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Reevaluating Spending in Gubernatorial Races: Job Approval as a Baseline for Spending Effects

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Research on campaign spending has tried to resolve the issue of differential effects for incumbent and challenger spending. This analysis offers two new perspectives to the spending effects literature: (1) It extends the scope of this research to include gubernatorial elections, and (2) it uses job approval ratings to control for governors' popularity. This approval measure sets a pre-campaign baseline for the expected vote that keeps campaign variables from being credited with pre-existing levels of incumbent popularity. A two-stage least squares (TSLS) analysis of two decades of gubernatorial races shows that incumbent spending (unlike challenger spending) does not have a significant effect on the vote. If incumbent spending wins little new support in the course of campaigns, generous public funding for statewide candidates will boost spending by challengers without reducing challenger competitiveness via higher incumbent spending.

In both state and federal campaigns, incumbents have high success rates when they run for reelection. Members of the media and many scholars attribute this fact to the "perks of the office" and other inherent advantages of incumbency, especially incumbents' ability to raise and spend more money than challengers. But is an advantage in campaign spending the main source of incumbents' near invulnerability? Undoubtedly, there is a large disparity between incumbent and challenger fundraising in most state and federal elections. From 1980 to 2000, on average, gubernatorial challengers raised and spent only 61 percent as much money as their incumbent opponents did. In this same period of time, U.S. Senate challengers faced comparable fundraising disparities in their bids to unseat incumbents. And gubernatorial and senatorial challengers both fared better than challengers in U.S. House races (Herrnson 2000).

Even so, there are conflicting research findings on the real effects of campaign spending in these races. Scholars agree that challenger spending reduces incumbents' share of the vote, but findings regarding the effects of incumbent spending have varied based on how models of the vote are specified. Research using ordinary least-squares (OLS) regression tends to show that spending by incumbents has little independent effect on the vote (Abramowitz 1988, 1991). But because candidates' and contributors' expectations about the closeness of a race influence fundraising and spending levels, most scholars use two-stage least-squares (TSLS) regression to correct for simultaneity bias. Some TSLS analyses confirm OLS findings (Jacobson 1978, 1980, 1985), but others indicate that the dollar-for-dollar impact of incumbent spending is just as large as that of challenger spending (Green and Krasno 1988, 1990; Gerber 1998).

This article uses new data and tests a theoretical perspective that aims to shed light on this debate. It builds on previous research in two ways. First, it extends the scope of spending effects research to gubernatorial elections. Second, it uses newly available data on gubernatorial job approval ratings to control for incumbent vulnerability in the year before the election. This measure sets a baseline for the expected vote and keeps variables that intervene in a campaign from taking credit for pre-campaign levels of incumbent popularity. After a literature review that highlights methodological issues in research on spending effects, instruments for incumbent and challenger spending are constructed and used in a TSLS regression analysis of races from 1980 to 2000. By controlling for the governor's vulnerability, the analysis shows that incumbent spending does not have an independent effect on the vote. This implies that governors' spending buys little new support in the course of general election campaigns.

RESEARCH ON SPENDING EFFECTS

The effects of campaign spending on the vote are hard to measure. This is due in part to the fact that spending is strategic: incumbents who are vulnerable spend more than incumbents whose seats are safe (Green and Krasno 1990). This relationship between spending and the expected vote causes basic OLS models to underestimate the impact of incumbent spending and overestimate the influence of challenger spending (Erikson and Palfrey 2000; Gerber 1998). As such, recent research has focused on how to correct for the simultaneity bias between incumbent spending and elite expectations of the vote (Abramowitz 1988, 1991; Erikson and Palfrey 1998, 2000; Gerber 1998; Green and Krasno 1988, 1990; Jacobson 1978, 1980, 1985, 1990). Still, scholars have struggled to find instruments for spending that predict well *and* are derived from factors exogenous to the vote (Jacobson 1990: 342).

Jacobson (1978, 1980, 1985, 1990) authored the seminal research on spending effects in congressional elections. After analyzing House and Senate races from the 1970s and 1980s, his conclusion is that while spending by challengers has a large impact on incumbents' share of the vote, incumbent spending has a much smaller effect. Jacobson's

explanation for the inefficiency of incumbent spending hinges on incumbents' high visibility and name recognition among the voting public. In his words, "incumbents usually exploit their official resources for reaching constituents so thoroughly that the additional increment of information about their virtues put forth during the campaign adds comparatively little to what is already known and felt about them" (2000: 44-45). Although this theory is plausible and Jacobson's evidence supports it, some scholars question his model specification and the choice of instruments for incumbent spending (Bartels 1991; Green and Krasno 1988).

Other scholars have sought better instruments for use in TSLS regression.[1] Such research is exemplified by Green and Krasno (1988, 1990). In a replication of Jacobson's (1980) study of spending effects in congressional races, Green and Krasno contend that Jacobson underestimates the impact of incumbent spending. Their criticism is that Jacobson's instruments contain factors endogenous to incumbents' vote share and are weakly related to real incumbent spending. Green and Krasno (1988) propose a new instrument, one primarily comprised of incumbent spending in the previous election, and subsequently find that incumbent spending is very effective. Yet their instrument has been criticized because prior spending is highly correlated with the explanatory variables in the vote share model (Bartels 1991: 790; Jacobson 1990: 337).

In a study of U.S. Senate races, Gerber (1998) highlights these problems in creating valid spending instruments and offers a new solution. First, unlike other studies, his analysis treats spending by incumbents *and* challengers as endogenous to the vote. This assumption is ideal if not always practical given available data because challengers, like incumbents, raise and spend more money in close races (Green and Krasno 1988: 904-06; Jacobson 1990: 335). Second, by building instruments with the help of variables that do not have a direct impact on the vote (state population, challenger wealth, and spending in the state's other Senate race), he avoids a sticking point in prior work. After correcting for simultaneity, Gerber finds that incumbent spending and challenger spending have comparable effects on vote share. So in U.S. Senate races, incumbent spending matters over and above the other advantages of incumbency.

Recent research on spending effects focuses mostly on congressional races. Few studies analyze campaign spending in statewide contests, specifically gubernatorial elections.[2] Because gubernatorial elections are similar in size and scope to U.S. Senate races, they have the potential to shed light on standing controversies in congressional research. Unfortunately, a data set that separates spending for primary and general elections has not been available. Existing research on gubernatorial races has relied on spending data aggregated for the election cycle (Patterson 1982; Partin 2002).[3] Patterson conducted an early multivariate analysis of the effects of spending on the vote. In an OLS regression analysis of gubernatorial elections in 1978, he finds that spending by incumbents is as effective as challenger spending. Yet Patterson's study uses election-cycle data on spending and does not correct for simultaneity between spending and the expected vote, so its findings should be interpreted cautiously.

Partin (2002) recently revisited Jacobson's work on spending effects in an analysis of gubernatorial elections from 1977 to 1994. In a two-stage least squares (TSLS) analysis using instrumental variables for incumbent spending, Partin finds that spending by incumbents is not wasted money. Dollar for dollar, incumbent spending is just as effective as that of challengers. Although this study makes a contribution to a neglected area of inquiry, the data are less than ideal. First, his instruments for spending are weakly related to actual spending. The study also uses spending data that are aggregated for entire gubernatorial election cycles. This makes it impossible to determine how much of this spending occurred during the primary rather than in the general election. These problems reduce confidence in the findings.

The analysis that follows takes a number of steps to avoid the methodological pitfalls of previous research on spending effects. First, it uses separate data on general election spending. A full explanation of the data is located in the Appendix. Second, it presents valid instruments for use in TSLS analysis that are strong proxies for actual spending and that include variables exogenous to incumbents' share of the vote. Third, it treats incumbent spending *and* challenger spending as endogenous variables, given that spending by both types of candidates varies based on the vulnerability of the incumbent governor (Gerber 1998). Finally, it includes in the models a

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[1] Some studies use methods other than two-stage least squares to analyze the effects of congressional campaign spending. Abramowitz (1988, 1991) controls for elite expectations of the vote outcome using seat safety ratings published in *Congressional Quarterly Weekly Report*. Unfortunately, the ratings are not available for most gubernatorial elections in this time period. Kenny and McBurnett (1992, 1994) use individual-level survey data to examine the impact of incumbent and challenger spending on the vote. Erikson and Palfrey (1998, 2000) use a formal model and a simultaneous equations analysis to test for conditions in which incumbent spending matters. Findings from these studies show that incumbent spending matters, even if its dollar-for-dollar impact is sometimes not as large as that of challenger spending.

[2] Scholars have studied the impact of incumbency (Piereson 1977; Tompkins 1984), state partisanship (Patterson 1982), the economy (Partin 1995), and challenger quality (Squire 1992; Squire and Fastnow 1994) on the gubernatorial vote. Beyle (1996) conducts bivariate analysis using his extensive data on total spending in these races, but multivariate analyses of spending effects in gubernatorial races are rare.

[3] Prior studies' reliance on election-cycle spending reflects the limitations of available data. State reporting periods vary, and there are disparities in the availability of data from state campaign finance archives. Most scholars rely on spending figures compiled by Beyle (1986, 1990a, b, 1991, 1996), the major drawback being that some of these data are aggregated for the election cycle. It is true that all spending, even in the primary period, influences the general election vote by increasing name recognition and issue visibility. But the case for using election-cycle data falls apart if better data (primary and general spending figures) are available. Separate data reflect the different spending patterns in the two types of races (Epstein and Zemsky 1995).

measure of incumbent vulnerability: governors' mean job approval rating in the pre-election year. This is a baseline against which the impact of other independent variables on incumbents' campaign-year performance can be measured.

INSTRUMENTAL VARIABLES FOR CAMPAIGN SPENDING

Several issues arise in using instrumental variables in TSLS regression. Instruments should include factors that do not have an independent effect on the vote (Bartels 1991: 790; Gerber 1998: 401). This blunts the potential criticism of interaction between the instruments and the error term of the vote share equation. Second, the stronger the relationship between the instruments and the explanatory variables they replace, the more precise the TSLS estimates in the second-stage equation will be (Green and Krasno 1988: 896; Pindyck and Rubinfeld 1991: 161). A final caution is that incumbent spending and challenger spending are *both* endogenous variables that need to be replaced by spending instruments in a second-stage model of the vote. Challengers spend more money as their viability increases, and incumbents spend more money when they are vulnerable to defeat (Gerber 1998: 402).

With this in mind, instruments were constructed for incumbent and challenger spending with the help of variables that do not directly drive incumbents' vote share.[4] The approach is similar to that used by Gerber (1998) in his TSLS analysis of U.S. Senate races. First, candidate spending varies with the length of the campaign. Due to differences in primary scheduling, the number of days in the general election period varies by state. For example, the campaign for governor in Illinois (seven and a half months) is four times longer than in Minnesota (about two months). The more time incumbents and challengers have to raise funds, the more they should spend. A second factor that drives candidate spending is state size (total land area). The larger the state, the more candidates need to spend to reach every eligible voter. This is because the per-voter costs of candidate travel, staff, grassroots organization, and TV advertising are higher in states where voters are geographically dispersed (Beyle 1996).

Third, a state's voting-age population should be inversely related to spending due to the role of out-of-state donors and political action committees (Gerber 1998: 405). Because these contributions are independent of state population, candidates from smaller states tend to spend more money per voter than candidates from larger states.[5] Fourth, the basic cost of goods and services varies by state, as represented by the Leonard-Friar index (Friar, Leonard, and Walder 1996), a consumer price index for the 50 states.[6] Fifth, the model includes a control for party affiliation. Because Republican contributors tend to be fairly affluent, Republicans often have advantages in fundraising in state and federal campaigns (Herrnson 2000). Sixth, it controls for self-financed (often independently wealthy) challengers. These challengers can be expected to spend more than challengers who run under campaign finance restrictions.[7]

It is also important to control for the diversity of campaign finance laws in the states. These laws regulate spending in gubernatorial races indirectly (via contribution limits) and sometimes directly (via public funding and spending limits). Intuitively, contribution limits should influence spending because these limits set the increments at which candidates raise money. The limits effectively constrain wealthy donors who could otherwise contribute more (Hogan 1999; Malbin and Gais 1998). As the level of states' limits on individual contributions increases, spending should increase.[8] As for public funding, candidates who accept the subsidies must agree to limit their aggregate spending. Studies at the state level show that candidates who accept public funding spend less than do candidates who refuse it or lack access to it (Malbin and Gais 1998; Mayer and Wood 1995). Spending should also vary with the level of spending limits (Gross and Goidel 2001).

To test for the effects of challenger quality, this study uses a modified version of Squire's (1992) measure to classify challengers on a six-point scale from former governors (five points) to amateurs (zero).[9] Higher quality should lead to

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[4] To control for state population, all subsequent references to candidate spending refer to spending per eligible state voter.

[5] It is also plausible that candidates from states with higher per-capita incomes should spend more than do candidates from poorer states. Most campaign contributors come from the ranks of the well to do. A variable measuring state per-capita income was included in an earlier version of the model, but results were not significant.

[6] The Leonard-Friar index used here is for the year 1995. Variance among the states on the index is consistent from one year to the next. Media market costs are a better predictor of the cost of campaigns than state inflation rates, but accurate state-level data on media market costs are unavailable for the time frame of this study.

[7] Some might argue that personal wealth has an independent effect on the vote and so is an invalid instrument. This study found no evidence that voters prefer self-financed challengers to other challengers, controlling for the effects of their higher spending. This is consistent with recent research on spending effects (Gerber 1998: 407).

[8] Individual contribution limits were used as a proxy for state contribution limits. Individual donations are by far the largest source of funding in gubernatorial races. Early specifications of the model controlled for limits on political parties, PACs, corporations, and labor unions. None of the limits were significant, and all of them are highly correlated with individual limits (from .44 to .79). Some states allow unlimited contributions, while others set limits of varying levels. To measure the impact of *levels* of limits, not just their presence or absence, states with unlimited contributions were assigned the value of the highest individual limits ($28,000 in New York). This preserves the most information from the variable and is not problematic because spending is comparable in unlimited and high-limit states. In comparing mean per-voter spending for these two categories of states (high-limit states equal those with individual limits of $5,000 or more), T-tests indicted that spending is not significantly higher in unlimited contribution states.

[9] State officeholders and U.S. House members (four), state legislators (three), local officials (two), and other political leaders (one) were scored based on established career ladders. Former officeholders were penalized a point to reflect a decline in their statewide visibility. Candidates whose celebrity translated into statewide name recognition receive a score of four, commensurate with state officeholders. Celebrities in this study

≡ TABLE 1
PREDICTING INCUMBENT SPENDING IN GUBERNATORIAL ELECTIONS

Variable	Without Job Approval	With Job Approval
Length of the Campaign (days)	.003 (.001)**	.002 (.001)**
State Land Area (1,000s of sq. miles)	.002 (.001)**	.001 (.001)
State Voting-Age Population (millions)	−.027 (.008)**	−.017 (.010)*
Leonard-Friar State CPI (avg. = 1.00)	.965 (.492)**	.108 (.604)
Candidate Party (Dem. = 1)	−.062 (.063)	−.023 (.075)
Self-Financed Challenger (yes = 1)	.106 (.097)	.103 (.112)
Acceptance of Public Funding	−.435 (.184)**	−.513 (.189)**
Opponent Accepts Public Funding	.114 (.117)	.282 (.123)*
Spending Limits ($ per voter)	.416 (.252)*	.316 (.261)
Individual Limits ($1,000s)	−.001 (.003)	.005 (.003)
Challenger Quality	.042 (.020)*	.020 (.022)
Normal Party Vote	−.003 (.004)	−.005 (.005)
Incumbent Opposed in Primary	.074 (.060)	.060 (.076)
State Unemployment Rate	−.016 (.015)	−.036 (.023)
Incumbent Job Approval	—	−.010 (.003)**
Constant	−.488 (.588)	1.210 (.792)
Number of Cases	118	85
R^2	.414	.445

Note: The dependent variable is general election spending per eligible voter, in constant 1990 dollars. *$p < .05$, **$p < .01$ (one-tailed). Standard errors are in parentheses.

higher challenger spending because contributors see that experienced challengers are more viable than amateurs (Bardwell 2002). Incumbent spending should also rise with challenger quality because incumbents spend reactively in the face of a viable threat (Green and Krasno 1990). Finally, research shows a strong relationship between incumbent vulnerability and campaign spending. When incumbents are vulnerable, both incumbents and challengers spend more (Gross and Goidel 2001; Kahn and Kenney 1999). One measure of incumbent vulnerability is the state economy (Gerber 1998), as represented by the state unemployment rate in the election year.[10] Popularity ratings also reflect pre-campaign incumbent vulnerability and should have an impact spending. The model includes a measure of statewide job approval of the governor in the year before the election.[11]

Tables 1 and 2 list the first-stage results (predicting incumbent spending and challenger spending, respectively)

from a TSLS regression.[12] To highlight the importance of including incumbent popularity in the models, results are listed with and without a control for governors' pre-campaign job approval rating. Table 1 (column 1) shows that it costs more for incumbents to run in states where the campaign is longer, where the area the campaign must cover is larger, and where the cost of goods and services is higher. Population is inversely related to spending due to the role of out-of-state donors in these races. Incumbents spend more when facing experienced challengers. As for public financing, acceptance of public funding leads to lower spending by incumbents, and the level of spending limits also matters. This negative hit for incumbents who take public funds is not surprising because incumbents are more likely than challengers are to bump up against aggregate spending limits.

Column 2 of Table 1 adds a control for governors' job approval ratings. This measure sets a pre-campaign baseline for expected spending. Put simply, it keeps the other variables that affect spending from being credited for a fundraising climate that already existed due to a safe or vulnerable incumbent. The addition produces some interesting findings. First, the R^2 of the model increases. Second, some variables that came through in the previous model (land area, spending limits, and challenger quality) are not statistically significant. Incumbent popularity seems to have subsumed

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include George W. Bush (TX), Jeb Bush (FL), and baseball player Jim Bunning (KY). Information on candidates' political experience was compiled from various issues of *Congressional Quarterly Weekly Report*.

[10] State unemployment data are available online at http://www.unl.edu/SPPQ and from the Bureau of Labor Statistics web site.

[11] To measure incumbents' popularity, this study used the governors' mean job approval ratings in the year before the election (Beyle, Niemi, and Sigelman 2002). These ratings are available online at http://www.unc.edu/~beyle/jars.html. To control for variance in state poll questions, responses were collapsed into percent positive and percent negative categories. For example, "excellent" and "good" reflect approval; "fair" and "poor" represent disapproval. For more details, see the above Internet site or Beyle, Niemi, and Sigelman (2002).

[12] Given concerns about time-series cross-sectional data, panel-corrected standard errors (Beck and Katz 1995) were calculated for OLS coefficients in the first stage, but the results did not change. Table 1 and Table 2 list the standard errors from the original analysis.

≡ TABLE 2
PREDICTING CHALLENGER SPENDING IN GUBERNATORIAL ELECTIONS

Variable	Without Job Approval	With Job Approval
Length of the Campaign (days)	.002 (.001)*	.002 (.001)*
State Land Area (1,000s of sq. miles)	.003 (.001)**	−.001 (.001)
State Voting-Age Population (millions)	−.043 (.011)**	−.028 (.011)**
Leonard-Friar State CPI (avg. = 1.00)	1.491 (.671)**	.022 (.657)
Candidate Party (Dem. = 1)	−.083 (.085)	−.025 (.082)
Self-Financed Challenger (yes = 1)	.498 (.133)**	.562 (.121)**
Acceptance of Public Funding	−.235 (.159)	.034 (.133)
Opponent Accepts Public Funding	−.094 (.117)	−.237 (.206)
Spending Limits ($ per voter)	.945 (.343)**	.704 (.284)**
Individual Limits ($1,000s)	−.003 (.004)	.005 (.004)
Challenger Quality	.055 (.027)*	.043 (.024)*
Normal Party Vote	.001 (.006)	−.004 (.005)
Incumbent Opposed in Primary	.136 (.082)*	.127 (.083)
State Unemployment Rate	.012 (.020)	−.027 (.025)
Incumbent Job Approval	—	−.018 (.003)**
Constant	-1.521 (.801)*	1.461 (.862)*
Number of Cases	118	85
R^2	.471	.644

Note: The dependent variable is general election spending per eligible voter, in constant 1990 dollars. *$p < .05$, **$p < .01$ (one-tailed). Standard errors are in parentheses.

their effects. Third, the relationship between governors' job approval and fundraising is negative; the more popular incumbents are, the less they spend. This fits what we know from recent research; incumbents spend more when their re-election bids are seriously threatened (Erikson and Palfrey 2000; Green and Krasno 1988; Jacobson 1990).

Table 2 illustrates the determinants of challengers' spending levels. Some of the same factors come through here (column 1) as they did for incumbents. As expected, self-financed challengers spend much more than other candidates do. Challenger quality has a visible effect on the amount of money challengers spend. A gubernatorial challenger with experience in the U.S. House spends $0.20 more per voter than a political amateur does (median spending for all challengers is $0.35). Another measure of incumbent vulnerability, whether the governor was opposed in the primary, is positively related to challenger spending. Challengers spend more when incumbents have contested primaries. When the control for the governor's popularity is added (column 2), the R^2 increases substantially, and some variables drop out. The coefficient for gubernatorial popularity in this model is double the size of that in the incumbent spending model. Even if vulnerable incumbents reap an increase in their total fundraising, they may still lose ground (on a dollar-for-dollar basis) to challengers.

MODELING THE VOTE IN GUBERNATORIAL ELECTIONS

The dependent variable in the second stage of TSLS analysis is incumbents' share of the two-party vote in gubernatorial general elections from 1980 to 2000. As is standard in TSLS regression, the predicted values for spending from the first stage of the analysis are instruments for spending in the second-stage model of vote share (Gerber 1998). The data used in this study represents general election spending, instead of the election-cycle spending used in prior studies of the gubernatorial vote. As such, the results are less likely to be biased by levels of primary competition, a fact that is important because in many states one party or another is historically dominant (for example, Democratic governors in the South). Although campaign spending is the variable of primary interest, this analysis controls for other factors that are expected to influence incumbents' share of the two-party gubernatorial vote.

Evidence from House and Senate elections shows that, on average, incumbents who face experienced challengers win a smaller share of the vote than do incumbents who face political amateurs (Green and Krasno 1988; Jacobson 1980; Squire 1992). As before, a modification of Squire's measure creates a six-point challenger quality scale based on established career ladders. The model also includes two controls for state partisanship. A dummy for candidate party will indicate any systematic or national partisan advantage in gubernatorial races (Squire 1989). The model also captures the normal vote for governor in each state, as represented by the average share of the two-party vote won by the incumbent's party in the last three gubernatorial elections. The more successful the incumbent's party in prior general elections, the larger the current incumbent's share of the vote should be.

≡ TABLE 3
THE EFFECTS OF INCUMBENT AND CHALLENGER SPENDING IN GUBERNATORIAL ELECTIONS

Variable	Incumbents' Share of the Vote (%)		
	OLS	TSLS	TSLS with Job Approval
Incumbent Spending	−2.083 (4.351)	8.562 (5.156)*	−.855 (4.021)
Challenger Spending	−7.885 (1.998)**	−6.585 (3.177)*	−6.928 (3.103)*
Challenger Quality	−.657 (.445)	−1.073 (.559)*	−.676 (.448)
Incumbent Party (Dem. = 1)	.094 (.532)	2.265 (1.821)	.285 (1.578)
Normal Party Vote	−.063 (.104)	−.093 (.125)	−.049 (.107)
Incumbent Opposed in Primary	−1.326 (1.458)	−3.063 (1.735)*	−1.333 (1.467)
State Unemployment	−.007 (.478)	−.597 (.426)	.123 (.512)
Incumbent Job Approval	.324 (.078)**	—	.362 (.096)**
Constant	52.135 (9.712)**	68.929 (8.346)**	47.273 (11.808)**
Number of Cases	85	118	85
R^2	.305	.182	.596

Note: The dependent variable is incumbents' share of the two-party vote in general elections.
*p < .05, **p < .01 (one-tailed). Standard errors are in parentheses.

Three other variables in the model reflect the vulnerability of the incumbent governor. First, a dummy variable reflects whether the incumbent was opposed in the primary election. Incumbents who escaped a primary fight should win a larger share of the vote than incumbents who emerged from divisive primaries (Kenney and Rice 1984). Second, a measure of state unemployment captures the incumbent governor's responsibility for the state economy (Svoboda 1995). As the unemployment rate increases from state to state, incumbents' share of the vote should decline. Third, the model controls for incumbent popularity using the governor's mean job approval rating in the year before the election. This measure of incumbent vulnerability is the key to the model because it sets a pre-campaign baseline for the incumbent's expected vote. It differentiates the effects of campaign-related variables on the vote (spending effects) from the impact of pre-existing levels of gubernatorial popularity.

RESULTS

Table 3 lists the coefficients from three models of the gubernatorial vote from 1980 to 2000.[13] The dependent variable is incumbents' share of the two-party vote in

general elections. For the sake of comparison, Table 3 presents results from OLS regression in column one. As is often the case in research on spending effects, the OLS coefficients for incumbent spending are negative and statistically insignificant. Meanwhile, challenger spending has a strong negative effect on incumbents' share of the vote. Incumbents' job approval ratings in the year before the election are strongly related to their eventual performance at the polls on election day. The model fit is excellent; it explains nearly two-thirds of the variance in incumbents' share of the vote. But because OLS does not correct for simultaneity bias, these results on the impact of incumbent spending in gubernatorial races are not definitive.

The second and third columns of Table 3 list results from TSLS regression. The second column presents coefficients from a model without the measure for incumbents' job approval. At first glance, the results seem to confirm recent work by Gerber (1998) that finds comparable spending-on-vote effects for incumbents and challengers. The coefficients for both types of candidates are statistically significant. The variables for challenger quality and incumbents facing opposition in the primary both behave as expected. But the overall fit of the model tells another story. Despite expected relationships, the R^2 is low. These results are best interpreted cautiously because so much variance is unexplained and because it is likely that gubernatorial job approval is correlated with spending and with the vote.

The recent availability of data on gubernatorial job approval ratings (Beyle, Niemi, and Sigelman 2002) allows a quick test of the robustness of our findings regarding spending effects. Column three of Table 3 list TSLS coefficients from an equation that includes the governor's mean job approval rating in the pre-election year as a measure of incumbent vulnerability. The control effectively works like a

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[13] Other specifications of the normal vote measure were tried, including using the state presidential vote, a combination of gubernatorial and presidential results, and survey data on partisanship in state public opinion (Erikson, Wright, and McIver 1993). None of the measures had any effect, again pointing to how individualized gubernatorial races have become. Analyses of spending effects sometimes use the log of spending to account for the potential of diminishing marginal returns, especially for incumbent spending. An alternative model tested using the log of spending reduced the fit of the model. Challenger spending remained statistically significant, and incumbent spending still had no effect. Thus, the original spending measure was retained.

lagged dependent variable to highlight change in the incumbent's popularity from the pre-campaign period to election day.[14] The results of this specification show that while challenger spending effectively draws down incumbents' share of the vote, incumbent spending does not have a significant effect on their vote share. Put simply, spending during the campaign year does not win governors support over and above the baseline of support they had already enjoyed before the campaign began.[15]

An important practical question is whether this news should bring hope to challengers in gubernatorial elections. If incumbent spending is ineffective and challenger spending is highly effective, does this create the potential for substantial numbers of well-funded challengers to defeat incumbents? The short answer is that it is unlikely. First, the magnitude of challengers' spending coefficient is consistent in all of the models; a dollar per voter increase in spending reduces incumbents' vote share by 7 percent. This is tempered by a stark reality: only 37 percent of the challengers in this study spent $0.50 per voter, and just 13 percent were able to raise and spend $1.00 per voter. As a result, few challengers were in a position to elicit (using increased campaign spending) more than a one- or two-point vote swing. Of course, the actual margins of these races also matter. If each challenger in this study had spent $0.25 more per voter, only five more incumbents would have been defeated from 1980 to 2000.

CONCLUSIONS

This study sheds new light on the recent debate over the effects of incumbent spending. Using existing data (Beyle and Jensen 2001) and state campaign finance files, it extends research on campaign spending to general elections for governor. By correcting for simultaneity bias, this study provides the most thorough assessment of spending effects in gubernatorial races to date. In his research on House races, Jacobson (1978, 2000) argues that spending by incumbents is largely ineffective because these candidates are so well known. Using newly available data on gubernatorial job approval ratings (Beyle, Niemi, and Sigelman 2002), this study shows that this theory squares well with the last 20 years of gubernatorial elections. Using job approval ratings in the year before the election as a pre-campaign baseline for the incumbent's popularity, this analysis finds that incumbent spending does not have an independent effect on the vote.

These findings speak to whether campaign finance reform might make elections more competitive. If challengers' current return on campaign spending is good but is not enough to be decisive in most races, this has implications for public funding programs. It means that funding levels would need to be high to have any effect on competition. Based on this study, the level needed is around one dollar per voter, a figure much higher than average challenger spending in recent gubernatorial races. The level of spending limits that public funding programs employ is not crucial to competition because, in practice, the limits primarily cap incumbent spending that is ineffective on a dollar-per-vote basis. So when both fundraising and spending are taken into consideration, Jacobson's (1978) fear that spending limits could make races *less* competitive seems overblown in light of current spending levels. Finally, while scholars have hotly debated whether lower contribution limits might hurt challengers, this study finds that these limits have no effect on incumbent or challenger spending. Taken as a whole, this study suggests that the potential for campaign finance reform to improve the lot of challengers is modest and would be achieved primarily by way of generous public funding programs.

This analysis points to new avenues for research on spending effects. Given the recent availability of state-level job approval data for U.S. Senators (Beyle et al 2002), existing models of the Senate vote could be re-specified and tested in light of the findings here. Senate elections share much in common with gubernatorial races. Would the findings of Gerber (1998) hold in the face of controls for pre-campaign incumbent popularity? Second, new data on campaign spending in gubernatorial races (separated for primary and general elections) will enable us to test hypotheses from congressional elections in the gubernatorial context. New studies on the interaction between war chests, incumbent vulnerability, the emergence of quality challengers, and public funding (Epstein and Zemsky 1995; Krasno and Green 1988; Squire 1991; Bardwell 2002) are just a few promising options. The link between money and competition is complex. But if scholars can isolate *when* spending matters in campaigns, this research will continue to shed light on debates over campaign finance reform and electoral competition.

APPENDIX

For this study, spending data were compiled for gubernatorial races from 1980 to 2000. Unlike previous research

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[14] Gubernatorial approval ratings in the year before the election closely approximate governors' eventual share of the two-party vote. The variables are highly correlated (.67) and share a similar range: 20 to 80 percent for job approval, and 26 to 81 percent for vote share. Their means (56.7 for approval to 59.2 for vote share), medians (57.0 and 59.6), and standard deviations (12.9 to 9.6) are also comparable. Given possible interaction between popularity and spending (i.e. spending may matter more when incumbents are vulnerable and less when they are safe), an earlier model was run with interaction terms for campaign spending and job approval. The interaction terms for incumbents and challengers were not statistically significant, and the substantive effects of the original spending and job approval variables did not change.

[15] While this study finds no effect for incumbent spending, Erikson and Palfrey (2000) suggest that incumbent spending and challenger spending are equally effective *in close races*. To test this hypothesis, data were separated into two subsets based on race margin (less than and more than 7.5 percent) and TSLS regression was conducted for each group. Incumbent spending was not significant in either case, implying that the finding of no impact for incumbent spending is not due to combining safe and competitive races. Some may argue that incumbents' early spending buys general election votes even if general election spending does not. Primary spending was included in an earlier specification of the model, but it was not significant.

on election-cycle spending in races for governor (Gross and Goidel 2001; Partin 2002; Patterson 1982), this analysis treats general elections separately. In the past, the lack of standardized state campaign finance data has prevented separate research on primary and general elections (Squire 1992). Yet it is important to have separate spending data for these two types of races because they feature different opponents and constituencies, different patterns of spending, and varied levels of competition (Epstein and Zemsky 1995). While some primary spending is undoubtedly targeted toward general election success, the use of general election data is a better compromise than using multi-year election-cycle data that would largely reflect the competitiveness of the primary period. The data in this study come directly from the files of state campaign finance agencies.

Only a few states publish separate spending totals for the two periods because reporting dates do not always coincide with the start of the general election. State agencies were asked for and provided copies of gubernatorial candidate files for each reporting period in the general election. Then these spending totals were compiled to reflect most accurately the full general election period. This means that 30 percent of candidate spending cases reflect a slightly earlier or later start than the actual general election period. In these cases, the mean difference between the actual and imposed start of the general election period is 11.7 days. In this study, December 31 marks the end of the general election period, at which point spending has slowed to a trickle. Inclusion of this post-election spending accounts for late payments for general election spending. For some races in the early 1980s (less than a quarter of the cases), general election spending data gathered directly from state agencies by Beyle and Jensen (2001) are used.

Missing data occur for reasons that are familiar to scholars who work with state records and archives. Data for a few races in the 1980s are unavailable because some states temporarily archived spending data but destroyed reports as space constraints dictated. State record keeping is meticulous in most agencies, but a few spending reports were unavailable or came up missing. Due to budget shortages in a few states, scholars are actually required to visit state archives in person to fill research requests. In these cases, gathering data on candidate spending was cost prohibitive. As more states mandate electronic disclosure of campaign finance data, many of these problems will be alleviated. While not perfect, the data in this study are the best available on spending in gubernatorial general elections and cover 77 percent of all incumbent-challenger contests from 1980 to 2000.

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