents were once again victorious in the general election, including all of the more than 150 standing Republicans.

Although a large literature has been devoted to the topic of the incumbency advantage in the U.S. House,<sup>1</sup> Gelman and King (1990) demonstrate that previous estimates of the incumbency advantage suffer from various sources of bias. Gelman and King propose their own cross-sectional model and demonstrate that it is unbiased under certain conditions. Since that paper, relatively little attention has been devoted to the topic with the exception of Krashinsky and Milne (1993) and Cox and Katz (1994).

While our paper offers some technical improvements over previous studies, its primary contribution is that it goes beyond simple

measurement of incumbency advantage to actually decomposing the advantage into three components: direct officeholder benefits (such as the franking privilege, fund-raising advantages, etc.), the ability of incumbents to scare off high-quality challengers, and higher average quality of incumbents vis-à-vis the typical open-seat candidate. We first develop a model of incumbency advantage that incorporates all three components and demonstrate that this model can be estimated using a panel of congressional elections. We then proceed to show that a sophomore surge analysis, by looking at a particular incumbent over time, controls for incumbent quality. We modify sophomore surge using a technique proposed by Gelman and King (1990) to correct for the biases in the standard sophomore surge approach (Erikson 1971). Comparing the sophomore surge estimates to our baseline estimates, we are able to measure the average quality differential of incumbents in relation to the typical open-seat candidate.

In order to differentiate between direct officeholder benefits and the ability to deter high-quality challengers, we take the logic of sophomore surge a step further. Just as following the same incumbent over time controls for incumbent quality, examining multiple races involving the same two candidates provides a means of controlling for both incumbent and challenger quality. Changes in vote shares in such races, after controlling for other relevant factors, provide an estimate of direct officeholder benefits. Comparing that estimate to our sophomore surge estimates therefore provides an indirect means of measuring the ability of incumbents to deter high-quality challengers.

Our baseline estimates of incumbency advantage presented in Section I closely mirror the earlier results of Gelman and King (1990). We estimate that the overall incumbency advantage has increased from 3.4% in the 1950s to 8.0% in the 1980s. The sophomore surge estimates presented in Section II are similar in magnitude to the estimates of the first section, implying that high incumbent quality is not a major component of incumbency advantage. Estimates of direct officeholder benefits in Section III, obtained by looking at repeat contests involving the same two candidates, suggest that such benefits have been relatively stable over time and cannot explain much of the growth in incumbency advantage over the last two decades. Rather, an increased ability of incumbents to deter high-quality challengers appears to be the major factor underlying the rising incumbency advantage. Section IV offers a brief conclusion.

### Section I: A Model of the Incumbency Advantage

The outcome of a congressional election is assumed to be a function of the normal vote in a district, incumbency status, the quality of the competing candidates, and national-level political forces. Formally, the percentage of the two-party vote obtained by the Democratic candidate in district  $i$  and year  $t$  is written as follows:

$$V_{it} = N_i + \delta_t I_{it} + Q_{it}^d - Q_{it}^r + \gamma_t + \varepsilon_{it} \quad (1)$$

where  $i$  corresponds to districts,  $t$  indexes the time period,  $V_{it}$  is the percentage of the two-party vote accruing to the Democratic candidate, and  $N_i$  is a district-specific constant corresponding to the normal vote (assumed constant between redistrictings).  $I_{it}$  is an indicator variable capturing incumbency status in a district and is equal to 1 if the Democratic candidate is an incumbent,  $-1$  if the Republican candidate is an incumbent, and 0 otherwise.  $Q_{it}$  is the “quality” of the candidate seeking office, with superscripts corresponding to party.<sup>2</sup>  $\gamma_t$  reflects national partisan swings across all districts in a given year, and  $\varepsilon_{it}$  is a district-specific shock, assumed to be normally distributed with mean zero.

The difference in quality between two candidates running for a given seat is not directly observable, but is likely to vary systematically across candidates.<sup>3</sup> Because high-quality candidates are more likely to win elections, the typical incumbent will be of above average quality as a consequence of selection bias. Conversely, if strong challengers are deterred by the presence of an incumbent, the typical challenger will have lower quality than the average open-seat candidate. Average candidate quality may also vary across parties within a district; heavily Democratic districts may field stronger Democratic candidates on average. Without loss of generality, let the quality differential across candidates be expressed as follows:

$$Q_{it}^d - Q_{it}^r = (\psi_i^d - \psi_i^r) + (\theta_t^I + \theta_t^C)I_{it} + \eta_{it} \quad (2)$$

where  $\psi_i$  is the average quality level of open-seat candidates from a given party in district  $i$ ,  $\theta_t^I$  is the quality difference between the average incumbent and the average candidate for an open seat, and  $\theta_t^C$  is the quality difference between the average challenger and the average candidate for an open seat.  $\eta_{it}$  is a noise term, assumed to be normally distributed and uncorrelated with  $\varepsilon_{it}$  and the regressors in equation (1). Equation (2) is simply a convenient notation for characterizing quality differences; the only assumptions underlying equation (2) are those on the error term.

Combining equations (1) and (2) yields,

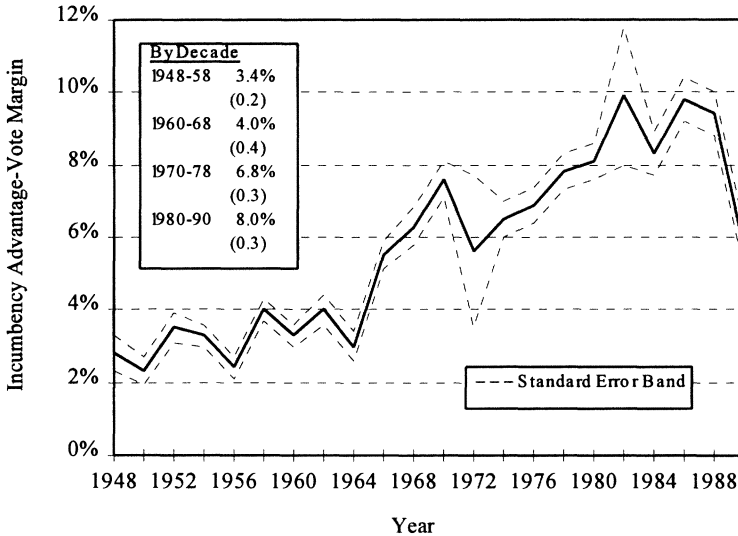
$$V_{it} = [N_i + (\psi_i^d - \psi_i^r)] + [\delta_t + (\theta_t^I + \theta_t^C)] I_{it} + \gamma_t + (\eta_{it} + \varepsilon_{it}) \quad (3)$$

Equation (3) can be estimated using panel data by regressing the congressional vote on the incumbency status in the district with year dummies and a fixed effect for each district also included. The first term in brackets on the right hand side, the district-specific intercept term, is the expected vote in the district with candidate quality taken into account. The second bracketed term, the coefficient associated with the incumbency dummy, is what we denote the incumbency advantage accruing to the party. It reflects the increase in the vote that a party can expect when represented by an incumbent as opposed to an open-seat contest. The incumbency advantage to the party includes both direct officeholder benefits ( $\delta_t$ ), and any differences in candidate quality. The size of the incumbency advantage is free to vary by year (as reflected by the subscript  $t$  on the coefficients) in order to capture changes in magnitude over time. Note that the various components of the incumbency advantage cannot be disentangled in equation (3); only an aggregate measure is attainable. The third term,  $\gamma_t$ , which is the coefficient on a series of year dummies, captures nationwide partisan swings. Likely sources of such shocks are presidential coattails (Calvert and Ferejohn 1983; Campbell 1986), systematic presidential punishment at the midterm (Alesina and Rosenthal 1989; Erikson 1988), and economic factors (Erikson 1990; Tufte 1975). For the purposes of this paper, however, it is enough to be able to measure aggregate partisan swings without concern for the ultimate source of those swings.

Equation (3) is estimated using district-level congressional elections from 1948 to 1990. Whenever redistricting occurs, the resulting district is treated as a separate district. Results from the first election in a district following redistricting are not included in our sample due to the difficulty in determining the incumbency status in those elections. Also, because of concerns over possible drift of the normal vote in a district over time, the normal vote is constrained to be constant for a maximum of 10 years. For those districts that were not redistricted within a 10-year period, separate estimates of the normal vote are obtained for each decade. Finally, we exclude uncontested elections from our sample because the true proportion of the vote that would have gone to the two parties had there been a major party opponent is not observed.<sup>4</sup>

The year-by-year estimates of the incumbency advantage, along with White-heteroskedasticity consistent standard error bands are displayed in Figure 1. The coefficients represent the extra percentage

FIGURE 1  
Incumbency Advantage of the Party



*Note:* Estimates based on the specification in equation (3). Number of observations is equal to 5,760. Fixed-effects for each district (a total of 1,610) and 22 year dummies also included in the regression. Standard error bands based on White-heteroskedasticity consistent standard errors. Uncontested elections were eliminated from the sample, as was the first election following redistricting, leaving 5,760. Adjusted  $R^2$  for the regression is .89. After removing the fixed effects, the remaining variables explain 36% of the within-district variance.

of the vote that a party with an incumbent seeking reelection can expect to receive in a given district vis-à-vis an open-seat election. With the exception of the years 1972 and 1982, where widespread redistricting limits the number of available observations, the estimates are quite precise. The incumbency advantage is significantly positive in all years and exhibits a clear upward trend over time. Averaged over decades, the incumbency advantage has grown from 3.4% in the 1950s to 8.0% in the 1980s.<sup>5</sup> Nonetheless, the increase we find is less pronounced than that found in almost all previous analyses (see, for instance, Alford and Hibbing 1981; Collie 1981; Cover and Mayhew 1977; Mayhew 1974).

The estimates of the national partisan swings between presidential election years and the ensuing midterm are presented in Table 1.

TABLE 1  
Estimated Partisan Swings between Elections

Election Cycle	Partisan Swing	Party Benefiting	Party of the President
1988–90	0.6% (0.4)	Democratic	Republican
1984–86	2.9% (0.4)	Democratic	Republican
1980–82	7.0% (2.6)	Democratic	Republican
1976–78	2.2% (0.4)	Republican	Democratic
1972–74	5.0% (1.3)	Democratic	Republican
1968–70	3.9% (0.5)	Democratic	Republican
1964–66	7.1% (0.5)	Republican	Democratic
1960–62	1.2% (0.5)	Republican	Democratic
1956–58	6.5% (0.4)	Democratic	Republican
1952–54	4.4% (0.5)	Democratic	Republican
1948–50	3.6% (0.6)	Republican	Democratic

*Note:* Estimates based on the specification in equation (3). Fixed-effects for each district and incumbency variables also included in regression. See notes to Figure 1 for further details of estimation.

The values in the table represent the predicted change in the Democratic candidate's two-party vote share between the two elections (i.e.,  $\delta_{t+1} - \delta_t$ ). There is strong evidence for the midterm cycle. In each case, the party of the president loses votes between the on and off-year elections, with the average loss being 4.4% of the vote.<sup>6</sup> The estimates appear plausible and are also quite precise except when the election cycle coincides with widespread redistricting in 1972 and 1982. The largest swings—approximately 7% of the vote—follow the Johnson landslide in 1964 and the Reagan victory in 1980, whereas the Bush, Carter, and Kennedy administrations experience much smaller midterm gaps. The particular election years most favorable to Democrats were 1964 and 1970. Republicans fared best in 1952, 1980, and 1984.<sup>7</sup>

## Section II: Controlling for Incumbent Quality with a Modified Sophomore Surge Analysis

To obtain accurate estimates of the benefits incumbency provides to a particular individual (as opposed to the candidate's party in general), one must control for the quality of the incumbent, a task made difficult because quality is not directly observable. Assuming that a candidate's intrinsic quality remains constant across elections, the solution to this difficulty is to employ a sophomore surge analysis, in other words, to compare the vote share received in an incumbent's first bid for reelection to the vote share obtained when that candidate ran as an open-seat candidate. While standard sophomore surge estimates are biased downwards (Erikson 1971), Gelman and King (1990) develop a method to correct for that bias, the intuition for which is presented below.

Let congressional elections be modeled as before by equation (1). To simplify exposition, we will focus on the case where the candidates contend for an open seat at time  $t$ , and the Democratic candidate is the victor. The logic is identical when considering Republican rather than Democratic incumbents (although the formulas change slightly). The relevant equation describing the sophomore surge (obtained by subtracting equation (1) in time period  $t$  from equation (1) in time period  $t+1$ ) is

$$\Delta V_{it+1} = [\delta_{t+1} + \theta_{t+1}^C] \Delta I_{it+1} + \Delta \gamma_{t+1} + (\eta_{it+1} + \varepsilon_{it+1}) - (\eta_{it} + \varepsilon_{it}) \quad (4)$$

where  $\Delta$  represents the change between time  $t$  and  $t+1$ . Equation (4) is simply the change in the vote share between the two elections. When



applied to the set of elections where an incumbent seeks reelection for the first time at  $t+1$ , it is a measure of sophomore surge. Note that the district-specific constant and incumbent quality coefficient disappear because they are assumed constant across the two elections.

Direct estimation of equation (4) will be biased due to sample selection. Only candidates who were successful in winning elections at time  $t$  are later observed as incumbents at time  $t+1$ . The set of winning candidates is likely to be disproportionately composed of candidates who received favorable electoral shocks at time  $t$ . Correcting the sample selection bias in equation (4) requires the elimination of any correlation between  $I_{it+1}$  and the error terms. To accomplish that, an estimate of the expected value of the error terms *conditional on the realization of  $I_{it+1}$*  is required. Using the assumption of normality, the conditional expectations of the error terms (which are distributed as truncated normals) can be expressed as follows:

$$\begin{aligned} E[\eta_{it} + \varepsilon_{it} \mid V_{it} > .50] &= \sigma_t \lambda(\psi_{it}) \\ E[\eta_{it+1} + \varepsilon_{it+1} \mid V_{it} > .50] &= \rho (\sigma_t \lambda(\psi_{it})) \end{aligned} \quad (5)$$

where  $\sigma_t$  is the standard error of the error term from equation (1).  $\lambda(\psi_{it})$  is defined as  $\phi(\psi_{it})/(1-\Phi(\psi_{it}))$  where  $\phi(\cdot)$  and  $\Phi(\cdot)$  are respectively the density and cumulative distribution functions of the standard normal.  $\psi_{it}$  is defined as  $(.50 - \mu_{it})/\sigma_{it}$ , where  $\mu_{it}$  is the expected Democratic share of the vote in district  $i$  in year  $t$ .  $\rho$  is the serial correlation in the error term in equation (1). The function  $\lambda$  is sometimes known as an inverse Mills ratio (Greene 1990). Note that the conditional expectation of the time  $t+1$  error will be equal to zero if there is no serial correlation in the error terms.

Computing equation (5) requires unbiased estimates of the expected Democratic share of the vote in district  $i$  at time  $t$ , the variance of the error term  $\sigma_t$ , and the serial correlation  $\rho$  in the error term. The results of Section I meet the first two requirements. Bhargava, Franzini, and Narendranthan (1982) present a panel data generalization of the Durbin-Watson statistic that is used to obtain unbiased estimates of  $\rho$  from the residuals obtained in Section I.

Subtracting equation (5) from both sides of equation (4) yields an equation that is free of sample selection bias.

$$\Delta V_{it+1} - (1 - \rho)(\sigma_t \lambda(\psi_{it})) = [\delta_{t+1} + \lambda\theta_{t+1}^c] \Delta I_{it+1} + \Delta \gamma_{t+1} + \pi_{it+1} \quad (6)$$

where  $\pi$  is shorthand for a complicated expression for the error term, which is mean-zero and uncorrelated with the right-hand side variables.

Consequently, estimation of equation (6) will lead to unbiased estimates of the incumbency advantage to the individual.

Equation (6) is estimated using the 684 observations in our sample involving sophomore representatives who were contested in their first two elections. For purposes of computing the sample selection bias correction, the estimate of  $\sigma$  is allowed to vary by decade. According to our estimates, election outcomes have become more variable over time, confirming Jacobson (1987).<sup>8</sup> The technique of Bhargava, Franzini, and Narendranthan (1982) yields an estimated serial correlation parameter  $\rho = .36$ .

Estimates for both the standard sophomore surge, as well as our modified sophomore surge measure are presented in Table 2. Because the year-by-year parameter estimates are imprecise, the results in the table are aggregated by decade. Column (1) contains the most primitive measure, controlling for neither national partisan swings nor sample selection bias. Column (2) controls for partisan swings, but does not take into account sample selection bias. Column (3) controls for both national partisan swings and sample selection bias. As was expected, the estimates in columns (1) and (2) exhibit substantial downward bias. Estimates of the sophomore surge are more than two percentage points lower in column (1) than column (3).<sup>9</sup> Most of that difference results from the sample selection correction rather than from controlling for partisan swings.

The modified sophomore surge measure in column (3) yields results that are strikingly similar to those obtained in Section 2 when estimating the incumbency advantage to the party. For none of the four decades can we reject the null hypothesis that the incumbency coefficients from the two different models are identical. Any differences between the two sets of estimates, aside from noise, should be attributable to systematic quality differences between incumbents and the typical open-seat candidate. The fact that the results correspond quite closely across the specifications implies that any such quality differentials are small.

### **Section III: Estimating the Magnitude of Direct Officeholder Benefits using Elections with Repeat Challengers**

From the previous two sections it is impossible to determine whether incumbency advantage is the result of direct officeholder benefits or of an incumbent's ability to scare off high-quality challengers. Officeholder benefits include franking privileges and opportunities to provide constituent services, as well as the indirect

TABLE 2  
Estimates of the Sophomore Surge and Direct Officeholder Benefits

	<u>Sophomore Surge Estimates</u>			Direct Officeholder Benefits
<i>Years</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>
1980–90	5.2 (0.6)	5.5 (0.6)	7.6 (0.7)	3.7 (1.0)
1970–78	4.7 (0.5)	5.3 (0.6)	7.4 (0.7)	5.1 (0.7)
1960–68	1.0 (0.4)	2.3 (0.5)	3.6 (0.5)	3.1 (0.4)
1948–58	1.1 (0.4)	2.0 (0.5)	3.4 (0.6)	1.3 (0.6)
<i>Control for:</i>				
Partisan swings	No	Yes	Yes	Yes
Sample selection	No	No	Yes	Yes
Challenger quality	No	No	No	Yes
Observations	684	684	684	122
Adjusted R <sup>2</sup>	.23	.34	.47	.42

*Note:* Sophomore surge estimates are based on equation (6) and reflect the change in voter percentages between open-seat contests and the winner's first bid for reelection. Direct officeholder benefit estimates are based on equation (8) and reflect the results in elections involving the same candidates, but with a change in incumbency status. White-heteroskedasticity consistent standard errors in parentheses.

benefits of media exposure, potential advantages in fund-raising, and experience in running successful campaigns (Cover and Brumberg 1982; Cover and Mayhew 1977; Fiorina 1977; Johannes 1984; Mayhew 1974; Serra 1994; Serra and Moon 1994). The ability to deter high-quality challengers arises because strong challengers may be hesitant to engage in costly and time-intensive campaigns against incumbents, especially given the high rates of reelection for incumbents and the possibility that losing will hinder future political advancement (Collie 1981; Jacobson and Kernell 1981; Mann and Wolfinger 1980).

Separating these two sources of advantage requires controlling for challenger quality. Previous analyses have attempted to construct indexes of candidate quality (Krasno and Green 1988). We take a more direct approach, focusing on pairs of congressional contests that satisfy two conditions: the same two candidates face one another in both elections, and their incumbency status differs across the two elections. Two situations fit these conditions. In one case, two candidates vie for an open seat in an election, and the loser returns to challenge the winner (who now benefits from an incumbency advantage) in the following election. In the second case, an incumbent is defeated and returns to challenge the candidate to whom he or she lost earlier (despite the fact that he or she has lost the incumbency advantage while the opponent has gained it). Under the assumption that candidate quality remains constant across elections, pairs of elections satisfying those two conditions are described by the following equation:

$$\Delta V_{it+1} = (\delta_{t+1})\Delta I_{it+1} + \Delta \gamma_{t+1} + (\eta_{it+1} + \varepsilon_{it+1}) - (\eta_{it} + \varepsilon_{it}) \quad (7)$$

where all quality terms have now been eliminated. If quality increases with experience for repeat challengers,  $\delta$  will tend to be underestimated. Levitt (1994a), however, tests that claim and finds little evidence of systematic changes in candidate quality across elections.

Estimation based on equation (7) will suffer from sample selection bias for the same reasons cited with respect to equation (4) in the previous section; namely, candidates who receive favorable electoral shocks at time  $t$  are more likely to be incumbents in period  $t+1$ . Therefore, the following sample selection correction is made prior to estimation.

$$\Delta V_{it+1} - (1 - \rho)(\sigma_{it} \lambda(\psi_{it})) = (\delta_{t+1})\Delta I_{it+1} + \Delta \gamma_{t+1} + \pi_{it+1} \quad (8)$$

where all variables are defined as previously, and the error term is condensed into  $\pi_{it+1}$ . Estimation of equation (8) on the sample of elections where two candidates meet on multiple occasions, between which

incumbency status has changed, provides unbiased estimates of direct officeholder benefits for that subset of incumbents as long as the challenger's decision to run is not correlated with unobservable district shocks. To the extent that the decision to run is highly correlated with the *national* political landscape as opposed to local conditions, this problem is likely to be less severe. In our sample, 73% of those seeking to avenge a defeat choose to do so in a year that has a more favorable national partisan swing than the year in which they previously lost, highlighting the importance of national-level events. Nonetheless, the results of this section are substantially more speculative than those of the previous sections.

There are 122 pairs of elections in which the same two candidates faced one another before and after a change in incumbency status. Using those elections, we estimate equation (8). Because of the limited number of observations, we restrict the partisan swing coefficients  $\gamma_i$  to take on the estimated values obtained from regressions of equation (3) in Section II. Column (4) of Table 2 contains the results. Those candidates who face repeat challengers—and thus garner only the direct officeholder benefits of incumbency—attain significant, but substantially reduced, incumbency advantages. In contrast to the other measures of the incumbency advantage, direct officeholder benefits appear to have declined in the 1980s. Comparing the 1960s to the 1980s, officeholder benefits have increased by less than one percentage point, explaining less than one-sixth of the increase we found over the same period using our modified sophomore surge estimator in column (3). Rather, it appears that most of the increase in the incumbency advantage is due to an increased ability of incumbents to deter high-quality challengers.

#### Section IV: Conclusion

Our approach to measuring the incumbency advantage, utilizing both panel data and a modified sophomore surge analysis, provides unbiased measures of both the incumbency advantage to the party and to the individual candidate. Not surprisingly, we find that both measures have grown since the 1950s. The close correspondence between the two measures suggests that incumbents are, on average, not of inherently higher quality than the typical open-seat candidate. We also find that while direct officeholder benefits are substantial, a large fraction of the incumbency advantage is the result of incumbents' apparent ability to deter high-quality challengers. Virtually all of the growth in the incumbency advantage since the 1960s appears to be attributable to a reduction in the relative quality of challengers.

The dramatic increase in campaign spending, which has more than doubled in real terms over the last two decades, is the most likely source of decline in high-quality challengers. As the costs of waging a competitive campaign increase, so must the time and effort devoted to fund-raising. While the rising costs of campaigning will adversely affect all challengers, it will have its greatest impact on those challengers who have the highest opportunity costs of their time. High opportunity cost challengers (e.g., successful lawyers, businessmen, celebrities, or current officeholders) are also likely to be high-quality candidates, potentially explaining the decline in good challengers. A second possible explanation for the decrease in talented challengers is that the stigma associated with losing has grown over time. As that stigma increases, candidates with higher political aspirations will avoid challenging incumbents, waiting instead for open-seat contests. Developing a clearer understanding of the explanations for the disappearance of the high-quality challenger remains an important topic for future research.

To the extent that incumbents succeed in deterring strong challengers, a large and growing incumbency advantage can become a self-fulfilling prophecy driven by the strategic behavior of politicians. As the apparent electoral advantage of incumbents grows over time, more and more potentially viable challengers decide not to enter races against incumbents, further reinforcing the apparent invincibility of incumbents. As a consequence, the incumbency advantage continues to grow, though we have found direct officeholder benefits contributed little to the growth.

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## NOTES

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1. This literature includes, but is not limited to, Alford and Hibbing (1981), Collie (1981), Cover (1977), Cover and Mayhew (1977), Erikson (1971), Krashinsky and Milne (1993), Mayhew (1974), Nelson (1979), Payne (1980). King and Gelman (1991) considers the effects of the incumbency advantage on the competitiveness of elections.

2. Because the choice of scaling on the candidate quality variables is arbitrary, there is no loss of generality from having  $Q_{it}$  enter directly into (1) rather than being scaled by a coefficient.

3. There are, of course, imperfect measures of candidate quality such as having previously held elective office. While the approach we adopt here provides an indirect means of circumventing candidate quality issues, Cox and Katz (1994) use candidate quality proxies in an attempt to directly control for quality. They find effects of candidate quality that are qualitatively similar to those presented in this paper, but roughly half the magnitude. The smaller magnitude of their effects is consistent with attenuation bias associated with an imperfect proxy for candidate quality.

4. Excluding uncontested elections is an example of sample selection on the dependent variable, a practice that typically leads to bias. Using very different techniques, however, both Gelman and King (1990) and an earlier version of this paper demonstrate that the extent of the bias is empirically quite small (less than half a percentage point).

5. For classification purposes, we include 1948 in the 1950s, and we include 1990 in the 1980s.

6. Levitt (1994b) provides an empirical test of competing explanations of the midterm gap.

7. In an earlier draft, we detail a number of variations on the assumptions underlying the specification in equation (3). Among the variations were the inclusion of the lagged congressional vote as a regressor, corrections for endogeneity of the incumbent's decision to seek reelection, and changes in the size of the incumbency advantage with seniority. None of these changes to the specification altered the basic conclusions.

8. The estimates of  $\sigma$  are .036 for the 1950s, .040 in the 1960s, .053 for the 1970s, and .051 in the 1980s.

9. The failure to control for sample selection also explains why previous sophomore surge analyses have found a greater percentage increase in the incumbency advantage than we observe: the sample selection correction has grown much more slowly than the unadjusted sophomore surge measure. For instance, between the 1950s and the 1980s, the unadjusted sophomore surge measure grew almost 400% (from 1.1% to 5.2%). By comparison, our corrected sophomore surge measure slightly more than doubled (from 3.4% to 7.6%).

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