THE VALUE OF MONEY IN ELECTIONS

A Dissertation

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by

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I examine the funding of election candidates by special interest groups and parties in the context of open-seat races for the U.S. House of Representatives. I address two principal questions about contributor behavior. First, why do special interest groups fund election campaigns? Second, how do contributors, such as parties and special interest groups, learn during an election campaign where to best spend their money? My empirical analysis focuses on open-seat general elections for the U.S. House from 1984 to 2000.

I resolve a controversy in the campaign finance literature about the motives of special interest groups when funding election campaigns. I show that in open-seat races most interest groups act like the parties and give money primarily to maximize the expected number of seats won by each group’s preferred party. In particular, corporate political action committees (PACs) allocate their contributions to candidates in the same manner as the Republican party, and labor PACs act like the Democratic party. I also show that some PACs fund candidates from their less preferred party and do so in a manner consistent with seeking private benefits. Most money in open-seats is partisan money which is given by special interest groups.

I provide new ways of using campaign contributions to analyze how political information is disseminated, how individuals and groups learn about the competitiveness of candidates, and how expectations about electoral outcomes evolve during election campaigns. I demonstrate that the allocation of campaign contributions by special interest
groups during the campaign summarize information about the expected electoral outcomes in individual races, and thus the behavior of these elites provides useful cues and heuristics for voters.

I derive a game theoretic model of contributor behavior, and test the equilibrium results using statistical models. The analysis focuses on how the competitiveness of candidates affects their ability to raise money from different sources. The game theoretic model unifies two seminal models of investor and partisan contributors, and I derive the Nash equilibrium where both types of contributors jointly fund candidates. I test the qualitative and quantitative features of the equilibrium using both non-parametric and parametric statistical models.
BIOGRAPHICAL SKETCH

Born in Victoria, British Columbia, Canada, Jonathan took a Bachelor of Arts (Honours) degree from the University of British Columbia. He moved to a country with comprehensive monitoring of political contributions in order to pursue a doctoral program at Cornell University. He completed his dissertation while at the Center for Basic Research in the Social Sciences, Harvard University. Jonathan is currently an Assistant Professor at Stanford University.
For my mother and father.
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CHAPTER 1
THE STUDY OF CAMPAIGN CONTRIBUTIONS

I examine the private funding of election candidates by special interest groups and parties in the context of open-seat races for the U.S. House of Representatives. I address two principal questions about campaign contributions. First, why do special interest groups fund election campaigns? Second, how do contributors, such as parties and special interest groups, learn during an election campaign where to best spend their money?

The theoretical and empirical results of this study inform the debate on the influence of money in election campaigns on democratic representation. I provide a theoretical model of how contributors with different motivations will strategically behave when money from all contributors jointly determines an election outcome. I demonstrate empirically that special interest groups are primarily funding open-seat candidates in a manner which aims to change the composition of the House rather than in a manner suited to buying private quid pro quo promises from individual (future) members of Congress.

I also provide a new method of using campaign contribution to address questions of political behavior and learning in elections. Previously, studies of political behavior relied primarily upon opinion surveys, and are limited by the existence and scope of past surveys. Moreover, it is not generally feasible to systematically measure the distribution of elites expectations in all races in each federal election cycle, as they evolve during a campaign. My approach provides a means to measure the changes in expectations which occur over the course of an election campaign through an analysis of how contributions are given by PACs, parties, and individuals within and across districts. The goal is to describe and understand the evolution of elite expectations in election campaigns.
1.1 Motivations of campaign contributors

There are two main explanations in the campaign finance literature for why special interest groups give money. The first explanation is that contributors give money to candidates with the expectation of buying influence and gaining private benefits. The second explanation is that special interest groups seek to affect election outcomes, and thereby change the composition of the House of Representatives.

The first type of contributor seeks to affect “the behavior of eventual office holders and, thereby, government policy.” (Schlozman and Tierney, 1986, 207) This type of contributor is usually denoted in the literature as a (quid pro quo) “investor”.

Investors care primarily about obtaining the policy benefits promised by a candidate. Investors do not necessarily care about the party of the candidate they support, nor do they necessarily care about changing the election outcome. As Jacobson and Kernell (1983) observe,

Economic interest groups—corporate political action committees, professional and trade associations, labor unions—are commonly assumed to be motivated by hopes of tangible if unspecified payoffs, as are private individuals who donate substantial sums. Their rational strategy is to contribute to the candidates who are likely to be in a position to help or harm them... Contributions intended to curry favor are not made with an eye to electoral utility; the idea is to buy influence, not affect the outcome. (36)

In deciding whether to give money to a candidate, “the only ideological test applied is that the candidate be receptive to persuasion and not downright antagonistic in policy orientation.” (Schlozman and Tierney, 1986, 207).
The types of things investors want may include votes on particular legislation, help getting favorable treatment from agencies or gaining privileged access to a legislator’s time. An example of an investor good is the protection of the ethanol blended gas subsidy. Gasoline containing ethanol receives reductions in federal fuel taxes for the purposes, it has been argued, of reducing foreign oil consumption and improving the environment. According to the GAO, this subsidy has so far cost over $7 billion despite failing to produce real benefits to the voting public. There is at least one group which has benefited from the subsidy, which can be seen primarily as a direct service to a single company: Archer Daniels Midland, the largest producer of ethanol. The issue of ethanol subsidies does not divide members of Congress along party lines and after its enactment the provisions have been protected by a few key members of Congress (Common Cause, 1998).

The second type of contributor is usually denoted as a “partisan”, even in the absence of formal associations with a party. The goal of partisans is to increase the legislative strength of their preferred party, and ideally enable members of that party to control the institutions associated with being in the majority, such as agenda setting power and committee chairmanships. As Schlozman and Tierney (1986) note,

1See Chappell (1982) for analysis of milk supports, truck weight limits, domestic shipping requirements, automobile emissions, and defense contracts.
2Such as regulatory commissions, departments controlling public works, loan agencies, and other government bodies that allocate resources. As Fiorina (1989) argues,

Congressmen possess the power to expedite and influence bureaucratic decisions. This capability flows directly from congressional control over what bureaucrats value most: higher budgets and new program authorization. In a very real sense each congressman is a monopoly supplier of bureaucratic unsticking services for his district. ... In fact it is probable that at least some congressmen deliberately stimulate the demand for their bureaucratic fix-it services (47)

3See for example Hall and Wayman (1990)
The implicit assumption is that candidates who are like-minded on the broad or narrow set of issues with which the organization is concerned would, if left to their own devices once in office, promote the causes dear to the organization; therefore, what is needed is quite simply to make sure that such candidates are victorious. (207)

A reduction of the capital gains tax is a likely partisan issue since it is a broad policy that divides members of congress along party lines. A probable prerequisite for the passage of legislation to reduce the capital gains tax is for Republicans to have dominance over the federal legislative agenda.

It is investor behavior which is the dominant explanation for contributions among academics and journalists (for example, Snyder, 1990; Stratmann, 1992; Grier, Munger, and Roberts, 1994; Common Cause, 1998), and it is often a basic assumption of formal models of campaign finance (for example Welch, 1974, 1980; Denzau and Munger, 1986; Baron, 1989a,b, 1994; Austen-Smith, 1987, 1995; Mebane, 1999). This dominance and preoccupation with investor behavior is likely due to a general concern with

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The labels “investor” and “partisan” to describe contributor behavior are widespread in literature, although closely related terms are used by some, including “quid pro quo contributors” or “influence oriented contributors” or “access oriented” for investors, and “election oriented contributors” or “ideological” for partisans. Although each label has small differences in connotation, these two general groups of motivations remain the standard dichotomy in the literature.

There are a variety of additional motivations which are not considered directly in this work. Motivations such as promoting democratic competition have been primarily studied in terms of variation in individual participation (Verba, Schlozman, and Brady, 1995). Giving based on social ties and ethnicity has been studied by (Tam Cho, 2002). However they are of limited interest in so far as they imply that in first case all candidates are potential recipients and in the latter primarily idiosyncratic social networks. Ideology is closely aligned with party (Poole and Rosenthal, 1997) and can justify focusing on the more easily observed partisan labels rather than measuring individual candidates, although supporting candidates with a particular ideology or set of values which may not be shared by all candidates of a party has been studied by Jacobson and Kernell (1983).
quid pro quo relationships in politics, which is related to the more general fear of the capture of government for private gain.

Unfortunately, the relative importance of each type of contributor behavior in funding elections is little understood. Few studies have considered this question, and those which have primarily point to evidence about one type of contributor behavior or the other in isolation. Currently, the campaign finance literature provides two competing answers to the puzzle of why special interest groups, particularly corporate and labor groups, fund election campaigns for the U.S. House of Representatives. On the one hand, the traditional literature emphasizes the partisan preference of corporations for Republican candidates and labor’s preference for Democrats. In describing corporate PACs, Sorauf notes that “their commitment to an ideological electoral politics in open-seats... is evident in their overwhelming support of Republicans” (1992, 84). Similarly, Sorauf calls labor PACs “unipartisans” (1992, 106) because of their almost undivided support for Democrats. On the other hand, the quantitative literature which draws on formal models to motivate empirical analysis, emphasizes that both corporate and labor political action committees (PACs) are investors who give money to candidates primarily to gain private benefits (Snyder, 1990; McCarty and Rothenberg, 2000). As Morton and Cameron (1992) note, special interest groups may give for one of these reasons or both, but “the circumstances in which one motivation is predominant is not well understood” (83). Empirically distinguishing between the two “pure” types of behavior is complicated both by the reality that contributors rarely act exclusively on the basis of a single motivation, and the difficulty of establishing methods and measures for distinguishing between the two types of behavior. I am able to advance our understanding of campaign behavior by employing the assumption that groups have dominant patterns of behavior and then providing new tools to analyze contributions data.
Building on both the traditional classification of different groups as partisans and the core intuitions of the quantitative literature, I show that special interest groups devote a relatively small amount of money for purchasing investor-type promises, compared to the much larger sums they direct toward changing the partisan composition of the House. Unsurprisingly, both the Republican and Democratic party spend money in order to maximize the number of open-seat winners from their party. I show that regardless of which party is in the majority, corporate and labor special interest groups also give money to candidates in open-seat House races primarily to maximize the expected number of seats won by each group’s preferred party. In this way, I show that these special interest groups act like parties, corporate PACs behaving like the Republican party and labor PACs acting like the Democratic party. However, these groups spend money many times greater than the parties.

1.2 Campaign contributions and candidate incentives

Studies of campaign finance, with few exceptions, investigate how the behavior of politicians is distorted by obligations to contributors or how the distribution of money affects which politicians win elections. A basic premise of these studies is that campaign contributions affect democratic representation. The standard treatments of special interest groups as investors assume that the goal of these contributors is to maximize some individualized benefits (Baron, 1989a,b; Snyder, 1990; McCarty and Rothenberg, 2000; Grossman and Helpman, 2001). If these investors are pervasive and successful such that rewarding special interests is the dominant concern of candidates and members of the U.S. House of Representatives, then the result is incoherent, particularistic policies, and

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\(^5\)Conditional on the amount of money given in open seats; incumbent party leaders may have an incentive to shore up incumbent seats at the expense of open-seats overall (Jacobson and Kernell, 1983).
the congressional agenda will be distorted by the creation and protection of legislation which benefit narrow interests (Lowi, 1979; Fiorina, 1989). Indeed, in his explanation for the decline of partisanship among voters, Wattenberg (1994) argues that “it is increasingly difficult for candidates to make broad partisan appeals when their campaign treasuries become dependent on pleasing a variety of special interests.” (109) Citing that campaign managers attribute less importance to party organizations in districts which receive the most PAC money, Wattenberg argues that “PACs threaten to further displace the party organizations as a useful tool for political candidates.” (109) The negative consequence, he argues, is manifested in the negative correlation between expenditures and with partisan intensity measures of members of Congress.

In contrast, contributors may give money in order to help their preferred party win control of the institutions which accompany holding the majority of seats in the House, such as committee chairmanships and agenda setting powers. If strong and well funded partisans, in the form of parties or aligned special interest groups, are dominant sources of resources for candidates, then there are fewer incentives to make individual deals with contributors. Strong parties are linked to the development of cohesive, ideological policies whereby the parties work to distinguish themselves. The resulting incentive for individual candidates is to focus on broad, programmatic issues that reflect the electoral struggle over winning the majority (Rhode, 1991; Cox and McCubbins, 1993; Aldrich, 1995).

I show that an overwhelming proportion of financial resources deployed by labor and corporate groups to finance campaigns in open-seat elections are spent in a partisan manner. As such, I argue that these resources are being used to wage campaigns which affect the legislative balance between capital and labor interests in American politics.6

6This alignment of groups is also consistent with and reinforces traditional ideological divisions and class politics in the battle to describe government as efficient or
So although within particular industries both corporate and labor interests may even agree on particular policies and the desire for subsidies, regulatory exemptions, or other benefits which could be bought from candidates from either party, there remain important battles over the general view of the role of government which remains a crucial divide in American politics. In contrast to a standard view of these groups as investors, I demonstrate that these groups are generally not giving in a manner which is consistent with purchasing promises from candidates.

As a complement to the demonstration of the dominance of partisan behavior, I show that PACs also fund candidates from their less preferred party and do so in a manner consistent with seeking private benefits. In contrast to the partisan money, the relatively small amount of money from investors may be given to candidates for reasons unrelated to the principal political cleavages and issues of the campaign, or even given in exchange for private benefits contrary to the interests of the voters in the district. The small amount of investor money that I find is in sharp contrast to quantitative studies which uniformly attribute investor motives to all corporate and labor contributions (Snyder, 1990; McCarty and Rothenberg, 2000).

The legislative and procedural advantages possessed by the party holding the majority in the House are both the object of partisan competition, and a determinant of how much special interest groups will invest in a party’s candidates. Which party holds the majority affects not only the average amount of money candidates from a party could raise from contributors (Cox and Magar, 1999a,b; Rudolph, 1999) but also the type of money that candidates can raise.\(^7\) I show that after the Republicans won the majority in the House in 1994, the number of special interest groups pursuing investor or partisan inefficient in the provision of public goods (Roemer, 1994).

\(^7\)For a related analysis of the impact of changes of committee assignments on contributor behavior, see Romer and Snyder (1994).
strategies significantly changed. I show that instead of a sudden shift in investor contributions, investors appear to have been taking into account the decline of the safety of the Democratic majority during the 1980s. The post-1994 investor bias toward Republicans is better understood as part of a fairly smooth and continuous shift away from a strong preference for Democrats in the early 1980s.

1.3 Buying parties versus buying candidates

Should citizens be reassured and comfortable with this system of privately funding elections for public office if most resources in close races are provided by special interest groups who seek to change composition of the House rather than receive individual promises of benefits from candidates? If these groups are buying an entire party, instead of buying individual candidates, this may simply provide an opportunity to engage in bribery and payoffs more efficiently and on a scale much larger than could be possible if negotiating with a large number of individual candidates. Does the behavior of groups with the labels “partisan” and “investor” merely represent differences in allocation strategies or do they also possess normative implications as well? Is it possible to claim that having the dominant funding of election based on seeking to buy a party is better for democratic representation than a situation where investor money is dominant?

Having groups who seek to buy a party is relatively better if the result is greater transparency between campaign support and legislative outcomes. Transparency may increase by contributions being more informative about the policies that will be pursued by candidates from each party. Relationships between groups of candidates and a special interest group are easier to monitor than potential individual candidate pay-offs to campaign supporters through idiosyncratic benefits, as occurs in the pure investor-only model. Voters may be able to more effectively adopt a punishment strategy of voting
against members of a party if they disagree with policies undertaken by Congress. For example, voters who disagree with the benefits accorded to the drug industry at large, such as the immunity from lawsuits granted to certain vaccine manufacturers in 2002, have a simple litmus test (which party’s candidates received most of the drug money) and disciplining mechanism (vote against the party). The dominant funding of competitive elections by partisan interests increases the opportunity for voters to translate preferences into coherent vote choices, in contrast to the prohibitively difficult challenge of monitoring contributions from investors.

There may also be benefits from a dominance of special interest partisan money if having many groups competing for a place on a party’s legislative agenda results in individual special interest groups having little influence. Much like the logic of Federalist 10, having multiple factions competing simultaneously for attention and power diminishes the threat of any one group dominating. So, although the drug companies may have helped to elect more Republicans in the 2002 House elections, this industry may be right to be “cautious and apprehensive” (New York Times, November 21, 2002) about how much influence their contributions really have.

There are, of course, potential negative aspects to the dominance of partisan behavior among special interest groups. Increased party unity based on special interest money may simply lead to more efficient provision of benefits to special interests at the expense of the public interest. And special interests are able to make the matter murky by giving enough money to the opposing party to either confuse the clear signals of which party is being bought or to buy the silence of potential future critics.
1.4 Campaign contributions and theories of political behavior

There is evidence of coherent and sophisticated political behavior among voters which seems incommensurate with the pervasive lack of engagement in politics and low amounts of information that these voters possess. The use of heuristics and cues from elites is one explanation for the ability of voters to make sophisticated choices. These cognitive shortcuts (Simon, 1982; Sniderman, Brody, and Tetlock, 1991; Zaller, 1992) enable voters to make choices consistent with their interests without systematically monitoring the behavior of politicians (Popkin, 1994). It is unfortunately rare for the actions of elites, which are assumed to provide these shortcuts to voters, to be examined for coherency and informativeness. In the context of campaign contributions, contributors indirectly provide cues by affecting how much advertising a candidate can purchase and directly by providing endorsements combined with contributions. The study of the allocation of campaign contributions is important not only for understanding the strategic choices of groups and elites, but also to evaluate whether their contribution decisions are capable of revealing accurate information about electoral expectations.

Predictions from my formal model of partisan and investor contributors provide a logical basis for understanding the mapping between money and expectations and discriminating between the two types of behavior empirically. Over the course of the campaign, money from different sources also provides a means for summarizing the past expectations of contributors, and thus private groups provide the conditions for learning and coordination among voters. At the beginning of the election cycle, parties, candidates, and potential contributors are all faced with uncertainty about the election day outcome and therefore also about where to best allocate their resources. As contributions are received, and compared with contributions received in other districts, the distribution of money in each district provides a measure of the distribution of beliefs about the
upcoming election outcomes. These beliefs may be altered by new information such as polls or by the stream of money itself. I argue that the stream of money provides a summary of elite opinion and that elites update their behavior on the basis of public revelations about the distribution of contribution patterns across districts.

1.5 Open-seat races for the U. S. House of Representatives

In this dissertation I focus on a subset of the most competitive elections for the U.S. House of Representatives: open-seat races. The analysis of open-seats is both normatively important and advantageous for testing theories of contributor behavior. Open-seats are the most likely to produce a change in the composition of the House. Over two-thirds of the members currently holding office in the House were initially elected in open-seat races. To understand how the composition of representatives in the House changes, scholars of Congress and elections must understand open-seat races.

The restriction to open-seats enables this analysis to focus on prospective contributions and minimizes the number of potential alternative motivations which could explain contributor behavior. In the case of incumbents, it is not possible to distinguish between money given for something which was done in the past, for something which is being done contemporaneously, or for something which is contingent on winning the next election. An open-seat candidate may have also developed prior relationships with contributors due to holding another elected office, but it remains that such a candidate can only return benefits associated with being in Congress by winning the election.

The open-seats studied in this analysis constitute less than 10 percent of all House races which occurred during the period which I study, and thus it is important to temper the overall normative implications for money in elections. However, since most members of the House are first elected through an open seat, it is a good place to start.
1.6 Overview

My dissertation proceeds as follows. In Chapter 2, I derive the equilibria of a game theoretic model of campaign contributions. In this game, two candidates may raise money from investors and partisans, and the total amount of money raised by each candidate affects the election outcome. In the equilibrium where none of the players have any incentive to alter their amount given (contributors) or promises of service (candidates) and each candidate raises money from both types of contributors, there is a sharp distinction between how each type allocates money and the expected election outcomes. In particular, partisans concentrate the most money near close races while investors give the most money to lopsided winners. This chapter answers the basic question of how special interest groups would spend their money given different goals.

In chapter 3, I draw upon the theoretical results of the previous chapter and test both the qualitative and quantitative features of the equilibrium. I begin by analyzing the allocations of party, corporate and labor political action committees (PACs). I show that corporate and labor PACs primarily allocate their money much like the Republican party and Democratic party, respectively. Both groups concentrate their greatest resources in close elections, which is consistent with partisan behavior but not investor behavior. I re-analyze and extend a study by Snyder (1990) in light of my unified equilibrium, and both explain his original findings as well as provide a reinterpretation which leads to the different conclusion that corporate and labor PACs do not act uniformly as investors. I provide a framework for classifying the contributions of PACs to each party as either investor or partisan, which enables me to estimate the structural parameters of the game theoretic equilibrium. This chapter uses the observed spending behavior of special interest groups to infer their goals.

In chapter 4 I investigate the timing of contributions and examine how contributors,
such as parties and special interest groups, learn during an election campaign where to best spend their money. I show how partisans lead investors in acting earlier during the election campaign. I also show how contributions from different groups reveal a general building of consensus about each district’s expected electoral outcome during a general election period.

I conclude in chapter 5 by reflecting on the implications of this research both for democratic representation and the future study of campaign contributions. I discuss the limitations of this current study as well as future extensions. I argue for the further integration of campaign finance theory and empirics into the realm of political behavior.
CHAPTER 2

A GAME OF PARTISANS AND INVESTORS FUNDING CANDIDATES

In the first section, I formally describe the strategy sets and payoffs of the players in the game and the production function which relates money the election outcome. The components of the game draw upon two separate extant models of contributor behavior. In the second section, I describe and derive the joint Nash equilibrium of contributor and candidate behavior. In the final section, I illustrate different features of the equilibrium through graphical representations of comparative statics.

2.1 The campaign contributions game

I begin by specifying the assumptions of the game. In each electoral district there are two candidates, identified by their party labels, Democrat \((d)\) and Republican \((r)\), who seek the utility of winning office. The source of the utility may be a function of such things as the desire to shape legislation, the opportunity cost of running for and holding office, or the long-term income streams from future lobbying after holding office. This utility is fixed prior to the election campaign for each candidate and is the same for all candidates in the same party, but it may vary between parties.\(^1\) A candidate can acquire financial resources either from partisans or investors but to get money from investors, candidates must sell promises of costly services. In contrast to games where candidates compete over policy locations, the structure and assumptions of this game focus the attention on the competitiveness of candidates and their ability to raise resources for electoral competition through the sale of private goods to investors and the raising of partisan money.

Investors want to obtain the greatest amount of services possible in return for the

\(^1\)For example, candidates from each party may have different opportunity costs, such as salaries or wages foregone, to run and hold office.
money they give to each candidate. The problem is to determine the size of a contribution to the candidate in exchange for a level of service to the investor.\footnote{All service offers are assumed to be either sufficiently small or difficult to detect that they have no impact on the outcome of the race, except through the marginal provision of financial resources to the candidates who use them to increase their electoral chances. Other models have examined the relationship between service and outcomes, where the type and level of service to investors does have a potential effect on the electoral outcome. See in particular Mebane (1999) and Baron (1994).} I draw upon the model of Baron (1989a) wherein investor-contributors have different intensities of desire for the services offered by the candidate. The problem for a partisan contributor is to maximize the expected number of seats won by candidates of their preferred party, given the costs of funding these individual candidates (Snyder, 1989).

The game is set up as follows with players making their moves simultaneously. A candidate, $i \in \{d, r\}$, makes an offer to a set of investors, promising an amount of services ($s_i$) if elected ($I_i = 1$) in exchange for a particular contribution amount ($c_i$). Each investor in the set of potential investors chooses how much to contribute ($x_{ik}$), as does each of the partisan contributors ($Y_i$). All players take into account that both investor and partisan money potentially fund individual candidates, and all money raised by the candidates affects the probability of each candidate winning. In equilibrium, the probability of each candidate winning ($p_i$) which is a function of the contributions from all players are consistent with their expectations. The symbols and definitions used in the game are summarized in Table 2.1.

### 2.1.1 Strategy sets and payoff functions of players

Table 2.2 summarizes the strategy sets and payoffs of each type of player in a district. The functional form of the candidate and investor portion of the model I employ is drawn from Baron (1989a). A candidate chooses a service-contribution amount pair ($s_i, c_i$) for
Table 2.1: Notation for game

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$i$</td>
<td>index</td>
<td>Party, Democrat or Republican</td>
</tr>
<tr>
<td>$j$</td>
<td>index</td>
<td>District</td>
</tr>
<tr>
<td>$k$</td>
<td>index</td>
<td>Investor group</td>
</tr>
<tr>
<td>$I_i$</td>
<td>index</td>
<td>Indicator function, candidate $i$ wins</td>
</tr>
<tr>
<td>$a$</td>
<td>parameter</td>
<td>efficacy of providing service</td>
</tr>
<tr>
<td>$b_i$</td>
<td>parameter</td>
<td>Marginal cost of providing service</td>
</tr>
<tr>
<td>$k_i$</td>
<td>parameter</td>
<td>Marginal cost of raising money</td>
</tr>
<tr>
<td>$W_i$</td>
<td>parameter</td>
<td>Partisan utility of winning seat</td>
</tr>
<tr>
<td>$V_i$</td>
<td>parameter</td>
<td>Candidate utility of winning seat</td>
</tr>
<tr>
<td>$\beta_i$</td>
<td>parameter</td>
<td>Candidate competitiveness or quality</td>
</tr>
<tr>
<td>$c_i$</td>
<td>strategy</td>
<td>Contribution amount requested by candidate</td>
</tr>
<tr>
<td>$s_i$</td>
<td>strategy</td>
<td>Service amount promised by candidate</td>
</tr>
<tr>
<td>$x_{ik}$</td>
<td>strategy</td>
<td>Contribution amount given by investor $k$</td>
</tr>
<tr>
<td>$Y_i$</td>
<td>strategy</td>
<td>Total contribution amount from partisan</td>
</tr>
<tr>
<td>$\hat{\theta}$</td>
<td>summary</td>
<td>Cut-point</td>
</tr>
<tr>
<td>$p_i$</td>
<td>summary</td>
<td>probability of candidate winning</td>
</tr>
<tr>
<td>$U^C_i$</td>
<td>summary</td>
<td>Utility of candidate</td>
</tr>
<tr>
<td>$U^I_i$</td>
<td>summary</td>
<td>Utility of investor</td>
</tr>
<tr>
<td>$U^P_i$</td>
<td>summary</td>
<td>Utility of partisan</td>
</tr>
<tr>
<td>$EU^m_i$</td>
<td>summary</td>
<td>Expected utility</td>
</tr>
<tr>
<td>$X_i$</td>
<td>summary</td>
<td>Total of all investor contributions</td>
</tr>
</tbody>
</table>

contributors, where $s_i$ is the total value of services promised and $c_i$ is the total value of the contribution amount that is set by the candidate. If no services are offered ($s_i = 0$), then no investor money will be raised. In each case, each investor group which pays the necessary contribution amount will receive its share of the promised services if the supported candidate is elected.

If an investor gives at least the required contribution amount specified by the candidate and the candidate wins the election, then the investor will receive the services promised by the candidate.\(^3\) Since the intensity of desire or usefulness of these services

\(^3\)It is possible to relax this assumption, and have the provision of the promise only be fulfilled with a fixed probability. Probabilistic payoffs rescale the utility of the services
Table 2.2: Strategy set and payoffs

<table>
<thead>
<tr>
<th>Player</th>
<th>Strategy Set</th>
<th>Payoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic candidate</td>
<td>( c_d \geq 0 &amp; s_d \geq 0 )</td>
<td>( U^C_d = I_d(V_d - b_d s_d [1 - \hat{\theta}_d]) )</td>
</tr>
<tr>
<td>Republican candidate</td>
<td>( c_r \geq 0 &amp; s_r \geq 0 )</td>
<td>( U^C_r = I_r(V_r - b_r s_r [1 - \hat{\theta}_r]) )</td>
</tr>
<tr>
<td>Democratic investor</td>
<td>( x_{dk} \geq 0 )</td>
<td>( U^I_{dk} = \begin{cases} -x_{dk} &amp; 0 \leq x_{dk} \leq c_d \ -x_{dk} + I_d s_d^a \theta_{dk} &amp; x_{dk} \geq c_d \end{cases} )</td>
</tr>
<tr>
<td>Republican investor</td>
<td>( x_{rk} \geq 0 )</td>
<td>( U^I_{rk} = \begin{cases} -x_{rk} &amp; 0 \leq x_{rk} \leq c_r \ -x_{rk} + I_r s_r^a \theta_{rk} &amp; x_{rk} \geq c_r \end{cases} )</td>
</tr>
<tr>
<td>Democratic partisan</td>
<td>( Y_d \geq 0 )</td>
<td>( U^P_d = W_d I_d - k_d Y_d )</td>
</tr>
<tr>
<td>Republican partisan</td>
<td>( Y_r \geq 0 )</td>
<td>( U^P_r = W_r I_r - k_r Y_r )</td>
</tr>
</tbody>
</table>

are not equal across investors, neither will be their utility. In the payoff function, the amount of services are therefore multiplied by the intensity of desire \( \theta_{ik} \). The translation of services into utility may also not be perfect, and parameter \( a \) takes into account the efficacy of the translation process, where \( a \) approaching 1 is perfect efficiency and \( a \) approaching 0 is total failure to translate services into useful benefits. The expected utility of each investor is

\[
EU^I_{ik} = p_i s_i^a \theta_{ik} - x_{ik} \tag{2.1}
\]

by a constant between zero and one, and do not affect the results which follow. See Baron (1989b) for a model where the post-election level of effort of the elected candidate to fulfill promises is formally studied as endogenous to the game.
The candidate is interested in the proportion of investors who will accept her service-contribution offer and this depends on the distribution of investor types \( \theta \). To provide a closed form solution, I follow Baron and specify the distribution of the continuum of potential investors to be uniform, \( F_{ij}(\theta_{ij}) = \theta_{ij} \) and \( \theta_{ij} \in (0, 1) \), with a density function \( f_{ij}(\theta_{ij}) = 1 \). For any given contribution pair \((s_i, c_i)\) there exists a pivotal threshold of \( \hat{\theta}_i \) such that all investors \( \theta_{ik} > \hat{\theta}_i \) will contribute to the candidate. Thus, although \( \theta \) is a continuous variable, there will be only two types of behavior observed (contribute or not).

The candidate derives utility from winning office \((V_i)\) less the cost of providing the total amount of services promised \((b_i s_i (1 - \hat{\theta}))\). If the candidate does not win, she neither receives the benefits of office nor has to provide any costly services which were promised. The expected utility of a candidate is,

\[
EU^C_i = p_i (V_i - b_i s_i [1 - \hat{\theta}_i])
\]

(2.2)

The parameter \( b_i \) determines the marginal cost of the providing services. Since the parameterization of the model uses of the fraction of contributors \((1 - \hat{\theta})\) rather than the number of contributors, it is illuminating to see how the parameters of the model and \( s \) are related in the case where the candidate sells the maximum amount service \((\hat{s})\) such that she is indifferent between winning and losing the election:

\[
0 = V - b \hat{s}(1 - \hat{\theta})
\]

\[
\hat{s} = \frac{V}{b} \frac{1}{1 - \hat{\theta}}
\]

which is the greatest amount of services that will ever be promised by the candidate.

The functional form of the partisan portion of the model I employ is drawn from Snyder (1989), who in turn drew upon the tournament model of Rosen (1986).\(^4\) I assume

\(^4\)In addition to solving the expected seat maximization game, Snyder (1989) also
that his function $h$ is linear, such that $h(x) = x$. The utility for partisan contributors is derived from a fixed value of winning an additional seat ($W_i$) less the cost of contributing money ($k_iY_i$). The total cost of funding the candidate is not borne by the partisan group, but rather only the cost of raising the money; the marginal cost $k_i$ reflects fundraising effort and costs of raising each additional dollar from their constituent members. This marginal cost parameter can reflect, for example, the cost of direct mail solicitations to individuals or the opportunity cost of allocating money from union dues to a political action committee budget. The expected utility of the partisan group $i$ is

$$EU^P_i = W_ip_i - k_iY_i$$  \hspace{0.5cm} (2.3)

### 2.1.2 Total contributions and the probability of a candidate winning

A standard functional form relates money to the election day outcome. The function allows money from both investor and partisan sources to affect the electoral outcome and has three desirable properties. First, equivalent financial support for each candidate may not lead to a race where each candidate has an equal chance of winning (Sabato, 1984, 93–95) This unequal advantage may be a result of many features of the race including the relative quality of the candidates and the distribution of party preferences among voters within the district. Second, if the candidates are equally competitive in a district, the probability will be equal to the proportion of resources raised by each candidate. Thus if two candidates are otherwise identical but one gets twice as much money, the better funded candidate will be twice as likely to win the election. Finally, the marginal impact of an additional dollar of investor money on the probability of the solves the game where the partisans seek to maximize the probability of winning a majority of the seats in the House. This alternative objective and the possibility that each of the parties may have a different goal than the other is not considered in this dissertation.
Democrat winning need not equal the marginal impact of an additional dollar of partisan money. Each dollar from a partisan may be accompanied by additional resources, and thus overall the observed dollar is associated with a greater change in the probability of the candidate winning. For example, a party and partisan activists may provide a candidate with strategic polling in districts at a subsidized price, access to professional campaign handlers and consultants, and help with voter mobilization.

The probability of the Democratic candidate winning in a district is parameterized as,

\[ P(Z_{dj}, Z_{rj}; \beta_j) = \frac{\beta_j Z_{dj}}{\beta_j Z_{dj} + (1 - \beta_j) Z_{rj}} \quad \beta_j \in (0, 1) \]  

(2.4)

where \( Z_{ij} \) is a weighted sum of the money raised from different sources by candidate \( i \) in district \( j \). The competitiveness of a race is represented by the parameter \( \beta_j \) which ranges from 0 to 1. The Democratic candidate tends toward being a sure winner as \( \beta_j \) approaches 1, while conversely the Republican candidate is increasingly advantaged as \( \beta_j \) approaches 0. A neutral race exists when \( \beta_j = \frac{1}{2} \). Since the parameter summarizes the relative advantage of a candidate in a particular race, I refer to \( \beta_j \) generically as competitiveness.

The total money raised by each candidate is decomposed into two additive terms,

\[ Z_{ij} = X_{ij} + \lambda Y_{ij} \quad \lambda > 0, \quad i \in \{d, r\} \]  

(2.5)

where

\[ X_i = c_i \int_{\hat{\theta}_i}^{1} f(\theta_i) d\theta_i = c_i [1 - F(\hat{\theta}(s_i, c_i; p_i))] = c_i (1 - \hat{\theta}_i) \]  

(2.6)

is the total investor money and \( Y_i \) is the total Partisan money in the district. The \( \hat{\theta} \) is the threshold above which all investors with greater intensity for desiring services contribute to the candidate. The \( \lambda \) parameter allows for the possibility that partisan contributors
may provide both money and other unobserved electoral resources. If $\lambda = 1$ there are no additional resources provided by the partisans and if $\lambda > 1$ then a partisan dollar has a greater marginal impact on the probability of winning than an investor dollar because they are accompanied by endorsements, campaign assistance (subsidized polling, professional help, and general manpower) or voter mobilization.\(^5\)

### 2.2 The joint equilibrium of contributions and outcome

In the joint equilibrium of the game, I find that investor money increases with the probability that a candidate will win, while partisan money concentrates in close races. Thus, the fundamental insights of the separate models of Baron (1989a) and Snyder (1989) remain intact when the models are joined and both types of contributors give money. Nonetheless, changes in the allocation decisions of partisans do arise in the joint equilibrium because partisan contributors treat the money that is raised by a candidate from investors as a partial substitute for their money. Partisan contributors put less of their resources in races where their candidates have a substantial amount of investor money and instead allocate more money toward competitive races where their candidates have probabilities of winning below 50 percent.

Figure 2.1 presents the relationship between a candidate’s probability of winning and the support from investors and partisans for the symmetric case, defined as $V_d/b_d = V_r/b_r$ and $W_d/k_d = W_r/k_r$. Note that in this chapter and in Chapter 5, I use the following general conventions. Contributions to Democratic candidates are solid lines, while

\(^5\) Note that groups which have tax-exempt IRS-501(c)(3) status are only permitted to undertake non-partisan registration and mobilization efforts. “Unions and corporations, prohibited by federal law from making direct contributions to campaigns, are free, however, to pay for nonpartisan electoral activities out of their treasuries (Schlozman and Tierney, 1986, 206–20)
Figure 2.1: The relationship between a candidate’s probability of winning and the support from investors and partisans for the symmetric case.

The greatest amount of investor money is given to the most likely winners of each party, and the amount an investor is willing to pay for services increases linearly in the probability that the candidate will win. An investor is willing to pay an increasing amount for a lottery ticket as the chance of the ticket winning increases. This is in keeping with a common intuition, “organizations seeking to influence the behavior of
elected officials avoid sure losers... however since the goal is to ensure that office-holders feel compelled to be responsive, organizations in electoral politics frequently aid certain winners, even candidates running without opposition.” (Schlozman and Tierney, 1986, 207) Partisan resources are concentrated near the closest races forming a single-peaked curve. The intuition behind this strategy is that money has the greatest marginal impact in changing the probability of the electoral outcome of close races. Reversing the expected outcome of a race in which one candidate is far ahead of the opponent would be costly and hence, money which might be spent in these uncompetitive races is better spent in another district with a closer race, or not raised at all.\(^6\) The total combined amount of money given to a candidate from investors and partisans is also single-peaked, although more is given in favor of winning candidates. The contributions to the Republican is the mirror image of the contributions to the Democrat since as the probability of the Democratic candidate goes to zero, the probability of the Republican winning goes to one.

### 2.2.1 Equilibrium

I summarize the above results in the following proposition.

**Proposition 2.2.1.** For the game defined by equations (2.1)–(2.6), there exists an interior Nash equilibrium set for each district \(j\),

\[
\left(\bar{s}\_d\_j, \bar{s}\_r\_j, \bar{c}\_d\_j, \bar{c}\_r\_j, \bar{Y}\_d\_j, \bar{Y}\_r\_j, \bar{P}_j\right),
\]

\(^6\)Again, (Schlozman and Tierney, 1986, 207) summarize the common intuition that “assistance is targeted to marginal races; not only are scares resources not to be squandered on certain losers, no matter how ideologically virtuous, but they are not to be dissipated on sure winners of similar purity.”
where the service amount $\bar{s}_i$ is a solution to 
\[
\bar{s}_{ij} = \frac{V_i}{b_i} \left( \frac{W_i \lambda (2-a)}{k_i d (1-a) \bar{s}_i^a} + \frac{1-a}{2-a} \right)^{-1}
\]
the contribution amount is,
\[
\bar{c}_{ij} = \bar{P}_j \frac{s_i^a}{2-a}
\]
and therefore aggregate contributions from investors are,

to Democrat $\bar{X}_{dj} = \bar{P}_j \frac{s_d^a}{2-a}$
to Republican $\bar{X}_{rj} = (1-\bar{P}_j) \frac{s_r^a}{2-a}$
and aggregate contributions from Partisans are

to Democrat $\bar{Y}_{dj} = \bar{P}_j (1-\bar{P}_j) \frac{W_d}{k_d} - \bar{X}_{dj}/\lambda$
to Republican $\bar{Y}_{rj} = \bar{P}_j (1-\bar{P}_j) \frac{W_r}{k_r} - \bar{X}_{rj}/\lambda$
and the probability of Democrat winning is,
\[
\bar{P}_j = \frac{\beta_j (\bar{X}_{dj} + \lambda \bar{Y}_{dj})}{\beta_j (\bar{X}_{dj} + \lambda \bar{Y}_{dj}) + (1-\beta_j) (\bar{X}_{rj} + \lambda \bar{Y}_{rj})} = \frac{\beta_j k_r W_d}{\beta_j k_r W_d + (1-\beta_j) k_d W_r}
\]

The linearly increasing impact of the probability of the candidate winning can be seen in the Democratic equation, $\bar{P}_j$, and the Republican equation, $1-\bar{P}_j$. The same quadratic function in probability, $\bar{P}_j (1-\bar{P}_j)$, exists in both the Democratic and Republican partisan contribution equations.

2.2.2 Proof

The values $(\bar{s}_{dij}, \bar{s}_{rij}, \bar{c}_{dij}, \bar{c}_{rij}, \bar{Y}_{dij}, \bar{Y}_{rj}, \bar{P}_j)$ at which the players jointly maximize their utility, subject to the constraints that $Y_{ij} \geq 0$, $s_{ij} \geq 0$, and $c_{ij} \geq 0$ for all $i$ and $j$, are solutions
to the following system of first order conditions,

\[ Y_{dj} \frac{\partial EU_{dij}}{\partial Y_{dij}} = 0 \quad (2.7) \]
\[ Y_{rj} \frac{\partial EU_{rj}}{\partial Y_{rj}} = 0 \quad (2.8) \]
\[ s_{dj} \frac{\partial EU_{C_dj}}{\partial s_{dj}} = 0 \quad (2.9) \]
\[ s_{rj} \frac{\partial EU_{C_rj}}{\partial s_{rj}} = 0 \quad (2.10) \]
\[ c_{dj} \frac{\partial EU_{C_dj}}{\partial c_{dj}} = 0 \quad (2.11) \]
\[ c_{rj} \frac{\partial EU_{C_rj}}{\partial c_{rj}} = 0 \quad (2.12) \]

There are a number of solutions to this system of equations. I will derive the interior solution, where both candidates receive money from types of contributors. But I will first describe some useful results which will facilitate the subsequent presentation.

**Useful results regarding players**

**Lemma 2.2.2.** For a given offer \((c_i, s_i)\), there exists a type of contributor,

\[ \hat{\theta}_{ij} = c_i s_i^{-a} / p_i \]

who is indifferent between \(x = 0\) and \(x = c_i\).

**Proof.** Equate the investor’s expected utility with contribution amount \(x_i = c_i\) and promises \(s_i > 0\) to the expected utility of zero with \(x_i = 0\) and \(s_i = 0\),

\[ p_i s_i^{a} \hat{\theta}_{ik} - c_i = 0 \]

then solve for \(\hat{\theta}_{i}\). \(\square\)

This type of contributor \(\hat{\theta}_i\) is indifferent between \(x = 0\) and \(x = c_i\), and all investors with even greater intensity of desire for the service \((\theta_{ik} > \hat{\theta}_i)\) will contribute \(c_i\) to candidate \(i\). Investors of type \(\theta_{ik} < \hat{\theta}_i\) will contribute nothing.
Corollary 2.2.3. The total amount of investor money raised by candidate $i$ is

$$X_i = c_i (1 - \hat{\theta}_i)$$

Which simply states that the total investor contributions $X_i$ to candidate $i$ is the contribution amount $c_i$ times the proportion of investors who give money.

Here are some useful results which will be used subsequently,

$$\frac{\partial \hat{\theta}}{\partial s} = \frac{-as^{-a}c}{sp} = -a\hat{\theta}/s$$
$$\frac{\partial \hat{\theta}}{\partial c} = s^{-a}/p = \hat{\theta}/c$$
$$\frac{\partial X}{\partial s} = -c\hat{\theta}/\partial s = \hat{\theta}ca/s$$
$$\frac{\partial X}{\partial c} = [1 - \hat{\theta}] - c\hat{\theta}/\partial c = 1 - 2\hat{\theta}$$

Lemma 2.2.4. The equilibrium the value of $\hat{\theta}$ is only a function of the efficiency variable $a$,

$$\hat{\theta} = \begin{cases} 1 & \text{no contributions} \\ \frac{1}{2-a} & \text{positive contributions} \end{cases}$$

(2.13)

Proof. Using the FOC of the expected utilities, defined in equations (2.9) through (2.12), for a candidate from one party,

$$\frac{\partial EU_i^C}{\partial s_i} = \frac{\partial p_i}{\partial X_i} (V_i - b_i s_i [1 - \hat{\theta}_i]) - p_i b_i ((1 - \hat{\theta}) - s_i \frac{\partial \hat{\theta}}{\partial s_i}) = 0$$

(2.14)

$$\frac{\partial EU_i^C}{\partial c_i} = \frac{\partial p_i}{\partial X_i} (V_i - b_i s_i [1 - \hat{\theta}_i]) + p_i b_i (s_i \frac{\partial \hat{\theta}}{\partial c_i}) = 0$$

(2.15)

and solving each equation for

$$\frac{\partial p_i}{\partial X_i} (V_i - b_i s_i [1 - \hat{\theta}_i]) / p_i b_i$$

(2.16)

and equating yields equation (7) in Baron,

$$\left[ (1 - \hat{\theta}) - s_i \frac{\partial \hat{\theta}}{\partial s_i} \right] \left( \frac{\partial X_i}{\partial s_i} \right)^{-1} = -s_i \frac{\partial \hat{\theta}}{\partial c_i} \left( \frac{\partial X_i}{\partial c_i} \right)^{-1}$$

(2.17)

Solving for $\hat{\theta}$ yields two solutions. \QED
This result is the same as in Baron (1989a), but it is important to note that this relationship function holds irrespective of whether there are (potential) partisan contributors present. Although the “no contributions” solution is only of limited interest in the context of Baron’s investor-only analysis, it needs to be considered seriously in the context of a model where candidates have a partisan from which to raise money—with no promises of costly services required. A feature of the Baron framework, which the unified model shares, is that the candidate will choose \((s,c)\) such that at most half of the investors will give money, and this only occurs when the candidate is highly ineffective in providing useful services \((a \text{ approaches } 0)\).

Lemma 2.2.5. A candidate will promise services in an amount not exceeding,

\[
\bar{s} = \frac{V}{b} (1 - \hat{\theta})^{-1}
\]

Proof. Given \(V, b\) and \(\hat{\theta}\), set the candidate’s expected utility equal in equation (2.2) to zero

\[
EU^C_i = p_i (V_i - b_i \bar{s}_i [1 - \hat{\theta}_i]) = 0
\]

and solve for \(\bar{s}_i\).

This lemma states that there is an upper bound on the amount of service that candidates are willing to sell. Once a candidate sells all available services up to the point of being indifferent between running for office or not, they will not offer any more services. For a given equilibrium value of \(\bar{s}\), it is necessary to test whether it is a feasible solution such that \(\bar{s} \leq \bar{s}\).

Definition 2.2.6. The probability of the Democratic candidate winning in a district is,

\[
P_j = \frac{\beta_j (X_{dj} + \lambda Y_{dj})}{\beta_j (X_{dj} + \lambda Y_{dj}) + (1 - \beta_j) (X_{rj} + \lambda Y_{rj})}
\]

\footnote{For example, although there are thousands of corporate PACs, there are many more corporations which choose not to participate in politics in this manner or at all.}
which is simply a restatement of equation (2.4). Some additional useful results are,

\[
\frac{\partial P}{\partial X} = P(1 - P)(\lambda Y_{ij} + X_{ij})^{-1}
\]

(2.18)

\[
\frac{\partial P}{\partial Y} = P(1 - P)(\lambda Y_{ij} + X_{ij})^{-1} \lambda
\]

(2.19)

\[
\frac{\partial P}{\partial s} = \frac{\partial P}{\partial X} \frac{\partial X}{\partial s} = P(1 - P)(\lambda Y_{ij} + X_{ij})^{-1} \left( \hat{\theta} \frac{ca}{s} \right)
\]

(2.20)

**Interior solution equilibrium**

There is an interior equilibrium where both investors and partisans from both parties participate in funding the candidates. I begin with the partisan equilibrium conditions.

**Lemma 2.2.7.** The amount of contributions from partisan group \(i\) is,

\[
\bar{Y}_{ij} = W_i \frac{p_j(1 - p_j)}{k_i} - \frac{X_{ij}}{\lambda}.
\]

Proof. Using the FOC of the partisan expected utilities,

\[
\frac{\partial \text{EU}_j^P}{\partial Y_{ij}} = W_i \frac{\partial p_j}{\partial Y_{ij}} - k_i = 0.
\]

(2.21)

Therefore, \(\partial p_j/\partial Y_{ij} = k_i/W_i\). Substituting equation (2.19) into this FOC condition and solving for \(\bar{Y}_{ij}\) proves the Lemma.

Thus we find that partisans treat investor money as a partial substitute for their own. Moreover, this partisan contribution result holds regardless of the amount of investor money, with the important caveat that partisan money cannot be negative. For the symmetric parameter case and \(X_{ij} = 0\), the unified proposition has as a special case Snyder’s (1989, 644) Proposition 3.2,

\[
\bar{Y}_{ij} = \frac{W_i}{k_i} p_j (1 - p_j)
\]

(2.22)

**Lemma 2.2.8.** The equilibrium probability of winning is

\[
\bar{P}_j = \frac{\beta_j k_r W_d}{\beta_j k_r W_d + (1 - \beta_j) k_d W_r}
\]

(2.23)
Proof. Substitute the value of partisan money from corollary 2.2.7 into the vote production function, equation 2.4.

Thus differences in election probabilities across districts is a function only of $\beta_j$.

The “bias” of translating the competitiveness into outcomes is determined by the values of $k$ and $W$. In the symmetric case, where $W_d/k_d = W_r/k_r$ then $\bar{P}_j = \beta_j$.

Lemma 2.2.9. The equilibrium amount of service is a solution to the equation,

$$\bar{s}_i = \frac{V_i}{b_i} \left( \frac{W_i \lambda (2-a)}{k_i a s_i^a} + \frac{1-a}{2-a} \right)^{-1}$$

Proof. Again taking the FOC of a candidate’s expected utility function,

$$EU_{ij}^C = p_{ij}(V_i - b_i s_i [1 - \hat{\theta}_i])$$

with respect to $s_i$ and solving for $s_i$,

$$\frac{\partial EU_{ij}^C}{\partial s_i} = \frac{\partial p_{ij}}{\partial X_{ij}} \frac{\partial X_{ij}}{\partial s_i} (V_i - b_i s_i [1 - \hat{\theta}_i]) - p_{ij} b_i ((1 - \hat{\theta}) - s_i \frac{\partial \hat{\theta}}{\partial s_i}) = 0$$

$$0 = \left[ p_{ij} (1 - p_{ij}) (\lambda Y_{ij} + X_{ij})^{-1} \right] [\hat{\theta} c a / s_i] (V_i - b_i s_i [1 - \hat{\theta}_i])$$

$$- p_{ij} b_i ((1 - \hat{\theta}) - s_i [-a \hat{\theta} / s_i])$$

$$= \left[ k \right] (V_i [\hat{\theta} c a / s_i] - [\hat{\theta} c a] b_i [1 - \hat{\theta}_i]) - p_{ij} b_i [(1 - \hat{\theta}) + a \hat{\theta}]$$

$$s_i = \frac{V_i}{b_i} \left( \frac{W_i \lambda p_{ij}}{k_i a c_i} + \frac{1-a}{2-a} \right)^{-1}$$

Substituting in the relationship from Lemmas 2.2.2 and 2.2.4 proves the lemma.

In general, finding a solution to $\bar{s}$ is not straightforward because of the fractional power $a$ in the function, however, numerical solutions are easy to find for particular values of the exogenous parameters. It is also possible to solve for particular cases, such as $a = 1/2$. There are two non-negative roots,

$$\bar{s} = \begin{cases} \left( \frac{1}{2b_d k_d} \right)^2 \left( -9b_d W_d \lambda + (81b_d^2 W_d^2 \lambda^2 + 12b_d k_d^2 V_d) \right)^{1/2} \\ \left( \frac{1}{2b_d k_d} \right)^2 \left( -9b_d W_d \lambda - (81b_d^2 W_d^2 \lambda^2 + 12b_d k_d^2 V_d) \right)^{1/2} \end{cases}$$

(2.25)
but only the first is valid. The second root is invalid because it exceeds the maximum amount of service a candidate would sell ($\bar{s} > \bar{s}$) and would result in negative utility for the candidate. This can be proved by noting again that the candidate is bound by the following inequality from her utility function,

$$\frac{V_d}{b_d(1 - \theta)} \geq s_d,$$

expanding the second root and substituting in this equality we have

$$3 \frac{V_d}{b_d} \geq \left( \frac{W_d \lambda}{k_d} \right)^2 + \frac{9}{2b_d k_d^2} \left( 81 b_d^2 W_d^2 \lambda^2 + 12 b_d k_d^2 V_d \right)^{1/2} W_d \lambda + 3 \frac{V_d}{b_d} \tag{2.27}$$

$$0 \geq \left( \frac{W_d \lambda}{k_d} \right)^2 + \frac{9}{2b_d k_d^2} \left( 81 b_d^2 W_d^2 \lambda^2 + 12 b_d k_d^2 V_d \right)^{1/2} W_d \lambda \tag{2.28}$$

which can never be true. Similarly, one finds that for all valid parameter values the first root holds,

$$0 \geq \left( \frac{W_d \lambda}{k_d} \right)^2 - \frac{9}{2b_d k_d^2} \left( 81 b_d^2 W_d^2 \lambda^2 + 12 b_d k_d^2 V_d \right)^{1/2} W_d \lambda \tag{2.29}$$

$$\left( \frac{W_d \lambda}{k_d} \right)^2 \leq \frac{9}{2b_d k_d^2} \left( 81 b_d^2 W_d^2 \lambda^2 + 12 b_d k_d^2 V_d \right)^{1/2} W_d \lambda \tag{2.30}$$

Although we focused on a solution with respect to $s$ and used the relationship to find the value of $c$, we could do the same thing by solving the FOC with respect to $c$ and then find the value of $s$.

**Corollary 2.2.10.** The equilibrium contribution amount to candidate $i$ is,

$$\bar{c}_i = \tilde{P}_{ij} \bar{s}^i \hat{\theta}$$

**Lemma 2.2.11.** The equilibrium total amount of investor contributions,

$$\bar{X}_{ij} = \tilde{P}_{ij} \bar{s}^i \frac{1 - a}{2 - a}$$

**Proof.** Using Lemma 2.2.10 and the $\hat{\theta} = 1/(2 - a)$ solution in Lemma 2.2.4, substitute both into the definition of investor money in Corollary 2.2.3.
Proof of Proposition 2.2.1. Together the Lemmas and Corollaries 2.2.2 through 2.2.11 solve the FOC of equations (2.7) through (2.12) and prove Proposition 2.2.1.

These results provide the interior solution since all other solutions are corner solutions where one or more of the player contribute no money. It is a unique solution if there is only one valid solution for $\bar{s}_{ij}$ for all $i$ and $j$.

2.3 Comparative statics

With the solution $\hat{\theta} = 1/(2 - a)$, it can be shown that contributions are maximized as $a$ approaches 1 although the proportion of contributors is decreasing in $a$. Figure 2.2 illustrates the relationship between $a$, $s$, $c$, and $X$ for an evenly contested race. For clarity of presentation, the candidate is assumed to sell the maximum amount of services possible, thus demonstrating the maximum amount of investor money that the candidate could raise for this race with the particular parameters ($V = 2.5e7$ and $b = .0001$). Note $\hat{\theta} = 1/(2 - a)$ increases with $a$ and $1 - \theta = (1 - a)/(2 - a)$ decreases with $a$ (panel (a)). Because the candidate sells all services by assumption for this example, we have $V - bs(1 - \hat{\theta}) = 0$, and solving for $s = V/b(2 - a)/(1 - a)$ we can see clearly that the amount of service actually dispersed, $s(1 - \theta) = V/b$, is constant for all $a$. While $c$ and $s$ increase exponentially with respect to $a$, in panel (b) we see that the value of $s$ increases at a rate slower than the increase of $c = s^a p\theta$ shown in panel (c). As shown in panel (d) the total amount of investor money $X = c(1 - \theta)$ is an increasing function of $a$.

Figure 2.3 illustrates how deviations from symmetric utilities\textsuperscript{8} affect the equilibrium contributions and outcomes. In the first column (panels a1 and a2), the abil-

\textsuperscript{8}Recall, these are defined as defined as $V_d/b_d = V_r/b_r$ and $W_d/k_d = W_r/k_r$. In words, this means that ratio of utilities to marginal costs are equal for both parties for each of the sources of contributions.
Figure 2.2: Relationship between candidate efficiency \((a)\), and the pair of service \((s)\) and contributions \((c)\), (with \(V = 2.5e7, b = .0001, P = 1/2\))
ity/willingness of Republican candidates to sell investor services is increased by increasing the Republican candidate’s utility to marginal cost of service ratio ($V_d/b_d < V_r/b_r$). The consequence of this is to shift up the slope of the investor money line to Republicans and pull down the partisan money curve. Moreover, as becomes more evident in (a2), the range of the probability of winning ($\bar{P}$) over which the interior solution holds is contracted—Republican partisans cease to give at closer and closer races as investor money increasingly dominates the funding of the Republican candidates. Variations in $V_r/b_r$ for fixed values of $V_d/b_d$ do not affect the contribution behavior of Democratic contributors.

In contrast, the second column illustrates the effect of increasing the ability/willingness of Democratic partisans to raise and spend money. When the Democratic partisan contributor’s ratio of utility of victory to marginal cost of fundraising increases ($W_d/k_d > W_r/k_r$), the Democratic partisan curve shifts upwards without affecting the Republican investor or partisan money. However, as the ability to raise money from partisans increases, the Democratic candidate reduces the amount of money raised from investors.

Figure 2.4 uses the same parameter values and equilibrium results which generated Figure 2.3, but instead of relating money to the probability of winning ($P$), this figures relates money to the exogenous competitiveness of the district ($\beta$). The key feature to note is that disadvantaged candidates of a party increasingly receive partisan money as the relative strength of their partisan contributors increases. Weaker partisans must thus concentrate greater amounts of resources among more competitive/stronger candidates. This is illustrated by the tilt in the money curves in panels (b1) and (b2).

Figure 2.5 illustrates the bias in outcomes for different ratios of $W_d/k_d$. For a given value of $\beta$, as $W_d/k_d$ increases relative to $W_r/k_r$ the Democrat has a higher $P$, thus the plotted curve is pulled toward the upper left corner of the figure.
Figure 2.3: Relationship between the probability of Democratic candidate winning \( \bar{P} \), and the total money raised from different sources by each candidate. Source: equilibria of unified model for each type of contributor.
Figure 2.4: Relationship between the competitiveness of Democratic candidate winning ($\beta$), and the total money raised from different sources by each candidate. Source: equilibria of unified model for each type of contributor.
Figure 2.5: Relationship between probability of Democrat winning (P) and competitiveness of race (β) for different values of \( \frac{W_d}{k_d} \frac{k_r}{W_r} \).

(a) \( \frac{W_d}{k_d} \frac{k_r}{W_r} = 1 \), (b) \( \frac{W_d}{k_d} \frac{k_r}{W_r} = 2 \), (c) \( \frac{W_d}{k_d} \frac{k_r}{W_r} = 10 \)
2.4 Summary

Although the core results and intuitions of the equilibrium are displayed in Figure 2.1 and analytically stated in Proposition 2.2.1, I summarize the main observable qualitative implications of the model which are of central importance in the following empirical analysis. Given a measure of the relative competitiveness of the candidates in a district, it is possible to translate the amount of money each candidate (potentially) raises into an expected election outcome. The amount of money which each type of contributor is willing to give to a candidate is a function of this endogenous expected election outcome. In equilibrium, where no one player has an incentive to unilaterally alter its behavior, investors and partisans give money in distinctly different ways. Partisans concentrate their money in races where it has the greatest marginal impact, which is usually in close races. In contrast, investors give money as an increasing function of the probability of a candidate winning, and give the most money to lopsided winners.

In this formal analysis, the identity of investors and partisans are treated as known and fixed. In the next chapter, I will explore the dominant behavior of different special interest group PACs (corporations and labor unions) for their similarity to the formal ideal types. I will also use these shapes to validate my classification of individual PACs as either predominantly investor or partisan.

In addition to not knowing a priori the predominant type of contribution strategy of each PAC, a PAC may pursue a different strategy when giving to candidates from each party. A PAC may support one party as a partisan, but still need to buy private benefits from the other party’s candidates. The relative amounts of money a PAC spends on investing in one party and partisan support for another may also be contingent on which party is in the majority. When one’s less preferred party is in the majority, there may be greater rewards to investing in that party.
Chapter 3

The Party is in the PACs: How Special Interest Groups Fund Partisan Electoral Competition

In this chapter, I provide a new approach to the study of the familiar puzzle of why special interest groups give money to a candidate. Analyzing open-seat House race elections from 1984 through 2000, I show that U.S. House candidates in competitive races are funded primarily by partisan money and not investor money. This partisan money comes primarily from special interest groups rather than parties. In particular, I show that that labor unions give to these Democratic candidates in a manner which mimics the Democratic party, while corporations give to Republicans in a manner which mimics the Republican party. I also show that being a candidate from the party holding the majority in the House affects the number of special interest groups pursuing each type of contribution strategy. There has been an overall reduction in the relative amount of investor behavior and increased partisan polarization after the Republicans won the House majority in 1994.

I draw upon the qualitative and quantitative features of the Nash equilibrium derived in the previous chapter, and empirically undertake a joint analysis of investor and partisan behavior. Most studies either focus just on one type of behavior in isolation, or lump money from all sources into an undifferentiated mass. With my unified analysis, I can address questions missed by a separate study of investor or partisan behavior.

The first question is what type of money is dominant in competitive elections, investor or partisan? The answer to this question has important implications for what type of policies politicians are likely to pursue. If investor money is dominant then candidates have incentives to pursue particularistic policies which reward contributors but are unrelated to issues in the election campaign. If partisan money is dominant then there is
the incentive for candidates to pursue broad programmatic policies through which their party can distinguish itself from the other. However, even if one type of contributor behavior is dominant it can still be that one party might sell more goods to investors, or that investors may like the services offered by one party more than the other. So a second question arises as to whether one party is more the party of investors? Finally, there is a third question which also cannot be answered without a joint analysis of investors and partisans. Studies have shown that incumbent Republicans could raise more money after they took the majority (Cox and Magar, 1999a,b; Rudolph, 1999), but this leaves unanswered why this extra money was being given. Does the amount of fundraising change because Republican partisans were mobilized after seeing that they could finally take control of the House, or is the change in money due to investors switching to support the new winning team. A unified analysis provides answers to these three important questions.

The chapter proceeds as follows. I first explore the empirical validity of the qualitative features of the game. This analysis leads to a reconsideration of Snyder’s (1990) seminal finding that corporate, labor, trade and cooperative PACs act uniformly as investors. I then replicate Snyder’s results which rely on data from the 1980s and extend the analysis through 2000, showing that although his results hold for the period of his initial analysis, his key method of analysis provides an incorrect conclusion for subsequent years with the rise of partisan contribution behavior. I then reconsider the issue of classifying PACs as either predominantly investor or partisan.\(^1\) Finally, I estimate statistical models that have the same structure as the Nash equilibria of the contributions from both investors and partisans. This provides estimates of key parameters in the model, in particular the ratio of marginal costs and benefits of money given to candidates by dif-

\(^1\)Again, PACs in practice act with a mixture of motives, but I dichotomize in order to make this analysis possible at this time.
different types of contributors. These ratios affect the relative importance of money from each type of contributor and the relative ease with which money is raised from these different sources. Comparing my results pre- and post-1994, I am able to infer the value of being a candidate from the majority party and the impact of changing the majority party on the distribution of contributor types.

3.1 Empirical tests of qualitative features of the game

This section uses the qualitative features of the unified model to distinguish the predominant motivations of contributor groups in open House races from 1984 through 2000.\textsuperscript{2} The model’s Nash equilibrium, illustrated in Figures 2.1 and 2.3, provides the stark distinction between linear and quadratic patterns of investor and partisan contribution behavior.

To measure the impact of changing the majority party in the House I perform the analysis of contributor behavior separately for pre- and post-1994 periods, spanning the elections of 1984 to 1992 and 1996 to 2000 respectively. After 1994, the small amount of investor behavior among corporate PACs to Democratic candidates and labor PACs to Republican candidates diminished in the former case and increased in the latter. Using differences between pre- and post-1994 behavior of individual PACs, I show that corporations who invested in Democrats while the party was in the majority abandoned this strategy after 1994. The small subset of labor unions who gave to Republican candidates invested more after 1994 and a small number supplemented their ranks.

I then use the theoretical relationship between proportions of money raised by a Democratic candidate and the candidate’s probability of winning to reanalyze the aggregation of PACs proposed by Snyder (1990). The unified model, which encompasses

\textsuperscript{2} For a detailed definition of the seats included in this analysis, see the Appendix A.
Snyder’s model, provides an explicit alternative hypothesis against which to test the “Investor Only” null hypothesis. I use a statistical approach which can distinguish between the competing theories. In contrast to Snyder’s finding that corporate and labor PACs act uniformly as investors when giving to any candidate, I show that pooling corporate and labor contributions produces patterns which are consistent with my analysis of the dollar amounts of contributions from these groups: these contributions reflect a mixture of partisan and investor interests which are conditional on the party of the recipient candidate.

Finally, I aggregate groups based on an alternative criterion which is premised primarily on how much PACs gave to each party during periods of Democratic and Republican majorities.

### 3.1.1 Dominant partisan versus minor investor strategies of corporate and labor PACs

I begin by considering contributions from parties, corporations, and labor unions for this analysis. Parties are generally believed to be partisans, and therefore the model predicts that they will concentrate their resources in the closest races. With respect to corporations and unions, Snyder has argued with the support of empirical tests that these groups are uniformly investors. Therefore these special interest PACs should concentrate their resources in candidates who are clear winners. My analysis has a number of desirable features which provide greater flexibility than in earlier studies (1) I allow for the possibility that some of these contributors might be partisans; (2) I allow that the behavior of these groups may be contingent on the party of the candidate they fund.

Drawing on the key qualitative features of the equilibrium from the game, I distinguish between investor patterns of contributions which monotonically increase as a
function of the probability of a candidate winning versus partisan contributions which are peaked and concentrated in the close races contributions. When moving from theory to data, with the associated limitations of the available data and measurement issues, it is reasonable to use the weaker concepts of monotonicity and peakedness instead of the strict linear and quadratic forms which appear in the formal proposition.³

In this section, I use a candidate’s election day vote share as a proxy for the expectation that the candidate will win. The vote share has an uneven relationship to the probability of victory. For example, a change in a candidate’s vote share from 50 to 55 percent does not have the same impact on the probability of winning as a change from 70 to 75 percent, and neither of these changes in vote shares likely reflects a 5 percent change in the probability of winning. Even if the mapping between the probability of a candidate winning in the unified model and the empirical vote share is not an affine transformation, however, the main qualitative features of the unified model of contribution behavior are preserved. In order to have monotonicity as an empirical consequence of investor behavior it is necessary only that in expectation a candidate with greater vote share receives at least as much investor money as an otherwise similar candidate with a smaller vote share. By weakening the linearity assumption and requiring only monotonicity, the estimated relationship between vote share and investor money may exhibit curvature and yet still be consistent with the unified model; the formal requirement is that a maximum is not achieved over the range of the data. For partisan money, the testable implication that holds from the formal model is that the level of contributions is greatest for close elections and that this relationship between money and vote shares has a single peak.

³In other words, instead of restricting the investor and partisan money to be a function of $P$ and $P(1 - P)$ respectively, I allow for the money to be a non-decreasing function of $P$ (investor) or an increasing then decreasing function of $P$ (partisan).
In order to clearly illustrate the dominant pattern of contributions for each case, I smooth the district-level total contributions received by each general election candidate using over-dispersed Poisson regressions with means which are functions of Hermite polynomials. The order of the polynomial is chosen using the Bayesian Information Criterion (BIC). The polynomials provide a general method for flexibly estimating the shape of the relationship between money and vote share. Although the order and parameters of the polynomials are the same for each plot, I allow the mean level of contributions from each year to vary.

Before considering the main contrast between labor and corporations, I first consider whether party money, which is almost unambiguously partisan, is distributed in a manner consistent with the equilibria of Proposition 2.2.1. The unified model predicts that parties provide more money ($Y_{ij}$ in the proposition) to candidates in close races in order to maximize the number of seats they will control in the House after the election. This prediction also fits with popular understanding of the strategies of parties, for example from the 2002 election, “because only a handful of the House’s 435 races are competitive, the parties can target their money narrowly” (Washington Post, September 22, 2002).

As a caveat to the general application of this theory of partisan contribution behavior, Jacobson (1986) noted the conflict of interest faced by incumbents who control the allocation of party money and are most interested in their own electoral protection. This conflict may lead incumbents to spend disproportionately to defend their own seats instead of spending in open-seat races where they are more likely to have a significant impact on the outcome. In this way, incumbent controlled resources may be distributed across races in a manner which is not consistent with maximizing the number of victories. However, given that I condition on the money contributed in open-seats, I expect
the money that is spent to be allocated in a partisan manner.\footnote{There is a similar concern for money from special interest groups that the balance between different contribution strategies are affected by other, non-local considerations such as the expectations of a party’s national support in an election. For example, the strategic calculation of shifting money between protecting incumbents and speculating on new candidates (Jacobson and Kernell, 1983; Eismeier and Pollock, 1986). Conditional on the money that is spent in open-seat races, however, the strategies of investors and partisans for spending this money should not be affected except through the probabilities of individual candidates winning and the and the utility associated with a particular type of candidate.}

Figure 3.1 shows the level of contributions by the Democratic and Republican parties as a function of the proportion of the Democratic vote share in a district on election day. Consistent with the unified theory’s prediction of partisan contribution allocation strategies, parties concentrate the greatest resources in the closest races both pre- and post-1994; parties act as seat maximizing partisans.\footnote{Although this graphical presentation of the contribution behavior of groups is primarily illustrative, Appendix B also discusses how to test the monotonicity and peakedness of contribution data.} However, there are significant differences between the two parties as well as change between the two periods. A Republican candidate in an open-seat can uniformly expect greater financial support from her party, since the Republican party contributes 70–125 percent more money than their Democratic counterparts. Although the partisan quadratic form of party money is better represented after 1994, both parties are now concentrating fewer contributions in the closest races both in absolute levels and as a proportion of the money spent in open-seats.

Turning to special interest groups, I consider how labor and corporate PACs support candidates from each party. The following analysis is essentially a $2 \times 2 \times 2$ tabular analysis, with type of special interest group contributor (labor, corporate) \times party of candidates (Democrat, Republican) \times party holding the majority in the House (Democrat pre-1994, Republican post-1994). Instead of a single summary statistic in each cell of
Figure 3.1: Parties in general election: average contributions amounts to candidates in U.S. open-seat House races
a table, I characterize the functional relationship across districts between the vote share of each candidate and the total contributions received by a candidate from each source. The logic of the analysis is the same as in a table, and the main question is whether and how contributor behavior differs between each figure.

Labor PACs behave like the Democratic party when giving to Democrats, and corporate PACS behave like the Republican party when giving to Republicans, as shown in the top and bottom rows of Figure 3.2. The key difference between these PACs and the parties is that the special interest groups give 5 to 10 times more money to candidates. These labor and corporate contributions are the largest organized sources of money for candidates, and they are partisan in nature. No other organized source of contributions is of comparable magnitude, and the only other source overall which is as significant is individual contributions. My finding that these special interest groups spend money in a predominantly partisan manner is in contrast to the uniform treatment of corporate and labor PACs as investors in previous statistical analysis (Snyder, 1990). The traditional literature’s analysis of corporate and labor PACs highlights the dominant support of each set of special interest groups for each of the major parties, but the asymmetric support of these groups for each party could equally have been in the form of investor money instead of partisan money as I have shown. The alternative to my findings would be that corporations buy private goods from Republicans while labor purchases private goods from Democrats. The unified formal model provides analytical tools with which to discern how to relate observed money back to the strategies being pursued by the contributors.

Labor PACs concentrate their resources in the closest races more than corporate PACs. Corporate contributions peak around races where Republicans win by 10 percent. This may be caused by a subset of corporate PACs who pursue investor relation-
Figure 3.2: Labor and corporate PACs in general election I: average contributions amounts to candidates in U.S. open-seat House races
ships with Republican candidates. Although the peak of the labor PAC contributions is centered around the closest races, they too reward some clear winners among the Democratic candidates. Labor PACs also give more financial resources in open-seats on average than corporate PACs, which more than offsets the lower contribution levels of the Democratic party to their candidates compared to the Republican party. Post-1994, both parties increased their contributions by 10 percent in real terms and increased their concentration of money in close races.

Corporate and labor PACs pursue distinctly different strategies when giving to candidates in the opposing parties, and the behavior is conditional on which party holds the majority in the House. As shown in the first row of Figure 3.3, in contrast to their partisan pattern of contribution to Republicans, corporations predominantly invested in Democrats while they held the majority. As in the formal proposition, the investor money \((X_{ij})\) monotonically increases in the probability that the Democrat will win. Although corporations preferred to have Republicans win, there were goods which could only be promised by candidates from the majority party. In contrast, the dominant contribution behavior of corporate PACs who were still giving to Democrats post-1994 was partisan, and indeed the money given to these candidates increased in real terms after the Republicans won the majority in the House.

The second row of Figure 3.3 shows the pattern of contributions from labor PACs given to Republicans. There is investor behavior among labor PACs giving to Republicans even before they took over the majority in the House. Once the Republicans gained the majority the Labor unions doubled the size of their investments. However, these contributions are a small fraction of the total contributions from labor PACs and they come from a small subset of labor PACs.
Democratic Majority

Pre-1994

Republican Majority

Post-1994

Figure 3.3: Labor and corporate PACs in general election II: average contributions amounts to candidates in U.S. open-seat House races.
3.1.2 Aggregating contributions from different types of contributors

When analyzing money from multiple PACs, there exists the potential for aggregating over different contributor types and thus mixing together investor money and partisan money. The unified model provides a useful distinction between money which is purely from partisans versus a mixture of types based on the proportion of money received by each candidate in a district. I use this distinction to reconsider the findings of Snyder (1990) which are based on pooling of multiple types of PACs, including labor and corporate PACs. In contrast to his finding that these pooled contributions can be treated as the result of pure investor behavior, I show that the total money from corporate and labor PACs are more appropriately considered as the result of a mixture of partisan and investor behavior.

The proportion of money raised by each candidate within a district has an important advantage over the dollar amounts used in the previous section. Using proportions controls for the heterogeneity across districts in the cost of running a campaign that is present in an analysis based on the level of contributions since the analysis normalizes contributions by the total amount of money raised within a district. Proportions also highlight differences between situations where contributors lump all their money on one side of the race even if it is only a small amount versus contributions which are more evenly distributed between candidates from both parties. The analysis of proportions provides both additional qualitative features to validate the earlier analysis based on dollar amounts, and a sharp quantitative hypothesis about the shape of the relationship between proportions and probabilities.

In order to develop my argument about mixtures of contribution types, I first revisit the equilibrium relationship between a candidate’s probability of winning and
the support from investors and partisans first illustrated in Figure 2.1. Panels (a) and (b) of Figure 3.4 illustrate for the symmetric-utility case, where $V_d/b_d = V_r/b_r$ and $W_d/k_d = W_r/k_r$, the relationship between money and the probability of a candidate winning, and add a “Total” contributions curve for each candidate, which sums both investor and partisan contributions together. Recall that as the probability of the Democratic candidate winning goes to zero, the probability of the Republican winning goes to one, thus panel (b) for the Republican contributions is the mirror image of the Democratic contributions in panel (a). Note that the total combined amount of money given to a candidate from investors and partisans is also a quadratic function, although with a tilt in favor of winning candidates.

Panel (c) shows the relationship between the proportion of money to the Democratic candidate given in a district and the probability of winning. The figure presents three different combinations of funds raised by the Republican and Democratic candidates. First, the “Total Money” curve shows the Democratic proportion of total money from combined partisan and investor sources as show in panels (a) and (b). The proportion of money is a nonlinear, monotonically increasing function of the probability that the Democratic candidate will win. Second, the Democratic proportion of money raised by both candidates from “Investors Only” in a district is the straight line which is equal to the probability of the candidate winning. Finally, if one were to consider a group of contributors who gave to Republican candidates in a partisan manner, but the Democratic candidates as an investor, then the resulting proportion of their money that they gave to Democrats at different probabilities of winning would appear as the bowed “Asymmetric” contributor behavior curve.

We will focus in the following analysis on the relationship illustrated in panel (d). Panel (d) flips panel (c) such that the y-axis is now the probability of winning and the
Figure 3.4: Relationship between the probability of Democratic candidate winning, the total money raised from different sources by each candidate, and the proportion of money raised by Democrat in a district from different sources.

Source: Equilibria of unified model with $V_d/b_d = V_r/b_r$ and $W_d/k_d = W_r/k_r$. 
x-axis the proportion of money received by the Democrat. This formulation will be advantageous when I subsequently regress the win or lose outcome of a race (y) on money proportions (x). The solid S-curve line (Total money) shows the probability of the democrat winning as a function of the proportion of total money to Democrats from both partisan and investor sources. So if one were to analyze a combination of both investor and partisan money, the unified model shows that the relationship between probability and proportions resembles a S-curve which can be approximated by a cumulative probability function, such as from a logit model. The line for the proportion of investor money remains unchanged as a straight-line at the 45 degree angle. The “Asymmetric” contributor behavior example shows that the money is concentrated among the preferred Republican candidates even while the probability of the Democrat winning increases steeply.

In addition to highlighting the differences in the curves between investor-only and joint investor-partisan proportions, I also note that asymmetric utility parameter values produces a shift in the mixed behavior proportion-probability curve (solid black line) and a new curvature in the investor-only line (dashed black line). Figure 3.5 illustrates how the investor-only line changes as symmetry of utilities is increasingly lost. For example, (a1) illustrates a relative increase in the ability of Republican candidates to procure investor money, and (a2) illustrates an even greater increase, which bows out the investor proportions (dashed lines) and shifts left the total money curve (solid line). In the same way, (b1) and (b2) illustrate the effect of increasing the relative ability of Democratic partisans to fund candidates, which also bows the investor curve but shifts the total money curve to the right. Although the amount of money raised by each candidate is a linear function in probability, the linearity of proportions is only a special
Figure 3.5: Equilibrium relationship between the proportion of money and probability of winning for a Democratic candidate.

Source: equilibria of unified model for each type of contributor.
case. This can be seen simply from,

\[
\frac{X_d}{X_d + X_r} = \frac{p_d \gamma_d}{p_d \gamma_d + (1 - p_d) \gamma_r} = \begin{cases} 
    p_d & \text{if } \gamma_d = \gamma_r \\
    p_d \left( p_d + (1 - p_d) \frac{\gamma_r}{\gamma_d} \right)^{-1} & \text{if } \gamma_d \neq \gamma_r 
\end{cases}
\]

As an empirical test of the hypothesized equality between probability and proportions for investors only, Snyder proposes a weighted least squares (WLS) estimator. The probability of winning can be estimated by regressing the outcome of the election in a district on the proportion of money raised by the Democratic candidate in a district, where the dependent variable is a dichotomous variable that is one if the Democratic candidate wins the election in a district and zero otherwise. The fitted value of the model is thus an estimate of the probability that the Democrat would win. Let \( w_{d_j} \) be a dichotomous outcome variable which is equal to one if the Democrat in district \( j \) wins and \( x_{d_j} \) be the proportion of money raised by the Democrat in district \( j \), such that

\[
w_{d_j} = \alpha_0 + \alpha_1 x_{d_j} + \epsilon_j
\]  

(3.1)

If the simplest hypothesis is correct, then \( E[w_{d_j}] = p_{d_j} = x_{d_j} \), and therefore,

\[
\alpha_0 = 0 \quad \text{and} \quad \alpha_1 = 1
\]  

(3.2)

Under the maintained hypothesis, Snyder uses the following re-scaling to correct for heteroscedasticity induced by the dichotomous dependent variable,

\[
w_{j}/\hat{\sigma}_j = \alpha_0/\hat{\sigma}_j + \alpha_1 x_{j}/\hat{\sigma}_j
\]

where \( \hat{\sigma}_j = \sqrt{x_j(1-x_j)} \). See Maddala (1983) and citations therein for a discussion of the general correction to the linear probability model.

Using WLS and his grouping of corporate PACs, labor PACs, trade/health/membership PACs, and cooperatives PACs, Snyder cannot reject the hypothesis that the expected
Table 3.1: F-test of investor hypothesis using WLS and Logit

<table>
<thead>
<tr>
<th>Period</th>
<th>WLS</th>
<th>N WLS</th>
<th>Logit</th>
<th>N Logit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1984-1992</td>
<td>0.815</td>
<td>117</td>
<td>0.558</td>
<td>123</td>
</tr>
<tr>
<td>1996-2000</td>
<td>0.145</td>
<td>101</td>
<td>0.001</td>
<td>105</td>
</tr>
</tbody>
</table>

WLS: F-test probability $\alpha_0 = 0$ and $\alpha_1 = 1$
Logit: F-test probability $\beta_0 = -2.45$ and $\beta_1 = 4.90$

Note: WLS must drop cases where Democratic proportion is 0 or 1 ($x \in (0, 1)$), hence a smaller sample.

probability from the regression is equal to the proportion of money raised in three of the four election cycles he studies from 1980 to 1986. He argues “despite the starkness of the model, the results of these tests are highly supportive.” His failure to reject the investor model may, however, be a function of the aggregation across groups with different behavior.

I augment Snyder’s framework by providing an alternative mixture hypothesis to the pure investor null hypothesis, both of which which were illustrated in Figures 3.4 and 3.5. Instead of WLS, a logit model provides the flexibility to fit both the linear “investor only” relationship and the nonlinear “mixture” relationship between the probability of winning and the proportion of money a Democratic receives. The logit model also has better power than WLS to discriminate between whether or not a set of contributors is pursuing a pure investor strategy. In the context of the symmetric case, the null hypothesis that the logit regression of proportions on outcome is consistent with the investor hypothesis is $\beta_0 = -2.45$ and $\beta_1 = 4.90$ in,

$$w_{dj} = \frac{1}{1 + \exp\{- (\beta_0 + \beta_1 x_{dj})\}}$$

$^6$These are the root values which make a logit a straight line at a forty-five degree angle over the range of $x \in (0, 1)$, equivalent to $\alpha_0 = 0$ and $\alpha_1 = 1$. 
Figure 3.6: Proportion of PACs contributions given to Democrat and probability of Democrat winning: combining corporate, labor, trade, and cooperative contributions
Figure 3.6 shows the Democratic proportions of the grouped contributions data in each district and the fitted probabilities pre- and post-1994. The dots at the top and bottom of the graphs represent individual districts and act as histograms at different values of the contribution proportions. Dots on the bottom axis are districts where Republicans won, and those on top are districts where Democrats won. The dashed line is the fitted probabilities from the WLS regression and the solid line is from the logit. In the pre-1994 period, the WLS fits the theoretical “investor-only” relationship almost perfectly, lying at a 45 degree angle, and the fitted logit is also indistinguishable from the linear hypothesis. Table 3.1 contains the formal F-tests of investor behavior. Thus, before the Republican’s win the majority in pp1994, Snyder’s analysis, which includes many careful robustness checks, holds. However, after the Republican’s win the majority in 1994, although Snyder’s key method of analysis still fails to reject the investor hypothesis, the logit analysis reveals a significant deviation from the linearity hypothesis. Moreover, the rejection is not for a bowed, lopsided investor-only curve, but rather a curve which is consistent with increased partisan behavior. If a researcher were to simply apply Snyder’s key method of WLS, however, this change would be missed.

To emphasize the differences between the PACs and how different types of contribution patterns are being pooled in the Snyder analysis, Figure 3.7 shows the proportions separately for corporate, labor and trade PACs before and after 1994. We saw considerable differences in the behavior of corporations contrasting their support of Democrats and Republicans. Unlike the WLS fitted line, the logit estimated probabilities reveal a pattern of contributions which in many cases starkly deviate from linearity. They do not resemble the mixture of partisan-investor ogive curve. Nor do they particularly resemble the simple bowed curves of the asymmetric investor-only curves, which are required to have their endpoints beginning and ending on the 45 degree line. Rather they resemble
Figure 3.7: Proportion of PAC contributions given in district and estimated probability of winning for Democratic candidates
more closely the asymmetric-behavior curve of one candidate receiving money based on investor motives and the other candidate receiving partisan money shown in panel (d) of Figure 3.5. These asymmetric-behavior curves are also bowed, but are not constrained to begin and end on the 45 degree angle. More importantly, these asymmetric-behavior curves often have cases where the money is given exclusively to one party for a given probability of the candidate winning. The corporate curves in particular suggest that corporation gave to Democrat candidates as investors, while acting as partisans in their support of Republicans.

3.1.3 Changes in the House majority and the distribution of contributor types

The change in the control of the House provides a means by which to gain further insight into the motives of individual PACs, and enables a more precise accounting of why special interest groups give money. The basic intuition is that it is possible to distinguish partisans and investors within the set of all corporate PACs by looking at how each PAC changed their allocation of contributions between the parties as a result of the change in the majority party. This allocation provides a distinction between investor and partisan behavior which does not rely on the relationship between the competitiveness of the particular candidate who is supported.

McCarty and Rothenberg (1996b) used changes in the 1995–96 election behavior of PACs to test the theory of a long-term investment contract. Their results, which show that past contributor behavior during the Democratic majority period did not con-

---

7 In the same manner of analysis in the rest of this paper, I condition on each PACs decision to contribute in an open-seat. The decision whether or not to give is outside the scope of this analysis, and instead I focus on variations in the contributions I do observe in open-seat races.
strain the contribution behavior of many PACs after the Republicans won control of the House. The rejection of the “long-term investment” hypothesis supports my use of switching behavior to identify investors, since if investors made long-term commitments to candidates then the change in majority would be less informative.

My goal is to use the following simple classification rules to distinguish between investors and partisans.

1. If a PAC gave the majority of money in open-seats to the same party pre and post-1994, then the PAC is a partisan when giving to that party, and an investor when giving to the other party. \((d=P \text{ and } r=I) \text{ or } (d=I \text{ and } r=P)\)

2. If a PAC gave a majority of money in open-seats to a different party pre and post-1994, then the PAC is an investor when giving to either party. \((d=I \text{ and } r=I)\)

3. For PACs who do not give in both periods: If a PAC gave the majority of money in open-seats to Republicans pre-1994 then they are a Republican partisan; if a PAC gave the majority of money in open seats to Democrats post-1994 then they are a Democratic partisan. \((d=P \text{ and } r=I) \text{ or } (d=I \text{ and } r=P)\)

4. The remaining cases treat a PAC as an investor when giving to either party. \((d=I \text{ and } r=I)\)

Table 3.2 summarizes these rules and itemizes them for each each pre-post combination of majority allocations the classification of contributions to each party. In this table, ’a/b’ represents that the PACs behave as type ’a’ when giving to Democrats, and like type ’b’ when giving to Republicans. ’New PACs’ either contributed for the first time in open-seats after 1994 or were newly constituted after this time. ’Inactive PACs’ either did not make any contributions in open-seats post-1994 or were dissolved.
Table 3.2: Types of contributor behavior classified according to the party receiving the majority of money, before and after 1994

<table>
<thead>
<tr>
<th></th>
<th>Democrat</th>
<th>Republican</th>
<th>Inactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-1994</td>
<td>P/I</td>
<td>I/I</td>
<td>I/I</td>
</tr>
<tr>
<td>Post-1994</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.3 summarizes the proportion of PACs changing which party they supported in open-seats before and after 1994, conditional on which party they primarily pre-1994. Each row can be interpreted as the transition probabilities from one state to the other. A few features of this table are worth commenting on. Contributors to open-seats are not a regular act for any individual PAC, and almost half the PACs who gave before 1994 did not give to any open-seat after 1994. The PACs which showed up for the first time in giving to open-seats after 1994 and gave most of their money to Republicans outnumbered Democratic supporters by more than 2 to 1. And those which gave both periods were three times more likely to switch to supporting Republicans from supporting Democrats, than vice versa. Finally, a larger number of PACs give a majority of their money to Republicans both before 1994 (N=1924) and after (N=1530). This table, however, obscures large amounts of heterogeneity across different groups of PACs.

Table 3.4 shows the frequency of corporate PACs which changed the main party they supported from pre to post-1994. Once the Democrats lost the majority the number of
Table 3.3: All PACs: proportion changing primary party they supported post-1994, conditional on which party they primarily pre-1994

<table>
<thead>
<tr>
<th></th>
<th>Democrat</th>
<th>Republican</th>
<th>Inactive</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-1994</td>
<td>0.31</td>
<td>0.22</td>
<td>0.48</td>
<td>1184</td>
</tr>
<tr>
<td>Democrat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Republican</td>
<td>0.07</td>
<td>0.46</td>
<td>0.47</td>
<td>1924</td>
</tr>
<tr>
<td>New</td>
<td>0.29</td>
<td>0.71</td>
<td>—</td>
<td>556</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

corporate contributors who gave money to Democrats fell. Of the corporate PACs who supported Democratic candidates while they belonged to the majority party, most either supported Republican candidates after 1994 or became inactive in open-seat races. The 16 percent who remained as supporters of Democratic candidates should be considered Democrat partisans.

Table 3.5 shows that the percentage of labor PACs supporting primarily Republican candidates shrank after 1994. A combination of increased political polarization and the loss of the majority resulted in both increased support for Democrats from traditional labor PACs and a mobilization of new participants. Those labor PACs which supported Republican candidates after 1994 generally also increased their partisan contributions to Democrats. The main unions which are responsible for the increase in the funding of Republicans are generally drawn from a few sectors which are heavily regulated and subsidized by the federal government. These groups include maritime unions (marine engineers, seafarers, longshoreman, and masters, mates and pilots), postal unions (letter carriers and postal supervisors), and transportation unions (transport workers, locomotive engineers, and airline pilots).
Table 3.4: Corporate PACs: proportion changing primary party they supported post-1994, conditional on which party they primarily pre-1994

<table>
<thead>
<tr>
<th>Pre-1994</th>
<th>Post-1994</th>
<th>Democrat</th>
<th>Republican</th>
<th>Inactive</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democrat</td>
<td>0.16</td>
<td>0.33</td>
<td>0.51</td>
<td>426</td>
<td></td>
</tr>
<tr>
<td>Republican</td>
<td>0.07</td>
<td>0.47</td>
<td>0.47</td>
<td>1185</td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>0.20</td>
<td>0.80</td>
<td>—</td>
<td>316</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.5: Labor PACs: proportion changing primary party they supported post-1994, conditional on which party they primarily pre-1994

<table>
<thead>
<tr>
<th>Pre-1994</th>
<th>Post-1994</th>
<th>Democrat</th>
<th>Republican</th>
<th>Inactive</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democrat</td>
<td>0.56</td>
<td>0.02</td>
<td>0.41</td>
<td>213</td>
<td></td>
</tr>
<tr>
<td>Republican</td>
<td>0.20</td>
<td>0.30</td>
<td>0.50</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>0.90</td>
<td>0.10</td>
<td>—</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3.8: Partisans in general elections: Average contributions amounts to candidates in U.S. open-seat House races
Democratic Majority
Pre-1994

Republican Majority
Post-1994

Figure 3.9: Investors in general elections: Average contributions amounts to candidates in U.S. open-seat House races
I aggregate the money from all the special interest group and party organization contributions into either investor and partisan categories. Figures 3.8 and 3.9 plots the aggregate contributions to each of the party’s candidates from partisans and investors, respectively. The classification works generally quite well. For both parties the amount of partisan money increased post-1994. This mobilization of resources may reflect both the increased polarization of the parties which made the stakes of each election higher as well as the increased sense that either party had the potential to win the majority in each election. Investments in Republicans increased post-1994., while the investment in Democratic candidates was reduced. This aggregate data, which has money from all the interest groups and parties classified as either investor or partisan, will be used in the next section.\(^8\)

### 3.2 Estimating a statistical model of the Nash equilibria of the game

In this section, I estimate statistical models that have the same structure as the Nash equilibria of the game with contributions from both investors and partisans. These statistical models provide estimates of key parameters in the model, in particular the ratio of marginal costs and benefits of contributions from different types of contributors. The cost-benefit ratios determine the relative importance of money from each type of contributor and the relative ease with which money is raised from different sources. I estimate the models separately for the pre- and post-1994 periods, and the contrast between the utility and cost ratios in the two periods provides insight into how changes in the majority party affect the distribution of contributor motives in election campaigns.

The main quantities of interest are functions of the utilities and costs in the game

\(^8\)See Appendix B for a discussion of testing the monotonicity and peakedness of these aggregate partisan and investor groups.
since these functions influence how much money will be raised by candidates from
different sources. Since the utility and cost parameters in the investor equations of the
proposition are not separately identifiable, the function of parameters will be denoted
for each party $i$ as $\gamma = \bar{s}^a(1-a)/(2-a)$ which, for $a = 1/2$ and using (2.25), is,

$$\gamma = \left(\frac{1}{6b_d k_d}\right) \left(-9b_d W_d \lambda - (81b_d^2 W_d^2 \lambda^2 + 12b_d k_d^2 V_d) \right)^{1/2}$$

and estimated as a reduced form parameter. Similarly, the utility/cost ratios from the
partisan equations will be denoted as,

$$\phi_i = W_i/k_i \quad i \in \{d,r\}.$$  

The ratios, $\phi_d/\phi_r$ and $\gamma_d/\gamma_r$, summarize the relative ability of candidates from each party
to raise money from a particular type of contributor. If $\phi_d/\phi_r > 1$ then Democrats can
raise more money from partisans than Republicans. If $\phi_d/\phi_r < 1$ the reverse is true.
Similarly, Democrats have an advantage raising money from investors if $\gamma_d/\gamma_r > 1$.

### 3.2.1 Statistical model

If one knew the probability of a candidate winning in a district and which contributor
behavior was associated with each dollar contributed, then it would be possible to regress
these probabilities on the observed money from each type of contributor and estimate
$\phi_i$ and $\gamma_i$. From Proposition 2.2.1, there are four money equations, one for each type
of contributor giving to candidates from each party. For party $i \in \{d,r\}$ in district $j$,
let $x_{ij}$ be the actual amount of money raised by the candidate from investors and $y_{ij}$ be
the actual amount of partisan money. The mean of each series of money is specified as
follows,

$$\mu_{xdj} = \gamma_d \bar{P}_j$$  \hspace{1cm} (3.3)

$$\mu_{xrj} = \gamma_r (1 - \bar{P}_j)$$  \hspace{1cm} (3.4)

$$\mu_{ydj} = \phi_d \bar{P}_j (1 - \bar{P}_j) - \mu_{xdj}/\lambda$$  \hspace{1cm} (3.5)

$$\mu_{yrr} = \phi_r \bar{P}_j (1 - \bar{P}_j) - \mu_{xrj}/\lambda$$  \hspace{1cm} (3.6)

where \( \bar{P}_j \) is the expected probability of the Democratic candidate winning consistent with the equilibrium. There are four reduced form parameters to be estimated, \( \gamma_d, \gamma_r, \phi_d, \phi_r \), plus the partisan money multiplier \( \lambda \). I assume that the errors of the logged money values are independently normally distributed and estimate the parameters by jointly optimizing the following system of log-likelihood equations,

$$L_{xdj}^x = - \left( \log(x_{dj}) - \log(\mu_{xdj}) / \sigma_{xd} - \log(\sigma_{xd}) + c \right)$$

$$L_{xjr}^x = - \left( \log(x_{jr}) - \log(\mu_{xjr}) / \sigma_{xr} - \log(\sigma_{xr}) + c \right)$$

$$L_{ydj}^y = - \left( \log(y_{dj}) - \log(\mu_{ydj}) / \sigma_{yd} - \log(\sigma_{yd}) + c \right)$$

$$L_{yjr}^y = - \left( \log(y_{jr}) - \log(\mu_{yjr}) / \sigma_{yr} - \log(\sigma_{yr}) + c \right)$$

where the \( \sigma \) are unknown parameters which allow for the variance of each series of money to be different and these are also estimated. Specifically this estimation technique finds parameters which maximize this criterion

$$L^m = \sum_j (L_{xdj}^x + L_{xjr}^x + L_{ydj}^y + L_{yjr}^y)$$

In general the probability of the Democratic candidate winning, \( \bar{P}_j \), is not known and must be estimated. If the electoral outcome were a function of expected contributions and one knew the utility/cost parameters, then one could estimate a Bernoulli model.
of the dichotomous electoral outcome (win or lose) in each district. With asymmetric partisan utilities \( \frac{W_d}{k_d} \neq \frac{W_r}{k_r} \),

\[
\bar{p}_j = \frac{\beta_j \phi_d}{\beta_j \phi_d + (1 - \beta_j) \phi_r}
\]  

(3.7)

With a symmetry of partisan utilities \( \frac{W_d}{k_d} = \frac{W_r}{k_r} \), then \( P_j = \beta_j \). Candidate competitiveness \( \beta_j \) can be parameterized as a logistic function of observable candidate and district characteristics, \( C_j \), and a vector of unknown coefficients \( \alpha \), such that \( \beta_j = 1/(1 + \exp(-C_j^T \alpha)) \).

However, the actual outcome is not necessarily a function of simply the expectations but the actual money that is spent by each candidate. Contributors may make mistakes or decisions which are out of equilibrium, but once given this money will affect the electoral outcome. Therefore, in fitting the actual outcome in the Bernoulli process, I use observed money \( x_{ij} \) and \( y_{ij} \) to estimate \( P^*_j \),

\[
P^*_j = \frac{\beta_j (x_{dj} + \lambda y_{dj})}{\beta_j (x_{dj} + \lambda y_{dj}) + (1 - \beta_j) (x_{rj} + \lambda y_{rj})}
\]  

(3.8)

and the log-likelihood of the Bernoulli process is,

\[
L^p_j = w_{dj} \log(P^*_j) + (1 - w_{dj}) \log(1 - P^*_j)
\]  

(3.9)

which is then added to the system of money equations log-likelihood and jointly optimized. Recall from the definition of (3.1) that \( w_{dj} \) is the the dichotomous variable which is equal to one if the Democrat wins in district \( j \).

In what follows I thus use two definitions of \( P_j \) which share common \( \alpha \) and therefore \( \beta_j \) parameters. The first definition \( \bar{p}_j \) captures the expectations that affect the mean amount of money that is given by each source while \( P^*_j \) allows for the possibility that the actual money given is more informative about the actual outcome.

Using the aggregate contributions data which were used to create Figures 3.8 and 3.9, I jointly estimate the parameters in the five equations by maximum likelihood. The
explanatory variables used to estimate $\beta_j$ are as follows. I measure each district’s partisan history by including dummies for a past Democratic incumbent, dummies for repeat challengers, and dummies for candidate quality based on prior holding of elected office (Jacobson, 1990b). I include two dummy variables which measure when either the Democratic or the Republican is high quality, but not both. When both dummies are equal to zero then the candidates are of same quality (either both high or both low), and neither candidate should have on this basis a competitive advantage over the other. Finally, I include a measure of the candidate’s relative distribution of individual contributions ($Q_{ij}$):

$$\frac{Q_{dj}}{Q_{dj} + Q_{rj}} - \frac{1}{2}$$

which ranges between -1/2 and 1/2. When it is positive, the Democrat has a greater proportion of receipts than the Republican from individuals, and vice versa for a negative value. This takes into account the important role of individual contributions in attracting and coordinating PAC contributions.

### 3.2.2 The relative strength & importance of partisans and investors

The results presented in Table 3.6 shed light on the relative importance of investor and partisan money and the role of majority party status on changing the composition of types funding elections.

Candidates from each party raised more investor money while their party controlled the majority in the House, but there is a more striking trend in the declining investor money to Democrats, and increasing investor money to Republicans across the entire period. Partisan money, although it fluctuates considerably from year to year, did not systematically change between pre and post-1994.
Table 3.6: Money parameters from estimated reduced-form parameters for simultaneous equation model with the same structure as of Nash equilibrium of the game between investors and partisans.

<table>
<thead>
<tr>
<th></th>
<th>Democratic</th>
<th></th>
<th>Republican</th>
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<td>SE</td>
<td>Est.</td>
<td>SE</td>
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<tr>
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</tr>
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</tr>
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<td>0.40</td>
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</tr>
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<td>1998</td>
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<td>0.36</td>
<td>2.53</td>
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</tr>
<tr>
<td>2000</td>
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<td>0.66</td>
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<td>3.99</td>
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<tr>
<td>1992</td>
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<td>2.32</td>
<td>0.47</td>
<td>1.45</td>
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<tr>
<td>1996</td>
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<td>0.74</td>
<td>3.48</td>
<td>0.81</td>
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</tr>
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<td>1998</td>
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<td>1.14</td>
<td>4.86</td>
<td>1.22</td>
<td>1.15</td>
</tr>
<tr>
<td>2000</td>
<td>6.93</td>
<td>1.54</td>
<td>8.39</td>
<td>2.50</td>
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Pooled

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Note: Column “Ratio D / R” contains the ratio of the Democratic point estimate over the Republican point estimate, $\gamma_d / \gamma_r$ and $\phi_d / \phi_r$. 
Table 3.7: Competitiveness parameters from estimated reduced-form parameters for simultaneous equation model with the same structure as of Nash equilibrium of the game between investors and partisans.

<table>
<thead>
<tr>
<th></th>
<th>Joint with Table 3.6</th>
<th>Without prop. $Q_{ij}$</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Est.</td>
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<tr>
<td>Intercept</td>
<td>-0.05</td>
<td>0.37</td>
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<tr>
<td>Democratic incumbent</td>
<td>0.20</td>
<td>0.23</td>
</tr>
<tr>
<td>Republican ran before</td>
<td>0.28</td>
<td>0.31</td>
</tr>
<tr>
<td>Democrat ran before</td>
<td>-0.35</td>
<td>0.30</td>
</tr>
<tr>
<td>Only Republican is of high quality</td>
<td>0.10</td>
<td>0.36</td>
</tr>
<tr>
<td>Only Democrat is of high quality</td>
<td>1.08</td>
<td>0.35</td>
</tr>
<tr>
<td>Both candidate are of high quality</td>
<td>0.27</td>
<td>0.33</td>
</tr>
<tr>
<td>Proportional advantage $Q_{ij}$</td>
<td>7.22</td>
<td>0.47</td>
</tr>
</tbody>
</table>

**Pooled 1984–1992**

<table>
<thead>
<tr>
<th></th>
<th>Joint with Table 3.6</th>
<th>Without prop. $Q_{ij}$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Est.</td>
<td>SE</td>
</tr>
<tr>
<td>Intercept</td>
<td>-1.29</td>
<td>0.32</td>
</tr>
<tr>
<td>Democratic incumbent</td>
<td>0.89</td>
<td>0.26</td>
</tr>
<tr>
<td>Republican ran before</td>
<td>-0.06</td>
<td>0.28</td>
</tr>
<tr>
<td>Democrat ran before</td>
<td>-0.16</td>
<td>0.41</td>
</tr>
<tr>
<td>Only Republican is of high quality</td>
<td>0.21</td>
<td>0.31</td>
</tr>
<tr>
<td>Only Democrat is of high quality</td>
<td>0.74</td>
<td>0.32</td>
</tr>
<tr>
<td>Both candidate are of high quality</td>
<td>0.53</td>
<td>0.31</td>
</tr>
<tr>
<td>Proportional advantage $Q_{ij}$</td>
<td>8.95</td>
<td>0.51</td>
</tr>
</tbody>
</table>
Although business PACs were primarily partisans when giving to Republicans and labor PACs gave little money to these candidates, there were other PACs which did heavily invest in Republicans—primarily trade PACs. Comparing $\gamma_d/\gamma_r$ in 1984 and 2000 we have a complete reversal of fortunes, from ratios in the range of 2.2–3.5 during the eighties down to the range of .5–.8 during 1998–2000.

The factors affecting competitiveness are summarized in Table 3.7, although recall that they were jointly estimated with the money equations. During the period 1984–1992, I find little evidence of a partisan advantage in open-seat races which is not primarily accounted for by differences in the relative amounts of individual contributions raised by the candidates in a district. The exception is the quality of the Democratic candidate. When only the Democratic candidate had held prior elected office, this candidate received a significant increase in the probability of winning. A Republican candidate with a similar background received no such advantage.

After 1994, the competitive landscape changed significantly. Races with a departing Republican incumbent were significantly easier for Republican candidates to win, while a departing Democratic incumbent only provided a neutral playing field. The quality of the candidates again provided gains for the Democrats. Again, when only the Democratic candidate had held prior elected office, this candidate received a significant increase in the probability of winning. The impact of the relative advantage of individual money grew even larger during this period.

For a point of comparison, I include a second set of columns for parameter estimates from a model which is exactly the same as for the first, but omitting the measure of the proportional advantage in individual money. This second model, which fits significantly worse than the first, illustrates that one would attribute greater advantage to Republicans on average and greater importance to the quality of the Democratic candidates.
3.3 Conclusion

I synthesize the quantitative and traditional campaign finance literatures to explain why special interest groups are funding campaigns in competitive elections. Regardless of which party is in the majority, corporate and labor special interest groups give money to candidates in open seat House races primarily to maximize the expected number of seats won by each group’s preferred party. In particular, corporate PACs overwhelmingly allocate their contributions to candidates in the same manner as the Republican party, and labor PACs allocate their contributions like the Democratic party. Moreover, these groups spend money on a scale many times greater than the parties. The resources from these groups are being used to wage campaigns which affect the legislative balance between capital and labor interests in American politics. Some of these groups also fund candidates from their less preferred party and do so in a manner consistent with seeking private benefits.

The implications of these findings are that in the races most likely to change the composition of the House, the meaning and normative interpretations of the outcomes are financially driven by ideology and party platforms and not private quid pro quo relationships. What is the substantive content of this battle? The dominant capital-labor contributor cleavage can be mapped into the low-dimension political battles found in roll-call voting (Poole and Rosenthal, 1997). It also fits with the electoral battle over economic growth trade-offs (Alesina and Rosenthal, 1995; Alesina, Roubini, and Cohen, 1997). Mebane and Sekhon (Mebane, 2000; Mebane and Sekhon, 2002) argue that the basis of coordinated, moderating voting behavior is a function of more than just a single economic dimension, so the capital-labor cleavage could be only a subset of the bundle of issues around which the parties coordinate. Future research which links changes in the amounts of money, given from different sources and for different motives,
to legislative behavior and outcomes will help to resolve the policy implications of this cleavage in the partisan support of special interest groups.

I also show that holding the majority in the House affects how much special interest groups will invest in a party’s candidates, and that the effect is not symmetric across the parties. The average amount of money from investors to Democrats and Republicans has significantly changed over time, with the Republicans now holding the commanding lead once benefiting Democrats. The relative strength of partisans has not exhibited similarly larges changes pre- and post-1994.
CHAPTER 4
THE TIMING OF SPECIAL INTEREST CONTRIBUTIONS

How do parties and special interest groups learn during an election campaign where to best spend their money? The answer to this question is a prerequisite to answering the more general question of how we end up with the distribution of contributions and outcomes that we observe on election day. Unlike the abstract formal model investigated in Chapter 2, the election campaign of course extends over many months. Instead of simultaneous moves, candidates and contributors alike have the opportunity to adapt to changing circumstances. There are a multitude of information sources for shaping electoral expectations over the course of the campaign including, polls, endorsements, and the predictions of political analysts. Moreover, the value of a contribution is not equal at all times during the campaign. While money given early in the campaign can be used to increase a candidate’s odds of winning, a dollar given the day before the election is unlikely to affect the election outcome.

This chapter analyzes the timing of contributions and the allocation of contributions at different stages of the campaign. In order to address the question of how groups figure out how to best spend their money, this chapter investigate three empirical topics: (1) does the timing of investor and partisan contributions differ and is one group leading the other? (2) how does the pattern of contributions differ at different stages of the campaign, during the primaries, at the beginning of the general election period, and after the election? (3) when are contributions in agreement with election day expectations?

In this chapter I make three key empirical claims. First, the arrival of most partisan money precedes the arrival of investor money into the coffers of candidates. Second, the level of uncertainty about upcoming national electoral outcomes (e.g., party of the President, partisan composition in the House) affects the timing of contributions. As a
result, candidate raise money from all sources, but particularly partisan money, earlier in midterm election years than in presidential years. Third, the reporting requirement that all candidates submit their fundraising records to the Federal Election Commission for public release plays a pivotal role in learning by contributors. Rather than continuously updating beliefs during the campaign, the report at the beginning of October plays a singular role in coordinating the subsequent contributions in the final five weeks of the election campaign.

4.1 Timing of contributions

From the point of view of a candidate, contributions early in the campaign help purchase needed goods and services, improve the odds of raising more money, and increase the odds of winning. From the perspective of contributors, early contributions are not necessarily as appealing. A partisan may like to give money early if the contribution has a larger marginal increase in the probability of winning than a later contribution. An investor may like to give money early if the candidate is more thankful and reciprocates with larger promises of service. However, these benefits of giving early need to be weighed against the benefits of waiting later in the campaign in order to obtain better information about where to best spend the limited amounts of resources.

This section analyzes the timing of investor and partisan contributions. I show that partisan money is given earlier, both in proportional and nominal terms, than investor money. I also show that money is given earlier in midterm elections than in presidential election years. For the purpose of presentational clarity, in all that follows the definition of weeks have been standardized such that the election occurs in the 45th week of the year, and I will analyze the preceding weeks (1–44) of the election year.

This section will consider the timing of contributions based on a variety of measures,
each with different strengths and insights. The timing of a group giving out a percentage of its money focuses the attention on the rate of expenditures. The use of quantiles of expenditures takes advantage of a normalization on the total amount of money spent by a group over the course of an election campaign; this normalization is desirable for comparisons over time since the total amounts of money have significantly increased over the period of analysis. Focusing on when individual candidate receive quantiles of their total receipts from each source focuses on the rate at which PACs distribute money across races. Differences between the rate of expenditures of a group’s total expenditures and the rate of fundraising by individual candidates reveal how early contributions are skewed to a small number of candidates rather than evenly distributed across races. I also show in which week the cumulative receipts of a majority of candidates first exceed a particular dollar threshold. Since there are minimum amounts of money needed to hire staff and buy advertising, studying when candidate receives various sums of money is a substantively important measure.

Figure 4.1 shows the week at which each group had distributed the first 1/2 of their total money in all open-seat races for each election year. There are interesting variations between groups and in different types of elections. A key feature to note is that Democrats generally give earlier than Republicans. This is true both for investors and partisans, and both before and after 1994. The few years in which Democratic investors do not give earlier than Republican investors are years in which Democratic partisans do not give earlier than Republican partisans.

It is interesting that the weeks at which the 1/2 quantile occur systematically later in presidential years relative to the adjoining midterm years. This will be a recurring feature in the other measures of the timing of contributions that I will subsequently display. I have argued elsewhere that greater uncertainty about the presidential election
outcome and induced uncertainty about House races, leads to a delay in allocations in money to House races (Wand and Mebane, 1999; Mebane and Wand, 2000). This midterm-presidential difference is more stark for partisans than for investors and more stark for Democrats than for Republicans. These differences in timing across groups could be a function primarily of which group gives money earlier, but are still consistent with the explanation of presidential-midterm differences in uncertainty. Groups which generally wait longer to give will systematically have less uncertainty in all elections, and therefore will be less subject to any variations in uncertainty between presidential and midterm elections.

Figure 4.2 summarize for each of the elections the week at which a majority of
Figure 4.2: Week in which a majority of candidates first received 1/2 of contributions from source candidates in open races that year received 1/2 of their total money from a particular source. This measure highlights the uneven distribution of the early contributions by all contributor groups. In most years, the Democratic partisans contribute 1/2 of their money before the majority of candidates received 1/2 of their money from this source.

Turning to dollar amounts, Figures 4.3 and 4.4 summarize for each of the elections the week at which half the open races that year had raised cumulatively $10,000 and $20,000. These are relatively modest amounts of money, but it is striking how late even these amounts of money are raised by a majority of candidates. A key difference remains that Democrats generally spend their money earlier than Republicans. Democratic investors have steadily been distributing these threshold amounts later in the election cy-
Figure 4.3: Week in which a majority of candidates had raised cumulatively $10,000
cle, but this is mostly a function of the reduction in the total investor money going to
Democrats (as seen in Chapter 3) since the same consistent delaying trend is not visible
in the plots based on proportions.

In higher and more substantial ranges of money, I consider the week in which a
majority of the candidates cumulatively first raised different amounts of money. Figure
4.5 plot the weeks at which candidate’s first raised $50,000 from partisans only, since
most candidates do not raise this much money from investors. Figure 4.6 plot the weeks
for fundraising $75,000 from partisans. Democrats still give the first $50,000 earlier than
Republicans, however, at the greater $75,000 amount the differences in timing diminish,
if not disappear entirely.

While these plots of quantiles and threshold amounts provide summaries of changes
in timing across elections, looking at the whole distribution for a particular year helps to convey the striking differences across districts in when money is being given. Figure 4.7 shows the distribution of candidates as they first reached $20,000 in cumulative contributions from each source over the weeks of the campaign during 1994.\footnote{Note the densities plotted include only those candidates who raised this amount. As such the densities sum to the proportion of candidates who received at least $20,000 from the source rather than summing to one.} Democratic partisans lead in giving this early money, while Republican partisan waited until the final two months to begin giving more than token amounts of contributions. Fewer Democratic candidates received at least $20,000 from investors, and those who did receive this amount first reached the threshold in the last 5-7 weeks of the campaign. Very few Republican candidates received $20,000 in contributions from investors, and the
Figure 4.5: Week in which a majority of candidates had raised cumulatively $50,000
density remains essentially zero across all weeks.

A number of differences from the pattern of timing observed in 1994 occur both be-
fore and after the change in the majority party. Figure 4.8 presents the same type of plots
for the other years 1984–2000. Earlier in the 1980s, Republican partisans contributed
earlier than Democrats, and over time the Democrats have moved earlier and earlier in
the season with the Republicans only occasionally coming close to matching. Again,
we see the pattern of partisans giving earlier in midterm years. A key feature of contri-
butions, however, is the recurring feature that investor money does not really achieve a
substantial cumulative amount until the final month of a campaign.
Figure 4.6: Week in which a majority of candidates had raised cumulatively $75,000
Figure 4.7: Density of districts in which cumulative contributions first exceed $20,000, 1994 election
Figure 4.8: Density of districts in which cumulative contributions first exceed $20,000, 1984–2000 elections
4.2 The allocation of contribution in different periods

Figures 3.8 and 3.9 showed the distribution of partisan and investors contributions for the general election period as a function of the closeness of the race. These curves for partisans and investors were consistent with the quadratic and linear shapes posited by the results of the formal model in Chapter 2. At what point do these patterns hold prior to the election? Are strategies and expectations unchanged over the course of the campaign? Partisans, who would like to change the probability of their favored candidates winning, may have an incentive to give early to provide a preferred candidate favorable initial conditions. If partisans successfully attempt this out-of-equilibrium strategy then contributions may be tilted toward winners. But this same pattern could also be because one partisan group simply erred, and put too much money into easier victories. Investors, who have no intrinsic desire to change the election, should not have an incentive to deviate from a strategy of giving proportional to the probability of the candidate winning, but candidates may allocate a larger portion of total promises of future service to those who give earlier. Although I cannot at this time resolve which of these alternative explanations is correct, I am able to provide for the first time empirical evidence characterizing the early strategies actually pursued.

Figure 4.9 plots the distribution of partisan contributions across races at the end of the primary period for each district. The Democratic partisans allocate their contributions in a manner very similar to the general election behavior, concentrating their greatest resources in the closest races. In contrast, the Republican partisans give greater amounts to candidates who ultimately become clear winners.

Figure 4.10 plots the distribution of investor contributions across races during the primaries. Both Democratic and Republican investor contributions are concentrated in lopsided winners.
After the election finishes, both winners and losers receive money from contributors purportedly to pay off debts and to prepare for the next election cycle. How do investors and partisans react to the removal of all uncertainty about the election outcome? The probability of victory is one for the victor and zero for the defeated candidate, except in the case of a recount, run-off, or new election. The value of the money to the candidate may certainly be lower than prior to the election, and the level of services promised (if any) may be proportionally smaller for post-election contributions. But an investor may give even if the service is zero in the short run in order to make amends for their “error” of not giving earlier (McCarty and Rothenberg, 1996a).

Since the equilibrium results offer no guidance on the shape of contributions, Figures 4.11 and 4.12 simply plot the raw data. Each point represents receipts by a candidate. The partisans contributors give money both to winners and losers in sizable amounts, although more often to winners. There is an asymmetry among partisans, the Democrats appear to be more willing to give money to losers than Republican partisans. In contrast to the largess of partisans to losers, investors almost exclusively give to winners after the election. This is in keeping with our expectations of what it means to invest, and is also a validation of the classification of PACs first described in Chapter 3.
Democratic Majority
Pre-1994

Republican Majority
Post-1994

Figure 4.9: Partisans during primaries: average partisan contributions amounts to candidates in U.S. open-seat House races
Figure 4.10: Investors during primaries: average investor contributions amounts to candidates in U.S. open-seat House races
Figure 4.11: Partisans during post-elections: average contributions amounts to candidates in U.S. open-seat House races
Figure 4.12: Investors during post-elections: average contributions amounts to candidates in U.S. open-seat House races
5.1 Why special interest groups are giving money

My findings resolve a debate in the literature about the relative level of partisan and investor behavior among PACs, and in particular corporate PACs. Snyder (1990) argued that contributions from corporate, labor, and trade PACs could be treated uniformly as investors. In describing corporate PACs, Sorauf (1992) speculates that “their commitment to an ideological electoral politics in open-seats... is evident in their overwhelming support of Republicans.” (84) Using a survey of PAC managers, Schlozman and Tierney (1986) argue that it is only labor PACs who have an overwhelming self-reported partisan leaning; at the other extreme, the majority of corporate PACs indicated no leaning toward either party. Not only has there been little consensus in the literature, but the existing theoretical and empirical studies have not been designed to resolve this debate.

I demonstrated in Chapter 3 the overwhelming partisan behavior of corporations when they give to Republicans and of labor PACs giving to Democrats, and in addition provided a theoretical and empirical reevaluation of Snyder’s results. Interest groups generally spend their money like party organizations and as such I argue that these special interest groups are not so special when giving money in open-seat elections. To assess the differences between what PACs claim to be doing and what they actually do, it is insightful to compare the survey results of PAC managers and summaries of the PAC behavior based on the classification developed in Chapter 3. A summary of the survey results indicating the percentages of partisan leanings for each type of group is reproduced in Table 5.1. Table 5.2 summarizes the percentage of PACs which are classified as partisans for each party for the period of 1984–1992. There are many more corporate
Table 5.1: Self-reported partisan leanings of PACs from survey of managers.

<table>
<thead>
<tr>
<th>PAC type</th>
<th>Republican Partisan</th>
<th>Democratic Partisan</th>
<th>Neutral/Investor</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporation</td>
<td>37</td>
<td>7</td>
<td>56</td>
<td>43</td>
</tr>
<tr>
<td>Labor</td>
<td>0</td>
<td>95</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Non-connected</td>
<td>14</td>
<td>57</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

Question: Overall, is your organization closer to the Democratic Party, to the Republican party, or to neither party?

Source: Schlozman and Tierney (1986, 203 and 427) based on *Washington Representatives Survey*

Table 5.2: Percentage of PACs classified as following partisan behavior in open seats (1984–92).

<table>
<thead>
<tr>
<th>PAC type</th>
<th>Republican Partisan</th>
<th>Democratic Partisan</th>
<th>Neutral/Investor</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporation</td>
<td>68</td>
<td>5</td>
<td>27</td>
<td>1611</td>
</tr>
<tr>
<td>Labor</td>
<td>7</td>
<td>54</td>
<td>39</td>
<td>242</td>
</tr>
<tr>
<td>Non-connected</td>
<td>47</td>
<td>16</td>
<td>37</td>
<td>459</td>
</tr>
</tbody>
</table>

Source: author’s calculations based on FEC data.

Table 5.3: Percentage of money spent in open seats (1984–92) by PACs classified as partisans.

<table>
<thead>
<tr>
<th>PAC type</th>
<th>Republican Partisan</th>
<th>Democratic Partisan</th>
<th>Neutral/Investor</th>
<th>Dollars ($ \times 1e6$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporation</td>
<td>64</td>
<td>3</td>
<td>33</td>
<td>13.7</td>
</tr>
<tr>
<td>Labor</td>
<td>0</td>
<td>94</td>
<td>6</td>
<td>17.2</td>
</tr>
<tr>
<td>Non-connected</td>
<td>36</td>
<td>30</td>
<td>34</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Source: author’s calculations based on FEC data.
PACs which act as partisans than are self-reported, while an even greater percentage of labor PACs act solely as investors instead of the near unanimous claim of Democratic partisanship. For the non-connected PACs, the discrepancy between the distribution of Republican and Democratic partisans in the survey and my classification is possibly a confirmation of Schlozman and Tierney’s suspicion that they “oversampled not simply citizen groups but liberal citizens groups as well” (203, footnote 8). In all cases, the majority of PAC managers claim partisan leanings.

Of course not all PACs are equal in their size or their resources. Table 5.3 shows the percentage of money being spent in a partisan manner by each group in open seats during 1984–92. Almost all of the over 17 million dollars spent by unions is spent in a partisan manner, with the remainder being spent as investor money. Those labor PACs which do not act as Democratic partisans spend only trace amounts of money in open seats. For corporations and non-connected PACs, partisan dollars dominate investor dollars by a ratio of 2 to 1. The combination of a majority of interest groups acting with partisan preferences and the larger collective financial weight of these same groups leads me to conclude that partisan behavior is dominant in open-seat races.

It is striking to note how little PACs themselves are willing to attribute to the importance of party when deciding whether or not to give money to a candidate, as summarized in Table 5.4. Only 2 out of 18 labor PACs and only 1 out of 43 corporate PACs claimed that party was an important criterion in deciding whether to make a contribution. The number of PACs which claimed that the closeness of the race matters is larger but still constitutes a relatively small percentage compared to those who behave as partisans. The most important overall self-reported criterion for making a contribution is the candidate’s positions on a few policies. The apparent disjunction of these espoused criteria with my results which emphasize party labels and the closeness of races could be
reconciled by believing that PACs first choose candidates which are plausible recipients of support based on policy positions or ideology, which closely relate to party labels. Then, given this set of candidates, the groups allocate their contributions in a manner which is optimal given a partisan strategy. To resolve this question requires combining an analysis of the policy preferences of PACs (e.g., McCarty and Poole, 1998) with the policy positions of open seat candidates.

In addition to demonstrating the analytical and substantive importance of jointly analyzing investor and partisan behavior, a corollary of this unified approach is allowing the motivations of an individual PAC to be contingent on the party of the candidate supported. A group may seek to improve the chances of one party gaining or keeping the majority of seats, while still buying private benefits from the other. This approach may be a particular cost-effective method of building a supermajority in the House (Grose-close and Snyder, 1996). Table 5.5 shows how much money was spent by partisans of one party when investing in candidates from the other party during 1984–92 and
Table 5.5: Total amount of money partisans invested in other party

<table>
<thead>
<tr>
<th>PAC type</th>
<th>Republican partisan to Democrat</th>
<th>Democratic partisan to Republican</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporation</td>
<td>2,028,575</td>
<td>1,056,973</td>
</tr>
<tr>
<td>Labor</td>
<td>21,050</td>
<td>6,750</td>
</tr>
<tr>
<td>Non-connected</td>
<td>171,363</td>
<td>83,138</td>
</tr>
</tbody>
</table>

1996–2000. While labor and non-connected partisan PACs spend only a small amount on investing in the other party, corporate partisan PACs spend a significant 20 to 30 percent of their money on investing. These results from open seats are consistent with other recent findings of contributor behavior to incumbents. Mebane, Ratkovic, and Tofias (2001), who analyze contributions from telecommunication PACs to incumbents in 1991–92, provide evidence that “the long-distance companies ... seem to be trying to buy the Democratic majority in a fairly undifferentiated way while ‘cherry picking’ Republicans who are members of the committees widely considered to be the most powerful in the House.” (9) An interesting feature of the dollar amounts in Table 5.5 is that while the corporate Republican-partisan investing in Democrats decreased by half after the Republican party took the majority, it remains the largest amount of investing overall. This willingness of corporations to invest in Democrats even when they are not in the majority may fruitfully be used as a baseline from which to measure the value of being in the majority. I.e., all the money raised pre-1994 from corporate Republican-partisans should not be thought of as motivated solely by the Democratic party’s majority status before 1994; corporate partisan groups are simply more likely to invest in general.

It is worth asking why PACs give any money at all? In the formal model developed in Chapter 2, investor goods are assumed to have the properties which enable those
who pay for the promised services to exclude those who did not share in the cost of purchasing the benefits. In this way investors likely avoid the incentive problem of enabling groups to free-ride on their efforts. However, at the industry level, collective action problems have been shown to empirically exist. In their investigation of the variations in overall level of political activity across groups, Grier et al. (1994) note that “industries with greater potential benefits from government assistance contribute systematically more but that the ability to realize these benefits is constrained by collective action problems facing firms in each industry.”

In the case of partisan contributions, no group can be excluded from the consequences of having one party or the other in the majority. While allowing for small benefits to investors and the possibility of partisan interests, Ansolabehere, de Figueiredo, and Snyder (2002) conjecture that PAC contributions reflect consumption value in the same way they argue it does for individuals.

I conjecture that the large amount of partisan money is not buying small favors or simply providing personal gratification to PAC managers. It is targeted toward obtaining the attention of a party, and ideally raising the priority of relevant issues on the agenda of the party and increasing the party’s sensitivity to the group’s concerns overall. Partisan money is about increasing the importance of the group in the coalition which makes up the party, and hence satisfying and protecting the interests of that group gains intrinsic value among members of the party as a whole. A party’s coalition and the its agenda priorities should be seen as a product of the private contributions that members of the party receive to wage their election campaigns.
5.2 Implications for representative democracy

What are the consequences for democratic representation of financing elections primarily with money from privately run groups? The way in which money is allocated across candidates may have a profound impact on the quality of representative democracy. The effects may be felt from the beginning of the election campaign, when potential candidates choose whether to run, until after the election when the successful candidates cast votes in the House. In this section I reflect on how the findings of my dissertation relate to these issues of representation.

5.2.1 Entry and success of candidates

In the formal model, there is no modeling of entry and in equilibrium the outcome is what every player already expects given the competitiveness of the race. Moreover, in equilibrium no player has any incentive to unilaterally change her allocation strategy.

In the statistical model, I also condition on the characteristics of the races and of the candidates to measure the competitiveness of the race. Despite these assumptions and limitations, the results from my dissertation allow for some insights into the issues of entry and candidate success.

Most members of the House are first elected through an open seat. What affects the decision of (potential) candidates to enter a race remains a topic of ongoing research both theoretically and empirically. Although some mostly exogenous features of elections have been shown to affect the probability of candidates entry, such as the variations in filing requirement (Ansolabehere and Gerber, 1996), there is a significant strategic component which is driven primarily by the candidate’s expectations of winning in a particular election (Jacobson and Kernell, 1983; Banks and Kiewiet, 1989; Kiewiet and
Zeng, 1993). If one party is perceived to have better chances of winning, it is generally believed that the party is better able to attract higher quality new candidates, which then leads to (or possibly only reinforces) a successful election for that party. In my dissertation, I measure both the competitiveness of the race ($\beta$) and the relative value of partisan contributions ($\phi_d/\phi_r$). There is thus the opportunity to jointly consider how the average quality of the candidates who showed up relates to the partisan valuation of the elections in each year. Moreover, using the distribution of financing to candidates early in a campaign, it is possible to obtain the measures of early expectations about the likely outcomes critical to evaluating the theory of Jacobson and Kernell (1983).

There is also a continuing debate over the impact of how many net votes a contribution dollar buys. There have been arguments whether money has a significant impact on the probability of an incumbent being reelected, with some evidence arguing in favor of the claim (Green and Krasno, 1988, 1990; Erikson and Palfrey, 1998) and others arguing that there is no significant impact (Jacobson, 1985, 1990a). There is generally a consensus that an additional dollar improves the chances of challengers. Unfortunately little attention has been paid to open seats, something which I hope to remedy. Although it is not generally feasible for a group to unilaterally improve its situation, it is possible to think about the consequences of a group unilaterally withdrawing from the game. Rather than focusing on the marginal impact of a dollar, it is useful to think about what the election outcomes would look like if, for example, the unions ceased to fund Democratic candidates. There are many things which would not remain constant under this counter-factual (e.g., quality of candidates would change, other groups may fill the void) but it does suggest the pivotal importance of a small set of interests on one party.
5.2.2 Voting and the translation of citizen preferences

In the formal and statistical models, money simply enters into a production function to determine the probability that a candidate will win. I allow for candidate and district characteristics to affect how money translates into outcomes, to take into account that money is not the sole determinant. But a production function is a highly stylized version of the true voting process, though a useful approach with a long history going back to Ben-Zion and Eytan (1974) and Welch (1974).

Substantively, the results of the empirical work on open-seats which follow from the theoretical model nonetheless provide useful insights into the choices that voters face on election day and how well voters can translate their preferences into vote choices. With the dominance of partisan behavior among special interest groups, and the significant divide between groups in their support for each party, it is possible to reaffirm that voters are simply being presented on election day with a choice between bundles of interests. The polarized bundles moreover represents a pivotal cleavage between capital and labor interests.

Many theoretical works point to the role of campaign money as a means for a candidate to alter the voters perception of her policy positions (Hinich and Munger, 1989; Austen-Smith, 1987). In the situation where partisan contributions are dominant, contributions have the potential to become more informative about the policies that will be pursued by candidates from each party. As a result it should be easier for voters and the opposing interest groups to monitor a party’s overall legislative efforts than to watch for idiosyncratic pay-offs to investors. Voters may also be able to more effectively use a punishment strategy of voting against members of a party if they disagree with policies undertaken by Congress. The dominant funding of competitive elections by partisan interests increases the opportunity for voters to translate preferences into coherent vote
choices, in contrast to the prohibitively difficult monitoring of contributions from investors.

More general critiques of money and interest group influence in elections take a more cynical view of these blocs of interests between which voters get to choose. A concern is about the geographic origin of campaign contributions. Epstein (1986) cites the role of PACs in contributing to candidate-centered politics, and in particular notes that the PACs do not represent “small geographic units, like wards and districts for our old parties, but rather economic or other issue-oriented concerns shared by individuals on a national or state-wide basis.” (287) Ferguson (1995) goes further and suggest that corporations in particular control elections and it is changes in the alignment of these core blocs of interests between parties which determines election outcomes. Ferguson develop an “investment theory” where parties are “blocs of major investors who coalesce to advance candidates representing their interests” (27) and therefore elections are contests between several oligarchic parties, whose major public policy proposals reflect the interest of large investors and which minor-investors are virtually incapable of affecting, save in a negative sense of voting (or non-voting) “no confidence.” (28)

One aspect of this argument is the issue of which candidates get funded, and therefore can wage competitive campaigns. Ferguson’s most detailed analysis focuses on behavior prior to the 1970 and the reporting requirements following FECA. For example, he points to the subjugation of the populists by Hearst and the silver interests as a case where “the largest best organized and most cohesive mass political movement in American history could not compete with even a part of the business community” (78)

In more contemporary times, the fact that most special interest money in a race is usually given by organizations which are registered outside the district could further but-
tress positions such as Ferguson’s. Are voters in a district being presented with a choice between candidates which are being funded for appealing to outside and unrelated interests? A majority of voters are sympathetic to that view; Clawson, Neustadt, and Weller (1998) cite a 1997 Princeton Survey Research Associates poll to show that “67 percent of voters think their own congressional representative would pay more attention to the views of large outside donors than to a constituents views” (41–42) and also provide supporting interviews with ex-Congressmen that this is the case. In contrast, Denzau and Munger (1986) have presented theoretical results which highlight a plausible set of mechanisms through which unorganized voters effectively have their preferences represented. Based on the close relationship between the existence of local organization in a district, lobbying and contributions, Wright (1989) presents contemporary empirical evidence that contributions are likely used “to reinforce the appearance of existing organizational strength [rather] than to ‘purchase’ support in the absence of geographic ties.” (726) The ability of outside money to hijack a district and advance candidates contrary to the interests of voters, at least in contemporary times, is more circumscribed than Ferguson suggests. Moreover, the sources of influence are not so limited to corporate interests. Even if potential corporate influence is as insidious as Ferguson and other charge,¹ in the context of electing new members in open-seat races, voters are faced with candidates which are backed by opposing corporate and labor interests—and labor is generally exerting the greater effort.

Money may also affect the likelihood of different subsets of the population to turnout and vote. Variations in voter participation and turnout can be explained in part by elite

¹Clawson et al. (1998) argues among other things, that corporations are more targeted toward obtaining power and less democratic than labor unions and other organizations.
mobilization (Rosenstone and Hansen, 1993). An imbalance in the resources available to candidates of each party may result in an imbalance in the types of voters who turnout and hence are represented in the choice between polarized labor-capital interests (Barro, 1973; Becker, 1983). Finding that the each party is supported by relatively equally financed partisan groups suggests that there is not a significant imbalance between the parties. If, however, contributions were normalized by the number of people who underwrite these funds there might be a discrepancy in the per person value of contributions. A project for future consideration is to definitively establish the number of people underwriting each set of partisan campaign contributions.

5.2.3 Behavior of winners in office

An implication of my findings for future research of elections is that it is not sufficient to analyze contributions to individual candidates. In particular, the dominance of partisan-like behavior requires a shift in focus from analyzing the impact of contributions on candidate behavior to analyzing the effect of a group or industry’s partisan role on the priorities and policies of the party as a whole.

In empirical work studying the effect of contributions on legislative votes, statistical models are often employed which seek to isolate the impact of money using instrumental variables. Generally, little evidence of buying votes is found. But as with the election outcome, the important question is not what is the marginal impact of a contribution on a legislative vote outcome that we observe, since in equilibrium we may observe that money on each side does little to shift the outcome from what we might otherwise

\footnote{Ferguson interprets the variations in turnout as primarily reflecting the incentives of corporate interest groups to reduce the marginal costs of turning out. In general, his cursory attention to the efforts of competing interest groups greatly weakens the persuasiveness of his arguments.}
expect. It strikes me that it is more important, and likely more fruitful to ask what issues even get serious consideration within committees and the legislature. By this, I mean more than simply “buying time” such as is studied by Hall and Wayman (1990), but a change in the importance of the group’s interests to the party as a whole. Hall and Wayman’s argument is a nuanced analysis of how investors might obtain benefits. I argue that we need to better understand how a change in the level of partisan financial support from different groups affects the agenda of a party. New challenges arise in sorting out causality of agendas and money. Did the 30 million dollars spent by the drug industry in the 2002 House election result in a significant change in the priority given to legislation the industry favored, or did the money increase as a result of more relevant legislation being debated.

5.3 Current limitations and further extensions

A central part of this dissertation is inferring and evaluating hypothesized motivations based on the manner in which aggregate groups allocate their contributions across candidates. The motivations that are inferred are consistent with the general interests attributed to the different groups, in particular capital and labor PACs. Moreover, ancillary investigations of the classified PACs, such as how investors and partisans spend money after the day of the election, also provide support for my classification method. It is useful to have this method which distinguishes dominant investor and partisan behavior since, as was just presented earlier, PACs may not be willing or able to accurately characterize their own behavior. Nonetheless, it will be fruitful in the future to pursue integration of my research with more qualitative and survey based measures of PACs motivations and strategies.
The analytical framework I develop in Chapter 2 makes a number of strong assumptions and stylized characterizations of the election. The game includes players who have full information about all the parameters affecting themselves and other players; there is no uncertainty. As discussed again in Chapter 4, no player in the game is able to move first or wait to see what others will do. In my statistical model which has the same structure as the equilibrium, I add stochastic components to the money equations, allowing for deviations from the equilibrium which are not part of the game. Although these are not unreasonable first steps to bridge the gap between the formal and statistical model, they are unsatisfying. I have undertaken additional preliminary work which does not appear in this dissertation which alternatively allows contributors to have a distribution of beliefs about the competitiveness of each race (β). This produces the type of variation in the aggregate distribution of money away from the equilibrium at the expected competitiveness that I observe empirically. I believe this uncertainty about β can be incorporated into the formal model and will ultimately be a fruitful approach for bringing the formal and statistical models closer together.

Studying House open-seats, as I have done, has many theoretical and substantive virtues. This focus, however, limits the general claims that can be made about the types of money which are dominant in elections overall. It will be useful and necessary to generalize this analysis to races with incumbents in the House and to elections for other offices. The open-seat analysis and the related classification will, nonetheless, be an essential starting point for considering how these same groups spend money in other races.

As part of a project to extend this analysis to other races, it will be possible and important to pursue a study of the effects of partisan special interest money on the agendas and discipline of each party. Studying whether there is an increased incentive for party
discipline and party label building will build on the growing literature on measuring party influence on roll call voting (e.g., Snyder and Groseclose, 2000).
APPENDIX A

DATA DEFINITIONS AND SELECTION CRITERIA

Data are from the raw itemized FEC contributions data files (ftp.fec.gov:/FEC/). Contributions are defined as those records with transaction code 15 for individuals and either code 24K or 24Z for PACs.

I selected all districts which were reported to be open seat races prior to the deadline for filing as a House candidate, and were in fact open seat races at the time of election. The Congressional Quarterly Weekly Report is the primary source to determine which seats were open seats.

In 1984, there were 19 districts: AL01, AR02, CO03, IA05, IL13, IL14, IL22, MA05, MI05, NC09, NH01, NY20, NY30, TN06, TX19, TX22, UT02, VA07, WA01.

In 1986, there were 35 districts: AL07, AZ01, AZ04, CA02, CA12, CA21, CO02, CO05, GA05, IA03, IA06, IL14, IN05, KY04, MA08, MD03, MD04, MD07, MD08, ME01, NC03, NC10, NV01, NY01, NY34, OH14, OK01, OR04, PA07, SC01, SC04, SD98, TX21, UT02, VA02.

In 1988, there were 23 districts: CA12, CA40, CA42, FL06, FL13, FL14, IL22, MO07, MS04, MS05, NE02, NH02, NJ10, NM01, NY23, NY27, NY31, OH05, TN08, TX13, VT98, WA03, WA07.

In 1990, there were 26 districts: AL05, AR02, CA14, CA29, CO04, CT03, CT05, FL11, HI01, IA02, ID01, IL16, KS05, ME01, MI10, MI13, MN03, NE03, NH01, NJ12, OH01, OH07, OK03, RI02, TX11, UT03.

In 1992, there were 37 districts: AL02, AL07, AR03, CA06, CO03, DE98, FL04, FL07, GA01, GA04, GA09, ID02, KY06, MI01, MI05, MI07, MN02, ND98, NJ08, NJ13, NY03, NY04, NY08, NY24, NY30, OH13, OH19, OR01, PA06, PA13, SC06, UT02, VA06, WA01, WA04, WA08, WI05.
In 1996, there were 45 districts: AL03, AL04, AR01, AR02, CA24, CA27, CO01, CO04, FL02, FL11, FL19, IA03, IL07, IL20, IN07, IN10, KS01, KS02, KS03, MA10, MO07, MO08, MS03, MT98, NC07, NH01, NJ09, NJ12, NV02, OK03, PA05, PA16, RI02, SD98, TN01, TN09, TX01, TX02, TX12, TX15, TX16, UT02, VA05, WI03, WI08.

In 1998, there were 34 districts: CA01, CA03, CA34, CA36, CA41, CO02, CO06, CT01, ID02, IL09, IL13, IL19, IN09, KY04, KY06, MA08, MS04, NC08, NE02, NV01, NY07, NY09, NY22, NY27, OH11, OR01, OR02, PA10, PA15, SC04, TX20, WA03, WI01, WI02.

In 2000, there were 33 districts: AZ01, CA15, CA48, FL04, FL08, FL12, ID01, IL10, IL15, IN02, IN07, MI08, MN04, MO01, MO02, MO06, NE03, NJ07, NY01, NY02, OH12, OK02, PA04, PA19, RI02, SC01, TX07, UT02, VA01, VA02, VA07, WA02, WV02.

I exclude those open seat races where 1) there was an special election to replace a departing incumbent; 2) the incumbent lost in the primary; 3) there was only one major party candidate; 4) redistricting put one or more incumbents into a new district; or 5) there was an unusual circumstance in the administration of the election. The unusual circumstances include the potential for multiple candidates from a single major party on the ballot, for example Louisiana in every general election and Texas in 1996 (TX05 and TX08) when the primary results were voided by a court decision.
APPENDIX B

TESTING THE SHAPES OF CURVES

There is a small and only loosely connected set of research focused testing the shape of curves, with particular emphasis on testing for monotonicity. It is generally straightforward to generalize tests of monotonicity to single peaked shapes, by constructing two monotonic curves of opposite slopes. This appendix briefly reviews the state of the literature, outlines the appropriateness of applying the different methods to the campaign finance data, and offers some initial findings.

The research on testing the shape of curves can be divided into a few main categories:

1. Tests based on “critical bandwidth” of non-parametric estimators Bowman, Jones, and Gijbels (1998). For example, how much smoothing is required in a local polynomial regression to attain monotonicity.

2. Non-parametric tests based on functions of the signs of the differences between observations Gijbels, Hall, Jones, and Koch (2000). For example, for data ordered by increasing values of vote share, what is the number of positive and negative first differences in the money contributed? Monotonic increasing should have disproportionately more positive first differences. What is the number of consecutive positive or negative differences?

3. Tests based on isotonic regressions and extreme value distributions Pan and Wolfe (1996); Pan (1997). This is for ordered categorical treatment for randomized experiments, with repeated observations for each treatment level. Given a isotonic regression, how likely are we likely to see the pattern of residuals under the hypothesis of monotonicity, or some other shape.

4. Tests based on restrictions on parameters in a polynomial models Doveh, Shapiro,
and Feigin (n.d.). Test constructed by constraining a fitted polynomial to be a particular shape.

All tests generally rely on simulated critical values, although one could in theory work out analytical values for specific cases for some tests.

The main difficulty in applying any of these methods is how to pool heterogeneous years of data. A key problem is that although there is theoretical reasons to believe that there is a similarity to the general shape of the curves for a particular contribution type, the ways in which they can differ and keep the same qualitative shape are infinite. Add on top of this, that the there is likely heteroskedasticity across years and at different levels of vote share, and one quickly becomes cautious in using these tests. In particular, the Category 3 tests—in addition to requiring a number strong assumptions when applied in a non-experimental context—are particularly sensitive to the heteroskedasticity.

The initial results based on the categorized investors and partisans are as follows based on Class 1 tests. The “critical bandwidth” to obtain monotonicity of partisans is strictly bigger than the investor curves, and in a subset of curves although not all investor curves it is trivial to obtain monotonicity. Individual years within series do deviate from monotonicity for individual series, and how and whether to combine these deviant years with the other years to have a single test is left to future research. Much more work is needed on this topic.
BIBLIOGRAPHY


McCarty, Nolan and Lawrence S. Rothenberg. 2000. The Time to Give: PAC Motiva-

Science Association Meetings, Chicago, IL. Methodology Section.

Mebane, Walter R. Jr. 1999. Congressional Campaign Contributions, District Service
and Electoral Outcomes in the United States: Statistical Tests of a Formal Game

in American Presidential and House Elections. *American Political Science Review*,
94(1):TBA.

Context, Legislator Quality and Campaign Contributions. Prepared for delivery at
the 2001 Annual Meeting of the Midwest Political Science Association, April 19-22,
Palmer House, Chicago.


