War Chests as Entry Deterrence with Strategic Delay

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Abstract: This paper investigates whether campaign war chests reduce the probability of challenger entry in elections where challengers have another opportunity to run against a known, different opponent, whose war chest they can also observe, a few years later. This type of setting occurs in state supreme court elections. The key insight is that the present incumbent and the next-in-queue incumbent interact strategically: incumbents facing reelection use a war chest to promote strategic delay, and incumbents who are next in queue use an early war chest signal to prevent strategic delay. In equilibrium, a potential challenger would be indifferent between entering the current race and delaying until the next race. This means that the effect of war chests would be difficult to observe in challenger entry decisions, but would be indirectly observable through evidence of fund-raising competition between the current and next-in-queue incumbent. Consistent with these predictions, the empirical analysis provides strong and robust evidence that the next-in-queue incumbent’s early war chest increases the present incumbent’s war chest. However, there is no evidence that the probability of challenger entry is affected by this strategic interaction between the incumbents. The gap in the incumbents’ war chests does not affect entry probabilities, and a Wald test shows no evidence of endogeneity. In sum, the evidence shows that the apparent lack of effect of war chests on challenger entry is due to strategic interaction between incumbents being in equilibrium.
1 Introduction

Can incumbents successfully use a war chest to deter challengers from entry in a state supreme court election? Information about campaign contributions to an incumbent’s war chest, defined as money accumulated before the start of the election campaign, is public and available to potential challengers well in advance of the election. Since the war chest is a signal of the incumbent’s fund-raising ability, one would expect that a significant war chest would deter potential challengers. The empirical evidence on the deterrence effect of war chests has been mixed, however (e.g., Box-Steffensmeier 1996; Epstein and Zemsky 1995; Goodliffe 2001, 2004, 2007; Hogan 2001; Krasno and Green 1988; Squire 1991). This presents a puzzle: is it that war chests are ineffective in deterring challengers, or are there other factors that confound the results?

Previous research has focused on settings where the challenger faces a choice of running or not running, or a choice of running in present elections, or running against the same or an unknown incumbent one election period later. Instead, we consider a setting in which the challenger has an opportunity to run against a different but known opponent a few years later. In other words, we investigate how the incumbent’s war chest affects the challenger’s decision to enter a race when the choice is not between challenging incumbent X in year $t$ or in year $t + 2$, as in congressional elections, but between challenging incumbent X in year $t$ or a known incumbent Y in year $t + 2$?

In this type of setting, which occurs in state supreme court elections, the relative strength of the incumbent’s war chest may matter as much or even more than its absolute strength. All that the incumbent needs to do is to signal a potential challenger that another incumbent would be easier and less costly to defeat. The idea is the same as in

\footnote{Some US Senate races also fit this description, but the influence of political parties is far greater in these races.}
the old story about a lion chasing two men: the first says, “We can’t outrun a lion.” The second replies, “I don’t have to. I just need to outrun you.” Hence, in state supreme court elections, the signaling effect of a more modest war chest may be stronger than in settings where the choice is simply between running or not running, or running against the present incumbent now or against a present or an unknown incumbent at a later time.²

There are also other reasons why the deterrence effect of incumbent war chests might be stronger or more salient in state supreme court elections. First, state supreme court elections are generally statewide, so additional theoretical considerations about in which district to run do not come into play, as in congressional elections.³ Second, state supreme court races are nonpartisan in some states and partisan in others. This makes it possible to control for the effects in the incumbent and challenger of auxiliary sources of support from the state and national party organizations. Therefore, by studying the effects of war chests in a state supreme court setting, it is possible to eliminate some confounds that might explain the mixed empirical findings in the war chest literature.

The question of whether war chests deter entry in the state supreme court elections is also normatively important. State supreme court seats are extremely valuable, and competition for them has intensified in recent years (Bonneau and Hall 2009), as has campaign spending. Between 1990 and 1999, state supreme court candidates raised and spent more than $83.3 million in expenditures in judicial elections, and between 2000 and 2009, the amount had grown to more than $206.9 million (Sample et al. 2010). To curb excessive spending and to level the playing field, most states have enacted campaign finance regula-

²Of course, the same logic holds for the decision of which incumbent to challenge in any particular election cycle. Thus, if there are two incumbents, the one with the larger war chest should be less likely to draw a challenger than one without such a war chest. We focus our attention on the strategic delay aspect of this issue because it is less obvious and more interesting if an incumbent can keep a challenger out for another two years.
³Four states elect their judges in district-based elections (Illinois, Kentucky, Louisiana, and Mississippi) These are excluded from the present study
tion, and some offer public funding. However, empirical evidence has shown that campaign finance regulation can be have unintended consequences: it can impede the challengers’ ability to raise enough money to successfully compete, and therefore inadvertently reinforce the advantages incumbents already have (Bonneau and Cann 2011). Similarly, the availability of public funding, at least in state legislative elections, does not always translate into improved competitiveness. Understanding how war chests affect the emergence of challengers is therefore important in evaluating the implications of campaign finance regulations.

2 Campaign War Chests, Deterrence, and Strategic Delay

Empirical evidence on the deterrence effect of war chests has been mixed. In early work on the topic, Goldenberg, Traugott, and Baumgartner (1986) found that “the early money that some incumbents accumulate and advertise probably does act to discourage potential challengers if they know it is there” (Goldenberg, Traugott, and Baumgartner 1986, 10). This finding has been confirmed by several scholars examining the timing of receipts and expenditures (Box-Steefensmeier 1996; Carson 2005; Hersch and McDougall 1994; Hogan 2001). However, others (Goodliffe 2001, 2007; Krasno and Green 1988; Squire 1991) find more mixed results. Squire (1991, 1158), who examines U.S. Senate elections, finds that while incumbents try to raise war chests, “large sums of early funds do not, however, deter better challengers from running.”

There are at least two potential explanations for the mixed results. The first one is

4 Goodliffe (2001, 830) notes that “some campaign finance reforms have proposed that incumbents not be allowed to carry over any unspent money from one election to the next.” However, this position has not received much traction in legislatures.

5 See Ramsden (2002) for a review on the literature of the effects of campaign finance regulation and public funding on the emergence of challengers.
theoretical. Even in simple entry deterrence games, there are often a multiplicity of equilibria. For instance, different types of candidates may pool with each other, making it difficult to isolate the deterrence effect. As Squire (1989, 286) summarizes: “On the one hand, an incumbent with lots of cash may intimidate potential opponents, perhaps deterring anyone from making the race. On the other hand, incumbents who raise large sums of money prior to an election may be doing so because they appear vulnerable and likely to be challenged.”

Epstein and Zemsky (1995) examine this dynamic in one of the most widely cited models of war chests as entry deterrence. Their game is essentially a one-shot beer-quiche game (as in Cho and Kreps, 1987), in which weak incumbents may devote resources to fund-raising, diverting them from other activities that would assist in reelection, in order to pool with strong opponents. The game results in many equilibria, leading Epstein and Zemsky to conclude that “only in certain, limited cases will this fund-raising actually deter quality challengers from entering the race; otherwise, challenger entry decisions are unrelated to incumbent spending” (Epstein and Zemsky 1995, 296). Goodliffe (2005, 273) finds empirical support for Epstein and Zemsky’s results: strong incumbents run against the lowest-quality challengers and may or may not have war chests; weak incumbents run against the highest-quality challengers and will not have war chests, and medium-strength incumbents run against medium-strength challengers and will have war chests.

The second explanation for the mixed results may be that most of the above studies have examined federal legislative elections, where other considerations, such as significant financial and organizational support from political parties come into play. At the state legislative level, Hogan (2001) finds that war chests do have a deterrent effect, although this effect is not the same across all types of races. Rather, the value of the seat matters. War chests can deter challengers only when the seat is not highly valued (measured by the professionalism of the legislature), but when the seat is highly valued, war chests do not
deter challengers from taking on the incumbent. By contrast, Bonneau and Cann (2014) find no statistically significant effect of war chests on challenger emergence in state supreme court races, even when estimating the effects of at a range of values of contribution limit strictness, the availability of public funding, and term length.

However, none of the existing models have considered the issue of strategic delay. In the state supreme court setting, an incumbent can also benefit from convincing challengers that another incumbent is relatively weaker. Thus, in contrast to signaling through fund-raising in Congressional or Senate elections, where the potential challenger’s district is somewhat fixed, state supreme court elections might increase the incentive for incumbents to attempt to deter challenger entry.

Why not just use the present incumbent’s war chest to predict the entry of a challenger? The problem is that the challenger’s enter-or-delay decision depends on the challenger’s forecast of how difficult the present incumbent will be to defeat, compared with how difficult the next-in-queue incumbent will be to defeat. This means that the present incumbent’s war chest cannot be viewed in isolation when assessing its effects on challenger entry: it is not the size of the war chest, but the expected relative size of the final amount of money raised of the current incumbent versus the expected relative size of the money raised by the next-in-queue incumbent.

The intuition is as follows: a potential challenger does not simply decide whether to run, he or she also decides when. If the incumbent currently up for reelection appears to have a large fund-raising advantage, then it would be natural for the potential challenger to decide whether the current race is the best shot or whether it is better to wait a couple of years for a weaker incumbent or an open seat. Just as a pitcher in baseball considers the batter on deck before deciding whether to give the current batter an intentional walk, it is reasonable

\footnote{In Section 3.1, we discuss issues related to discounting, which can arise in a setting with strategic delay.}
to expect a potential challenger to consider who is up next before deciding whether to enter the current race.

3 The Model

3.1 Description

The hypotheses developed below are based on the following model. What is presented here is a preliminary description, without all the equilibrium conditions solved due to their inherent complexity. Nevertheless, the sketch and timeline provide intuition for the hypotheses.

As a simplification, we consider a model with three agents: an incumbent up for re-election in the nearby election cycle, $I_1$, a next-in-queue incumbent, $I_2$, and a potential challenger, $C$.

At the beginning of play, nature chooses the maximum amount of funding available to $I_1$, $I_2$, and $C$ from a nonnegative distribution that is commonly known, such as a lognormal. Each of the players observes his or her own maximum amount of money available, but this total is private information.\(^7\) Let $w^1$ denote the most that $I_1$ may have available for the current election cycle, $w^2$ the most that $I_2$ may have for the following cycle, and $w^c$ the most that the potential challenger can raise.

In the spirit of Epstein and Zemsky (1995), we assume that each incumbent can shift the timing of when money is received, but that doing so is costly. The intuition is that requesting contributions earlier than a donor had intended will lead to some reduction in total donations. Accordingly, $I_1$ can receive a portion of $w^1$ early, which is denoted $w^1_0$ and

\(^7\)The assumption that the each player perfectly knows his or her fund-raising potential is a convenient simplification. The results depend only on each player having better information about his or her own fund-raising potential than the other players have. Some amount of private information is necessary, because the goal is to study what war chests can signal. If everyone were to have the same information, then the model would not be able to speak to questions about signaling.
must be between 0 and $\gamma w^1$ for some commonly known value of $\gamma \in (0, 1)$. Just before the current election, the total contributions to $I_1$ are then equal to

$$w_1^1 = w^1 - \left(\frac{1-\gamma}{\gamma}\right) w_0^1$$

If $I_1$ chooses to make $w_0^1 = 0$, he or she has all of $w^1$ available for the election. At the opposite extreme, if $I_1$ chooses to make $w_0^1 = \gamma w^1$, then for the election, $I_1$ has $w^1 - (1-\gamma)/\gamma \cdot \gamma w^1 = w^1 - (1-\gamma)w^1 = \gamma w^1 = w_0^1$ available. The benefit of making $w_0^1 > 0$ comes from the fact that it is public information, but this is offset against the cost of reducing the amount of money available for the actual campaign.

Prior to the current election, $I_1$ releases his or her total contributions, $w_1^1$. Simultaneously, $I_2$ releases an early signal on funds raised for the subsequent election cycle. This amount, $w_1^2$, must be between 0 and $\gamma w^2$, and $I_2$ must choose $w_1^2$ before learning the present incumbent’s final total. This means that the next-in-queue incumbent chooses an early war chest signal based on his or her beliefs about the total amount the present incumbent will raise. $I_2$ forms these beliefs on the basis of $I_1$’s early war chest signal, $w_0^1$, and on a conjecture about $I_1$’s strategy (which turns out to be correct in equilibrium). The costs for $I_2$ of generating funds early are analogous to those for $I_1$.

The challenger then observes the present incumbent’s late war chest $w_1^1$ and the next-in-queue incumbent’s early war chest $w_1^2$, and decides whether to enter the current election or to wait for the subsequent election.

After the challenger makes the entry decision, the current election is held. The present

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8Each state has different filing requirements, but all states require active campaign committees to file reports at least annually.
incumbent is reelected with probability

\[ \frac{w_1^1}{w_1^1 + w^c} \]

That is, the probability that \( I_1 \) is reelected is assumed to equal the fraction of the total funds in the election that \( I_1 \) raised.

Any candidate who participated in this election is assumed to be out of money by the time the election is held, and cannot feasibly attempt to run a credible campaign against the next-in-queue in the subsequent election. This is a simplification, clearly not descriptive, but allows us to focus on the role of strategic delay without having to consider the potential gains from having two chances at running for office.

After the first election, \( I_2 \) releases his or her final fund-raising total, \( w_2^2 \). If the challenger did not enter the first race, \( C \) may enter the second one. In that case, the probability that \( I_2 \) is reelected is analogous to that for \( I_1 \) in the first election. After the election is held, the game ends.

The benefit to any candidate of winning the current election is \( b > 0 \). The benefit of winning the subsequent election is \( \beta \cdot b \) for some discount factor \( \beta \in [0, 1] \). A discount factor of 0 corresponds to an infinite discount rate, i.e. a challenger who faces a now-or-never decision to run. A discount factor of 1 corresponds to 0 discounting, i.e. a challenger who does not mind waiting if it increases the likelihood of eventually holding office.
3.2 Solution

The model is solved by backward induction. The benefit to $C$ of participating in the second election is the discounted expected benefit

$$
\left( \frac{w^c}{w_2^2 + w^c} \right) \beta b
$$

The benefit to $C$ of participating in the first election is

$$
\left( \frac{w^c}{w_1^1 + w^c} \right) b
$$

At the time of making the entry or delay decision, $C$ does not know $w_2^2$, but $C$ does know both $w_1^1$ and the early war chest signal from $I_2$, $w_1^2$. The optimal choice for $C$ is therefore

Enter if

$$
\beta \frac{w^c}{\frac{1}{\beta} E[w_2^2|w_1^2] + w^c} \leq \frac{w^c}{w_1^1 + w^c}
$$

$$
w_1^1 \leq \frac{1}{\beta} E[w_2^2|w_1^2] + \frac{1 - \beta}{\beta} w^c
$$

Delay if

$$
w_1^1 \geq \frac{1}{\beta} E[w_2^2|w_1^2] + \frac{1 - \beta}{\beta} w^c
$$

Letting $r$ be the discount rate, so that $\beta = 1/(1 + r)$, the above expressions state that the challenger compares the present incumbent’s late war chest signal $w_1^1$ with the expected future value of the next-in-queue incumbent’s expected war chest, $(1 + r)E[w_2^2|w_1^2]$, given the next-in-queue’s early war chest signal, plus the interest on the challenger’s war chest, $rw^c$.

In the special case where $r = 0$, i.e. where the discount factor $\beta = 1$, the optimal choice
for $C$ simplifies to

Enter if $w_1^1 \leq E[w_2^2|w_1^2]$

Delay if $w_1^1 \geq E[w_2^2|w_1^2]$

Throughout the rest of the paper, we make the simplifying assumption that $\beta = 1$. There are two reasons for this. First, from a statistical point of view, the discount factor is not well-identified. To identify $\beta$ would require observation of the challenger’s war chest signal, which can be observed only if the challenger makes an entry decision. It is unclear how this truncation problem could be overcome. Even if we were to ignore the term $rw^c$, which is likely to be small compared with $w_1^1$ and $E[w_2^2|w_1^2]$, identification would remain difficult. This is because the challenger would still be comparing the probability of winning the current election with the discounted probability of winning the subsequent election, i.e. this speaks only to the joint effects of a discount factor and an estimated probability of winning the subsequent election.

Second, from a practical viewpoint, there is a lack of variation in the time until the next election. Among 129 non-terminal elections in the raw data set, 113 have a subsequent election in 2 years. The remaining 16 observations contain 7 that are unusable, as they come from states where the supreme court seats are district-based and not statewide. This leaves 9 observations of time until a next election unequal to 2 years. All 9 are equal to 4 years. In sum, even if a clever strategy could separately identify $\beta$ and the probability of winning a subsequent election, any inferences about the discount factor would rest on too few observations, with too little variation, to say anything meaningful. Assuming $\beta = 1$ is therefore a way of acknowledging that the current study and data set cannot address separating discounting from estimating the probability of winning a future election.
In other words, given the assumption that $\beta = 1$, $C$’s decision simplifies to entering provided the present incumbent’s late war chest signal is at least the expected value of the next-in-queue’s war chest, given the next-in-queue’s early signal. Similarly, $C$ is willing to delay provided the present incumbent’s late war chest signal is at most the expected value of the next-in-queue’s war chest, given the next-in-queue’s early signal.

Anticipating this, the next-in-queue incumbent observes the present incumbent’s early signal $w^1_0$ and forms a conjecture about $w^1_1$. Denote $I_2$’s conjecture about $w^1_1$ by $\hat{w}^1_1$, which will be a function of $w^1_0$. (We have suppressed this dependence in order to reduce the notational burden.) Note that if $\hat{w}^1_1 \leq \gamma w^2_2$, then $I_2$ can prevent the challenger from delaying by choosing a sufficiently high value of $w^2_2$.

Once $\hat{w}^1_1$ becomes large enough, however, $I_2$ will recognize that preventing strategic delay is infeasible. In this case, $I_2$ prefers not to raise any funds early, since raising money early will lead to donors contributing less (for the reasons discussed earlier). Generating a war chest would provide no benefit to $I_2$, as the $C$ is sure to wait and enter the second contest, and would reduce $I_2$’s probability of getting reelected.

At the start of play, $I_1$ foresees $I_2$’s strategy and $C$’s method of forming beliefs about $w^2_2$ from $w^1_1$. Given $w^1$ and the prior distribution of $w^2$, $I_1$ chooses the initial war chest.

A high value of $w^1$ has two effects. First, the higher $w^1$, the greater the ability of $I_1$ to signal and prompt strategic delay. However, if $w^1$ is sufficiently high, the present incumbent $I_1$ may be better off setting $w^1_0 = 0$, because $w^1_1$ is likely to be large enough to deter entry at the second stage, and if not (i.e., if $I_2$ is extremely strong), it may be more beneficial to have the extra funding available for the election. This means that there may be some degree of countersignaling in equilibrium, by setting an early war chest to 0, among very strong incumbents. (For similar results, see Feltovich, Harbaugh, and To 2002.)

The following observation is useful for the empirical analysis that follows:
Claim: Let the present incumbent $I_1$’s war chest signal and final fund-raising amounts $(w^1_0, w^1_1)$ be at their equilibrium values. Let the next-in-queue $I_2$’s early war chest signal $w^2_1$ also be in equilibrium. Then if the challenger $C$ randomizes in the entry or delay decision, $C$ must be indifferent, i.e.,

$$w^1_1 = E[w^2_1|w^2_1]$$

Consequently, the model predicts that the next-in-queue incumbent’s early war chest signal should increase in the present incumbent’s war chest signal (at least if $w^1_0 > 0$), but that the challenger’s entry decision should appear independent of both candidate’s war chests.

4 Data, Variables, Operationalization and Methods

4.1 Data

In most states, judicial candidates, after appointing a campaign treasurer or a campaign committee, are responsible for filing periodic reports of campaign contributions and expenditures until they file a final report before the election. The incumbent war chest dollar amounts in this study were obtained from these reports. The data covers the years 2000-2008 (excluding the years 2003 and 2007 during which there were no contested state supreme court elections), and seventeen states (AL, AK, GA, ID, MI, MN, MO, NV, NM, NC, ND, OH, OR, TX, WV, WI, and WA). Only state supreme court candidates who are selected in statewide contestable elections are included. Candidates selected in retention elections are omitted because they have no challengers by definition. Candidates selected in districts (IL, KY, LA, and MS) are omitted because the control variables in the model are measured at the state level.

The original data set is a weakly balanced panel, with 175 observations, of which 28
were omitted because the incumbent ran in retention or district-based elections. Because the panel is unbalanced and there are only a few cases where there are war chest filings >0 for both incumbents (<30 for several of the years) we treat the data set as a pooled cross-section.

Of the 175 observations, 129 are non-terminal elections (elections in years other than 2008). Of these, 113 are for an election where the next-in-queue incumbent would run in two years. In addition, seven of the remaining observations are among the states that were discarded. Therefore, the data set does not have enough variability to separately identify the discount rate. Since the delay period is only two years, the effect of this omission should not affect the results (see the model for additional discussion).

Finally, the state-level control variables used to predict the war chest amounts are taken from Bonneau and Cann (2011), and the candidate specific control variables from Bonneau and Cann (2014).

### 4.2 Variables, Operationalization and Methods

**Dependent Variables** The model has two dependent variables, one continuous and the other dichotomous.\(^9\)

The dichotomous variable (\(\text{anycomp}\)) is an indicator for the emergence of a challenger in the current state supreme court race. Since we only observe those challengers who actually enter the race, the underlying variable of interest, i.e. the probability of potential challengers entering the race, is latent. The emergence or non-emergence of a challenger in the present race is the fitted value of this probability. The predicted value of \(\text{anycomp}\) is then the

\(^9\)We consider two main specifications: instrumental variables probit and simultaneous equations with a continuous and discrete dependent variable. As a robustness check, we look at the effects of the gap between war chests within a probit model, i.e. ignoring the possibility that the present incumbent’s war chest may affect the next-in-queue incumbent’s early war chest.
estimated probability of entry. The distribution of the variable is lopsided: in the time period covered, a challenger emerges slightly more than 68% of the time.

The continuous dependent variable is the natural logarithm of the early war chest of the next-in-queue incumbent \((WC\text{WeakNIQ})\), plus one, to accommodate zero entries. This equals the next-in-queue incumbent’s filing amount (in unadjusted dollars) two years ahead of the next election, if nonzero, or the filing amount one year before the next election, if the two-year filing amount was zero. If there are several candidates on deck for the next election, the value equals the war chest of the weakest non-zero filer. The rationale for emphasizing the earlier filings by the next-in-queue incumbent is that these filings are the most likely to be a response to the present incumbent’s war chest, in contrast to the next-in-queue’s last filing before the election. The rationale for emphasizing the weakest war chests is that a potential challenger contemplating a strategic delay would focus on the incumbent who is easiest to defeat.

The raw values of \(WC\text{WeakNIQ}\) range from $0 to $158,359.40, with a mean of $10,570.85 and a standard deviation of $29,449.38. Almost two-thirds of the entries (65%) equal zero. The Shapiro-Wilk test for the normality of the logged value returns a statistically significant value. This means that the distribution of the logged variable is still significantly different from normal. This may lead to inefficient OLS estimates in the regression and must be taken into account when interpreting the results. In addition, there are multiple next-in-queue incumbents in almost half of the elections, with up to five next-in-queue. The interaction between the war chest amounts of these next-in-queue incumbents may be of independent interest not considered in this paper.

**Independent Variables** The main independent variables in the model are \(\text{lninccont}\) and \(\text{lnIncLastfile}\). The first independent variable, \(\text{lninccont}\), equals the natural logarithm of the total contributions the present incumbent received and filed with the state; that is, the
total amount of contributions the incumbent raised. It can be taken as a measure of the incumbent’s strength as a candidate. All else equal, a challenger should be less inclined to enter a race when the present incumbent is strong, so we expect $\Pr(\text{anycomp} = 1)$ to decrease in $\ln\text{inccont}$. The raw values of total contributions filed by the incumbent by the latest filing day have a wide range, from $1$ to $4.14$ million, with a mean of $384,512.10$ and a standard deviation of $521,184$.

The second independent variable, $\ln\text{IncLastFile}$, is the natural logarithm of the latest filing amount (in unadjusted dollars) by the incumbent, plus one, if non-zero; that is, the incumbent’s total available funds when a potential challenger has to make a decision. Otherwise it equals the amount filed one year before the election, if non-zero. Failing that, it equals the amount filed two years before the election.\(^{10}\) In general, the incumbents’ two year, one year and closest to candidate filing amounts are all sparse, and considerably smaller in magnitude than the amount that the incumbent spends during the election campaign. By contrast, the total amount raised in $\text{inccont}$ is on the same order of magnitude as the incumbent’s expenditure. This means that the two year, one year and closest to candidate filing amounts are likely to be signals of the incumbent’s fund-raising ability, rather than an indication of how much money is actually available.

We use the latest signal the present incumbent sends, rather than the earliest, because the present incumbent is concerned with what the next-in-queue incumbent’s response will be. The next-in-queue would seem more likely to respond to the present incumbent’s late entry deterrence signal than to an earliest signal. A potential explanation is that by that time, more of the costs have been sunk, so it is more likely that the present incumbent is

\(^{10}\)Because of the wide variations in campaign filing regulations across the states, we decided to use the most recent data before the filing deadline that was available as opposed to artificially setting a universal cut-off point. This decision reflects the information that the challengers in the state would have before making the decision to run.
going to run. In addition, the later signal is likely to be more informative of the present incumbent’s fund-raising ability than the early signal.

One possible concern about this construct is endogeneity. Goodliffe (2001, 832) raises this issue, arguing that “the best time to measure war chests is at the beginning of an election cycle or right after the previous election. Such measurement avoids much of the endogeneity problems that plague analyses of fund-raising and spending behavior during an election.” The concern, in the present context, is that later war chest amounts may increase because of the emergence of a challenger. The earlier the war chest signal is measured, the less likely this problem would be to arise. However, a difficulty with applying Goodliffe’s reasoning in the current setting is that early signals are unlikely to be the information to which the next-in-queue incumbent would reply. The gain in avoiding endogeneity therefore needs to be balanced against a loss in construct validity for the question of interest.

The difference between the total incumbent contributions and the latest filing amount gives some sense of the tradeoff between avoiding endogeneity and using a construct that is more likely to affect the next-in-queue incumbent. The mean of the latest filing amount is $29,981.88.

By comparison, the mean of the raw total incumbent contributions is $400,019.50, or over 13 times as large. Moreover, 32% of the total incumbent contributions were larger than 100% of the values of the latest filing amounts, and the correlation between the two variables is just over 0.2. From these observations, it appears that the increased signaling value in the latest filing amount is not dramatically tainted by factors that appear in the candidate’s final contribution total.

The raw values of the latest filing amount variable range from zero to $381,358.80, with a mean of $29,981.88 and a standard deviation of $64,834.59. Sixty-five of the filing amounts equal zero. These may, however, represent incumbents with considerable personal wealth,
incumbents who expect support from their party, or simply incumbents who are delaying their fund-raising because they are confident in their fund-raising ability during the electoral campaign. Interestingly, 52 of the zero entries occur in nonpartisan election contexts, so zero filings do not represent expectation of support from a party organization.

We expect the early war chests of the next-in-queue incumbents, in particular, the war chest of the weakest next-in-queue incumbent (\(\text{lnWCWeakNIQ}\)) to increase \(\text{lnIncLastFile}\). The reason for this is that the weakest next-in-queue incumbent will want to increase his or her war chest in order to signal the challenger to enter into a race with the present incumbent instead waiting for the next-in-queue. (Of course, if there are several next-in-queue incumbents, the weakest next-in-queue incumbent only needs to raise a war chest large enough to exceed that of one of the other next-in-queue incumbents. Exploring this strategic aspect of the entry deterrence game is left for future extensions. For now, we assume that there is a weakest next-in-queue challenger who wants to signal to a potential challenger at the present time period that it would be more advantageous to run now than later).

As a robustness check, we also estimate a model where the dependent variable is the difference between the logged values of the war chest of the present incumbent \(\text{lnIncLastFile}\) and the war chest of the weakest next-in-queue incumbent (\(\text{lnWCWeakNIQ}\)).

Control Variables

The effectiveness of war chests in deterring challengers may be conditional on factors that vary across states. The first of these factors is the ballot format used in state supreme court elections, i.e. whether the elections are partisan or nonpartisan (\(\text{partisan}\)). Unlike legislative elections (with the exception of Nebraska), some states elect their judges by providing voters with the candidates’ party identification. By contrast, other states force candidates to run in a nonpartisan environment where parties are sometimes even prohibited from making endorsements. The ballot format may therefore influence the emergence of challengers
(Bonneau and Hall 2003; Bonneau and Hall 2009), with partisan elections being more likely to encourage challengers, and war chests being more likely to deter challengers in nonpartisan elections since the challenger knows he/she has to overcome the incumbent’s advantage without the assistance of a political party. Partisan ballots encourage the emergence of challengers in part because a challenger can attract an automatic base of supporters on the basis of party ID alone, but also because state and local party organizations actively recruit candidates to contest as many elections as possible.

Campaign finance regulation is a second factor that may affect the emergence of challengers and the deterrence effect of war chests (Bonneau and Cann 2011). However, both theoretically and empirically, it is not entirely clear ex ante whether the net effect is to encourage or discourage challengers in the state supreme court elections. On one hand, strict campaign finance regulations may prevent incumbents from accumulating large war chests, but on the other hand they may also prevent challengers from mounting an effective campaign (Bonneau and Cann 2011).

A third factor that may affect the emergence of challengers and the deterrence effect of war chests is the availability of public funding. Intuitively, public funding should encourage competition by lowering the bar for the challengers enter. However, it may also end up benefiting incumbents. Indeed, empirical research of state legislative elections has found that the availability of public funding has very limited effects on the emergence of candidates. Mayer (1998) finds that incumbents in Minnesota, which has a more extensive system of public funding, had a smaller financial advantage over challengers than incumbents in Wisconsin, which has more limited public funding. However, Malbin and Gais (1998) as well as others conclude that public financing fails to make legislative elections more competitive.

Following Bonneau and Cann (2011, 2014), we operationalize the campaign finance regulation by a variable measuring the stringency of campaign contribution limits (measured
on a 0-6 scale reflecting the number of categories of donors that are restricted or limited in their ability to contribute as computed by Witko 2005). In addition, we operationalize the availability of *public funding* with a variable on a 0-6 scale, with higher values reflecting broader availability of larger amounts of funding for candidates).

**Methods** The research question involves the effects of a present incumbent’s war chest on a next-in-queue incumbent’s early war chest signal, which in turn (along with the present incumbent’s subsequent fund-raising) may affect a challenger’s entry or delay decision. However, a challenger’s decision to enter rather than delay affects the need for the next-in-queue to respond to the present incumbent’s war chest. This means that the next-in-queue incumbent’s early fund-raising signal may be endogenous.

To adjust for potential endogeneity of the next-in-queue’s war chest, we use an instrumental variables probit regression, where the present incumbent’s last filing (i.e. war chest) is used as an instrument for the next-in-queue’s war chest. The theory indicates that the present incumbent’s war chest should be correlated with the weakest next-in-queue’s war chest. However, the available data on the weakest next-in-queue’s war chest typically includes information from after the current election. This means that the observed weakest next-in-queue’s war chest may include information that depends the current election outcome, and hence on the residual. On the other hand, the present incumbent’s war chest cannot depend the realized outcome of the current election. This means that the present incumbent’s war chest is correlated with the weakest next-in-queue’s war chest and uncorrelated with the residual, making it a theoretically good instrument.

Additionally, as a robustness check, we test for simultaneous determination of $lnW_{Weak\_NexQueue}$ and anycomp, using a two-stage simultaneous equations method developed by Keshk (2003), based on Maddala’s (1983) two-stage probit regression. We also estimate a probit model where the independent variable of interest is the gap between the present
incumbent’s war chest $lnIncLastFile$ and the war chest of the weakest next-in-queue incumbent ($lnWCWeakNIQ$). This added specification would be correct if there is no strategic interaction between the present and next-in-queue incumbents and if potential challengers are sensitive to differences in war chests between the incumbents (i.e. if the present and next-in-queue incumbent are not in equilibrium in the subgame between them).

5 Hypotheses

The main predictions of the model are:

1. The higher the present incumbent’s war chest, the larger the early war chest of the weakest next-in-queue opponent. In other words, in the first stage equation, where $lnWCWeakNIQ$ is the dependent variable, the coefficient of $lnIncLastFile$ should be positive.

2. The weakest next-in-queue incumbent’s early war chest, $lnWCWeakNIQ$, should not affect the probability that a challenger enters the current race. In other words, there should be no evidence of endogeneity of $lnWCWeakNIQ$ in the (second-stage) probit model.

There are two caveats: first, a zero amount or non-filing for $lnIncLastFile$ may be a countersignal, indicating that the present incumbent is strong, can most likely deter entry later, and is better off saving money for an election in the event that the next-in-queue turns out to be sufficiently strong to block strategic delay. However, any positive amount of $lnIncLastFile$ would not be consistent with countersignaling. Second, the next-in-queue incumbent will have some high cutoff for $lnIncLastFile$ that it will not pay for the next-in-queue incumbent to attempt to prevent strategic delay. Instead, the next-in-queue incumbent
would do better to schedule fund-raising activities in a way that maximizes total contributions, ignoring any benefits from signaling. These two caveats together imply that the effects of \( \ln inccont \) and \( \ln WCWeakNIQ \) on \( anycomp \) may be non-monotonic.

A technical issue arises from the fact that \( \ln WCWeakNIQ \) is not always in the data set until after the current election has been held. Even though the potential challenger and the present incumbent may have an early signal about the weakest next-in-queue incumbent’s fund-raising capacity, the public availability of the data may come from a subsequent date. This means that \( \ln WCWeakNIQ \) can include information in the current election’s outcome, i.e. it may be correlated with the residual.

The instrumental variables approach helps address this issue. In our theory, the present incumbent’s war chest signal is correlated with the weakest next-in-queue incumbent’s early war chest signal. Because \( \ln IncLastFile \) is observed before the present incumbent’s election, it is uncorrelated with the residual.

The model specification is as follows:

\[
\ln WCWeakNIQ = \alpha_0 + \alpha_1 \ln IncLastFile + \text{controls}'\alpha + \varepsilon_1 \tag{1}
\]

\[
anycomp^* = \beta_0 + \beta_1 \ln inccont + \beta_2 \ln WCWeakNIQ + \text{controls}'\beta + \varepsilon_2 \tag{2}
\]

That is, \( \ln IncLastFile \) is used as an instrument for \( \ln WCWeakNIQ \), which is under the null hypothesis affecting \( anycomp \).

As a robustness check, we run the model using a simultaneous equations approach, in order to check whether \( \ln IncLastFile \) and \( anycomp \) affect each other (in contrast the the recursive specification above, in which \( anycomp \) depends on \( \ln WCWeakNIQ \) but not conversely). As an additional test, we run a probit regression of \( anycomp \) on the gap between \( \ln IncLastFile \) and \( \ln WCWeakNIQ \). If this gap were to affect the probability of challenger
entry, then the subgame between the present and next-in-queue incumbents could not be in equilibrium.

The main hypotheses thus are:

$H_0^1$: The early war chest of the weakest next-in-queue incumbent, $lnWCWeakNIQ$, does not affect the emergence of challengers ($anycomp$).

$H_0^2$: The higher the present incumbent’s last filing, $lnIncLastFile$, the higher the weakest next-in-queue’s early war chest, $lnWCWeakNIQ$. That is, $lnIncLastFile$ is a valid instrument for $lnWCWeakNIQ$.

$H_0^3$: The weakest next-in-queue incumbent’s fund-raising is uncorrelated with the residual. That is, Wald exogeneity test fails to reject the hypothesis that $lnWCWeakNIQ$ is exogenous.

$H_0^4$: The gap between the present incumbent’s last filing, $lnIncLastFile$, and the weakest next-in-queue’s early war chest, $lnWCWeakNIQ$, does not affect the emergence of challengers ($anycomp$).

These hypotheses all test whether the war chests of the present and weakest next-in-queue incumbents are at their equilibrium values, making the challenger indifferent between entry in the current contest and delay until the subsequent contest. Hypotheses $H_0^1$–$H_0^4$ test that the weakest next-in-queue incumbent’s early war chest is related to the current election, but that the challenger is nevertheless indifferent between entry and delay given the present and weakest next-in-queue’s war chests. These seemingly conflicting results are the crucial predictions from the equilibrium analysis.

In addition to the main hypotheses, we have an auxiliary hypothesis stating that, in partisan elections, the effect of the present incumbent’s interim war chest and the next-in-queue incumbent’s early war chest will be attenuated. This is because, as discussed above,
partisan elections involve outside actors who can provide sources of funding that are not part of the candidate’s war chest. More precisely,

\[ H_A^5: \text{Partisan elections increase the probability that a challenger enters in the present race, i.e. the probability that } anycomp = 1. \]

### 6 Results

The results from the base model, using instrumental variables probit, as shown in Table 1.

The fit of the base model is reasonably good, with \( \text{lnIncLastFile} \) being a strong instrument for \( \text{lnWCWeakNIQ} \), as predicted. Also, \( \text{lnWCWeakNIQ} \) does not significantly affect the challenger entry decision, in keeping with the predictions that the competition
between the current and next-in-queue incumbent is in equilibrium. The Wald exogeneity test has a p-value of 0.518, nowhere near the rejection level. Finally, the effect of the present incumbent’s total fund-raising is significant and positive. This reflects that, given that the weakest next-in-queue and the present incumbent are in equilibrium for the signaling value of their war chests, the only remaining effect of incumbent spending is the effect of the need to spend more in a contested race.\textsuperscript{11}

In the full model, we include controls for whether the elections are partisan, as well as controls for public financing and contribution limits. These results are presented in Table 2. Again, none of the main results change. The value of $\ln\text{IncLastFile}$ remains a strong instrument for $\ln\text{WCWeakNIQ}$, reflecting the interaction between the two. The Wald exogeneity test has a p-value of just under 0.3, well above any rejection region, supporting the prediction of the strategic competition between the current and next-in-queue incumbent being in equilibrium. The entry probability is unaffected by $\ln\text{WCWeakNIQ}$ and is increasing in $\ln\text{inccont}$, further supporting that the signaling game is in equilibrium and the remaining effect of incumbent spending is in response to the race being contested. The additional hypothesis of partisan contests having less of an entry deterrence possibility is also supported.\textsuperscript{12}

As found in previous literature (e.g. Bonneau and Hall 2003), the use of a partisan format in the election significantly increases the probability of a challenger, but this effect is mitigated by the size of the incumbent’s total fund-raising before the election: the effect of partisan elections is much stronger for incumbents whose total fund-raising is lower. This makes sense, as incumbents whose fund-raising ability is low would turn to their political

\textsuperscript{11}A robustness check on the base model, using simultaneous equations, shows that the results are not driven by the entry decision and the next-in-queue’s signal simultaneously affecting each other. The model fit is comparable, and the coefficients are nearly identical. See the table in the Appendix.

\textsuperscript{12}A robustness check again shows that simultaneity is not involved. The results are consistent with those in the main instrumental variables probit specification. See the table in the Appendix.
<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>ln(War Chest of Weakest Next-in-Queue)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>ln(Last filing by incumbent)</em> (instrument)</td>
<td>.335***</td>
<td>.083</td>
</tr>
<tr>
<td><em>ln(Total fund-raising of present incumbent)</em></td>
<td>.013</td>
<td>.193</td>
</tr>
<tr>
<td>Partisan</td>
<td>4.389***</td>
<td>1.004</td>
</tr>
<tr>
<td>Contribution Limits</td>
<td>.379</td>
<td>.299</td>
</tr>
<tr>
<td>Public Finance</td>
<td>-.069</td>
<td>.295</td>
</tr>
<tr>
<td>Constant</td>
<td>-.004</td>
<td>2.368</td>
</tr>
<tr>
<td>F(5,102)</td>
<td>8.97 (0.0000)</td>
<td>.306</td>
</tr>
<tr>
<td><em>R²</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Emergence of a Challenger**

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>ln(War Chest of Weakest NIQ)</em></td>
<td>-.152</td>
<td>.114</td>
</tr>
<tr>
<td><em>ln(Total fund-raising of present incumbent)</em></td>
<td>.505***</td>
<td>.114</td>
</tr>
<tr>
<td>Partisan</td>
<td>1.829**</td>
<td>.780</td>
</tr>
<tr>
<td>Contribution Limits</td>
<td>-.062</td>
<td>.158</td>
</tr>
<tr>
<td>Public Finance</td>
<td>-.030</td>
<td>.131</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.635***</td>
<td>1.260</td>
</tr>
<tr>
<td>Wald <em>χ²</em></td>
<td>24.39 (0.000)</td>
<td></td>
</tr>
<tr>
<td>Wald test of exogeneity</td>
<td>1.13 (0.289)</td>
<td></td>
</tr>
<tr>
<td><em>n</em></td>
<td>108</td>
<td></td>
</tr>
</tbody>
</table>

Notes: **p < .05 (two-tailed), ***p < .01 (two-tailed)

Table 2: Instrumental Variables probit estimate, full model

party organization for help, and, facing limited funds, the parties would be more likely to prop up a weak incumbent so they cannot be defeated from the bench. The marginal effect of partisan elections is quite large: for nonpartisan elections, holding other variables at their mean values, the probability that a state supreme court election is contested is 47%, i.e., just below one-half. By contrast, if the elections are partisan, and everything else is at its mean value, the probability that a state supreme court election is contested rises to 96%.

In terms of the theory proposed here, partisan elections mean that candidates may
have access to external sources of support. In the opposite direction, partisan elections may include active recruitment of viable candidates. That is, partisan elections mean that candidates can raise more money from other sources, making the benefit of delay weaker, and may be enticed into running rather than delaying.\footnote{As an additional robustness check, we ran a probit specification with the gap $\text{diff\ warchest} = \ln\text{IncLastFile} - \ln\text{WCWeakNIQ}$ as an independent variable. Since the above regressions established that $\ln\text{WCWeakNIQ}$ is positively related to $\ln\text{IncLastFile}$ and that $\ln\text{WCWeakNIQ}$ is exogenous, this additional specification rules out a direct effect of the gap on challenger entry. It is clear from the results that the gap between the present and next-in-queue incumbents’ war chests is not meaningfully related to the probability of challenger entry. This is consistent with the theoretical predictions. See the table in the Appendix.}

Summing up, the consistent finding is that the present incumbent’s fund-raising does affect the next-in-queue incumbent’s fund-raising, and that the war chest levels reach an equilibrium in which potential challengers are indifferent between entry and delay.

In practical terms, the covariates that affect challenger entry—whether an election is partisan, and the total amount of money the present incumbent eventually raises—have a substantial impact. To put these in context, we now highlight the results from Table 2, which has the main instrumental variables probit regression specification (with the control variables).

Overall, 31.5% of state Supreme Court elections in the data set are partisan. We use this fact and the coefficient of 1.829 on the $\text{partisan}$ variable to estimate the effects of having partisan elections, holding all other variables at their mean values. If an election is nonpartisan, then the probability of a challenger entering the present election drops by $1.829 \times (-0.315) = -0.576$ standard deviations. When all variables (including $\text{partisan}$) are at their means, the probability of challenger entry is 0.69. This drop of $-0.576$ standard deviations would lower the probability of challenger entry to 0.47.

Similarly, if an election is partisan, the probability of challenger entry would increase by $1.829 \times (1 - 0.315) = 1.253$ standard deviations from its mean value. Holding all other
variables at their means, this would increase the probability of a challenger entering a partisan election to approximately 0.96.

The effects of the present incumbent’s total fund-raising (as opposed to the present incumbent’s war chest, which is observed earlier) is also significant and positive. This does not mean that raising more money somehow entices a challenge. A more plausible explanation is that an incumbent who is sure to face a challenge needs to raise more money (i.e., Jacobson 1980). The entry deterrence or strategic delay effect is already addressed in the strategic interaction between the present and next-in-queue incumbents. Any remaining effect of the present incumbent’s fund-raising is likely because of an anticipated need.

In substantive terms, the coefficient on the present incumbent’s logged total fund-raising is 0.505. The mean value of the present incumbent’s logged total fund-raising is 11.696, corresponding to a geometric mean value of $121,112. Increasing this total by approximately $7,000, or 5.8% of the geometric mean, would predict a 1% higher probability that the incumbent will face a challenger. Again, this does not mean that a 5.8% increase in fund-raising raises the chances of drawing a challenger by 1%. Rather, the higher fund-raising predicts the challenger’s entry.

Perhaps surprisingly, the availability of public finance or contribution limits have no statistically significant effect on the emergence of candidates. This is perhaps because public finance for candidates is a fraction of what parties can offer, and because contribution limits may have mixed effects: on one hand they may limit how much incumbents can raise and make it easier for challengers to enter the race; on the other hand they may make it impossible for a challenger to raise enough money to defeat a strong incumbent. The two variables are highly correlated with each other (corr=0.55); it is likely that these types of regulations are often enacted together.
7 Conclusion

Overall, the results present strong support for the hypotheses of strategic interaction among the present incumbent, the next-in-queue incumbent, and a potential challenger. The early fund-raising signal by the next-in-queue incumbent is strongly and positively affected by the present incumbent’s war chest signal, and this effect is robust to the inclusion of control variables, with little change in the coefficient estimate or its significant. It seems unambiguous that the next-in-queue incumbent reacts to the present incumbent’s war chest.

It also seems clear that there is no evidence of endogeneity, and that the strategic competition in the signaling between the current and next-in-queue incumbents, in equilibrium, makes the challenger indifferent between entry and delay. Taken together, these results present strong empirical support for the following:

- The next-in-queue and the present incumbents interact strategically, and reach an equilibrium in their signaling game.

- The apparent lack of influence of war chests arises because prior studies have ignored the fact that the challenger’s entry decision is observed in an equilibrium. It is not suggestive of war chest irrelevance.

To summarize, the general insight is that the effects of war chests on challenger entry are not what we have previously thought. The issue is that the prior literature has considered war chests in isolation, ignoring a strategic response from someone who would be harmed by entry deterrence. The intuition is as follows: when a challenger considers entering a race, he or she thinks about whether the current contest is the best one to enter. It is natural to imagine that the challenger would look at the alternatives of waiting, to see if the challenger has a sufficiently higher chance of winning a subsequent election.
the strategic interaction among incumbents helps us see why war chests would not seem to affect entry. The contribution is therefore both on the substantive issue of giving a deeper understanding of how war chests affect electoral competition, and also on the methodological issue of showing how equilibrium considerations can make sense of apparently anomalous results.
8 Appendix

The following Tables (Tables 3-6) demonstrate the robustness of our results.
Table 3: Two-Stage Least Squares Probit Model of State Supreme Court Challenger Emergence, Second-Stage Regressions with Instruments and Corrected Standard Errors, Basic Model

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ln(War Chest of Weakest Next-in-Queue)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergence of challenger (instrument)</td>
<td>0.107</td>
<td>0.525</td>
</tr>
<tr>
<td>ln(Last filing by incumbent)</td>
<td>0.374***</td>
<td>0.083</td>
</tr>
<tr>
<td>Constant</td>
<td>2.41***</td>
<td>0.693</td>
</tr>
<tr>
<td>Emergence of a Challenger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(War chest of weakest NIQ)</td>
<td>-0.048</td>
<td>0.082</td>
</tr>
<tr>
<td>ln(Total fund-raising of present incumbent)</td>
<td>0.397***</td>
<td>0.089</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.64***</td>
<td>0.966</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.23</td>
<td></td>
</tr>
<tr>
<td>LR $\chi^2$</td>
<td>27.54</td>
<td>($p &lt; .001$)</td>
</tr>
<tr>
<td>$n$</td>
<td>108</td>
<td></td>
</tr>
</tbody>
</table>

Notes: ***$p < .01$ (two-tailed)
Table 4: Two-Stage Least Squares Probit Model of State Supreme Court Challenger Emergence, Second-Stage Regressions with Instruments and Corrected Std Errors, with Controls

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ln(War Chest of Next-in-Queue)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emergence of challenger (instrument)</td>
<td>-.188</td>
<td>.308</td>
</tr>
<tr>
<td>ln(Last filing by incumbent)</td>
<td>.336***</td>
<td>.080</td>
</tr>
<tr>
<td>Partisan election</td>
<td>4.58***</td>
<td>1.04</td>
</tr>
<tr>
<td>Public finance</td>
<td>-.070</td>
<td>.291</td>
</tr>
<tr>
<td>Contribution limits</td>
<td>.369</td>
<td>.294</td>
</tr>
<tr>
<td>Constant</td>
<td>.281</td>
<td>1.163</td>
</tr>
<tr>
<td><strong>Emergence of a Challenger</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ln(War chest of weakest NIQ)</td>
<td>-.094</td>
<td>.117</td>
</tr>
<tr>
<td>ln(Total war chest of present incumbent)</td>
<td>.690***</td>
<td>.142</td>
</tr>
<tr>
<td>Partisan election</td>
<td>9.071***</td>
<td>3.354</td>
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<tr>
<td>Public finance</td>
<td>.012</td>
<td>.125</td>
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<tr>
<td>Contribution limits</td>
<td>-.071</td>
<td>.143</td>
</tr>
<tr>
<td>Constant</td>
<td>-7.03***</td>
<td>1.711</td>
</tr>
</tbody>
</table>

Pseudo $R^2$ 0.43  
LR $\chi^2$ 52.00 ($p < .001$)  
n 108

Notes: **p < .1 **p < .05 ***p < .01 (two-tailed)
Table 5: Probit Estimate of Effects of Fund-raising Gap, Basic Model

<table>
<thead>
<tr>
<th>Emergence of a Challenger</th>
<th>Coefficient</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference in logged war chests</td>
<td>-.019</td>
<td>.022</td>
</tr>
<tr>
<td>Constant</td>
<td>.476***</td>
<td>.116</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.047</td>
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<tr>
<td>LR $\chi^2$</td>
<td>0.75</td>
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</tr>
<tr>
<td></td>
<td>($p = .387$)</td>
<td></td>
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<tr>
<td>$n$</td>
<td>127</td>
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</tr>
</tbody>
</table>

Notes: ***$p < .01$ (two-tailed)

Table 6: Probit Estimate of Effects of Fund-raising Gap, Full Model with Controls

<table>
<thead>
<tr>
<th>Emergence of a Challenger</th>
<th>Coefficient</th>
<th>Std. Err.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difference in logged war chests</td>
<td>-.010</td>
<td>.032</td>
</tr>
<tr>
<td>ln(Total fund-raising of present incumbent)</td>
<td>.482***</td>
<td>.109</td>
</tr>
<tr>
<td>Partisan election</td>
<td>1.069***</td>
<td>.488</td>
</tr>
<tr>
<td>Public Financing</td>
<td>.043</td>
<td>.113</td>
</tr>
<tr>
<td>Contribution Limits</td>
<td>-.149</td>
<td>.139</td>
</tr>
<tr>
<td>Constant</td>
<td>-4.622***</td>
<td>1.224</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.34</td>
<td></td>
</tr>
<tr>
<td>LR $\chi^2$</td>
<td>41.67</td>
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</tr>
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<td></td>
<td>($p &lt; .001$)</td>
<td></td>
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<tr>
<td>$n$</td>
<td>108</td>
<td></td>
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</tbody>
</table>

Notes: ***$p < .01$ (two-tailed)
References


