DOES MONEY BUY ELECTIONS?
EVIDENCE FROM RACES FOR OPEN-SEATS
IN THE US HOUSE OF REPRESENTATIVES, 1990-2004

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Abstract: Problematic for studies of the effect of campaign spending on election outcomes is the cause-and-effect relationship between money and incumbency. Do incumbents tend to win because they spend more money than their challengers, or does money flow to incumbents because they tend to win? It's possible to disentangle the effects by focusing on the contests where no incumbent is running for re-election – the so-called "open" seats. Open seats have recently comprised, on average, about 10% of the US House seats that are contested every two years. Here, a binary win/loss model is constructed and estimated via Logit on the results from contests for open US House seats in the eight elections from 1990 to 2004. The results indicate that election outcomes are highly sensitive to campaign spending ratios. The spending effect becomes significant when one candidate outspends another by a ratio of 1.33:1. As the ratio grows, the effect grows as well. Diminishing returns to spending don't set in until very high ratios of beyond 4:1, at which point the top-spending candidate is the near-prohibitive favorite. The payoff to high levels of spending explains why it's so attractive for candidates to outspend their opponents by significant margins. These findings shed light on the cause-and-effect relationship between money and electoral success.

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I. Introduction

When incumbents seek re-election to the US House of Representatives, they tend to win. Incumbents seeking re-election also tend to outspend their opponents. As Jacobson (1985) observed, there is a reciprocal relationship between incumbency and spending. Incumbency begets a spending advantage, while the spending advantage begets incumbents' re-election. It's possible to disentangle the effect of incumbency from that of spending by focusing on the "open" seats – the races where no incumbent is seeking re-election. The absence of an incumbent in those races means that the effect of spending on the likelihood of victory can be isolated.

The advantages that incumbents enjoy over their challengers are numerous: name recognition, visibility, offices in their districts and in Washington, the franking privilege, and the ability to influence events by introducing legislation. A glance at the results of the most recent US House elections highlights the value of incumbency. As Table 1 shows, in the last four elections, incumbents seeking re-election have won, on average, 98% or more of the time.

Table 1: US House Incumbents Seeking and Winning Re-Election, 1998-2004

Year	Incumbent-Defended Seats	Incumbents Winning	Fraction Winning
2004	400	393	98%
2002	396	389	98%
2000	400	395	99%
1998	402	396	99%

In 2004 and 2002, 98% of incumbents seeking re-election to the US House were successful.[1] In 2000 and 1998, 99% were successful. Those four elections include two presidential elections and two mid-term elections. Even in 1994, when the Republican party added 52 seats en route to regaining control of the US House after more than forty years of control by the Democrats, incumbents still retained their seats 92% of the time.[2]

US House incumbents who seek re-election are nearly always re-elected. They also nearly always outspend their opponents. Federal Election Commission (FEC) data for the 2003-2004 election cycle showed that incumbents outspent their opponents in all but four of the 400 US House races in 2004 that featured an incumbent.[3] The average incumbent spent $999,000 in seeking re-election, against $228,000 for the incumbent's major-party opponent in the general election – a margin of more than 4:1 in favor of the incumbent. The margin was slightly greater for Republican incumbents than for Democratic incumbents.[4]

When an incumbent didn't seek re-election, or sought re-election and lost in the primary, an open-seat race resulted. Open-seat races also resulted when new districts were created following a US Census. Open seats have averaged around 10% of the US House seats in recent elections. The number of open seats in the last eight US House elections, from 1990 to 2004, is provided in Table 2.

[1] The 2004 election includes two US House races in Texas where a redistricting that had been ordered by the state legislature pitted one incumbent against another.
[2] Of 384 US House seats in which an incumbent sought re-election, 353 were retained by the incumbent. Of particular note is that not a single Republican incumbent seeking re-election lost.
[3] Two of those four races where the incumbent was outspent saw the incumbent lose.
[4] Not included in the averages were the two two-incumbent races in Texas.

Table 2: Open Seats in US House Elections, 1990-2004

Year	Open Seats
2004	35
2002	39
2000	35
1998	33
1996	50
1994	51
1992	90
1990	28

The eight US House elections from 1990 to 2004 saw a total of 371 open-seat contests – representing 11% of the 3,480 seats that were at stake. The number of open seats varied from a low of 28 seats in 1990 to a high of 90 seats in 1992. In four of the eight elections, the number was between 30 and 40 seats. Most recently, the 2004 election featured 35 open seats. The 90 open seats in 1992 was nearly twice the total of that of any of the other election years. A key contributor to that year's spike was the ability of members of Congress who had served since 1980[5] to convert to personal use any unspent money in their campaign treasuries. Members' ability to convert unspent contributions to personal use ended with the convening of the 103rd Congress in January 1993. Consequently, many members of Congress who had been contemplating retirement opted to retire in 1992, the last election before the new rules took effect. Their retirements created open seats. Also included in that year's 90 open seats were 19 new

[5] To be eligible, members had to have held office on January 8, 1980.

seats representing districts that were added to reflect population changes from the US Census of 1990.

With no incumbent on the ballot, the open seats tend to change hands from one party to the other more often. The parties are more evenly matched in the open-seat contests. While less than 2% of the US House incumbents seeking re-election between 1998 and 2004 lost their re-election bids, the open seats changed party hands 28% of the time. Over those four elections, 27 incumbents lost their re-election bids[6], while 36 open-seats changed party hands[7].

Breaking down by party, Republicans won 56% (or 206) of the open-seat races from 1990 to 2004, and Democrats the remaining 44% (or 165). When Republicans outspent Democrats, they won 86% of the time (154 of 179). Democrats won 73% of the time when they outspent Republicans (140 of 192). Overall, victory went to the top-spending candidate in 79% of the races.

Analytically, the virtue of focusing on the open seats is that the effect of campaign spending is isolated from the effect of incumbency. In effect, the open seats provide a laboratory for evaluating the impact of campaign spending. Here, a binary win-loss model of open-seat campaigns for the US House is constructed and estimated on data from the elections of 1990 to 2004. To identify where diminishing returns to spending might set in, campaign spending for each open-seat race is modeled as a ratio, and the ratios are grouped into ranges. A number of other explanatory variables such as party

[6] The 27 losing incumbents included the two from the two-incumbent races in Texas.
[7] The 142 open seats at stake in those four elections included 14 new seats that were added in 2002 to reflect population changes from the US Census of 2000.

identification, voting history, etc., are included as well. The binary model is estimated via a Logit regression.

The organization is as follows: Section I is the introduction. A review of the literature is provided in Section II. Section II presents the model and results. Section IV concludes.

II. Literature Review

The literature on campaign spending and elections is an extensive one. The standard approach has been to model a candidate's share of the two-party vote in the general election as a function of the candidate's spending and the spending by the candidate's opponent, along with other explanatory variables, and to estimate via Ordinary Least Squares (OLS). Both US House and US Senate races have been modeled. US House races tend to be more popular for purposes of analysis, for the reason that more races are contested every two years – all 435 US House seats vice one-third of 100 US Senate seats. Recently, some more sophisticated models employing alternative functional forms have been introduced. Nearly always, spending is found to be a key determinant of election outcomes.

Studies have also found that the returns to spending by challengers tend to exceed those to spending by incumbents. In some cases, the returns to spending by incumbents were small or even not statistically significant. Examples include Jacobsen (1985),

Abramowitz (1988), and Abramowitz (1991).[8] The larger returns to spending by challengers are attributed to the built-in advantage enjoyed by incumbents. The conventional explanation is that incumbents begin their campaigns with sizable advantages in name recognition and support over their challengers. Additional spending by incumbents buys little more. Additional spending by challengers, who often begin the campaign with little to no name recognition, can buy a lot more. Exceptions to that finding include Green and Krasno (1988) for US House races, and Grier (1989) and Gerber (1998) for US Senate races. They obtained the result that returns to campaign spending were roughly equal for incumbents and challengers. Green and Krasno maintained that their finding provided "salvation for the spendthrift incumbent". Jacobson (1990) took issue with that conclusion, showing that by analyzing changes in voting intentions over the closing weeks of US House campaigns, the result is reinforced that returns to challenger spending exceed returns to incumbent spending. Additional spending by challengers was found to buy extra support in terms of prying voters from supporting the incumbent, while additional spending by the incumbent had no discernible effect in swaying voters away from the challenger. In a rebuttal to Jacobson, Green and Krasno (1990) conceded that while the marginal return to challengers' spending may be larger than that to incumbents' spending, the total return to incumbents' spending is usually larger because incumbents usually outspend challengers. Hence, the result of "salvation for the spendthrift incumbent" is preserved, they maintained.

A key difficulty for the models, as Jacobson (1985) noted, is the reciprocal relationship between money and electoral success. While campaign spending can affect

[8] Jacobsen (1985) looked at campaigns for both US House and US Senate. Abramowitz (1988) focused on US Senate campaigns, and Abramowitz (1991) on US House campaigns.

the vote, the (expected) vote can also affect campaign spending. Money follows winners (or expected winners), as some givers "are more interested in having access to winners than they are in affecting election results"[9]. Usually, that works to the benefit of incumbents, because incumbents usually win. It could also benefit a fast-closing challenger. A two-stage least squares (TSLS) approach with instrumental variables represents one possible answer to this problem of simultaneity. Examples where TSLS models were employed include Welch (1981), Jacobson (1985), and Green and Krasno (1988). Green and Krasno, for example, opted for the incumbent's spending in the previous election to estimate the instrument for the incumbent's spending in the current election. Jacobson (1990) commented that it's not clear that any of the TSLS models for campaign spending is identified, and that it may not be possible for such a model to be. The key is to identify a variable that doesn't influence both the vote and campaign contributions. There may be no such variable, Jacobson speculated.

An alternative approach is to focus on the open-seat contests. Relatively little has been published on those races. Four that have examined them are Jacobson (1985), Abramowitz (1988), Mondak (1993), and Flemming (1995). Jacobson (1985) and Abramowitz (1988) reported separate sets of results for open-seat races and races involving an incumbent seeking re-election. Jacobsen looked at US House races from 1972 to 1982, and Abramowitz examined US Senate races from 1974 to 1986. Both followed the usual approach of modeling candidates' share of the two-party vote and estimating the model with OLS. (Jacobson also reported a set of TSLS results for the incumbent-challenger races.) Where an incumbent sought re-election, both obtained the result that the returns to spending by the challenger exceeded the returns to the

[9] Jacobsen (1985), p. 13.

incumbent's spending. For the open-seat contests, Jacobson's findings were inconclusive, while Abramowitz found that the candidates' relative campaign spending and experience were the decisive factors. Both modeled spending in a way that assumed that the returns to additional spending were linear. Abramowitz acknowledged that spending ought to be subject to diminishing returns, but didn't test for that possibility. An issue for the US Senate findings of Abramowitz was the relatively small sample size – about 60 open-seats for the seven election-years that were examined.[10] (The US House findings of Jacobson were from 301 open-seat races.) For the US House, more than ten times as many seats are up for election every two years, resulting in far more open seats.

Mondak (1993) and Flemming (1995) examined open-seat campaigns for the US House, from the standpoint of the existence of a presidential coattail effect. Both also modeled the two-party vote-share and estimated the model with OLS. Mondak found that for the four presidential elections from 1976 to 1988, the impact of presidential coattails was greater on races for open seats than for seats where an incumbent was running. Flemming obtained a similar finding from examining the five presidential elections from 1972 to 1992. In only a few cases – less than 15% of the time – was the coattail effect found to be decisive. Flemming included a spending variable, while Mondak did not. It was also found to influence the election's outcome. Little was said about it, other than the fact that the coefficient on the spending variable was statistically significant and exhibited the expected sign.

III. Model and Results

[10] The sample size wasn't indicated for any of the results, but a review of the data from those elections

To test whether spending makes a difference – and how much of a difference – in open-seat elections, a model is constructed and tested on US House open-seat elections data from 1990 to 2004.

The model follows the logistic (Logit) distribution and takes the form

$$P(RWIN = 1) = \frac{e^{\beta' x}}{1 + e^{\beta' x}}$$

where RWIN is the binary dependent variable, representing whether or not the Republican candidate won, X is a vector of independent variables, and β is a vector of unknown parameters.

For modeling purposes, each open-seat election is depicted as having a binary – win/loss – outcome. The dependent variable, RWIN, assumes a value of 1 if the Republican candidate won the general election, and 0 otherwise (i.e., if the Democratic candidate won the general election). The candidate of interest is the Republican candidate.[11] The choice of the Republican candidate was dictated by the inclusion of a dummy variable for Republicans who ran in 1994, when Republicans regained control of the US House. Aside from that, the choice of the Republican candidate or the Democratic candidate as the candidate of interest is an econometrically trivial one.

Less trivial was the choice of the win/loss outcome as the outcome to be modeled. Other studies of spending have modeled a candidate's share of the vote (usually the two-

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indicates on the order of 60 seats.

[11] Jacobson (1985), Abramowitz (1988), and Flemming (1995) took as the dependent variable the percentage of the two-party vote received by the Democrats' candidate, while Mondak (1993) modeled the share going to the Republicans' candidate.

party vote) rather than the win/loss outcome. The rationale for so doing is that vote-share offers more granularity as the dependent variable. Why opt for the win/loss outcome instead? The answer is because it's victory and not vote-maximization that's the election's object. Most serious candidates enter elections to win, not to maximize their vote share – especially the major-party candidates who win their party primaries and qualify for the general election. Conceivably, it could be argued that some incumbents may pursue a strategy of vote-maximization in one election in the hopes of deterring challengers in future elections. For those incumbents, running up the vote totals now might mean less likelihood of a serious challenger later on. When it comes to the open-seat races, though, there's no incumbent and no candidate enjoys that luxury. The open-seat candidates – at least those with the backing of the major parties – are assumed to be running to win. The vote-share model makes no distinction between an extra five percent of the vote that runs up a candidate's vote-share from 70% to 75%, and the five percent that separates 47% from 52%. To the model, there's no difference. To the candidate, the difference is all-important. The win-loss model models the salient issue – victory – rather than a peripheral issue – vote-share. Politicians love football analogies, and legendary football coach Vince Lombardi has been famously quoted as saying, "winning isn't everything, it's the only thing".[12]

The win/loss outcome of each open-seat election is modeled as a function of a set of independent variables. Each of the independent variables is also expressed in binary form. Following is a description of each one.

[12] As famous as the quote is, it's actually a misquote. What Lombardi said was, "winning isn't everything, but making the effort to win is".

The key variable is campaign spending. Spending is represented by seven variables. The seven variables correspond to seven ranges for the ratio of spending by the Republican candidate to the Democratic candidate. The ranges were < 0.25, 0.25 – 0.50, 0.50 – 0.75, 0.75 – 1.33, 1.33 – 2.00, 2.00 – 4.00, and > 4.00. If the spending ratio fell within one of those seven ranges, the variable for that range was assigned a value of 1, and a value of 0 was assigned for the other ranges. To avoid the "dummy-variable trap", the excluded range was the middle range, 0.75 – 1.33. That range was the baseline relative to which the results for the other ranges would be interpreted. Note that the ranges are symmetric about the excluded range. The bottom ratio is the reciprocal of the top ratio, the number-two ratio is the reciprocal of the number-six ratio, and the number-three ratio is the reciprocal of the number-five ratio. The symmetry permits testing of the possibility that ratios that are the same distance from the middle ratio, albeit on opposite sides, may have similar-magnitude effects. The grouping of spending ratios into ranges also permits the identification of the range at which returns to spending become diminishing (or negative).

Two more variables indicate whether the major-party candidates had previously held elective office. R EXPERIENCE took a value of 1 if the Republican candidate had held elective office, and 0 otherwise. Likewise, D EXPERIENCE was given a value of 1 if the Democratic candidate had held elective office, and 0 otherwise.

Another two variables reflect the district's recent voting history. They capture any carry-over effects from the district's identification with the seat's previous occupant. R SEAT is assigned a value of 1 if the seat had been occupied by a Republican, and 0 otherwise. LARGE MARGIN assumes a value of 1 if the seat's Republican occupant

won by an 80%/20% margin or greater in the last election – essentially, if the Republican was unopposed – and 0 otherwise.

The existence of a presidential-election coattail effect would be captured by TOP-OF-TICKET. In presidential-election years, it assumes a value of 1 if the US House candidate was identified with the party of the presidential candidate who received the most votes in that district, and 0 otherwise. This permits a coattail effect even from a losing presidential candidate. For example, in the presidential election of 1996, the home-state candidacy of US Senator Robert J. Dole may have boosted the Republican turnout in Kansas, even though Dole lost the presidential election to William J. Clinton. The stimulus to the Republican turnout may, in turn, have helped Republican candidates for that state's US House seats. The coattail variables of Mondak (1993) and Flemming (1995) reflected identification with the winning presidential candidate.

The remaining two variables are 1994 GOP and NEW DISTRICT. The former assumes a value of 1 for the Republican landslide election of 1994 if the candidate was identified with the Republican party, and 0 otherwise. The latter was assigned a value of 1 in elections that followed a US Census if the district was newly created as a result of the census, and 0 otherwise.[13]

The model was tested on data from the last eight US House elections, from 1990 to 2004. Those eight elections include four presidential elections and four mid-term elections. The election results for each open-seat race were taken from the official records maintained by the Office of the Clerk of the US House of Representatives. Those

[13] To keep things consistent, it was not assigned a value of 1 for other instances of redistricting, such as what happened in Texas in 2004.

records are available on-line at www.clerk.house.gov. The candidates' spending totals and other characteristics were retrieved from The Almanac of American Politics.

The maximum-likelihood estimates from the Logit model are provided in Table 3.

Table 3: Logit Model Results
(coefficients significant at 95% confidence level denoted by *)

Term	Coefficient	Standard Error	Marginal Effect
Constant	-0.646	0.450	–
< 0.25	-3.190*	0.679	-0.58
0.25 – 0.50	-1.614*	0.518	-0.38
0.50 – 0.75	-1.442*	0.437	-0.34
1.33 – 2.00	1.165*	0.514	0.21
2.00 – 4.00	1.352*	0.571	0.23
> 4.0	2.389*	0.780	0.31
R EXPERIENCE	0.469	0.338	–
D EXPERIENCE	-0.250	0.316	–
R SEAT	0.902*	0.336	0.21
LARGE MARGIN	0.869	0.906	–
TOP-OF-TICKET	1.245*	0.410	0.27
1994 GOP	1.708*	0.454	0.33
NEW DISTRICT	0.383	0.557	–
N = 371			
Overall Chi-squared = 232.44			

The binary win/loss model permits each regression coefficient to be interpreted as the relative impact of that factor upon the candidate's probability of victory. Begin with campaign spending. All six of the spending-ratio variables (aside from the excluded variable) were statistically significant. The coefficients were negative for the variables with ratios of less than one, when the Republican candidate was outspent. For the variables with ratios of greater than one, when the Republican wasn't outspent, the coefficients were positive. As the spending ratio rose from the lowest range of values to the highest, so did the coefficient. The interpretation is that higher levels of spending yield a payoff in terms of a higher probability of victory.

The marginal effect for the lowest spending ratio, when the Republican spent less than 25% as much as the Democrat, was a 58% reduction in the Republican's odds of victory (relative to the omitted range of 0.75 – 1.33).[14] The reduction was 38% when the Republican spent between 25% and 50% as much as the Democrat, and 34% when the Republican spent between 50% and 75% as much. The marginal effect turned positive when the tables were turned and the Republican wasn't outspent. When the Republican was the top spender by a ratio of between 1.33:1 and 2:1, the Republican was 21% more likely to win. For a range of 2:1 to 4:1, the boost to the Republican was a 23% greater chance of victory. At the top end, when the Republican was the top spender by a ratio of 4:1 or more, the Republican's payoff was a 31% greater chance of victory.

Note that when the ratio by which one candidate outspends another rises, so do that candidate's chances of victory – even when the top-spending candidate is already outspending the other by a significant margin. The result held regardless of whether the top-spending candidate was a Republican or a Democrat. Republican candidates who outspend their opponents by a ratio of greater than 4:1 vice a ratio of between 2:1 and 4:1 raised their odds of victory by an additional 8%, from a boost of 23% to a boost of 31%. Conversely, when Democrats outspend their opponents by a ratio of greater than 4:1 vice a ratio of between 2:1 and 4:1 (i.e., when the Republican spent less than 25% as much as the Democrat, vice between 25% and 50%), the Republicans' chances of victory fall by an additional 20%, from a drop of 38% to a drop of 58%. What it shows is that additional spending by the top-spending candidate – Republican or Democratic – continues to yield a non-trivial payoff in terms of affecting the likelihood of victory. The

[14] The predicted mean was 59%, so the 58% reduction wasn't outside the bounds of possibility.

diminishing-returns effect to additional spending doesn't set in until it essentially doesn't matter.

The results also show that when Republicans outspend Democrats, additional spending by Republicans has less effect than additional spending by Democrats when Democrats outspend Republicans. Republicans' chances of victory rise when they outspend Democrats, but they fall by more when the tables are turned and Democrats outspend Republicans by similar margins. For example, when Republicans outspend Democrats by a margin of 1.33:1 – 2:1, the boost to Republicans' odds of victory was 21%; Democrats who outspend Republicans by the margin saw the Republicans' odds of victory fall by 34%. Similar results held for the other two sets of ratios. The explanation may have to do with spending and turnout. As a general rule, low-turnout elections favor Republicans and high-turnout elections favor Democrats. Republican voters tend to be more committed to showing up at the polls on election day, and Democratic voters tend to be more fickle. (On election day, Republican candidates are said to hope for poor weather and lower turnout, while Democratic candidates wish for perfect weather and higher turnout.) It follows that higher levels of spending by Democratic candidates would have the potential to yield a greater boost to their chances of victory than higher spending by Republican candidates. Democratic voters are more likely than Republican voters to respond to the additional inducements to vote.

The coefficients on the two experience variables displayed the expected signs, as the sign on R EXPERIENCE was positive and that on D EXPERIENCE was negative. One would expect Republicans who had held elective office to be more likely to win, and

Republicans to be more likely to lose to Democrats who had held elective office. Neither coefficient, though, was statistically significant at the 95% confidence level.

Of the two variables that related to the district's recent voting history, R SEAT was the only one for which the coefficient was statistically significant. Republicans who were running for seats whose last occupant had been a Republican could, ceteris paribus, expect a 21% boost to their chances of victory. Whether the seat's previous occupant enjoyed a victory margin of greater than 80%/20% in the last election – LARGE MARGIN – had no additional effect.[15] The interpretation is that the open-seat's recent party identification is the key characteristic, rather than the intensity of that identification. Voters vote their party identification, but goodwill toward a retiring incumbent doesn't carry over to others of the same party. Also, to the extent that some of the retiring incumbents who had been entrenched in their seats had faced only token opposition in their last election, their 80%/20% (or better) victories may not have fully reflected their districts' competitive potential.

The statistically significant coefficient on the TOP-OF-TICKET variable indicated that presidential elections had a sizable coattail effect on open-seat elections. Open-seat US House candidates from the same party as the presidential candidate who won that US House district could expect a 27% boost to their chances of victory, holding all else equal. Victorious presidential candidates usually see their party gain seats in Congress. (Republicans gained seven US House seats when President George W. Bush was re-elected in 2004.) The coattail effect is especially felt in the open-seat races. The effect held regardless of whether or not the presidential candidate who won the US House district was also the nationwide winner.

The impact of national political trends was also evident in the statistically significant coefficient on the 1994 GOP variable. Candidates running as Republicans in 1994, when the GOP regained control of both houses of Congress, enjoyed a considerable advantage. The result shows that Republicans running for open-seats in 1994 could expect a 33% boost to their chances of victory, all else equal. Republicans won 38 of the 51 open-seats that were at stake in the US House elections of 1994.

Finally, no effect was found for new US House districts that were created following a census. The coefficient on NEW DISTRICT was not statistically significant.

IV. Conclusion

Commentators have noted the cause-and-effect relationship between campaign spending and incumbency. Incumbents seeking re-election to the US House of Representatives nearly always win, while also tending to outspend their opponents. In 2004, 98% of US House incumbents running for re-election defeated their general-election opponents, and 99% of the incumbents outspent their opponents. It's possible to disentangle the effect of campaign spending from that of incumbency by examining the open-seat contests, where no incumbent is seeking re-election. The absence of an incumbent means that the two major parties are more evenly matched. Neither party enjoys the built-in advantage of incumbency, resulting in more turnover from one party to the other.

The results from estimating a binary win/loss model on open-seat data from US House elections between 1990 and 2004 indicate that general-election outcomes are

[15] Other, smaller, victory margins were tried as well, and they were found to have no effect either.

highly sensitive to campaign spending ratios. When one candidate outspends another by 1.33 times or more, that candidate enjoys a higher likelihood of victory. Still-higher spending ratios translate into a still-higher likelihood of victory. The greater likelihood of victory held whether the top-spending candidate was the Republican or the Democrat. There was little evidence of diminishing returns setting in for spending ranges of up to 4:1. By that point, the spending gap has boosted the top-spending candidate's odds of victory to where that candidate is the near-prohibitive favorite.

This finding explains why it's so attractive for candidates to greatly outspend their opponents. It's not just that spending is one of the factors that candidates can manipulate over the duration of a campaign. It's also that a candidate's odds of victory rise with higher levels of spending (relative to that of the opposition), until the outcome is near-certain. At high levels of spending, the spending effect can overwhelm that of other factors on the election's likely outcome.

Besides spending, the district's voting history and national political trends also contributed significantly to open-seat electoral outcomes. Those factors are largely outside of the control of individual open-seat candidates, beyond a candidate's choice of where and when to run for election.

This result – that spending is decisive in the open-seat contests – has implications for the races featuring incumbents. To the extent that spending is key, it follows that it's not incumbency per se, but the spending advantage that attaches to incumbency, that explains why incumbents nearly always win. Incumbents win because their incumbency permits them to out-fundraise and out-spend their opponent. The other aspects of incumbency are largely secondary. Removing the incumbents' spending advantage –

through campaign-spending limits or public financing of campaigns – would have the effect of leveling the playing field between the incumbents and their challengers. The result would be greater electoral turnover in the US House of Representatives.

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