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WAR CHESTS AS PRECAUTIONARY SAVINGS

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I present a model of campaign spending and saving in repeated elections which yields empirical implications on the creation of war chests. As previous studies disagree whether war chests deter potential challengers from running against incumbents, I present an alternative model that intentionally excludes deterrence as a motivation and formalizes under what circumstances (if any) a war chest would be created for savings. The model predicts that an incumbent creates a war chest when she faces a weaker challenger, i.e. as precautionary savings for future elections. The model yields several other predictions of incumbent fund-raising, spending, and saving behavior. Using incumbents from 1982–1998 U.S. House elections, I find strong empirical support for the predictions of the model.

Key words: war chests; congressional elections; challenger entry; precautionary savings; campaign finance.

INTRODUCTION

Conventional wisdom states that incumbents possess resources that prevent quality candidates from challenging them. This is a potential problem because quality challengers are more likely to run competitively against incumbents (Jacobson 1989). Furthermore, "competitive elections are desirable because they are the best way to hold elected officials accountable to voters, enhance representation, and build trust in government" (Herrnson 2004, p. 299). Following this line of reasoning, one method of improving democracy is to

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increase the number of competitive races by increasing the number of competitive challengers of incumbents.

A common view among journalists and many academics is that an incumbent with a large war chest will deter quality challengers [for example, see the Congressional Quarterly "Freshman's War Chest Deters Challengers" (Salant 1996)]. A war chest is the money that the incumbent has set aside for the coming election, sometimes carried over from the previous election (in the case of House incumbents), or raised early in the term of office (in the case of Senate incumbents). The idea is that strategic (potential) challengers, who generally possess fewer resources than incumbents, will see that an incumbent with a large war chest will be able to spend much more money than they will, and will choose not to enter the race; if resources were equal, challengers would enter, and have a much better chance at winning.

Because a war chest is often seen as one of the unfair methods by which an incumbent remains entrenched in power, some campaign finance reforms have proposed that incumbents not be allowed to carry over money from one election to the next. For example, "through an initiative Missouri voters passed a 'spend-down' provision. It required candidates to return to contributors or to turn over to the state all but a little money left unspent from their campaigns. Its aim was to prevent candidates from amassing war chests in one election for use in another" (Corrado et al., 1997, p. 353) (The U.S. Court of Appeals for the Eighth Circuit struck down the provision). In another example, in 1993, the Senate passed a bill that limited the amount of excess campaign funds that could be rolled over to fund the candidate's next election (Donovan 1993) (The bill never passed in the House). In giving recommendations for campaign reform, Herrnson asserts, "Personal funds and existing war chests give incumbents and millionaires great advantages in congressional elections, not the least of which is discouraging talented potential opponents from running against them. The amounts that candidates can contribute to their of own campaigns or carry over from previous elections should be limited" (2000, p. 279). If this view is not accurate, then such campaign finance reforms may create more problems than they solve.

Scholars disagree about whether war chests deter potential challengers from running against incumbents. Goldenberg, Traugott, and Baumgartner (1986), Goidel and Gross (1994), Hersch and McDougall (1994), Box-Steffensmeier (1996), and Hogan (2001) find support for the deterrence of war chests.[1] In contrast, Krasno and Green (1988), Squire (1991), Milyo (1998), Milyo and Groseclose (1999), Ansolabehere and Snyder (2000), Goodliffe (2001), and Mycoff (2004) find either that war chests (or preemptive fund-raising or incumbent wealth) do not deter challengers or that the effects are so substantively small that deterrence is an implausible motivation. Theoretical work on war chests and preemptive fund-raising (Epstein and Zemsky 1995; Dharmapala 2002; Goodliffe 2003, 2005) examines the deterrent capabilities

of war chests, and finds that war chests deter only under limited circumstances.

A few studies have considered other uses that a war chest may have besides deterrence. Sorauf (1988) notes that "incumbents raise large sums as a form of catastrophe insurance against the sudden emergence of a strong and well-financed challenger…. The incumbent may also simply be saving for a future campaign for the present office" (160, 161).[2] In his study of 1980–1988 U.S. Senate races, Squire found that the "senators most ambitious in raising early money are those who face the greatest number of potentially strong challengers. Large sums of early funds do not, however, deter better challengers from running"(1991, p. 1158). In their study of the 1992 U.S. Senate elections, Box-Steffensmeler and Franklin (1995) argue that a safe incumbent raises and saves money to deter challengers and an unsafe incumbent raises and spends money to respond to a strong challenge. Ansolabehere and Snyder consider "four other motives [besides deterrence] for saving—retirement income or consumption, accidents, insurance, and ambition" (2000, p. 21). Ansolabehere and Snyder do not find support for the insurance motive, but do find support for the other three motives. Milyo presents data that suggest "that incumbents build up a stock of savings in order to smooth their fund-raising efforts over time" (2001, p. 122). Finally, in a study of the 1996 U.S. House elections, Mycoff (2004, p. 28) states that, "[c]ash-on-hand builds up over time as a side effect of winning easy reelection". In these studies, the empirical results demonstrate that war chests are created in anticipation of challenger entry, or as a result of lack of challenger entry in previous elections.

In this paper, I also move away from the deterrent possibilities of war chests, and formalize under what circumstances (if any) a war chest could be created for other reasons. I present a formal model that intentionally excludes deterrence as a motivation, but allows an incumbent to choose how much money to raise not knowing who will run against her. Once a challenger enters, the incumbent chooses how much to spend on the current election, and how much to save for the next election. This savings for the next election constitutes the war chest. The model shows how war chests can arise with no entry deterrence; namely, there must be uncertainty about the challenger. The rationale is that since the incumbent does not know who she is running against, sometimes she raises more money than necessary and sometimes she does not raise enough. Since she can carry over funds from one election to the next, there is a bias to raising "too much." Having raised extra funds, if the incumbent runs against a weaker challenger, she does not spend all of her money and saves some money for the next election—i.e. she creates a war chest. [This is what Ansolabehere and Snyder (2000) call an "accident"]. The predictions of the model are consistent with the empirical findings above. Furthermore, using data from 1982–1998 U.S. House elections, I present my own empirical tests on the model which corroborate and extend the results of

previous research and show strong support for the precautionary savings model.

While it is possible to test the hypothesis that war chests deter challengers, or to separately test the hypothesis that war chests are used as savings for challengers (or other uses), it is difficult to test these hypotheses simultaneously, as these hypotheses have different dependent variables. The deterrence hypothesis asserts that the strength of the challenger is a function of beginning (or early) cash-on-hand, i.e. challengers react to incumbents' war chests. The savings hypothesis asserts that ending (or late) cash-on-hand is a function of challenger quality, i.e. incumbents react to challengers through spending and savings. When testing the savings hypothesis—as this paper does—it is not clear what variables one would include to simultaneously test (or control) for deterrence.[3]

Since I cannot test both hypotheses simultaneously, I do not attempt to test the deterrence hypothesis, which has been explored extensively by others mentioned above. Instead, I move beyond this and start with the question of what the political world would look like if war chests and fund-raising did not deter challengers. I do this by developing the formal model and deriving empirical predictions of incumbent fund-raising, spending and saving behavior from that model. Since the empirical predictions of the precautionary savings model are confirmed by the data—and previous research on deterrence is mixed—I conclude that war chests are used as savings, which may be why deterrence is difficult to find.

The next section outlines the model. The following section presents the empirical tests of the model. The last section concludes.[4]

THE PRECAUTIONARY SAVINGS MODEL

I create a model to explore incumbent behavior when the incumbent does not know how strong a challenge she will receive in the current or future elections. The incumbent knows that there is a range of challenger quality and the probabilities that any given challenger will run against her. This range and these probabilities are not altered by the size of the war chest or the amount of money raised—thus, war chests and fund-raising do not deter challengers, by construction. The incumbent has an opportunity to raise and spend money in each election cycle. The incumbent's probability of reelection is determined by how much the incumbent spends and whom she runs against. To create a tractable model, there are only two election cycles. However, the model will pick up more of the inter-election dynamics of campaigns, whereas previous research has investigated more of the intra-election dynamics.

The time-line is as follows: the incumbent decides how much money to raise for the first election not knowing what quality of challenger will run against her. Next, a challenger is selected to run against the incumbent, and the

incumbent learns the quality of the challenger. Challenger quality does not depend on how much money the incumbent raised. The incumbent then decides how much of the raised money she will spend in this election. The election winner is probabilistically determined by how much the incumbent spends and challenger quality. If she wins the election, the incumbent takes any money left over into the next election cycle, where once again, she decides how much money to raise for this election. Then she learns what quality of challenger will run against her (which, again, is independent of fund-raising and saving), and she decides how much money to spend in this second election cycle (see Figure 1).

This model assumes that there are only two periods in a given election cycle: a fund-raising period and a fund-spending period. Thus, it does not attempt to take into account such things as last-week advertising blitzes or bandwagon effects for contributions.[5]

Assumptions

The incumbent receives the benefits of office by winning an election. She must pay the costs of raised funds to run whether she wins or not. Let the incumbent's utility function (for one election) be given by:

$$U_{incumbent} = \begin{cases} b - C(\text{money raised}) & \text{if incumbent wins} \\ -C(\text{money raised}) & \text{else} \end{cases}$$

where b is the benefit of winning the election and $C(\cdot)$ is the cost of raising money. If the incumbent loses the first election, she gets 0 in the next election (i.e., does not run for office). Since the incumbent decides how much to raise and spend before the election, she maximizes her expected utility:

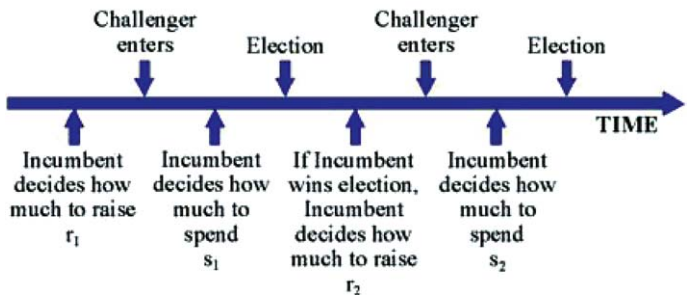

FIG. 1. Decision sequence of precautionary savings model.

$$EU_{incumbent} = \Pr\{\text{1st election win}\} \cdot b - C(\text{money raised, 1st election}) + \Pr\{\text{1st election win}\} \cdot \begin{pmatrix} \Pr\{\text{2nd election win}\} \cdot b \\ - C(\text{money raised, 2nd election}) \end{pmatrix}$$

This model thus follows the prescription of Milyo (2001) in assuming incumbents are utility maximizers, rather than vote maximizers. Note that there is a built-in discount factor for the second election—the probability of winning the first election. I normalize the benefit of winning, b, by setting $b = 1$. The probability of winning will be given by the function $W(s, q)$, where s is the amount of money spent in the election, and q is the quality of the challenger. I assume that spending more money increases the incumbent's probability of winning, but that there are diminishing returns to such spending.[6] In addition, the quality of a challenger affects the incumbent's probability of winning: higher quality challengers decrease the probability of winning.[7] Further, an incumbent facing a high quality challenger receives higher returns to spending than an incumbent facing a low quality challenger.[8]

Let $C(r)$ be the cost of raising money, where r is the amount of money raised. I assume that raising more money increases costs to the incumbent, and that the marginal cost of raising money increases as the amount of money raised increases.[9] I also assume that an incumbent will always run for reelection, even against the highest quality challenger.[10] From the assumptions above, the money raised (and spent) against a high quality challenger is greater than the money raised (and spent) against a low quality challenger.[11] Note that the cost function does not depend on the quality of challenger running.[12] Figure 2 displays sample win probability functions for an

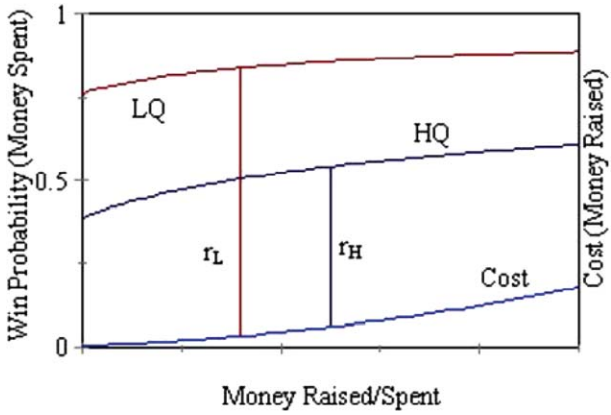

FIG. 2. Cost function and win functions for challenger qualities.

incumbent facing a higher quality or a lower quality challenger and a sample cost function for an incumbent. It also shows how much the incumbent would raise against each in the form of vertical lines (if the incumbent only had one election) against a higher or lower quality challenger (r_H and r_L, respectively). The vertical lines indicate where the marginal cost equals the marginal benefit (probability of winning).

The incumbent may not borrow money, and is limited to spending the money on hand (either raised during this election cycle, or carried over from the previous election).[13]

Finally, I assume that the probability that an incumbent runs against a challenger of quality q is $f(q)$, which has all the properties of a valid probability density function. More generally, q represents any unexpected change in the electoral fortunes of the incumbent (positive or negative). In the empirical tests, I attempt to control for other events such as scandal. This probability function is not necessarily the same in both elections.

Denoting the election with subscripts, the incumbent's expected utility function is

$$-C(r_1) + \left(\int_{Q_1} f(q_1) W(s_1^{q_1}, q_1) dq_1 \right) \left[1 - C(r_2^{q_1}) + \int_{Q_2} f(q_2) W(s_2^{q_1}, q_2) dq_2 \right]$$

where the superscript q_1 refers to the quality of challenger the incumbent faced in the first election. I obtain the following propositions.

Results

Proposition 1 *The size of an incumbent's war chest (weakly) decreases as challenger quality in the first election increases.*

This result is consistent with the informal argument given by Ansolabehere and Snyder (2000) in which war chests are created as "accidents".

I give a sketch of the proof here, and relegate the details (of this and other propositions) to the Appendix (which can be found at http://fhss.byu.edu/polsci/Goodliffe/papers). Since the incumbent cannot affect the challenger entry through fund-raising or saving, the incumbent has to solve a (decision-theoretic) maximization problem with four variables: money raised and spent in the first and second elections. I solve this by working from the last period backwards.

In the second election, the incumbent spends all of her money (whether saved from the first election, or raised for the second election). Knowing she will spend all of her money in the second election, the incumbent raises the amount that maximizes the difference between the probability of winning and the cost of raising funds (taking into account there may be a war chest from

the last election). This is the common result that the marginal probability of winning equals the marginal cost of raising money.

In the first election, the incumbent either spends all of the money raised, or saves some for the next election (this depends on how much was raised in the first place). There is some specific amount of money an incumbent would raise if she knew the quality of challenger she was running against. This specific amount is greater for higher quality challengers than lower quality challengers. Since she does not know her opponent, however, she raises some amount weighted by the probability of running against higher or lower quality challengers. If she then faces a higher quality challenger, she does not have as much money as she would like, and spends everything she has—thus, there is no war chest. If she faces a lower quality challenger instead, she has more money than she needs, and the optimal action *may* be to save some of that extra money for the next election. Thus, the only time one should see a war chest is if the incumbent faced a lower quality challenger in the first election. If the incumbent saves money, as the challenger quality goes even lower, the incumbent saves more.

Proposition 2 *The amount of money raised (both in the first and second elections) increases as the probability of drawing a higher quality challenger increases.*

This result is roughly equivalent to Squire's (1991) finding that a Senate incumbent raises more money as the "number of potentially strong challengers" increases. There is also a connection to the first proposition in that as the probability of drawing a higher quality challenger increases, the probability (or size) of a war chest for the second election increases if the incumbent instead faced a lower quality challenger in the first election.

The intuition is straightforward: Since an incumbent raises and spends more against a high quality challenger, increasing the probability of a high quality challenger (or increasing the quality of the average challenger) will cause the incumbent to raise more in anticipation.

Proposition 3 *The more money the incumbent spends in the first election, the more money the incumbent will raise for the second election.*

Since the incumbent spends more, she will have less money for the coming election, and will raise more money compared to times when she spends less.

Proposition 4 *The larger the war chest, the less money the incumbent will raise for the coming election.*

The intuition here is that since an incumbent does not know the quality of challenger that she will face, without a war chest, she maximizes her utility by raising money as if she were running against the average quality challenger.[14] When she enters the race with more money (the cost of raising that money has already been sunk), then she need not raise as much money.

Proposition 5 *The more money an incumbent raises in an election, the more money she spends in that election.*

This is a straightforward proposition that states that one must raise money to spend it. In addition, the Appendix shows that, all else equal, the incumbent will spend less than or equal to the amount she raises in the election.

Discussion

As long as the incumbent cannot affect challenger quality through fundraising and saving, and challenger quality is uncertain, the existence of a war chest is merely evidence that the incumbent faced a lower quality challenger in the previous election.

There are other reasons for an incumbent to save and spend money. Whenever a state's congressional district boundaries are redrawn, an incumbent may be forced to run against another incumbent (for example, when the total number of representatives of a state decreases), or lose much of her original constituency. Then the representative may start saving money for the difficult upcoming race.

A representative from the U.S. House may also be saving money with the expectation that she may run for a higher office in the future (senator or governor).[15] And finally, there is the possibility that an incumbent saved money for retirement. A representative elected before 1980 (that retired by 1992) was allowed to retire with leftover campaign funds. A representative that met these criteria may have created and maintained war chests for her direct material benefit.

EMPIRICAL TESTS OF THE MODEL

I test the comparative static predictions of the relationships between challenger quality, war chests, spending and saving. As in most empirical analyses of formal models, I attempt to control for other factors not included in the model.[16] Since the model makes predictions about three different dependent variables, I test the five propositions in three regressions.

The Data

I use election races for the U.S. House of Representatives from 1982–1998, where one incumbent is running in the race. I collected this data directly from the Federal Election Commission (FEC) for later elections and from the ICPSR (who had received the data from the FEC) for earlier elections. I adjusted all monetary amounts into 1998 dollars using the Consumer Price Index. I dropped any Louisiana races, as a result of its unusual primary and general election system, and any races where the incumbent lost in

the primary election. I also did not include any special elections,[17] and a few other unusual cases.[18] This yields 3,353 cases with 890 incumbents.

Aggregating Across Districts

Since the precautionary savings model represents only one district, it is important to consider what would happen if many districts were aggregated together. In the model, I specify a generic spending and vote function, but I do not require these to be the same function in each district—only that these functions should take the same general form. Thus, I do not expect incumbents to create the exact same war chest in each district.

The second issue is related to the first. Campaigns in some congressional districts are more costly to wage than in others. This may be a result of the competitiveness of the district, the media market (Levy and Squire, 2000; Stewart and Reynolds, 1990), or other factors.

Third, the equilibrium prediction of the war chest savings model does not take into account an incumbent's strength or ability to raise money. If it is less costly for some incumbents to raise money, then incumbent behavior in the model will change as incumbent strength changes, although it still takes the same general form. Since incumbents in different districts most likely have different strengths, aggregating across districts will yield a range of behavior.

The fourth issue is related to the third. In addition to different fund-raising abilities, incumbents differ across other characteristics, such as charisma and integrity, which are difficult to observe across over 3,000 cases. Stone, Maisel, and Maestas (2004) find that these characteristics, which they call "personal quality", affect incumbent electoral prospects.

For these reasons, I expect to find heterogeneity across the districts and omitted variables across incumbents. Although the independent variables attempt to control for these factors, I follow the practice of Ansolabehere Snyder (2000) in using fixed effects for each incumbent. These fixed effects control for the unmeasurable differences across incumbents that do not change over time (such as charisma). Without the fixed effects, the effects of unmeasured "personal qualities" would be absorbed by other independent variables correlated with those qualities, resulting in omitted variable bias found in many OLS regressions in campaign finance.[19] Furthermore, I transform the monetary data by taking the natural log of all dollar amounts. This helps control for the fact that some congressional districts are costlier than others, and are apparent outliers.[20] Finally, following Beck (1996), I report robust (heteroskedasticity-consistent) standard errors (White, 1980).

Operationalization of Variables

Challenger Quality

To measure challenger quality, I use the current Jacobson and Kernell (1983) measure: whether the challenger holds—or has held—elected office. A high quality challenger holds (or has held) elected office, and a low quality challenger does (has) not. In addition, some incumbents run unopposed, which creates a third category: no challenger. One advantage of this measure is it is available for all years of the analysis. Of course, the potential problem with this measure is that it is extremely coarse. Challenger quality is most likely a continuous variable, not a dichotomous one.

Green and Krasno (1988) refined Jacobson and Kernell's dichotomous measure to an 8-point scale that includes such things as nonelected office experience and celebrity. But, as Bond and Fleisher (1991) and Goidel and Gross (1994) have noted, most of the variance of the 8-point scale is accounted for by the 2-point scale. Furthermore, it is not available for most years of this analysis. Canon (1990) also refined Jacobson and Kernell's measure to a 4-point scale that distinguishes between different low quality challengers.[21] Gronke (2000) collected this data for about half of the races included in this analysis. Conducting the empirical tests on those races using the Canon scale[22] yields results that are qualitatively similar with no better fit.[23]

Since I am using Jacobson and Kernell's measure as an independent variable in the analyses that follow, its coarseness implies that challenger quality will be measured with error. The statistical result of this is that the coefficients for challenger quality variables will be biased toward zero (Wooldridge 2003, pp. 305–309). Thus, if the results are substantively and statistically significant with the coarse measure, they would be more substantively and statistically significant with a finer measure.

The distribution of challengers using the Jacobson and Kernell measure is in the last two columns of Table 1. More often than not, an incumbent runs against a low quality challenger.

War Chest

I define a war chest as the money saved from the previous election cycle. The measure is straightforward: a war chest (for the current election) is the cash-on-hand at the end of the previous election year (as reported on December 31). There are two reasons to use this measure. First, as I have previously argued, "[t]he further into the election cycle one measures cash-on-hand, the more likely it suffers from endogeneity problems" (Goodliffe, 2001, p. 832). Second, the precautionary savings model makes predictions about how much money is saved from one election to the next. Measuring war chests

TABLE 1. Average War Chests by Challenger Type

Challenger Quality	War Chest	N	%
High Quality	$102,000	576	17.2
Low Quality	188,000	2280	68.0
No Challenger	250,000	497	14.8
Total	$183,000	3353	100.0

Notes: 1982–1998 U.S. House incumbents excluding unusual cases.
War chest is cash-on-hand at the end of an election cycle, measured in 1998 dollars.

as the ending cash-on-hand (or beginning cash-on-hand for the next election cycle) is the most direct test of the model.[24]

I can now compare war chests according to challenger quality. The results are in Table 1. Incumbents who run against high quality challengers, on average, save the least amount of money for the next election. Incumbents who run unopposed save the most money. Using both difference of means tests and a one-way analysis of variance test, the differences between these means are statistically significant at a .001 level. This evidence generally supports the model, even though the measure of the challenger quality is very coarse. However, this difference in war chests does not control for other factors. I now attempt to control for those factors.[25]

Scandal

Incumbents who experience a scandal receive a shock to their candidacies similar to running against a high quality incumbent—the probability of losing increases (Abramowitz, 1991; Peters and Welch, 1980), and the incumbent may spend more and save less. Scandal is denoted by a dummy variable equal to one if the incumbent had a scandal during her election, and zero otherwise. Information on scandals was taken from *Congressional Quarterly Weekly Report*.[26]

Competitive Primary

Similar to scandal, incumbents who have competitive primaries may spend more money, and save less, relative to similar incumbents without competitive primaries. Competitiveness is operationalized by a variable that equals zero if the incumbent was unopposed in the primary, one if the nearest primary challenger was not within 20% of the incumbent's vote, two if the nearest primary challenger was between 10 and 20% of the incumbent's vote, and three if the nearest primary challenger was within 10% of the incumbent's vote.[27] Primary results were culled from various editions of *America Votes*.

Redistricting

If the boundaries of an incumbent's district have been changed since the last election, the incumbent may need to spend more money. Redistricting is denoted by a dummy variable equal to one if the incumbent's district boundaries changed since the last election, and zero otherwise. If an incumbent expects a major change in her district, then she should raise (and save) more money for the future redistricted election. If an incumbent does not expect such a change, then she should spend more money (and save less) for the current redistricted election. This information was also taken from *America Votes*.

Party Advantage

Incumbents who run in marginal districts (or districts where the partisan makeup of the constituency favors the other party) may save more money than other incumbents. I operationalize this by including the two-party vote share of Dukakis in 1988 (for districts prior to 1992) and Clinton in 1996 (for districts including or after 1992) of each district, subtracting 50, and changing the sign depending on the party of the incumbent. For example, a Democratic incumbent who represents a district that gave Clinton 55 percent of the two-party vote in 1996 would have a value of +5. A Republican incumbent in the same district would have a value of –5. I use party advantage instead of lagged incumbent vote share as lagged vote share is a function of the previous actions by the incumbent (and the previous challenger) and may be correlated with the error term. Presidential vote share for each district was taken from different editions of *Politics in America*.

Grandfathers

Any incumbent who was elected before 1980 was allowed to retire before 1992 and convert her war chest into a personal retirement bonus. Groseclose and Krehbiel find that these "golden parachutes were the main cause of retirements from the 102d Congress" (1994, pp. 94–95; but see Hall and Van Houweling, 1995). Ansolabehere and Snyder argue that "some of the accumulated savings before 1992 appear to be for retirement" (2000, p. 9; see also Milyo 1997). Since grandfathered incumbents may raise and save more money than other incumbents, I include a dummy variable for those grandfathered equal to one, zero otherwise.

Ambition

Incumbents may be saving extra money to run for the Senate or for governor. Ansolabehere and Snyder argue that "many of the largest warchests are

accumulated to help [U.S. House] members run for higher office" (2000, 9). Following Rohde (1979) I operationalize this as the number of districts in a state. Representatives that represent a state with fewer districts take the opportunity to run for higher office more often, and thus may save more money. On the other hand, Ansolabehere and Snyder find that among those who run for higher office, members that come from larger states save more money than those that come from smaller states (2000, p. 27).[28]

Tenure

Incumbents who have been in office longer have had the opportunity to save over the course of more election cycles. I operationalize tenure as the number of years the incumbent has served, and also include a tenure squared term to account for Ansolabehere and Snyder's (2000) finding that incumbents have a "target" level of savings.

Party

Democrat is a dummy variable coded 1 for Democrats and 0 for Republicans. It is included to control for the national-level forces that make a given year better or worse for a given party, and thus affect fund-raising and spending decisions (Jacobson and Kernell, 1983; Jacobson, 1989). Since these forces may be different in different election years, I interact Democrat with dummy variables for each year. For example, "Democrat in 1998" equals 1 when the incumbent is a Democrat in 1998, and is 0 for all other cases.

South

South is a dummy variable coded 1 for the 11 states of the Confederacy, and 0 for other states. In previous analyses, Squire (1989) and Wrighton and Squire (1997) found that incumbents in the South are more likely to run unopposed. The explanation for this phenomenon is that one-party dominance (originally by the Democratic party, now the Republican party) makes uncontested races more likely. I allow the effect to vary across years by interacting South with dummy variables for each election year.

Year

Each year has a dummy variable coded 1 for that year (except for 1998, which is the baseline), and 0 in other years. It is used to control for the possibility that some years may be good for incumbents generally (and thus affect spending and saving decisions).

TABLE 2. Test of Proposition 1

	log War Chest			Predicted War Chest	
Variable	Coefficient	(*t*-ratio)	Variable change	Change	(Prediction)
			Baseline		$106,000
High Quality Challenger	−.419*	(−5.90)	0 to 1	$−36,000	(70,000)
Unopposed	.310*	(5.00)	0 to 1	+39,000	(145,000)
Scandal	−.123	(−1.00)	0 to 1	−12,000	(94,000)
Competitive Primary	−.267*	(−5.36)	0 to 1	−25,000	(81,000)
Redistricting	−.051	(−.48)	0 to 1	−5,000	(101,000)
Party Advantage	.012	(1.59)	0 to 8	+11,000	(117,000)
Grandfather	.108	(.83)	0 to 1	+12,000	(118,000)
Number of Districts	−.015	(−.79)	14 to 27	−19,000	(87,000)
Tenure	.082	(1.82)	8 to 14	+29,000	(135,000)
Tenure^2	−.002*	(−3.91)		[*joint effect*]	
Other independent variables: Democrat × Year Dummies, South × Year Dummies, Year Dummies, constant					
R^2 (with fixed effects)	.28 (.71)				
N	3329				

Notes: War Chest is cash-on-hand at the end of the election cycle, in 1998 dollars.
Data are 1982–1998 U.S. House races with incumbents, excluding unusual cases.
Coefficients are Ordinary Least Squares estimates, with incumbent fixed effects and robust standard errors: $^*p < .05$ (two-tailed test).

Baseline incumbent (before change) ran against a low quality challenger and has the median war chest of $106,000.

Example: For an incumbent who ran against a high quality challenger (instead of a low quality challenger), the predicted War Chest is $36,000 lower, or $70,000.

Comparing War Chests

In Table 2, I present the results for the effect of challenger quality and these other factors on war chests (using Ordinary Least Squares with fixed effects) in the first three columns.[29] A positive coefficient means that increasing that independent variable increases the funds saved. Confirming the prediction of Proposition 1, the stronger the challenger, the lower the war chest.[30] Although some of the control variables are statistically insignificant, most variables have the expected sign.

To interpret the coefficients, I calculate the change in the predicted war chest when changing each independent variable. For ease of interpretation, I convert the predicted values (of *log* War Chest) back to regular dollar amounts. These calculations are in the last three columns of Table 2. The baseline incumbent ran against a low quality challenger and has the median

war chest. For the dichotomous variables, I change the independent variable from zero to one. For continuous variables, I change the independent variable by the difference between the 50th and 75th percentile. A baseline incumbent (who ran against a low quality challenger) saved about $36,000 more than a similar incumbent who ran against a high quality challenger (all else equal). And a baseline incumbent saved about $39,000 less than a similar incumbent who ran unopposed. It is important to note that since I am using a non-linear model, these numbers change according to the starting value of war chests: as war chests get larger, the effect of changing the independent variable is larger.

As expected, those incumbents who have a scandal, a strong primary challenger, whose districts lines have been changed, or come from larger states save less money for the next election (though only strong primary challenger is statistically significant). Incumbents who could retire with their war chests saved more money than other incumbents, although this effect is not statistically significant. In addition, incumbents who have served longer save more money, and (as expected) this positive effect decreases the longer the incumbent has served. The effect of the Grandfather and Tenure variables is comparable to the effect that Ansolabehere and Snyder find in their grandfather ("can keep") and age ("over 65") variables (2000, Table 2). Finally, incumbents who serve in districts favorable to their party save more money than incumbents who serve in districts unfavorable to their party. This is the reverse of the relationship I expected. This is probably due to the supply side of campaign finance: an incumbent who serves in a safe district receives more funds than she needs—particularly from interests seeking access—and saves more (see Herrnson 2004, p. 146). Ansolabehere and Snyder (2000) also find a positive effect, although it is smaller in magnitude and, like the results here, not statistically significant.

The year-specific variables (not shown[31]) also confirm some conventional wisdom: 1986 was a good year for Democrats (to save money); 1998 was a good year for incumbents (although less so in the South).

One might posit that the variation in war chests is at least partially determined by the closeness of the previous race, and that challenger quality is simply acting as a proxy for winning margins (which is not included in the empirical specifications above). However, the theoretical model assumes that higher quality challengers will have a greater vote share (ceteris paribus), and thus the specification tested reflects this reduced form. But even when two-party vote share is included in the tests, the results are qualitatively the same.

The relationship between challenger faced (and the other independent variables) and war chest (money saved) is robust to the addition of other variables and other statistical specifications.[32] I tested this proposition using a Tobit model on (untransformed) war chests (censoring all negative war chests

at 0), a random-effects model (although both Hausman, and Breusch and Pagan tests reject the specification), without fixed effects (including using robust standard errors that take into account the dependence across the same incumbent in different years), and on untransformed variables. The results are qualitatively the same.

The results of this empirical test give strong evidence that the incumbent raises money for an uncertain future, and then reacts to her circumstances by spending more or less money.

Comparing Money Raised

Proposition 2 states that as the probability of running against a high quality challenger increases, an incumbent's fund-raising will increase. In testing this proposition, the difficulty is finding a measure for the probability of running against different challengers. As a rough proxy for this concept, I calculated the average challenger quality of the incumbents of each district within redistricting cycles (where 0 = no challenger, 1 = low quality challenger, 2 = high quality challenger).[33] As the probability of running against stronger challengers increases, the average challenger quality should also increase.

Proposition 3 predicts that as an incumbent spends more in the first election, she will raise more for the second election. To test this proposition, I examine the effect of last election's spending on this election's fund-raising.

Proposition 4 states that as an incumbent's war chest increases, her fund-raising will decrease. To test this proposition, I examine the effect of last election's savings on this election's fund-raising.

I test Propositions 2, 3 and 4 simultaneously using a fixed-effects model. I exclude first-term incumbents, as the war chests they created as non-incumbents are not necessarily comparable.[34] Of course, I also exclude incumbents who do not run for re-election, and the exceptional cases listed above. Total fund-raising is corrected for inflation using the Consumer Price Index, and is in 1998 dollars. I also include the control variables listed above that the incumbent would know at the start of the election cycle: redistricting, party advantage, grandfather, ambition, tenure (and tenure squared), party, South, and year. The results are in the first three columns of Table 3.[35] A positive coefficient means that increasing the independent variable increases the funds raised. Since I use information from the previous election, the following analysis uses data from 1984–1998.

Empirical findings support the predictions of Propositions 2, 3 and 4. As average challenger quality within a given district increases, the funds raised by the incumbent increases. In addition, as incumbent spending increases in the previous election, incumbent fund-raising for this election increases. The model predicts the coefficient on the Previous Election Spending variable to be between 0 and 1 (see Appendix). The coefficient (shown in Table 3) is .151,

TABLE 3. Test of Propositions 2, 3, and 4

Variable	*log* Funds Raised		Variable change	Predicted Funds Raised	
	Coefficient	(*t*-ratio)		Change	(Prediction)
			Baseline		$518,000
Average Challenger Quality	.466*	(3.62)	+0.25	$+64,000	(582,000)
log Previous Spending	.151*	(5.62)	+225,000	+33,000	(551,000)
log War Chest	−.003	(−.30)	+119,000	−1,000	(517,000)
Redistricting	.039	(.83)	0 to 1	+21,000	(539,000)
Party Advantage	−.012*	(−3.98)	0 to 8	−49,000	(469,000)
Grandfather	−.131*	(−2.64)	0 to 1	−64,000	(454,000)
Number of Districts	−.032*	(−4.23)	14 to 27	−178,000	(340,000)
Tenure	.210	(.94)	8 to 14	+1,153,000	(1,671,000)
Tenure^2	−.001*	(−3.33)		[*joint effect*]	
Other independent variables: Democrat × Year Dummies, South × Year Dummies, Year Dummies, constant					
R^2 (with fixed effects)	.20 (.80)				
N	2437				

Notes: Funds Raised, Previous Spending and War Chest are in 1998 dollars.
Average Challenger Quality is calculated within redistricting cycles.
Data are 1984–1998 U.S. House races with incumbents, excluding unusual cases.
Coefficients are Ordinary Least Squares estimates, with incumbent fixed effects and robust standard errors: *$p < .05$ (two-tailed test).
Baseline incumbent (before change) raised the median Funds Raised of $518,000.
Example: For an incumbent who spent $225,000 more last election, the predicted Funds Raised in this election is $33,000 greater, or $551,000.

as predicted.[36] And, as the incumbent war chest from the previous election increases, incumbent fund-raising for this election decreases, although this coefficient is not statistically significant.

As in the previous section, I calculate changes in Funds Raised for various changes in the independent variables for a baseline incumbent. The calculations are in the last three columns of Table 3. Holding all else constant, an incumbent who runs against a high quality challenger once every four elections (and against low quality challengers in other elections) will raise about $64,000 more than an incumbent who always runs against a low quality challenger. In comparison, Squire (1991, pp. 1154–1155) found that Senate incumbents raised about $29,000 more (in 1998 dollars) for each additional member of the "high-profile pool" (a "challenging party member holding" a statewide office or U.S. House seat). Depending on state size, the effect Squire finds is on the same order of magnitude as the results here.

Holding other variables constant, an incumbent who spent $225,000 more in the previous election than the baseline incumbent will raise $33,000 more

in the current election ($225,000 is the difference between the 50th and 75th percentile of Funds Spent). And all else constant, an incumbent who saved $119,000 more in the previous election than the baseline incumbent will raise $1,000 less in the current election ($119,000 is the difference between the 50th and 75th percentile). This effect is much weaker than other effects (and not statistically significant). Since War Chest is partially determined by Previous Election Spending, it is not surprising that when Previous Election Spending is dropped from the model, War Chest becomes larger in magnitude and statistically significant.

Most control variables are also significant: incumbents from larger states and safer seats raise less money. Surprisingly, grandfathered incumbents raise *less* money than non-grandfathered incumbents. However, this is most likely a result of including the Tenure variables and using data from before and after the retirement deadline. When the same model is run for the years 1984–1990, the coefficient on Grandfather is positive (though not statistically significant). The coefficients on Tenure predict that more experienced incumbents raise more money than less experienced incumbents (though this effect decreases with even more experience). Although Tenure^2 is statistically significant, Tenure is not. Thus, the predicted change in Funds Raised is rough and has a confidence interval that includes 0. Redistricted incumbents raise more, though this effect is not statistically significant.

As in the previous statistical test, the relationship between average challenger quality and funds spent (and the other independent variables) and funds raised is robust to the addition of other variables (such as previous vote share) and other statistical specifications. For example, including variables such as quality of the (current) challenger and competitive primary (which takes place toward the end of the election cycle) does not change the central result. Since these events usually take place after funds have already been raised, I do not include them in the specification. I also tested this model using a random-effects model (although both Hausman, and Breusch and Pagan tests reject the specification), without fixed effects (including using robust standard errors that take into account the dependence across the same incumbent in different years), and on untransformed variables. Again, the results are qualitatively the same.

The relationship between war chest and funds raised is less robust to alternative specifications. Although alternative models yield similar results, alternative specifications yield mixed results. For example, when using untransformed variables, it appears that the more the incumbent saves, the more she raises (although a first-difference approach switches the sign back). And when using Relative War Chest, the sign of the coefficient depends on whether Previous Spending is included. But since the specification shown is strongest both theoretically and econometrically, the results show moderate support for Proposition 4.

Comparing Money Spent

Proposition 5 states that as an incumbent raises more money, the incumbent will spend more money. I test this prediction using a fixed-effects model with control variables similar to the first proposition. The results confirm this prediction and can be found in the first three columns of Table 4.[37] The model also predicts that the coefficient on funds raised will be between 0 and 1 (see Appendix). This prediction is also supported as the coefficient is 0.96.[38]

As in previous tests I calculate changes in funds spent for various changes in the independent variables for a baseline incumbent. The calculations are in the last three columns of Table 4. For the baseline incumbent (who runs against a low quality challenger), increasing the funds raised by $233,000 increases the funds spent by $193,000, holding all else constant. ($233,000 is the difference between the 50th and 75th percentiles in funds Raised.)

Some of the other control variables are also interesting. Incumbents who face high quality challengers spend more than incumbents who face low

TABLE 4. Test of Proposition 5

	log Funds Spent			Predicted Funds Spent	
Variable	Coefficient	(*t*-ratio)	Variable Change	Change	(Prediction)
			Baseline		$451,000
log Funds Raised	.961*	(49.92)	+$233,000	$ +193,000	(644,000)
High Quality Challenger	.071*	(5.02)	0 to 1	+33,000	(484,000)
Unopposed	−.163*	(−8.18)	0 to 1	−68,000	(383,000)
Scandal	.049	(1.73)	0 to 1	+23,000	(474,000)
Competitive Primary	.045*	(4.20)	0 to 1	+21,000	(472,000)
Redistricting	.020	(.81)	0 to 1	+9,000	(460,000)
Party Advantage	.001	(.61)	0 to 8	+4,000	(455,000)
Grandfather	−.001	(−.01)	0 to 1	−1,000	(450,000)
Number of Districts	.004	(.71)	14 to 27	+23,000	(474,000)
Tenure	−.011	(−1.39)	8 to 14	−7,000	(444,000)
Tenure^2	.001*	(2.43)		[*joint effect*]	
Other independent variables: Democrat × Year Dummies, South × Year Dummies, Year Dummies, constant					
R^2 (with fixed effects)	.75 (.92)				
N	3353				

Notes: Funds Raised and Funds Spent are in 1998 dollars.
Data are 1982–1998 U.S. House races with incumbents, excluding unusual cases.
Coefficients are Ordinary Least Squares estimates, with incumbent fixed effects and robust standard errors: $^*p < .05$ (two-tailed test).
Baseline incumbent (before change) ran against a low quality challenger, and spent the median Funds Spent of $451,000.
Example: For an incumbent who raised $233,000 more in this election, the predicted Funds Spent in this election is $193,000 greater, or $644,000.

quality challengers; and incumbents who face low quality challengers spend more than incumbents who run unopposed[39] (this is the flip side to Proposition 1). And incumbents who have served longer spend less (although the Tenure coefficient is insignificant). Although the effects are not statistically significant, incumbents from a large state, or who face a scandal or a competitive primary or are redistricted spend more money. And though the effects are not statistically nor substantively significant, grandfathered incumbents spend less (saving more for retirement), and incumbents in safer districts spend more.

Like previous tests, the relationship between funds raised (and the other independent variables) and funds spent is robust to the addition of other variables and other statistical specifications. I also tested this model using a random-effects model (which was rejected), without fixed-effects, and on untransformed variables. Again, the results are qualitatively the same.

CONCLUSION

This paper has proposed a model of incumbent fund-raising and spending that yields testable implications about the fund-raising and fund-saving behavior of incumbents: An incumbent creates a war chest (saves money) when she runs against a lower quality challenger, and there is a possibility of running against a higher quality challenger in the next election. An incumbent raises more money when she expects to face higher quality challengers and has spent more money in the previous election. An incumbent raises less money when she has a larger war chest. And an incumbent spends more money when she raises more money.

Using data from U.S. House elections, the empirical tests find strong support for these predictions. Thus, this paper finds compelling evidence for the idea that incumbents create war chests as precautionary savings. At the very least, future empirical tests of campaign finance should control for the possibility of incumbents creating war chests for savings.

If war chests could both deter challengers and be used as savings, then these dual uses would act as complements. An incumbent would have extra money to decrease the chances that a strong challenger would run. Possessing the extra money to deter strong challenges, a weaker challenger would run and the incumbent would not need to spend as much money. The incumbent would thus save extra money for the next election, which money could be used as deterrence for that election. However, if war chests could be used for both deterrence and savings, it is puzzling that many empirical studies fail to pick up any deterrence effects even when those studies do not control for savings effects.

The depiction of war chests as precautionary savings is different than that given by many journalists and political scientists. This does not mean that

money does not matter in politics. It means that money matters differently than is commonly assumed. Compared to a campaign finance regime that prohibits carrying over funds from one election to another, incumbents raise more money when war chests are allowed. Although campaign war chests may or may not deter challengers from entering a race, war chests can be used by incumbents to insulate themselves in case a strong challenger does enter. Thus, campaign finance reforms that eliminate war chests may not encourage prospective challengers, but it may cause vulnerable incumbents to lose more often.

The economic theoretical and empirical literatures find that uncertainty leads consumers to save more than they otherwise would (e.g. Leland, 1968; Kazarosian, 1997). In other words, consumers set aside a cushion to protect themselves in case of hard economic times. Incumbents also set aside a cushion for the hard times of running against a strong challenger. Precautionary savings thus protect both consumers and incumbents. While consumer self-protection is generally considered to be a good thing, incumbent self-protection is not. Since incumbent war chests reduce the vulnerability of incumbents, and thus, the competitiveness of elections, incumbent war chests may also reduce the accountability of representatives.

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NOTES

1. Some scholars have misinterpreted Box-Steffensmeier's results as she uses a duration model to measure the effect of war chests on challenger entry. Her results show that war chests *delay* challenger entry. However, if challenger entry is delayed past the censoring date of the data (in this case the primary election), then the challenger can no longer enter, and the challenger is thus "deterred".
2. Other purposes Sorauf mentions include the building of a nest egg for retirement (possible for those elected before 1980 who retired before 1992 in the U.S. House), saving money to run for higher office, or for unfavorable circumstances after reapportionment.
3. Even non-nested tests would not work as they also require the different hypotheses to have the same dependent variable.
4. An appendix gives the technical details of the model and results. It can be found at http://fhss.byu.edu/polsci/Goodliffe/papers.

5. Incumbents often raise funds in response to the quality of challenger that enters the election. But if there is an increasing marginal cost of raising money and a decreasing marginal benefit of spending it (which are the assumptions below), and incumbents raise any money before challenger entry, then the "effort-smoothing" rationale of the model still follows.
6. In other words, $W_1(s, q) > 0$ and $W_{11}(s,q) < 0$. Further, I assume that $W(s, q) \in [0,1]$ and $W(s, q)$ is twice continuously differentiable for $s \geq 0$ and all q. I also assume an Inada-type condition to obtain an interior solution: $W_1(s, q) \to 0$ as $s \to \infty$.
7. In other words, if $q > \hat{q}$, then $W(s, \hat{q}) < W(s, \hat{q})$ for all s. Thus $W_2(s, q) < 0$.
8. In other words, if $q > \hat{q}$, then $W_1(s, q) > W_1(s, \hat{q})$ for all s. Thus, $W_{12}(s, q) > 0$.
9. Thus, $C_1(r) > 0$ and $C_{11}(r) > 0$. I assume that $C(r)$ is a twice continuously differentiable function. As in the win probability function, I assume Inada-type conditions: $C_1(r) \to 0$ as $r \to 0$. From the other assumptions, $C_1(r) \to \infty$ as $r \to \infty$.
10. In other words, there exists some $\tilde{r}$ such that $W(\tilde{r}, q) > C(\tilde{r})$, for all q.
11. That is, for $q > \hat{q}$, the r that solves $W_1(r,q) = C_1(r)$ is greater than the $\hat{r}$ that solves $W_1(\hat{r}, \hat{q}) = C_1(\hat{r})$.This follows from the assumptions that $W_2(s,q) < 0$ and $W_{12}(s,q) > 0$ for all s.
12. In this model, I concentrate on the "demand side" of campaign finance, and ignore the "supply side". That is, I do not worry about what motivates contributors, but assume that the incumbent can get the money, though at increasing cost. However, in the empirical tests, I do not assume that the costs are the same for all incumbents, and include controls for these costs and the supply side.
13. In reality, incumbents may go into debt, or more importantly, have both cash-on-hand and debt, although the vast majority do not. However, allowing incumbent borrowing does not affect the logic of the following propositions.
14. More strictly, the incumbent raises enough money to run against an average challenger, plus some more money. This is because the incumbent has a distaste for raising funds (seen in the concavity of the cost function) that is roughly equivalent to risk aversion.
15. Senators may also be saving money in case they choose to run for governor, or vice versa, depending on the state.
16. See Morton (1999) for an exposition of empirically testing formal models. In Morton's terminology, I assume that the model is a "partial data generating process," and attempt to control for factors outside the model.
17. Whenever there was a special election in a district during an election cycle, I also exclude the subsequent (regular) election, for I have not yet been able to separate the spending in the special and general elections, as a result of inconsistencies in FEC coding.
18. I dropped the races where Bernie Sanders ran (and won) in the election (Vermont, 1990–1998). This is because Sanders is officially independent of either major party.
    I also dropped the special general elections and runoffs in some Texas districts that took place in 1996 as a result of late redistricting. The election format was similar to Louisiana's.
19. One could also use a random-effects model to control for unobserved factors. But when the unobserved factors are correlated with the included independent variables—as they are in this case—a fixed-effects model is more appropriate (Wooldridge 2002, pp. 251–252). As a check for the robustness of the results, I also apply a random-effects model to the empirical tests that follow.
20. When taking the natural log, I dropped those observations where the monetary figures were zero or negative. Including those observations (by setting them equal to one dollar, or by adding $5,000 to all observations) does not qualitatively change the results below.
    When running the regressions that follow with absolute (non-transformed) values, an analysis of residuals shows extensive heteroskedasticity. Once the monetary values are transformed, the heteroskedasticity in residuals is largely removed.
21. The different candidate categories of Canon's scale are (from highest to lowest): Elective Office, Political Office (e.g. party workers), Ambitious Amateur (e.g. previous runs for office),

Amateur, and no challenger. The correlation between the Jacobson and Kernell measure and the Canon measure is .79.

22. The results are qualitatively similar when using the Canon scale as a single variable, or using a dummy variable for each category of the Canon scale.
23. In addition, some researchers (e.g. Herrnson 2004) have found that the dichotomous measure of challenger quality does not work well for Republicans. However, when challenger quality (either Jacobson and Kernell's measure, or Canon's measure) is interacted with party, the results show there is no statistical difference in challenger quality effects between parties.
24. I also used a second measure that attempts to control for the costliness (heterogeneity) of congressional districts. In this alternative measure, I measured war chests relative to the campaign's fund-raising. That is, I took the cash-on-hand that the incumbent had at the end of the current election cycle (which becomes the war chest for the next election cycle) and divided it by the sum of the cash-on-hand at the beginning of the current election cycle and the money raised by the incumbent during the current election cycle. Thus, this variable was a Relative War Chest, or proportion saved. This variable also controlled for the costs of running for office, which have been rising faster than the rate of inflation. I also controlled for district heterogeneity by dividing the ending cash-on-hand by money raised or money spent. The results for these three measures are qualitatively the same as the results that follow. Finally, I also ran the models including candidates' debts (making appropriate adjustments for negative war chests), the operationalization of Milyo (1998) and Milyo and Croseclose (1999). The results were also qualitatively similar to those reported below.
25. I show the descriptive statistics for these variables in Table 1 in the Appendix, found at http://fhss.byu.edu/polsci/Goodliffe/papers.
26. I ran the following analyses both including and excluding those involved in the House Bank Scandal in 1992, which involved more incumbents than usual scandals. The results are qualitatively the same. In the analyses that follow, I include those involved in the House Bank Scandal. The results are also qualitatively the same when excluding Scandal altogether.
27. The effect of a competitive primary is robust to other specifications of competitiveness, such as vote share in the primary.
28. I also operationalized this variable as the natural log of the number of districts [following Kiewiet and Zeng (1993)]. There is no qualitative difference in the results.
29. The control variables for Democrat × Year Dummies, South × Year Dummies, Year Dummies and a constant are included in the regressions but not reported in the table. The results for those variables can be found in the Appendix (at http://fhss.byu.edu/polsci/Goodliffe/papers). Democrat × Year Dummies and Year Dummies are jointly significant (at $p < 0.001$); South × Year Dummies are not jointly significant. The fixed effects coefficients are also jointly significant.
30. By including incumbent fixed effects, the model controls for the average challenger quality the incumbent faces (within the time period of the data set). Substituting deviation from average challenger quality of the district (discussed in the next section on Comparing Money Raised) for High Quality Challenger and Unopposed yields qualitatively similar results.
31. Full details in the Appendix can be found at http: //fhss.byu.edu/polsci/Goodliffe/papers.
32. lt is also robust to defining a war chest as cash-on-hand minus debt, adjusting the finance variables for the costs of running for reelection (which is rising faster than inflation), adding a control variable for available cash to spend (for Absolute War Chest), and adding last election's war chest as a control variable. Using other assumptions to calculate standard errors also does not qualitatively change the results.
33. A potential problem with this operationalization is that it uses future outcomes as a predictor for present behavior. Thus, it should be regarded as a rough proxy.
34. The beginning cash on hand of challengers or open seat candidates is almost always zero. Including first-term incumbents does not qualitatively affect the results.

35. The control variables for Democrat × Year Dummies, South × Year Dummies, Year Dummies and a constant are included in the regressions but not reported in the table. The results for those variables can be found in the Appendix (at http://fhss.byu.edu/polsci/Goodliffe/papers). Democrat × Year Dummies and Year Dummies are jointly significant (at $p < .0001$); South × Year Dummies are not jointly significant. The fixed effects coefficients are also jointly significant.
36. Strictly speaking, the coefficient on *log* Previous Election Spending is the elasticity. But the sign is correct, and when the regression is run on untransformed variables, the coefficient is within the predicted range.
37. The control variables for Democrat × Year Dummies, South × Year Dummies, Year Dummies and a constant are included in the regressions but not reported in the table. The results for those variables can be found in the Appendix (at http://fhss.byu.edu/polsci/Goodliffe/papers). The Year Dummies variables are jointly significant (at $p < 0.0001$); Democrat × Year Dummies and South × Year Dummies are not jointly significant. The fixed effects coefficients are also jointly significant.
38. As in the previous test, the coefficient on *log* Funds Raised is the elasticity. But the sign is correct, and when the regression is run on untransformed variables, the coefficient is within the predicted range.
39. By including incumbent fixed effects, the model controls for the average challenger quality the incumbent faces (within the time period of the data set). Substituting deviation from average challenger quality for High Quality Challenger and Unopposed yields qualitatively similar results.

REFERENCES

Abramowitz, Alan I. (1991). Incumbency, campaign spending, and the decline of competition in U.S. House elections, *Journal of Politics*, 53: 34–56.

Ansolabehere, Stephen, and Snyder, James M., Jr. (2000) Campaign war chests in Congressional elections. *Business and Politics* 2: 9–33.

Beck, Nathaniel (1996). Reporting Heteroskedasticity consistent standard errors. *The Political Methodologist* 7: 4–6.

Bond, Jon R., and Fleisher, Richard (1991). *Explaining candidate quality in open seat house races, 1976–1988*. Presented at the annual meeting of the Southern Political Science Association, Tampa, Florida.

Box-Steffensmeier, Janet M. (1996). A dynamic analysis of the role of war chests in campaign strategy. *American Journal of Political Science* 40: 352–371.

Box-Steffensmeier, Janet M., and Franklin, Charles H. (1995). The long campaign: Senate Elections in 1992. In Herbert F. Weisberg (ed.), *Democracy's Feast: Elections in America*, pp. 292–318. Chatham, NJ: Chatham House.

Canon, David T. (1990). *Actors, Athletes, and Astronauts: Political Amateurs in United States Elections*. Chicago: University of Chicago Press.

Corrado, Anthony, Mann, Thomas E., Ortiz, Daniel R., Potter, Trevor, and Sorauf, Frank J. (eds.) (1997). *Campaign Finance Reform: A Sourcebook*. Washington: Brookings Institution Press.

Dharmapala, Dhammika (2002). Campaign war chests, entry deterrence, and voter rationality. *Economics & Politics* 14: 325–350.

Donovan, Beth (1993). Campaign finance provisions. *Congressional Quarterly Weekly Report*, 14 August, 2239–2242.

Epstein, David, and Zemsky, Peter (1995). Money talks: deterring quality challengers in congressional elections. *American Political Science Review* 89: 295–308.

Goidel, Robert K., and Gross, Donald A. (1994). A systems approach to campaign finance in U.S. House Elections. *American Politics Quarterly* 22: 125–153.
Goldenberg, Edie N., Traugott, Michael W., and Baumgartner, Frank K. (1986). Preemptive and reactive spending in U.S. House races. *Political Behavior* 8: 3–20.
Goodliffe, Jay (2001). The effect of war chests on challenger entry in U.S. House elections. *American Journal of Political Science* 45: 830–844.
Goodliffe, Jay (2003). *War chests and information*. Presented at the annual meeting of the American Political Science Association, Philadelphia, Pennsylvania.
Goodliffe, Jay (2005). When do war chests deter? *Journal of Theoetical Politics* 17: forthcoming.
Green, Donald Philip, and Krasno, Jonathan S. (1988). Salvation for the spendthrift incumbent: reestimating the effects of campaign spending in House Elections. *American Journal of Political Science* 32: 884–907.
Gronke, Paul (2000). *The Electorate, the Campaign, and the Office: A Unified Approach to Senate and House Elections*. Ann Arbor, MI: University of Michigan Press.
Groseclose, Timothy, and Krehbiel, Keith (1994). Golden parachutes, rubber checks, and strategic retirements from the 102d House. *American Journal of Political Science* 38: 75–99.
Hall, Richard L., and Van Houweling, Robert P. (1995). Avarice and ambition in Congress: representatives' decision to run or retire from the U.S. House. *American Political Science Review* 89: 121–136.
Herrnson, Paul S. (2000). *Congressional Elections: Campaigning at Home and in Washington*, 3rd ed. Washington: CQ Press.
Herrnson, Paul S. (2004). *Congressional Elections: Campaigning at Home and in Washington*, 4th ed. Washington: CQ Press.
Hersch, Philip L., and McDougall, Gerald S. (1994). Campaign war chests as a barrier to entry in congressional races. *Economic Inquiry* 32: 630–641.
Hogan, Robert E. (2001). Campaign war chests and challenger emergence in state legislative elections. *Political Research Quarterly* 54: 815–830.
Jacobson, Gary C., and Kernell, Samuel. (1983). *Strategy and Choice in Congressional Elections*. New Haven, CT: Yale University Press.
Jacobson, Gary C. (1989). Strategic politicians and the dynamics of U.S. House Elections, 1946–1986. *American Political Science Review* 83: 773–793.
Kazarosian, Mark (1997). Precautionary savings—a panel study. *Review of Economics and Statistics* 79: 241–247.
Kiewiet, D. Roderick, and Zeng, Langche (1993). An analysis of Congressional career decisions, 1947–1986. *American Political Science Review* 87: 928–941.
Krasno, Jonathan S., and Green, Donald Philip (1988). Preempting quality challengers in House Elections. *Journal of Politics* 50: 920–936.
Leland, Hayne E. (1968). Saving and uncertainty: the precautionary demand for saving. *Quarterly Journal of Economics* 82: 465–473.
Levy, Dena, and Squire, Peverill (2000). Television markets and the competitiveness of U.S. House elections. *Legislative Studies Quarterly* 25: 319–325.
Milyo, Jeffrey (1997). The economics of political campaign finance: FECA and the puzzle of the not very greedy grandfathers. *Public Choice* 93: 245–270.
Milyo, Jeffrey (1998). *The Electoral Effects of Campaign Spending in House Elections*. Los Angeles: Citizens' Research Foundation.
Milyo, Jeffrey (2001). What do candidates maximize (and why should anyone care)? *Public Choice* 109: 119–139.
Milyo, Jeffrey, and Groseclose, Timothy (1999). The electoral effects of incumbent wealth. *Journal of Law and Economics* 42: 699–722.

Morton, Rebecca B. (1999). *Methods and Models: A Guide to the Empirical Analysis of Formal Models in Political Science*. New York: Cambridge University Press.
Mycoff, Jason Daniel (2004). *The effect of the competitive balance on Congressional incumbents' financial patterns*. Presented at the annual meeting of the American Political Science Association, Chicago, Illinois.
Peters, John G., and Welch, Susan (1980). The effects of charges of corruption on voting behavior in Congressional elections. *American Political Science Review* 74: 697–708.
Rohde, David (1979). Risk-bearing and progressive ambition: the case of members of the United States House of Representatives. *American Journal of Political Science* 23: 1–26.
Salant, Jonathan D. (1996). Freshman's war chest deters challengers. *Congressional Quarterly Weekly Report*, 24 August, 2363–2366.
Sorauf, Frank J. (1988). *Money in American Elections*. Glenview, IL: Scott, Foresman.
Squire, Peverill (1989). Competition and uncontested seats in U.S. House elections. *Legislative Studies Quarterly* 14: 281–295
Squire, Peverill (1991). Preemptive fund-raising and challenger profile in Senate elections. *Journal of Politics* 53: 1150–1164.
Squire, Peverill (1995). Candidates, money, and voters—assessing the state of Congressional elections research. *Political Research Quarterly* 48: 891–917.
Stewart, Charles III, and Reynolds, Mark (1990). Television markets and U.S. Senate elections. *Legislative Studies Quarterly* 15: 495–523.
Stone, Walter J., Maisel, L. Sandy, and Maestas, Cherie D. (2004). Quality counts: extending the strategic politician model of incumbent deterrence. *American Journal of Political Science* 48: 479–495.
White, Halbert (1980). A heteroscedasticity-consistent covariance matrix and a direct test for heteroscedasticity. *Econometrica* 48: 817–838.
Wooldridge, Jeffrey M. (2002). *Econometric Analysis of Cross Section and Panel Data*. Cambridge: MIT Press.
Wooldridge, Jeffrey M. (2003). *Introductory Econometrics: A Modern Approach*, 2nd ed. Mason, OH: Thomson Learning.
Wrighton, J. Mark, and Squire, Peverill (1997). Uncontested seats and electoral competition for the U.S. House of Representatives over time. *Journal of Politics* 59: 452–468.