Incumbent-Quality Advantage and
Counterfactual Electoral Stagnation in the U.S. Senate

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Abstract

This paper presents a simple statistical exercise to provide a benchmark for the degree of electoral stagnation without direct officeholder benefits or challenger scare-off effects. Here electoral stagnation arises solely due to incumbent-quality advantage where the higher quality candidate wins the election. The simulation is calibrated using the observed drop-out rates in the U.S. Senate. From 1946 to 2010, the observed incumbent reelection rate is 81.7 percent; the benchmark with incumbent-quality advantage alone is able to generate a reelection rate of 78.2 percent. In the sub-sample from 1946 to 1978, the reelection rate from the simulation is almost identical to the observed. The rates diverge in the second part of the sub-sample from 1980 to 2010, possibly indicating an increase in electoral stagnation due to incumbency advantage arising for reasons other than incumbent-quality advantage.

1. Introduction

A central purpose of democratic elections is to weed out incumbents who perform poorly. Electoral stagnation with high rates of reelection may be a symptom of a poorly functioning political system if the process is failing to replace low-quality incumbents. It is often argued that the U.S. suffers from congressional stagnation through the repeated reelection of most incumbents, preserving the status quo.[1] The academic literature often cites incumbency advantage arising from *direct officeholder benefits* (superior media exposure, franking privileges, fundraising advantages etc.) and from *indirect officeholder benefits* through scaring off high-quality challengers as driving forces behind the high reelection rates.

However, it is also pointed out that even if direct and indirect officeholder benefits were insignificant, the higher average quality of an incumbent vis-à-vis the quality of a typical open-seat candidate can generate high reelection rates. The fact that the incumbent defeated her original opponent implies that her quality is of a relatively high standard. As such, it may not be surprising if the incumbent goes on to be reelected in subsequent elections. In contrast to electoral stagnation due to officeholder benefits, stagnation arising from incumbent-quality advantage implies retention of high-quality officeholders. In this paper we make a crude first pass at quantifying this *incumbent-quality advantage* effect on electoral stagnation.

To provide a benchmark for the degree of electoral stagnation in the absence of officeholder benefits, this paper simulates elections where the median voter prefers the higher quality candidate. The simulation is calibrated using observed drop-out rates in the U.S. Senate over the period from 1946 to 2010. The reelection rates from the simulation are then compared to the observed reelection rates in the U.S. Senate across terms in office and across time periods. While our statistical exercise is very simplistic, the reelection rates from the counterfactual setup without direct or indirect officeholder benefits may provide a benchmark for electoral stagnation solely due to incumbent-quality advantage.

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[1]Matland and Studlar (2004) compares twenty five countries over the period from 1979 through 1994 and finds that in legislative elections the U.S. has the highest reelection rate.

The literature on congressional races typically focuses on vote shares rather than reelection rates.[2] However Jacobson (1987) argues that what matters most is winning or losing, not the size of the victory. While vote margins are clearly closely related to reelection rates, the relationship is not necessarily one to one. Jacobson (1987) shows that from the 1950s to the 1980s vote shares of House incumbents increased by roughly 5 percent, but there was no rise in the reelection rates. Likewise, Garand (1991) and Jewel and Breaux (1988) demonstrate that margins of incumbents grew substantially in state legislative races in the 1970s and 1980s, but reelection rates barely increased. Hence we analyze reelection rates directly.

Stone et al. (2004 and 2010), Carey et al. (2000), Gowriskaran et al. (2008) and Diermeier et al. (2005) have results on the factors that influence the reelection rate.[3] We take a stab at a different question and examine how much of the observed reelection rate can be accounted for by incumbent quality alone.

2. Setup

We assume that candidate "quality" is perfectly observable and the median voter strictly prefers the higher quality candidate.[4] The electoral outcome is deterministic given the candidates' quality scores. The quality score ($q \in \mathbb{R}$) for each candidate is drawn independently from the same distribution function f(q). Any distribution function with

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[2] Reelection rate contains less information than vote margin since the former is dichotomous while the latter is continuous. Therefore Ansolabehere and Synder (2002) suggests that studying the margin enjoyed by the candidate due to incumbency status is "the first step" to understanding reelection rates. See Cox and Katz (1996), Levitt and Wolfram (1997) and Hirano and Snyder (2009) for decomposition of vote margins based on incumbency advantage into components.

[3] Carey et al. (2000) shows that the reelection rate is higher in states where the institutional environment lends itself to higher officeholder benefits. Gowriskaran et al. (2008) demonstrates negative term effects on reelection probability and suggests that the scare-off effect may be significant. Employing surveys on electoral prospects and quality, Stone et al. (2007 and 2010) show that incumbent quality improves electoral prospects. Diermeier et al. (2005) confirms that skilled politicians have higher reelection rates.

[4] In a sophisticated optimizing framework with forward-looking voters Gowrisankaran et al. (2008) shows that voters may choose not to vote for the high-quality incumbent even if they care only about quality. They may vote for the low-quality challenger in case they expect the high-quality incumbent to drop out in the subsequent election. This is because voters may anticipate future open-seat candidates to be of lower quality than the candidate who is currently challenging the incumbent.

continuous c.d.f. is permitted. The quality score of a candidate translates into her standing in the population of potential candidates. Since the c.d.f. is continuous, ties occur with zero probability. The quality of a candidate is permanent, so incumbents do not learn on the job, nor do they become detached from their constituents over time.

Start with an open-seat contest two candidates run for office. The higher quality candidate wins the seat and in the next round becomes an incumbent first-term senator. The first-term senator either drops out with probability p_1 or runs for reelection. If the incumbent drops out after the first term once again we have an open-seat contest. If she doesn't drop out, a challenger – with quality drawn from f(q) – contests the election. If the challenger has higher quality, then the incumbent is defeated and the challenger now becomes a first-term senator. If the incumbent wins, as a second-term senator she either drops out with probability p_2 in the next round or runs for reelection. The dropout probabilities p_i in each term i are potentially different from each other. The process continues in this fashion until the incumbent (either the original senator or a victorious challenger) drops out resulting in an open seat. Notice that after n elections since the last open seat, the quality of the incumbent is the $n+2$nd order statistic of $n+2$ draws from f(q). Hence the expected quality of an incumbent is increasing in the number of elections since the last open seat.

To calculate the reelection rates, the dropout probabilities for each term need to be specified. These are taken from the observed U.S. Senate dropout rates from 1946 to 2010. Since the problem is identical at each open seat, it has a recursive structure. However, because there are an infinite number of possible states (the term of the current incumbent and the number of elections since the last open seat) we calculate the reelection rates via simulation.

3. Data

Each U.S. state is represented by two senators. Senators can serve unlimited six-year terms. Elections are staggered with approximately one-third of the Senate seats up for election every two years. The data for the U.S. Senate elections from 1946 to 2010 is garnered from the

Office of the Clerk of the U.S. House of Representatives.[5] Biographical details for individual senators are obtained from the Congressional Biographical Directory. For each election we have information on the names of senators and challengers contesting the election, the election outcome, whether the incumbent was reelected or defeated and an indicator of open-seat election.

In addition, the dataset contains information on how senators initially entered office; by general election, appointment or special election. When an incumbent senator dies or resigns before the end of his term in office, the governor of the state makes an appointment to fill the vacancy until a special election can be held.[6] The appointed senator can then decide whether to contest the special election or retire. In our counterfactual setup, elections serve to weed out low-quality candidates and holding office does not in itself provide any electoral benefits. Hence in our data candidates who run after being appointed to office are not coded as incumbents as they have not yet gone through the crucible of an election. This is different from the usual treatment in studies with incumbency advantage where they are treated as incumbents since in those studies holding office provides an electoral advantage.

The data contains a total of 1,154 elections. 268 of these were open-seat elections where an incumbent did not run.[7] This leaves 886 elections that were contested by an elected incumbent seeking reelection.[8] The reelection rate in these 886 elections is equal to 81.72 percent.

 An incumbent senator can either be re-elected, defeated or she can simply drop out. Senators drop out due to poor health or death or scandals or resign to take on a cabinet post or

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[5]One advantage of Senate rather than House data is the lack of gerrymandering in the Senate. Mann and Wolfinger (1980) argues that the Senate also differs from the House in terms of the media coverage received and the level of public interest. Hence Ashworth and Bueno de Mesquita (2008) points out that there is a higher likelihood of the voter correctly identifying the higher quality candidate in the Senate races.

[6]This is with the exception of Alaska, Oregon and Wisconsin where the governor cannot make interim appointments.

[7]This figure includes 98 special elections, 61 of which were contested by appointed senators who ran in the election following their appointment.

[8]Note that in our setup defeated candidates do not rerun in future contests. In actuality, of the 886 elections contested by an incumbent, 55 involved repeat challengers. Of these, 19 previously defeated candidates were successful in their later attempt.

a position in the private sector. Table 1 gives the observed dropout rates of incumbents over the period of study.

Table 1: Observed Dropout Rates from the U.S. Senate, 1946-2010 (in Percentiles)

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	Term 7	Term 8	Term 9
12.00	20.26	31.03	35.19	28.00	48.15	54.55	25.00	100.00
n=425	n=306	n=203	n=108	n=50	n=27	n=11	n=4	n=1

n is the number of senators who served at least x terms.

One might anticipate dropout rates to be monotonically increasing in the number of terms since senators age as they increase in seniority. The dropout rates in terms 5 and 8 are in violation of this conjecture. However this may simply be an artefact of the small number of observations at high terms. The longest tenure of any incumbent in the data is 9 terms, implying 54 years of service in the Senate.

The simulated setup takes these dropout rates as exogenous dropout probabilities. However, in reality an incumbent may drop out to pre-empt defeat if she observes a higher quality challenger. Hence if strategic retirement in anticipation of defeat were prevalent in the data, the reelection rates from the simulation would be biased downwards. On the flip side, if high-quality incumbents retire due to superior job prospects such as taking a position in the cabinet or becoming president, the reelection rates from the simulation would be biased upwards. Nevertheless studies suggest that empirically strategic retirement may be not substantively important in the analysis of reelection rates.[9]

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[9] From 1968 to 1978, Peters and Welch (1980) find that only 8 out of 80 House incumbents whose names were involved with a corruption scandal dropped out. Ansolabehere and Snyder (2004) use term limits as an instrument to correct for strategic retirement; Traditional estimates of incumbency advantage that do not take strategic retirement into account are only marginally different from estimates that do.

4. Simulation Results

Simulations are run for 500 million iterations yielding negligible standard errors for all of the simulated reelection rates. Hence differences from actual reelection rates reflect either model misspecification or chance in the actual election process rather than imprecision in the estimates.

Table 2: Observed and Simulated Reelection Rates in the U.S. Senate (1946-2010)

	Observed Rate (%)	Simulated Rate (%)	Difference (%)
Term 1	80.21 n=374 (2.06)	72.61 n=141.1m (0.00)	7.60***
Term 2	83.61 n=244 (2.37)	79.30 n=81.7m (0.00)	4.31
Term 3	80.00 n=140 (3.38)	83.26 n=44.7m (0.01)	-3.26
Term 4	80.00 n=70 (4.78)	85.89 n=24.1m (0.01)	-5.89
Term 5	91.67 n=36 (4.61)	87.77 n=14.9m (0.01)	3.90
Term 6	85.71 n=14 (9.35)	89.19 n=6.8m (0.01)	-3.48
Term 7	80.00 n=5 (17.89)	90.27 n=2.8m (0.02)	-10.27
Term 8	100.00 n=3 (-)	91.21 n=1.9m (0.02)	8.79
Overall Reelection Rate	81.72 n=886 (1.30)	78.16 n=318.1m (0.00)	3.56**

*** indicates significance at 1%. ** indicates significance at 5%. Shown beneath each point estimate is the number of observations (n). The number of observations is measured in millions for the simulation. Standard errors are shown in parentheses.

Table 2 summarizes the observed and the simulated reelection rates for each term of office during the period from 1946 to 2010, as well as the overall observed and simulated

reelection rates. The simulated reelection rates are monotonically increasing in the number of terms. For an incumbent to reach a high term in office, she must have defeated numerous challengers along the way. Therefore on average candidates that reach higher terms have high quality and as such have a higher probability of reelection, leading to electoral stagnation. Note that incumbent-quality advantage is quite high even for first-term senators which results in a 72.61 percent first-term reelection rate in the simulation. The first-term senators who entered office by contesting an open seat are reelected two thirds of the time. But the first-term senators who entered office by defeating an incumbent are on average of exceptionally high quality. Hence their reelection rate is correspondingly higher, bringing up the overall first-term reelection rate.

The simulated overall reelection rate (78.16 percent) is close to the observed reelection rate in the data (81.72 percent). However the difference (3.56 percent) is statistically significant. The benchmark generates lower electoral stagnation compared to the observed data. This is largely driven by the first term. The simulated first-term reelection rate is 7.60 percentage points lower then the observed. Since the simulation abstracts from all incumbency advantages other than the incumbent-quality effect, it might be tempting to attribute the difference between the observed and simulated reelection rates to incumbency advantage arising from direct and indirect officeholder benefits. However in interpreting the results, caution is called for due to the simplifying assumptions of the counterfactual setup.

One of the dimensions in which the counterfactual setup probably diverts from reality is the constant quality of the incumbent.[10] Erikson and Palfrey (1998) finds that incumbents gain votes in their sophomore year, followed by a modest increase in junior year. However seniority is neutral on votes in higher terms. This finding may be consistent with larger direct and indirect officeholder benefits incumbents enjoy especially in early terms due to increased name recognition. But it is also consistent with changes in incumbent quality due to experience. With experience senators may get sharper in early terms and then become more and more detached from their constituents over time, cancelling the positive effect of further experience. In that case the simulation with term-invariant quality would yield reelection rates that are too low in

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[10]The assumption on term-invariant candidate quality is often employed in the literature, see for example Gelman and King (1990), Levitt (1994) and Levitt and Wolfram (1997).

early terms. This prediction is consistent with the positive differences in the first two terms in Table 2. Hence attributing all of the difference between the observed and simulated rates in the first two terms (7.60 and 4.31 percent) to direct and indirect officeholder benefits may be exaggerating their magnitude.[11]

However there is also reason to believe that the difference between the observed and simulated reelection rates may be understating the magnitude of officeholder benefits. The simulated setup assumes no partisan swings. But Jacobson (1989) suggests that "voters might impose collective responsibility simply voting their pocket books and opinions of the administration" hence "[a]ggregate retribution implies individual retribution."[12] Jacobson (1989) finds that the effect of national partisan tides on the probability of reelection of congressional incumbents is negative and statistically significant. With an average reelection rate of about 80 percent, incumbents have more to lose with volatility then they have to gain. A partisan swing can increase the average win probability of the incumbents it favours by at most 20 percent. But it can reduce the average win probability of the incumbents who experience a negative swing by up to 80 percent. The fact that the counterfactual setup assumes no partisan swings makes the reelection rates from the simulation higher than otherwise. Hence incumbency advantage due to direct and indirect officeholder benefits may be responsible for stagnation by more than the difference between the observed and the simulated reelection rates in Table 2.

In what follows, we compare the observed and simulated reelection rates across time periods. The data is split into two sub-samples, the early years from 1946 to 1978 and the later years from 1980 to 2010. Table 3 reports the dropout rates in the two sub-samples.

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[11]Stone and Simas (2010), and Stone et al. (2004 and 2010) and McCurley and Mondak (1995) make of use of expert informants and of the *Almanac of American Politics* to score candidate quality. However measures of changes in incumbent quality across terms in office have been more elusive. Hence it is difficult to differentiate between the term-variant quality and the early officeholder benefit explanations for the raise in the vote margins in early terms.

[12] There is strong empirical evidence indicating that political candidates' electoral prospects rise and fall with the economy and the public's appraisal of the administration in power. For instance Levitt and Wolfram (1997) shows that a favourable partisan swing on average gave an advantage of 4 percent vote share in House elections from 1948 to 1990.

Table 3: Observed Dropout Rates from the U.S. Senate in Two Sub-Samples (in Percentiles)

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	Term 7	Term 8	Term 9
1946-1978	13.68	19.88	26.47	40.74	28.57	70.00	100.00	-	-
1980-2010	9.95	20.69	35.64	29.63	27.59	35.29	44.44	25.00	100.00

The counterfactual setup is calibrated with the dropout rates from each sub-sample from Table 3. Table 4 reports the results. The reelection rates from the simulation differ in two sub-periods due to the changes in the dropout rates.

Table 4: Observed and Simulated Reelection Rates in Two Sub-Samples

Time Period	Observed Rate (%)	Simulated Rate (%)	Difference (%)
1946 – 1978	78.29 n=456 (1.93)	77.75 n=312.2m (0.00)	0.54
1980 – 2010	85.35 n=430 (1.71)	78.40 n=322.8m (0.00)	6.95***

*** indicates significance at 1%. The observations are in millions for the simulation.
Standard errors are in parentheses.

In the early sub-sample of the data the simulation yields a reelection rate which is almost identical to the observed. However the rates diverge significantly in the second sub-sample. From 1980 to 2010, while the benchmark without officeholder benefits generates a reelection rate of 78.40 percent, the observed rate is 85.35 percent. The benchmark reelection rate is less than the observed by 6.95 percentage points, which is statistically significant at the one percent level. This finding on reelection rates is consistent with the wealth of empirical work based on vote margins which document a growth in incumbency advantage based on direct and indirect officeholder benefits.[13]

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[13]This issue is widely studied in the congressional election literature. For variety of methodologies and results see Ansolabehere and Snyder (2002), Levitt and Wolfram (1997), Cox and Katz (1996) and Gelman and King (1990).

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