Political Threats and Patterns of Campaign Contributions: a Theoretical and Empirical Analysis[*]

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Abstract

This paper presents a model of campaign contributions where a special interest group can condition its contributions not only on the receiving candidate's support but also on the support of her opponent. This allows the interest group to pledge to gain support both from contributions as well as from implicit threats. In sufficiently close races, interest groups place candidates in a prisoner's dilemma type game where both end up supporting the special interest without receiving any contributions in return. These implicit out-of-equilibrium threats can help explain the "missing money" puzzle in the empirical literature. For sufficiently lopsided races, out-of-equilibrium threats become ineffective and special interest groups will shift to equilibrium contributions. The opposite is true for interest groups that are strongly aligned with a political party. Such partisan interest groups have the opposite pattern of contributions: they target mainly close races. The model also predicts that neither type of interest group will contribute to opposing candidates in a same race. Non-parametric estimates using Federal Election Commission data strongly support the predicted pattern of contributions. Problems of reverse causation from conbtributions to political strength are addressed by using party registration data as an instrument. The paper also shows that partial campaign finance reform efforts may increase the amount of money in politics by shifting off-equilibrium contributions to the equilibrium path even while reducing the influence of speical interest in politics.

1 Introduction

Growing concerns about the increasing role of money in politics and the influence of interest groups on policy are voiced with unerring regularity in popular and policy debates. Much of those concerns have not found support in the empirical literature on campaign contributions. While there is a widespread popular perception that there is too much money in politics, researchers, beginning with Tullock (1972), have struggled to rationalize why there is actually so little money considering the value of the favors campaign contributions allegedly buy. The sugar industry provides an excellent illustration of this point. The sugar program provides subsidies and huge tariff and non-tariff protection to U.S. producers. The General Accounting Office estimates that the sugar program led to a net gain of over one billion dollars to the sugar industry in 1998. However, the sugar industry's total campaign contributions in that election cycle were a mere \$2.8 million, less than 0.3% of that net gain.[1] Ansolabehere *et al.* (2003) discuss a number of other similar examples.[2] A particularly interesting illustration is provided by Milyo *et al.* (2000), which shows that industries reputed to wield vast political influence, such as the military contracting industry, spend several times more on philanthropy than on campaign contributions.

The empirical literature has had mixed success in finding systematic evidence of an effect of contributions on policy outcomes. Much of the existing empirical literature, reviewed in detail in Ansolabehere *et al.* (2003), has focused on the effect of contributions on roll-call voting behavior. Several studies fail to obtain statistically significant effects of contributions on roll-call behavior.[3] Moreover, much of a special

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[1] Contribution information available from www.opensecrets.org.

[2] A particularly interesting illustration is provided by Milyo *et al.* (2000), which shows that industries reputed to wield vast political influence spend several times more on philanthropy than on campaign contributions.

[3] Statistical significance in itself is not a very informative measure given small sample sizes since contributions may still be worthwhile even if their probability of influencing policy is small. For

interest's influence over a piece of legislation is likely to take place at the drafting stages, making influence more difficult to quantify. Yet the evidence on the effectiveness of such contributions remains mixed. Goldberg and Maggi (1999) estimate a structural model that captures the effect of industry contributions on their nontariff barriers coverage ratio based on the Grossman and Helpman (1994) framework. They estimate that policy-makers would be willing to forsake 98 dollars of contributions even if they were to imply only a one-dollar loss of social welfare. The lack of systematic evidence of an effect of contributions on policy has led some to conclude that contributions are small precisely because they do not affect the political process much (see for example, Ansolabehere *et al.* 2003 and Milyo *et al.* 2000). This paper suggests that the influence of special interests should not be so easily dismissed.

Campaign contributions have traditionally been thought of as a transaction involving only the contributor and the receiving candidate or political party. Such a perspective largely ignores how the possibility of contributing to an opponent could also affect the patterns of donations and support. This paper presents a model where a special interest group's contribution is conditioned not only on the candidate's support for that special interest, but also implicitly on whether or not her opponent will support it. As a result, a candidate may support a special interest not only in order to receive a contribution but also in order to discourage that special interest from making a contribution to his or her opponent. The ability to threaten leverages the power of special interest groups, whose influence may be driven by implicit off-equilibrium contributions, generating a disconnect between their influence and the actual contributions we observe. Our model is able to explain the circumstances in which an interest group can rely on off-equilibrium contributions versus when it must make equilibrium contributions to exert influence and produces a number of testable predictions which are supported in the data. These findings help reconcile the existing empirical literature with the popular view that there is too much influence of special interests in politics.

an excellent discussion on the importance of economic significance vis-a-vis statistical significance, please refer to McCloskey and Ziliak (1996).

Our model of electoral competition builds on the frameworks of Grossman and Helpman (1996) and Baron (1994). Two candidates compete for office. Voters base their choice on the candidates' platforms and an "impression" component that is influenced by campaign expenditures. We consider two types of interest groups: special interest groups and general interest groups. Special interest groups care only about a particular policy, which is disliked by everyone else. They do not care inherently about which candidate wins the election as long as their special interest policy is supported by the winner. General interest groups, on the other hand, care about a policy dimension over which voters are divided (for example, abortion or tax related issues) and over which politicians are precommitted. Therefore, general interest groups do care about which politician gets elected. Following Helpman and Persson (2001), we assume that partisan interest groups can pre-commit except to a candidate from an opposing party. This means that special interest groups can commit to any candidate and general interest groups can only commit to candidates affiliated with the party they support.

Unlike the previous literature, we allow interest groups to announce schedules of donations which are contingent not only on the platform of the candidate receiving the offer (bilateral contacting) but also on the platform of the opposing candidate (multilateral contracting). This allows interest groups to obtain support for their policy without spending additional money; instead of having to make larger donations in order to get a higher level of support, they need only increase the threat of giving money to the opposing candidate. Following Baron (1994), campaign contributions can "buy" some of the impressionable component of the vote, but catering to special interests will cost the politicians votes amongst the informed component of the vote.

When contemplating whether or not to support a special interest, a candidate worries not only about the contributions she would receive, but also about the implications a refusal would have for whether or not her opponent will receive contributions. Thus, while in a traditional setting, special interest groups "buy" support through a contribution, in our setting they may be able to leverage support by not contributing to the opposing candidate. Whereas a dollar kept in reserves is used to threaten both

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candidates, a dollar of contribution can be better targeted to a strong candidate who is likely to win. Equilibrium contributions as opposed to out of equilibrium threats will occur when a race is sufficiently lop-sided that moving a dollar from threatening both candidates to concentrating on the leading candidate is greater than the direct loss in utility from having less money.

The logic mostly reverses for a general interest group. In close elections, since general interest groups cannot commit to politicians of the opposite party and thus can not leverage threats against the opposing party's candidate, there is a low value of money held by the interest group. However, the value of money contributed is quite large due to the influence contributions can have on the outcome of the election. In lop-sided elections, the value of money donated decreases to the point where it is below the value of money kept in which case the general interest group does not make any donations.

Baron (1994), chapter 3 of Persson and Tabellini (2000) and chapter 10 of Grossman and Helpman (2001) are the closest models to our own in that they allow off-equilibrium contributions to drive candidates to policy convergence for a policy favorable to an interest group. Our model differs from these models first in that all three achieve a collapse in contributions through the existence of ex-post discretionary donations (i.e. after policy platforms have been announced) whereas we achieve it through ex-ante multilateral contracts. Moreover, our model is the first to show that an interest group may use equilibrium or off-equilibrium contributions depending on the closeness of the particular race (i.e. we allow for the possibility of off-equilibrium contributions without leading to a collapse in equilibrium contributions in all circumstances). Our results emphasize the importance of the closeness of the election and the type of the interest group in predicting the level of actual donations. Thus, this new framework not only provides an explanation for the "missing money" puzzle, but is also able to explain when contributions actually take place. In addition, our model also predicts one-sidedness of donations when they are made (i.e. interest groups never give to both sides within a race), a stylized fact strongly supported in the data which previous models did not predict. Finally, we also explain a new stylized fact

which we establish empirically: whereas partisan interest groups contribute mainly in close races, non-partisan interest groups contribute mainly in lop-sided ones.

The model yields a number of empirical predictions which are tested using data from U.S. House elections. We use itemized contributions data from the Federal Election Commission (FEC) to assign donors a measure of partisanship based on how much their contributions deviate from a 50-50 split between the two major parties. Partisan contributors are analogous to the general interest groups in our model, while non-partisan ones are analogous to the special interest groups. We construct measures of candidate strength based on election results, which we instrument using congressional district-level party registration data available from King *et al.* (1997). The model's predicted pattern of equilibrium contributions is strongly supported in the data: Partisan contributors target mainly close races and non-partisan ones target lopsided winners. Moreover, a candidate's strength alone is capable of explaining over 20% of the variation in non-partisan PAC contributions.[4] In contrast to the rest of the literature, our model predicts that interest groups will not donate to both side of the same race, an empirical fact which we document in our data.

In addition to providing an explanation of some major puzzles and new stylized facts for the political economy literature, our approach also has a number of interesting implications for campaign finance reform. The disconnect between equilibrium contributions and influence suggests that a reform which imposes stricter limits on contributions can reduce the influence of special interest groups even if we do not observe a decline in equilibrium contributions. In fact, contributions may even increase if the limitation on spending renders previously out-of-equilibrium contributions ineffective, moving threats to equilibrium contributions. Given that our paper challenges the literature that downplays the impact of campaign contributions, it may be worthwhile to reconsider a number of campaign finance reform efforts. Furthermore, our paper also suggests that the redistricting trend towards increasing the number of "safe" seats can help explain the rising volume of campaign contributions. By making

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[4]The relationship between partisan PAC contributions and the candidate's strength is non-monotonic. But a quadratic specification can explain 19% of the variation.

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seats safer, redistricting might have moved previously off-equilibrium contributions to the equilibrium path.

The paper also makes a technical contribution, providing solutions to a multilateral principal-agent contracting problem with externalities associated with both agent actions and monetary payments to agents. Segal (2002) has looked at both bilateral and multilateral contracting with externalities in actions and Gomes (2004) and Levin (2002) have looked at multilateral contracting in relational contracting environments. Gomes (2004) also analyzes multilateral contracting with externalities but only with externalities arising from agent actions. In a future companion paper, Chamon and Kaplan (2005), we will characterize more generally the solutions to and characteristics of multilateral contracting problems with both multiple principals and multiple agents in the face of externalities on both inside and outside options.

The remainder of this paper is organized as follows: Section 2 presents a model of electoral competition with interest group influence. Section 3 characterizes campaign contribution patterns and discusses implications for campaign finance reform. The robustness of our model to differing assumptions about the ability of interest groups to commit both bilaterally and multilaterally to politicians are discussed. Section 4 presents empirical evidence confirming the predictions of the model. Finally, Section 5 concludes.

2   The Model

Our basic setting builds on the framework of Grossman and Helpman (1996). We assume that there are three strategic actors in the game: 2 candidates competing in a legislative race and one interest group. We separately consider two types of interest groups: general (or partisan) interest groups (GIGs) and special (or non-partisan) interest groups (SIGs). There are two stages of the model. First, the interest group moves, offering payments in exchange for policy commitments by candidates. Unlike previous models, we allow special interest groups to condition payments to a given candidate not only on her platform but also on that of her opponent. In the

second stage, the two candidates simultaneously choose any previously uncommitted aspects of their platform, contributions are made, the election occurs, and payoffs are received. We assume that candidates have ideological preferences over certain general interest policy issues which are commonly known and despite what they say during a campaign, they will vote according to their fixed preferences once elected. However, we assume they can commit their position on "pliable" policies, which include both special interest policies as well as general interest policies[5].

2.1 Voters

For expositional purposes, we first present a model of electoral competition without interest groups. Following Baron (1994), Grossman and Helpman (1996), and Persson and Tabellini (2000), we consider different components of an individual's voting decision. Each voter makes her decision based not only upon what policies candidates will implement but also on her "impression" which is influenced by the amount of money spent on campaigns. We consider a median-voter type model where voters have single-peaked preferences over the candidate's fixed policy and over the pliable policies. The "informed" component of the vote is based on the voter's preference for one candidate's platform over the other. That preference is determined by the differences in the candidates' positions on the fixed policy plus the difference in the candidates' positions on the pliable policies.

The general interest policy is characterized by a parameter ψ. Each individual voter j has a preferred value ψ_j for that parameter. Voters prefer candidates who support positions closer to their own. Voter j's preference over the fixed general interest policy is given by: $g\left(\left|\psi_j - \psi\right|\right)$ where ψ is the candidate's preferred policy and

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[5]It may seem like we have asymmetrically assumed both commitment (pliable) and non-commitment (fixed) dimensions for GIG policies with only commitment (pliable) dimensions for SIG policies. In fact, we could trivially add a non-commitment (fixed) SIG policy. Both politicians would never support this policy given that they dislike it and are unable to commit to supporting it. Therefore, SIGs would not differentially donate any money in or out of equilibrium due to the existence of such a policy. In other words, the results of our model would be completely unaltered. In order to simplify our presentation, we have just dropped fixed SIG policies from the model.

$g' < 0$. We denote the relative preference for candidate A by $V_j = g\left(\left|\psi_j - p_A\right|\right) - g\left(\left|\psi_j - \psi_B\right|\right)$. The value of V for the median voter is given by $b + \varepsilon$, where b is the average ideological bias of the population in favor of candidate A and ε is the realization of a mean zero shock to median ideology. The realization of ϵ is distributed with a symmetric, single-peaked distribution of unbounded support. Thus, in the absence of pliable policies or campaign expenditures, the probability that the median voter prefers candidate A (and therefore the probability that candidate A wins the election) is given by $P(b+\epsilon > 0) = P\left(\epsilon > -b\right) = 1 - F\left(-b\right)$. However, voters also care about pliable policies. Their utility function is given by $g\left(\left|\psi_j - \psi^*\right|\right) + W_j\left(\tau^*\right)$ where ψ^* and τ^* are the respective fixed and pliable policies of the winning candidate. Special interest pliable policies are assumed to be uniformly disliked by all voters, though marginal increases at high levels of the policy are assumed to cause less marginal disutility than at low levels:

$$\frac{\partial W\left(\tau_{SIG}\right)}{\partial \tau_{SIG}} < 0, \ \frac{\partial^2 W\left(\tau_{SIG}\right)}{\partial \tau_{SIG}^2} < 0 \tag{1}$$

Also, for convenience of mathematical notation, we assume that $W(0) = 0$.[6] Letting $W(\tau)$ denote the median voter's utility from pliable policy τ, the median voter's choice, in the absence of campaign spending, favors candidate A when:

$$g\left(\left|\psi_{median} - \psi_A\right|\right) + W\left(\tau_A\right) > g\left(\left|\psi_{median} - \psi_B\right|\right) + W\left(\tau_B\right) \tag{2}$$

which reduces to the condition:

$$b + \varepsilon + W\left(\tau_A\right) - W\left(\tau_B\right) > 0 \tag{3}$$

Finally, the popularity of the candidates is also altered by campaign spending. Any given voter is more likely to support candidate A over B the higher the difference

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[6]In the case of a general interest pliable policy, we assume that voters, and thus the median voter, have preferences which are determined by their bliss point and moreover that their bliss point for the pliable policy is the same bliss point as for the fixed policy. It can easily be shown that no candidate can improve her vote share by "crossing-over" and announcing pliable general interest policies that are more radical in the direction of her opponent's fixed policy position than those of her opponent. In the absence of "crossing over", the candidate who sways the median voter wins the election.

between the expenditures by A and B. We denote campaign expenditures by candidate k as M_k. The median voter casts a ballot for candidate A when:

$$b + \varepsilon + W\left(\tau_A\right) - W\left(\tau_B\right) + M_A - M_B > 0 \tag{4}$$

The probability that the median voter casts her ballot for candidate A (and therefore candidate A wins the election) is given by[7]:

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\begin{aligned}
\int_{-[b+W(\tau_A)-W(\tau_B)+M_A-M_B]}^{\infty} f(\epsilon)d\epsilon &= \frac{1}{2} + \int_{-[b+W(\tau_A)-W(\tau_B)+M_A-M_B]}^{b} f(\epsilon)d\epsilon \tag{5} \\
&= 1 - F\left[-b - \left(W\left(\tau_A\right) - W\left(\tau_B\right) + M_A - M_B\right)\right]
\end{aligned}
$$

Note that if the bias b towards candidate A is zero, and both candidates announce the same pliable policies and have the same level of expenditures the probability of candidate A winning the election is exactly $\frac{1}{2}$.

2.2   Candidates

The expected utility of candidate k is:

$$P(k) + W_k\left(\tau_k\right) \tag{6}$$

where $P(k)$ is the probability of her winning and $W_K\left(\tau_k\right)$ corresponds to the utility associated with the pliable policies announced (disutility in the case of support to special interest policies). We assume that whereas politicians care directly about GIG policies, they do not care about SIG policies except in terms of how supporting an SIG effects their probability of electoral victory (i.e. $W_k^{SIG}(0) = 0$)[8]. Our results are robust to the introduction of other components in the candidate's utility, such as an added utility from being elected as well as utility from money balances which are not spent on the campaign (which could have an option value for future elections or be used in the campaigns of other candidates in the same party).

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[7]As is standard, we denote by f the probability density function of ϵ and by F the cumulative distribution.

[8]Our results are robust to allowing politicians to care care about the SIG policy.

2.3 Interest groups

Finally, we look at interest groups. We consider two types: special (or non-partisan) interest groups and general (or partisan) interest groups. Special interest groups care only about a special interest policy τ_{SIG} and money. These groups are non-partisan in the sense that they do not care about the ideology or party affiliation of the winner, just about the resulting policy τ^*_{SIG}. Examples would include the sugar industry and other industry-specific lobbies, lobbies for government procurement such as specific military contractors, trade and some foreign policy related lobbies. General interest groups seek to influence a pliable general interest policy, τ_{GIG}, and the fixed GIG policy (i.e. the winner of the election). These groups will be partisan in the sense that, due to imperfect commitment to the announced platform, they will prefer the winning candidate to be the one with similar preferences towards ψ. Examples of GIGs would include tax policy interest groups, labor groups, the National Rifle Association, pro-choice groups and pro-life groups, among others. We first analyze electoral competition with one GIG, then turn to a setting with one SIG, and then briefly discuss the implications for a model with multiple SIGs. We do not analyze a setting with both SIGs and GIGs though that could be an interesting extension.[9] The utility function associated with the GIG is[10]:

$$U^k_{GIG} = P(k) + W^k_{GIG}(\tau_k) + M_{GIG} - M_k - M_{-k} \tag{7}$$

where $P(A)$ is the probability that candidate A wins, $W\left(\tau^k_{GIG}\right)$ denotes the GIG's utility from the equilibrium pliable general interest policy, M_{GIG} the initial funds

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[9]For example, if areas where more special interest groups operate are areas where equilibrium donations are made, this could induce a negative correlation between SIG donations and GIG donations.

[10]In a previous version of the paper, we had assumed that the utility function of the GIG was identical to that of the SIG except for an added benefit from the candidate it is aligned with winning. That model was more complicated and the solution less intuitive expositionally. However, under with two additional assumptions, we were able to provide sufficient conditions for GIGs targeting close elections: (1.) that the participation constraint for the candidate aligned with the GIG is never strictly binding and (2.) $f'(\Delta)[1 - F(\Delta)] - [f(\Delta)]^2 > 0 \forall \Delta > 0$.

held by the interest group, and M_k and M_{-k} are the contributions made to the two candidates (where the interest group type is in uppercase letters). The ideal point of candidate A is assumed to be lower than that of the median voter which is lower than the ideal point of candidate B:

$$\psi_A^* < \psi^* < \psi_B^*.$$

We assume that the GIG shares the preferences of one of the two politicians and thus has different preferences from the other politician:

$$W_{GIG}^k \left(\tau_{GIG} \right) = W_k \left(\tau_{GIG} \right) \tag{8}$$

The utility function for the SIG is given by:

$$U_{SIG} = P(A) W_{SIG} \left(\tau_A \right) + [1 - P(A)] W_{SIG} \left(\tau_B \right) + M_{SIG} - M_A - M_B \tag{9}$$

where $W_{SIG} \left(\tau_{SIG}^* \right)$ denotes the SIG's utility from the equilibrium special interest policy, and $M_{SIG} - M_A - M_B$ corresponds to the SIG's remaining funds after contributing to candidates A and B. We assume that the utility that the SIG policy provides to the SIG is equal to a multiple θ of the disutility it causes to voters and candidates:

$$\frac{\partial W_{SIG} \left(\tau_{SIG} \right)}{\partial \tau_{SIG}} = -\theta \frac{\partial W \left(\tau_{SIG} \right)}{\partial \tau_{SIG}} = -\theta \frac{\partial W_k \left(\tau_{SIG} \right)}{\partial \tau_{SIG}} \tag{10}$$

To ensure that it is always worthwhile for SIGs to contribute at least some funds to at least one candidate, independent of vote share, we assume[11]:

Condition 1

$$\theta \geq 2 \left(1 + f \left(0 \right) \right) \tag{11}$$

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[11] Our interpretation of this condition is that even if the race is exactly even, the marginal utility to the SIG of getting support for its policy is sufficiently greater than that of the politicians and of the population that it is willing to pay for some positive levels of support. This condition is very much in the spirit of Mancur Olson's book, The Logic of Collective Action where he claims that special interests are powerful when a small group of individuals very strongly support a policy that most of the population mildly dislikes.

Our model is very much in the style of Grossman and Helpman (1996). Our model's main difference with their model is that we allow interest groups to condition contributions to a given candidate on both candidates' policy platform choices. Interestingly, this can enable special interest groups to achieve their policy objectives without spending money. It also has implications for differences in the patterns of campaign contributions between different types of interest groups (SIGs and GIGs in our setting).

3   Interest group influence

This section presents the main insights of this paper, starting with an analysis of general interest group politics.

3.1   General Interest Group

In this section we look at the patterns of donations that arise when there is one general interest group. Without loss of generality, we assume that the general interest group is ideologically aligned with candidate A. Therefore, it tries to maximize a weighted sum of the probability of candidate A's victory and the amount of money left over, while trying to influence candidates to support a pliable GIG policy as close to its own as possible. Moreover, as stated before, we assume that the general interest group aligned with candidate A's party can not condition payments upon canddiate B's policy announcements. It can give candidate B money but it can not vary the amount it gives to either candidate with the level of support announced by candidate B. We write the formal maximization problem as:

$$\max_{\{M_A(\tau_A), M_B(\tau_A)\}} 1 - F[\Delta] + W^A_{GIG}(\tau^*_A) + M_{GIG} - M_A - M_B$$

$$\text{s.t.} \quad :$$

$$\tau^*_A = \arg\max_{\tau^A_{GIG}} 1 - F[\Delta] + W_A(\tau_A)$$

$$\tau^*_B = \arg\max_{\tau^*_B} F[-b - (W(\tau^*_A) - W(\tau_B) + M^*_A - M_B)] + W_B(\tau_B)$$

$$M_A \geq 0, \ M_B \geq 0, M_A + M_B \leq M_{GIG}$$

where Δ is defined as $-b - W(\tau_A^*) + W(\tau_B^*) - M_A^* - M_B^*$.

An equilibrium of the game is given by a vector of functions specifying contribution schedules for the interest groups and reaction functions of the schedules for the politicians such that the above problem is maximized:

$$[M_A^*(\tau_A), M_B^*(\tau_A), \tau_A^*(M_A(\tau_A), M_B(\tau_A)), \tau_B^*(M_A(\tau_A), M_B(\tau_A))] \qquad (12)$$

We can solve the maximization problem above as a standard principal-agent problem. The above problem can be reformulated in contract theory terms as the GIG choosing the level of support and the level of contributions given subject to the constraint that the aligned candidate get at least her outside option.

The intuition of this section is quite simple. For close elections, the interest group spends as much money as it can on ensuring victory for candidate A. Races where candidate A is ex ante strong can become closer following the radicalization of her pliable general interest policy. The availability of GIG support will contribute to that radicalization.

Grossman and Helpman (1996) make a useful distinction between two types of motives for contributions: an influence motive, whereby contributions seek to influence the candidate's platforms, and an electoral motive, whereby contributions seek to influence the outcome of the election taking the platforms as given. The GIG will never contribute to the opposing candidate because it can not ex-ante commit to compensating the opposing candidate for announcing a pliable policy that is more to the GIG's liking. In lop-sided elections favoring the opposing candidate, the GIG will not contribute any money to the race. In close elections, there is an electoral motive for giving to the candidate with which the GIG is aligned. An interest group is able to use the prospect of electoral motive contributions to influence the pliable policy of both candidates (a feature that is also present in Grossman and Helpman 2000).

Proposition 1 *GIG's never give money to opposing candidates and give to aligned candidates only in sufficiently close elections, i.e. $\exists \underline{P}$ and $\overline{P}$ such that $\forall P \in (\underline{P}, \overline{P})$, $M_K^* > 0$, $M_{-K}^* = 0$ and $\forall P \notin [\underline{P}, \overline{P}]$, $M_A^* = 0 = M_B^*$*

Proof. The donation schedule to the parties, given the inability of the GIG to commit to the opposing candidate, is only a function of what the aligned candidate announces. Assuming, without loss of generality, that the GIG is aligned with candidate A, then its equilibrium schedule of donations can be written: $M_A(\tau_A), M_B(\tau_A)$. Candidate B's maximization problem, then, is not influenced by the GIG's donations to B and therefore there is no reason for GIG A to give any money to candidate B. Therefore, we can rephrase the GIG's maximization problem as

$$\max_{M_A, \tau_A} 1 - F\left[-W(\tau_A) + W(\tau_B) - M_A - b\right] + W_A(\tau_A) + M_{GIG} - M_A$$

s.t. :

$$(1.) \quad : \quad \left[1 - F\left[-W(\tau_A) + W(\tau_B) - M_A - b\right]\right] + W_A(\tau_A) \geq \overline{U}$$

$$(2.): \quad \tau_B^* = \arg\max_{\tau_B^*} F\left[-b - (W(\tau_A^*) - W(\tau_B) + M_A^* - M_B)\right] + W_B(\tau_B)$$

$$(3.): \quad M_A \geq 0, \text{ and}$$

$$(4.): \quad M_A \leq M_{GIG}$$

First, we note that constraint $(1.)$ is never strictly binding. If it were, then
$\left[1 - F\left[-W(\tau_A) + W(\tau_B) - M_A - b\right]\right] + W_A(\tau_A) \gtrless \overline{U} \implies M_A < 0$ which is not possible. Therefore, we can ignore the first constraint.

Maximizing $(1.)$ and $(2.)$, we get

$$f(\Delta) = -\frac{\frac{\partial W_A}{\partial \tau_A}}{\frac{\partial W}{\partial \tau_A}} = \theta_A \tag{13}$$

$$f(\Delta) = -\frac{\frac{\partial W_B}{\partial \tau_B}}{\frac{\partial W}{\partial \tau_B}} = \theta_B \tag{14}$$

Lastly, given that the maximization problems are concave, the solutions are characterized by their first order conditions so that we can replace constraint $(2.)$ with (14). We can now rewrite our original problem as:

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$$\max_{M_A, \tau_A} 1 - F\left[-W\left(\tau_A\right) + W\left(\tau_B\right) - M_A - b\right] + W_A\left(\tau_A\right) + M_{GIG} - M_A \quad (15)$$

$$+\mu_B \left[f\left(\Delta\right)\frac{\partial W}{\partial \tau_B} - \frac{\partial W_B}{\partial \tau_B}\right] + \lambda_A M_A + \lambda_{GIG}\left[M_{GIG} - M_A\right]$$

The FOC for M_A is given by:

$$f\left(\Delta\right) - 1 - \mu_B f'\left(\Delta\right)\frac{\partial W}{\partial \tau_B} + \lambda_A - \lambda_{GIG} = 0 \quad (16)$$

The FOC for τ_A is given by:

$$f\left(\Delta\right)\frac{\partial W}{\partial \tau_A} - \mu_B f'\left(\Delta\right)\frac{\partial W}{\partial \tau_B}\frac{\partial W}{\partial \tau_A} + \frac{\partial W_A}{\partial \tau_A} = 0 \quad (17)$$

Combining (16) and (17) divided by $\frac{\partial W}{\partial \tau_A}$, we get:

$$1 - \theta_A + \lambda_{GIG} = \lambda_A \quad (18)$$

But $\theta_A = f\left(\Delta\right)$ via (13) :

$$1 - f\left(\Delta\right) + \lambda_{GIG} = \lambda_A \quad (19)$$

From single peakedness, we get that $M_A^* > 0 \leftrightarrow \lambda_A < 0 \leftrightarrow f\left(\Delta\right) > 1 \leftrightarrow \exists k > 0$ such that $\Delta \in (-k, k) \leftrightarrow P \in \left(\frac{1}{2} - \overline{P}, \frac{1}{2} + \overline{P}\right)$ for some $\overline{P}$. ∎

Notice that $f\left(\Delta\right) = \theta_A = \theta_B$. This means that in close races ($f\left(\Delta\right)$ is high), $\frac{\partial W_A}{\partial \tau_A}$ and $\frac{\partial W_B}{\partial \tau_B}$ are high relative to $\frac{\partial W}{\partial \tau_A}$ and $\frac{\partial W}{\partial \tau_B}$ which, given the concavity of the W functions, means that τ_A and τ_B are closer to the ideal point of the median voter (and thus to eachother). Similarly, in lop-sided races, ($f\left(\Delta\right)$ is low), $\frac{\partial W_A}{\partial \tau_A}$ and $\frac{\partial W_B}{\partial \tau_B}$ are low relative to $\frac{\partial W}{\partial \tau_A}$ and $\frac{\partial W}{\partial \tau_B}$ which given the concavity of the W functions means that τ_A and τ_B are closer to the ideal point of the politicians. In other words, we get policy convergence in close races and divergence in lop-sided races. This means that politicians espousing radical policies are likely to be either lop-sided winners or lop-sided losers; in either case, the marginal value of moderating to influence the electorate is small.

Corollary 1 *Close elections lead to policy convergence, lop-sided elections to policy divergence: $\tau_A^* - \tau_B^*$ is larger when $f\left(\Delta\right)$ is smaller.*

3.2 Special Interest Group

Whereas general interest groups mainly contribute in close elections in order to affect the outcome of the election, this sub-section shows that special interest groups contribute in lop-sided elections in order to influence the policies which the likely winner implements; in close races, special interest groups use out of equilibrium threats.

Special interest groups differ from general interest groups in that they maximize:

$$\max_{\{M_A(\tau_{SIG}^A,\tau_{SIG}^B),M_B(\tau_{SIG}^A,\tau_{SIG}^B)\}} (1 - F\left[-b - (W(\tau_A^*) - W(\tau_B^*) + M_A - M_B)\right])W_{SIG}(\tau_A^*) +$$

$$\tag{20}$$

$$F\left[-b - (W(\tau_A^*) - W(\tau_B^*) + M_A - M_B)\right]W_{SIG}(\tau_B^*) + M_{SIG} - M_A - M_B$$

$$s.t.\ :$$

$$\tau_A^* = \arg\max_{\tau^A} 1 - F\left[-b - (W(\tau_A) - W(\tau_B^*) + M_A^* - M_B^*)\right]$$

$$\tau_B^* = \arg\max_{\tau_B^*} F\left[-b - (W(\tau_A^*) - W(\tau_B) + M_A^* - M_B^*)\right]$$

$$M_A, M_B \geq 0,\ \ M_A + M_B \leq M_{SIG}$$

Our definition of equilibrium is identical to the definition in the GIG problem. The special interest group's maximization problem is difficult to solve directly; the solution would involve optimal control theory and it would be very difficult to check whether or not the mathematical solution was a global optimum. We therefore rephrase the problem as a principal-agent contract theory problem. Since the actions of the agents are contractible and observable, the interest group does not need to worry about whether or not an agent follows her incentive schemes. In other words, there is no incentive compatibility constraint. So, the SIG maximizes its utility subject to the constraint that each of the politicians achieve a utility greater than or equal to their outside options. In contrast to the bilateral contracting environment standardly considered, we do not require that a politician receive the same amount of money in

the other politician's inside and outside options respectively. The interest group can create a flexible schedule where the equilibrium level of donation from the SIG to a politician differs depending upon the opposing politician's level of support. Moreover, because the SIG can fully commit to a schedule in advance and because the amount of money it gives to a candidate in the other candidate's outside option does not actually get paid in equilibrium (as opposed to in the bilateral contracting problem), there is no cost to the SIG of threatening to give all of its money to a candidate in the other candidate's outside option. The individual rationality constraint for candidate A is:

$$U_A\left[\tau_A^*, \tau_B^*, M_A^*, M_B^*\right] \geq U_A\left[0, \tau_B^*, 0, M_{SIG}\right] \tag{21}$$

Formulated as a contract theory problem, the only differences between bilateral and multilateral contracting reduce to whether or not the amount of money in the inside option of the individual rationality constraints equal the amount given in the outside options. We are now ready to write the problem which the SIG solves; the SIG maximizes its utility, choosing compensation levels and support levels for each politician subject to each politician receiving at least their outside option in utility terms:

$$\max_{\tau_A, \tau_B, M_A, M_B} U_{SIG}\left[\tau_A, \tau_B, M_A, M_B\right] \tag{22}$$

$$\text{s.t. } U_A\left[\tau_A, \tau_B, M_A, M_B\right] \geq U_A\left[0, \tau_B, 0, M_{SIG}\right]$$

$$\text{s.t. } U_A\left[\tau_A, \tau_B, M_A, M_B\right] \geq U_B\left[\tau_A, 0, M_{SIG}, 0\right]$$

It remains to check that our specification of the outside option to the multilateral contracting problem gives us an equivalence between solutions of the game theory problem and solutions of the contract theory problem:

Proposition 2 *A solution to the contract theory problem, (22) gives the equilibrium levels $\left[\tau_A, \tau_B, M_A, M_B\right]$ to a solution of the game theory problem, (20), and the levels to a solution of the game theory problem, 20, gives a solution to the contract theory problem 22*

Proof. See appendix ∎

The equivalence between the game theory problem and the multilateral contract theory problem allow us to more easily show that SIGs donate only in sufficiently lop-sided races, using out of equilibrium threats to gain support in close races.

Proposition 3 *The SIG donates only in sufficiently lop-sided races but always receives equilibrium support from politicians:* $P \in \left[\frac{1}{2} - \frac{1}{2\theta}, \frac{1}{2} + \frac{1}{2\theta}\right] \Rightarrow M_A^* = M_B^* = 0$ *and either* $P \notin \left(\frac{1}{2} - \frac{1}{2\theta}, \frac{1}{2} + \frac{1}{2\theta}\right) \Rightarrow M_A^* > 0$ *or* $M_B^* > 0$.

Proof. First we show that if equilibrium donations are zero, then support must still be positive. Suppose $\tau_A^* = \tau_B^* = 0$ but $M_A^* + M_B^* < M_{SIG}$. Since

$$max\left[P(A)\frac{\partial W_{SIG}(0)}{\partial \tau_A}, [1 - P(A)]\frac{\partial W_{SIG}(0)}{\partial \tau_A}\right] \geq \frac{\frac{\partial W_{SIG}(0)}{\partial \tau_A}}{2} > -(1 + f(0))\frac{\partial W_k(0)}{\partial \tau_k} \text{ and}$$

$-(1 + f(0))\frac{\partial W_k(0)}{\partial \tau_k} \geq -(1 + f)\frac{\partial W_k(0)}{\partial \tau_k}$ by (11) ⇒ the marginal benefit to the SIG of contributing is greater than the marginal cost of announcing some amounts of the SIG policy for the ex-ante winning candidate ⇒either $\tau_A^* > 0, \tau_B^* > 0$ or both. Alternatively, $M_A^* + M_B^* = M_{SIG}$ and $\tau_A^* = \tau_B^* = 0$ the SIG can reduce donations and be better off. Thus, $\tau_A^* > 0$, $\tau_B^* > 0$ or both.

For notational simplicity, by Δ, we denote $-b - W(\tau_A) + W(\tau_B) - M_A + M_B$. We also let λ_A and λ_B denote the Kuhn-Tucker-Lagrange multipliers on the non-negativity constraints on contributions to candidates A and B respectively. λ_{SIG} is the constraint on total SIG expenditures and μ_A and μ_B are the constraints on candidate outside options. We write the maximization problem as:

$$\max_{M_A, M_B, \tau_A, \tau_B} [1 - F(\Delta)]W_{SIG}(\tau_A) + F(\Delta)W_{SIG}(\tau_B) + M_{SIG} - M_A - M_B + \lambda_A M_A + \lambda_B M_B +$$

$$\lambda_{SIG}[M_{SIG} - M_A - M_B] + \mu_A[1 - F(\Delta) - 1 + F(-b + M_{SIG} + W(\tau_B))] +$$

$$\mu_B[F(\Delta) - F(-b - M_{SIG} - W(\tau_A))]$$

Taking first order conditions with respect to M_A and M_B, we get:

$$\frac{\partial U_{SIG}}{\partial M_A} = f(\Delta)[W_{SIG}(\tau_A) - W_{SIG}(\tau_B)] - 1 + \lambda_A - \lambda_{SIG} + f(\Delta)(\mu_A - \mu_B) = 0 \quad (23)$$

$$\frac{\partial U_{SIG}}{\partial M_B} = f(\Delta)[W_{SIG}(\tau_B) - W_{SIG}(\tau_A)] - 1 + \lambda_B - \lambda_{SIG} + f(\Delta)(\mu_B - \mu_A) = 0 \quad (24)$$

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Taking first order conditions with respect to τ_A and τ_B and dividing by $\frac{\partial W_k}{\partial \tau_k}$, we get:

$$\frac{\partial U_{SIG}}{\partial \tau_A} = 0 = f(\Delta) \left[W_{SIG}(\tau_A) - W_{SIG}(\tau_B) + \mu_A - \mu_B \right] + \tag{25}$$
$$\mu_B f\left(-b - M_{SIG} - W(\tau_A)\right) - \left[1 - F(\Delta)\right]\theta$$

$$\frac{\partial U_{SIG}}{\partial \tau_B} = 0 = f(\Delta) \left[W_{SIG}(\tau_B) - W_{SIG}(\tau_A) + \mu_B - \mu_A \right] + \tag{26}$$
$$\mu_A f\left(-b + M_{SIG} + W(\tau_B)\right) - F(\Delta)\theta$$

Adding (25) and (26), we get:

$$\mu_A f\left(-b + M_{SIG} + W(\tau_B)\right) + \mu_B f\left(-b - M_{SIG} - W(\tau_A)\right) = \theta \tag{27}$$

Combining (27) with (23) and (24), we get:

$$\lambda_A = 1 + \lambda_{SIG} + \mu_B f\left(-b - M_{SIG} - W(\tau_A)\right) - \left[1 - F(\Delta)\right]\theta \tag{28}$$
$$\lambda_B = 1 + \lambda_{SIG} + \mu_A f\left(-b + M_{SIG} + W(\tau_B)\right) - F(\Delta)\theta$$

We now consider three cases: (1.) $\tau_A = \tau_B$ and (2a.) $\tau_A \neq \tau_B$ and outside options binding for both candidates, (2b.) $\tau_A \neq \tau_B$ and outside options not binding for one candidate.

(1.) Suppose $\tau_A = \tau_B$. From, the one-sidedness theorem (see theorem below), we know that both M_A and M_B can not be greater than zero. Therefore, either $M_A > 0 = M_B$, $M_B > 0 = M_A$, or $M_A = 0 = M_B$. Suppose $M_A > 0 = M_B$. Then, candidate A's IR constraint must be non-binding. Otherwise, B's IR constraint would not be satisfied. But in this case, the SIG can reduce the payments to A, keeping fixed support levels for both A and B and satisfying both A and B's IR constraints. A symmetric argument holds if $M_B > 0 = M_A$. Therefore, it must be the case that $M_A = 0 = M_B$. Moreover, if $M_A = 0 = M_B$ and $\tau_A = \tau_B$ then, either both IR constraints must be binding or both must be non-binding. If both are non-binding, then the SIG could induce a higher level of τ from the two candidates without having to spend any money. Therefore, both IR constraints must bind.

From the fact that the IR constraints are binding: $f\left(-b - M_{SIG} - W\left(\tau_A\right)\right) = f(\Delta) = f\left(-b + M_{SIG} + W\left(\tau_A\right)\right)$, we get

$$\mu_A f\left(\Delta\right) = \left[1 - F(\Delta)\right]\theta \tag{29}$$

$$\mu_B f\left(\Delta\right) = F(\Delta)\theta$$

Combining (29) with (28), we get:

$$\lambda_A = 1 + \lambda_{SIG} + F\left(\Delta\right)\theta - \left[1 - F(\Delta)\right]\theta \tag{30}$$
$$\lambda_B = 1 + \lambda_{SIG} + \left[1 - F(\Delta)\right]\theta - F(\Delta)\theta$$

Therefore, $\tau_A = \tau_B \Rightarrow \min\left[F\left(\Delta\right)\theta - \left[1 - F(\Delta)\right]\theta,\ 1 - F\left(\Delta\right)\theta - F(\Delta)\theta\right] \geq -1$
$\leftrightarrow \max\left[M_A,\ M_B\right] = 0 \leftrightarrow F\left(\Delta\right) \in \left[\frac{1}{2} - \frac{1}{2\theta}, \frac{1}{2} + \frac{1}{2\theta}\right]$

(2a.) Now, suppose $\tau_A > \tau_B$, then if $M_A = 0$ and assume that outside options bind for both parties. Then $\tau_A > 0 \Rightarrow M_A > 0$ and similarly for τ_B. Thus $\mu_B f\left(-b - M_{SIG} - W\left(\tau_A\right)\right) = \mu_B f\left(\Delta\right)$. So, from (25), we have $\mu_A f\left(-b + M_{SIG} + W\left(\tau_B\right)\right)$
$= \mu_A f\left(\Delta\right) = \left[1 - F(\Delta)\right]\theta - f(\Delta)\left[W_{SIG}\left(\tau_A\right) - W_{SIG}\left(\tau_B\right)\right] < \left[1 - F(\Delta)\right]\theta$. This implies that $\mu_B f\left(-b - M_{SIG} - W\left(\tau_A\right)\right) > F(\Delta)\theta$ as a consequence of (27). This means that $\lambda_A < 0$ when $F\left(\Delta\right)\theta - \left[1 - F(\Delta)\right]\theta < -1 \Rightarrow F\left(\Delta\right) < \frac{1}{2} - \frac{1}{2\theta}$. Similarly, $\lambda_B < 0$ when $1 - F\left(\Delta\right)\theta - F(\Delta)\theta < -1 \Rightarrow F\left(\Delta\right) > \frac{1}{2} + \frac{1}{2\theta}$.

(2b.) Lastly, suppose $\tau_A > \tau_B$ and the outside option doesn't bind for A. Then $\mu_A = 0 \Rightarrow \mu_B f\left(-b - M_{SIG} - W\left(\tau_A\right)\right) = \theta \Rightarrow \lambda_A = 1 + \lambda_{SIG} + F\left(\Delta\right)\theta > 0 \Rightarrow M_A^* = 0$, contradicting $\tau_A > \tau_B$. This means that there are no solutions where outside options do not bind (no electoral motive for contributing).

Thus $P \in \left[\frac{1}{2} - \frac{1}{2\theta}, \frac{1}{2} + \frac{1}{2\theta}\right] \Rightarrow M_A^* = M_B^* = 0$ and either $P \notin \left(\frac{1}{2} - \frac{1}{2\theta}, \frac{1}{2} + \frac{1}{2\theta}\right) \Rightarrow M_A^* > 0$ or $M_B^* > 0$. ∎

The Kuhn-Tucker-Lagrange multipliers, λ_A and λ_B, are the marginal values to the SIG of relaxing the constraints on non-negativity of donations. If the constraints are binding, the expressions for λ_A and λ_B (as opposed to their values) represent

the negative of the marginal utility of contributions[12]. First of all, notice that when $\theta < 1$, λ_A and λ_B are always negative. Since θ corresponds to be the ratio of the marginal utility of the SIG policy to the SIG over the marginal disutility of the SIG policy to the politician, the support the SIG can buy is not worth its cost when $\theta < 1$ so the SIG will never want to spend in or out of equilibrium. But since we assume that SIGs care sufficiently more about their policy than politicians, we do not have to worry about non-negativity constraints on the SIG policy.

In the equations above, $(1 - F(\Delta))\theta$ corresponds to the gross marginal benefit of donating to candidate A and $F(\Delta)\theta$ to the gross marginal benefit of donating to candidate B. The range of $F(\Delta)$ for which out of equilibrium threats lead to a collapse in contributions is $\left[\frac{1}{2} - \frac{1}{2\theta}, \frac{1}{2} + \frac{1}{2\theta}\right]$, which becomes arbitrarily small as $\theta \to \infty$. Equation (30) implies that the SIG will give to candidate A when $1 + \lambda_{SIG} + [F(\Delta)\theta - (1 - F(\Delta))\theta] < 0$ which is the case when $(1 - F(\Delta))\theta$ is large or when candidate A is very likely to win. The gross marginal utility of spending in this case is the benefit the SIG obtains from additional support from candidate A: $(1 - F(\Delta))\theta$. The gross marginal disutility of spending is equal to the loss in the SIGs ability to threaten candidate B, given by $F(\Delta)\theta$ plus the disutility of giving up one dollar of reserves (equal to 1).

These points are perhaps best illustrated with a simple numerical example. Re-arranging (30), the marginal utility of giving a dollar is given by:

$$-\lambda_A = [\, 1 - F(\Delta)]\,\theta - F(\Delta)\,\theta - 1 - \lambda_{SIG} \tag{31}$$

Suppose that $\theta = 5$. Suppose moreover that candidate A is the stronger candidate. Finally, to simplify matters, suppose that money can only take on integral values and that the interest group only has \$1. The interest group will either focus upon incentivizing candidate A or the interest group will focus upon incentivizing both candidates. If the interest group wants to concentrate upon candidate A (because candidate A is sufficiently strong), then it makes sense for it to pay the full amount to candidate B in the case of both candidates announcing zero. Such a strategy will

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[12]Remember that the Kuhn-Tucker theorem actually forces them to be non-negative.

maximize the interest group's ability to focus threats on incentivizing candidate A. If the interest group wants to focus on incentivizing candidate A, it should not try at all to incentivize candidate B. For every dollar of support it promises candidate A in equilibrium, that is one less dollar the interest group can spend differentially (in the inside and outside options) depending upon the support it receives from candidate A. Therefore, there is a natural tradeoff between incentivizing candidate A and incentivizing candidate B. Thus, if the interest group wants to focus on gaining support from candidate A, then it should construct an offer where if both candidates announce zero, the interest group should give a dollar to candidate B; if candidate A announces 5 and candidate B zero, then the interest group should not give any money to either party, and if candidate A announces 10 and candidate B announces zero, then the interest group should give $1 to candidate A. In equilibrium, candidate B will choose level of support zero and candidate A will choose level of support 10. Below is the schedule for contributions:

$$
\begin{array}{cc}
(\tau_A, \tau_B) & (M_A, M_B) \\
(0, 0) & (0, 1) \\
(5, 0) & (0, 0) \\
(10, 0) & (1, 0) \\
(0, 5) & (0, 1) \\
(5, 5) & (0, 0) \\
(10, 5) & (1, 0)
\end{array}
\tag{32}
$$

Another possibility, is that the interest group tries to target both candidates equally. In this case, the interest group will not give to either party if both candidates do not support. Then, the interest group can give $1 to any candidate who announces 5 while the other candidate announces zero. Similarly, the interest group can pay one dollar for any candidate who offers 5 or more than the other; unfortunately for the interest group, neither side will choose any level of support more than 5 because the will always prefer (h-10,k) with the opponent getting $1 to (h,k) with $1. It is a dominant strategy for each side to announce 5 in this case and the schedule is given

by:

$$\begin{array}{cc}
(\tau_A, \tau_B) & (M_A, M_B) \\
(0,0) & (0,0) \\
(5,0) & (1,0) \\
(10,0) & (1,0) \\
(0,5) & (0,1) \\
(5,5) & (0,0) \\
(10,5) & (1,0)
\end{array} \tag{33}$$

So, the interest group has two possible schedules of offers to make: 32 or 33. The first of these is a concentrated threats offer and the second is a diffuse threats offer. The diffuse threats offer will be chosen in close elections and the concentrated threats offer in lop-sided ones. The relative benefits of making equilibrium donations (the concentrated threats offer) will be high when the difference in the probability of winning is sufficiently high that even with the loss in direct utility from holding money by the SIG, the SIG still prefers to concentrate threats rather than spread them around: 31.

A dollar kept in reserves is spent on threatening both candidates A and B. When this dollar is shifted to equilibrium donations for candidate A, the SIG gains the difference between donating to candidate A and threatening candidate B minus the marginal value of holding the dollar. Suppose that candidate A will win with 55% probability. Then, the SIG gains (55%-45%)·5 or .5 in expectation from moving a dollar from reserves to A. This utility gain is less than the marginal disutility which the SIG experiences due to the loss of money; so, contributions are not made. However, suppose that the probability of A's victory is 80%. Then, the SIG gains (80%-20%)·5=\$3 from donating a dollar to A, which is greater than the disutility the SIG will undergo from having less money in reserves. Thus, λ_A will be negative and M_A will be positive. Of course, in the process of contributing that dollar the SIG will also affect the probability that A wins the race. Adding the marginal utility of money may seem ad-hoc. One of the many justifications for the assumption is that

interest groups are simultaneously trying influence many separate races. Therefore, the opportunity cost of spending a dollar is not just the threats the interest group is able to make to the opposing candidate but also the foregone threats it can no longer make in other races. The assumed marginal utility of money can be seen as a proxy for the value of money used to threaten in other races.

Suppose that $M_A = M_B = 0$. Then, the outside options will bind for both candidates. Therefore, we can equate the outside with the inside option for candidate A which leads us to:

$$ -b + M_{SIG} + W(\tau_B) = -b - W(\tau_A) + W(\tau_B) - M_A + M_B $$

Solving for $W(\tau_A)$, we get that that $-M_{SIG} = W(\tau_A)$. Using the same logic on candidate B's outside option, we get $-M_{SIG} = W(\tau_A) = W(\tau_B)$. Now, suppose that the outside option is still binding but all the money is given to candidate A. Then, $M_A = M_{SIG}$ and $M_B = 0$ so that we get $-2M_{SIG} = W(\tau_A)$ and $W(\tau_B) = 0$. We see something here that is present in the schedules above. From using multilateral offers, the interest group is able to get twice the value of its money. It can either use threats and disperse the support equally across the two candidates or concentrate and get twice the value of its money from one of the two candidates.

Using our framework, we can also predict that SIGs will not contribute to opposite sides of the same race. One-sidedness of donations is a stylized fact which neither the Baron (1994) nor the Grossman-Helpman (1996) models explain. The intuition for our result is as follows: interest groups are only willing to forgo the combined utility of holding an extra dollar plus using that dollar to gain support from a weak candidate if the extra support from the stronger candidate is important because the stronger candidate is sufficiently likely to win the election. Obviously, this can never hold for two candidates in a race simultaneously. One-sidedness is one of the key distinguishing predictions of our model when compared with the literature.

Proposition 4 *SIGs never give to both sides in the same race:* $M_A^* > 0 \Rightarrow M_B^* = 0$ *and* $M_B^* > 0 \Rightarrow M_A^* = 0$.

Proof. Adding λ_A and λ_B (28), we get

$$\lambda_A + \lambda_B = 2\left(1 + \lambda_{SIG}\right) > 0 \tag{34}$$

$\Rightarrow \lambda_A > 0$ (in which case $M_A^* = 0$) or $\lambda_B > 0$ (in which case $M_B^* = 0$) or both. ∎

In our GIG theorem, we have already shown that GIGs never make donations to members of the opposing party. Therefore, we have established that interest groups generally make at most one-sided donations within a race:

Corollary 2 *For both SIGs and GIGs, donations are always one-sided:* $M_A^* > 0 \Rightarrow$ $M_B^* = 0$ *and* $M_B^* > 0 \Rightarrow M_A^* = 0$.

3.3 Robustness

Here we consider the class of models where interest groups can symmetrically commit or not to all candidates, even those of the opposing party. We explain why no two period model with symmetric commitment assumptions can generate all of (1.) Out of equilibrium threats in close elections for SIGs, (2.) In-equilibrium donations for SIGs in lop-sided elections, and (3.) In-equilibrium donations for GIGs in close elections. We will vary the model in two dimensions: (1.) Whether interest groups can commit or not ahead of time and (2.) whether they can condition payments upon each candidate's policy announcements jointly or instead can only condition upon what each candidate announces individually.

If there is no ex-ante commitment, then all contributions must be ex-post. In other words, the candidates must announce their policies first and then the interest groups can decide how much to give. The only motivation for contributions after candidates have announced their platforms is the electoral motive. A model with ex-post donations would be essentially very similar to the model of Baron (1994). The problem with this setup in explaining the empirical patterns of contributions is that there is no motive for SIGs to contribute in lop-sided elections. Once a strong candidate has already announced her platform, there is no influence motive left for

an SIG to contribute and because of the candidate's electoral strength there is no electoral motive either. So, there are no equilibrium contributions.

Under full commitment, we have two possible variants: bilateral commitment (i.e. interest groups conditioning contributions on each candidate's policy platform individually) and multilateral commitment (i.e. interest groups conditioning contributions on both platforms jointly). With bilateral commitment, we essentially have the model of Grossman and Helpman (1996). The first limitation of that setting is that it does not generate out-of-equilibrium threats because payments are not conditioned on what both politicians announce collectively but rather each politician's gross payoff is a function of what she announces alone. A second drawback of this setting is that it standardly predicts contributions by the SIG to both candidates. Special interest groups, acting under uncertainty, hedge by donating to both sides. However, empirically this pattern of two-sided donations within the same race is rare.

The second variant of the full commitment case is the subcase of multilateral commitment. This setup is the same as our current model except that is assumes that general interest groups can condition payments on the opposing political candidate's announcements. In such a model, interest groups could ex-ante specify contingent payoff schemes which are a function of what both politicians decide to support. Here, the problem is that ex-ante collective commitment is too strong an assumption; there is no longer any reason for GIGs to make equilibrium donations in sufficiently close elections. Instead, GIGs can follow improbable threat programs whereby they convince the opposing candidate to radicalize sufficiently on the pliable GIG policy in order to increase the probability of losing the election in lieu of the GIG making equilibrium donations to its preferred candidate[13]. This possibility, besides being somewhat bizarre, also makes predictions counter to the fact that donations are the highest in the very closest of elections. These insights can be summarized in a 2X2 table:

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[13]If a third period of discretionary donations is added to the baseline model, then such out of equilibrium promises are not Trembling Hand Perfect whereas the threats of the SIGs are robust to the Trembling Hand Perfect Refinement.

	Bilateral	Multilateral
No Commitment	Not Possible	No SIG Donations (BARON94)
Commitment	No OE Threats (GH96)	No GIG Donations

3.4 Campaign Finance Limits

Since much of the literature on the effect of money in politics has found little or mixed evidence, many authors have assumed limited benefits for campaign finance limits. Others, who do believe that money does influence politics, have noted that campaign expenditures have risen even as greater limitations have been placed upon campaign contributions. Because money does influence outcomes in our model, limitations on spending may reduce the impact of money on politics. In our model, money has two modes of influence: expenditures and threats. A reduction in the ability of interest groups to spend money can limit their ability to make threats, forcing them to resort to equilibrium contributions.

We now add a simple but intuitive and empirically motivated assumption: candidates also value money. In a previous version of this paper, we maintained this assumption throughout the paper. Without exception, all of our prior propositions are unaltered by the addition of this assumption[14]. The assumption that candidates care about money can be motivated by noting that popular politicians in mildly competitive or non-competitive elections often make both hard money donations to other candidates in their party as well as soft money donations to party committees. Also, popular candidates usually carry balances to future election cycles. As with interest groups, we assume that the marginal utility of money is constant; thus, in close elections, where small amounts of money spent can have a large impact upon the probability of electoral victory, it will be more valuable for politicians to spend money on winning the election. However, in lopsided elections, it will be more beneficial for politicians to keep their funds for other purposes. We place a reformulation of the maximization in the appendix.

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[14]Though the theorems remain the same, the intuition does sometimes differ.

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We model campaign finance reform as limitations on the levels of contributions which can be given from an interest group to a candidate[15]. When limitations are placed (or increased) on contribution levels, some SIGs which were making contributions before the reform, become less able to spend and sometimes this limits their ability to "bribe" candidates. In these cases, both campaign contributions and special interest group influence reduce. However, sometimes, partial campaign finance reform can have a perverse effect on expenditures. Suppose that before the reform, the SIG was able to use out-of-equilibrium threats with a given candidate. However, suppose that out-of-equilibrium threats relied upon large contingent payments which are no longer possible under the new rules. As a result, the SIG may turn towards contributing to the candidate who previously would have lost the election but has a lower distaste for implementation of the policy. In this case, equilibrium campaign contributions could rise. Either way, however, the influence of money in politics does not increase and may even go down. A complete ban of campaign expenditures, of course, eliminates spending and influence both in-equilibrium and out-of-equilibrium. We place a reformulation of the maximization problem in the (Definitions 1 and 2).

Proposition 5 *If candidates value contributions not spent on their own campaign, a limitation M' on spending by the SIG can lead to increases in equilibrium spending but not influence; it will lead at least weakly to decreases in both spending and influence for the GIG: $\exists\, b, M_{SIG}, M'$ such that $M_A^* \left(\tau_A^* \left(M' \right), \tau_B^* \left(M' \right) \right) > M_A^* \left(\tau_A^* \left(M_{SIG} \right), \tau_B^* \left(M_{SIG} \right) \right)$ but $\forall\, b, M_{SIG}, M'$ $\tau_A^* \left(M_{SIG} \right) > \tau_A^* \left(M' \right)$ and $\tau_B^* \left(M_{SIG} \right) > \tau_B^* \left(M' \right)$*

Proof. See appendix. ∎

4 Empirical Evidence

The model presented in the previous section suggests that non-partisan interest groups will seek to influence the political process through off-equilibrium contributions and

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[15]Note that often times special interest groups can wield tremendous power even in the presence of campaign finance reform because they can urge citizens to make individual donations.

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will resort to equilibrium contributions when dealing with a sufficiently strong candidate. It also suggests that partisan interest groups will primarily contribute to marginal candidates. These predictions are tested using contribution data from the Federal Elections Commission and voter registration and election data from the Record of the American Democracy (ROAD) project, published by King et al (1997). We focus on U.S. House elections. Our data coverage includes the 1986, 1988 and 1990 election cycles.

4.1 A brief summary of campaign finance rules

All individual contributions of $200 or more as well as contributions made by a political committee are required to be reported to the Federal Election Commission (FEC). This data is available online for all election cycles beginning with 1984. Committees which raise and spend money to elect and defeat candidates are referred to as Political Action Committees, or PACs. The term is most commonly used to refer to committees that are not affiliated with a political party. Most PACs represent industries, labor or ideological interests. They are formed, among other reasons, in order to comply with election law which prohibits entities such as corporations or unions from making direct contributions to candidates from their treasury funds. Corporations and unions, however, can form a PAC in order to pool contributions from employees or from union members (or any individual that chooses to contribute to that PAC). This permission undoes some of the constraints imposed by the forbiddance of direct contributions.

Under the election law that was applicable up until the 2002 election, individuals could contribute at most $1000 per candidate per election (with primary and general elections counting as separate elections), $5,000 to a PAC and $20,000 to a national party committee per year, up to a combined total limit of $25,000. PACs were allowed to contribute at most $5,000 per candidate per election, $5,000 to another PAC and $15,000 to national party committees per year, and did not face any limits on total contributions.[16] Party committees were allowed to contribute up to $17,500

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[16]Figures refer to multi-candidate committees. Those committees have more than 50 contributors,

per candidate per election cycle. Some influential politicians establish "leadership PACs" in order to increase the limit on how much they can raise from a donor. Such funds cannot be used on a candidate's own campaign but can be given to other candidates or party committees (subject to the respective contribution limits). There are no limits on independent expenditures in support of or opposition to a candidate without consultation, coordination or cooperation with the supported candidate or party organization. These expenditures must be reported to the FEC, and cannot be made by corporations. If an ad attacks or praises a candidate but does not use the words "vote for" or "vote against" it is likely to be considered an "issue ad." The FEC did not require these activities, sponsoring groups and sources of funds to be reported as they were in the case of independent expenditures.There were no constraints on corporations sponsoring issue ads.[17] While it is difficult to quantify the role of expenditures which were not reported to the FEC, it is safe to assume that issue ads were not as important in the period covered in our sample as they have become later on.

Perhaps the main loophole in campaign finance law before the 2002 Bipartisan Campaign Reform Act (also known as the McCain-Feingold Act) was the "soft money" allowance. "Soft money" contributions were not subject to any limits and in theory were to be raised by party organizations for non-federal election purposes. In practice, they became an accounting trick to raise funds for federal elections beyond the limitations imposed by law. The FEC data only identifies soft money contributions beginning with the 1992 cycle. Therefore, such contributions are missing in our sample. However, by all accounts soft money contributions were not as important in the period covered in our sample as they were beginning in the mid 1990s. For example, while soft money accounted for 40% of the contributions in the 2000 cycle, that figure

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have been registered for at least six months, and (with the exception of state party committees) have made contributions to five or more federal candidates. If a PAC failed to meet these conditions the limits were $1,000, $5,000 and $20,000 respectively.

[17]The recent McCain-Feingold Act does mandate that any issue advertisements which cost more than $10,000 be reported. In addition, it bans issue advertisements less than 60 days before an election (which has been circumvented in a number of ways).

was only 16% for the 1992 cycle (the first election cycle for which soft money contributions can be quantified).[18] The role of soft money was likely even smaller for the 1986-1990 period, and we do not expect that the inclusion of soft money, if it were possible, would substantially change the main empirical findings of this paper. The McCain-Feingold Act, which became effective the day after the 2002 election, banned soft money contributions while raising individual contribution limits. It is likely that independent expenditures and issue ads will play an increasing role under this new restriction.

4.2 Methodology and Identification

We present the profile of contributions from GIGs and SIGs and test whether or not SIGs target lop-sided elections. First, we define SIGs as PACs not affiliated with a party which give less than 75% of their money to one of the two major parties. GIGs are then defined as those non-party PACs which give 75% or more to one party.[19]. We first run non-parametric kernel density estimates of contribution levels to a candidate on the candidate's difference in vote share with the opponent.

In the case of partisan PACs, targeting mainly close races is the only plausible explanation that rationalizes the data. However, in the case of non-partisan PACs, there is a potential endogeneity problem. Lopsided winners may win because they get more money from SIGs as opposed to getting more money because they are likely to win (reverse causation); alternatively, lopsided winners may both receive SIG money and win because of a third factor such as popularity (mutual causation). In order to address these identification problems, we instrument the measure of electoral strength with data on voter party registration. This IV estimate replicates asking whether candidates who are likely to win solely because they are aligned ideologically with their district receive higher levels of contributions from SIGs. Unfortunately, the theory of non-parametric IV regression has only been developed for the case of

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[18]Figures come from www.opensecrets.org.
[19]The results are robust to the use of different cut-off levels.

a dummy endogenous regressor[20]. Therefore, we estimate the impact of electoral strength on the level of SIG donations using linear splines instrumented with district level registration data.

4.3 Data

The ROAD dataset covers, among other things, election results and party registration at the precinct level. The availability of party registration information was our main data constraint and our main reason for using the ROAD data set[21]. The data covers 1984-1990, but we only use 1986-1990 since one of the FEC contribution data files is not available for 1984, as discussed below. Moreover, party registration information is not available for all states.[22] The states with registration data available are: AK, AZ, CO, CT, DE, FL, IA, KS, KY, LA, MA, MD, ME, NC, NE, NH, NM, NV, NY, OH (1990 only), OK, OR, PA, SD, WV and WY.[23] We chose to drop Louisiana (LA) due to its open-primary election system. Our sample covers about 40% of the seats in the House.

The FEC data is presented in three different files: Individual Contributions, Itemized Committee Contributions and Itemized Records. The individual contributions file covers all contributions made by an individual to a candidate, to a non-party PAC (i.e. a PAC not affiliated with a party) or to a party committee that were $200 or more.[24] The Itemized Committee Contributions file covers all contributions made by a non-party PAC or party committee to a candidate. The Itemized Records file covers all transactions in the Itemized Committee Contributions file plus any other

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[20] See Blundell and Powell (2000).

[21] We need registration data by congressional district as an instrument for identification purposes. This will be discussed shortly.

[22] There are many states where voters are not required to pick a party when registering to vote, and can choose in which primary they want to participate in on the day that primary election takes place.

[23] Registration data is missing for two congressional districts in MD in 1986 and in 1988 and one congressional district in MA in 1990.

[24] Some candidates or committees choose to itemize all contributions received, even when they are lower than $200. As a result, the data includes some individual contributions below that amount.

transaction involving a committee, such as PAC contributions to party committees or transfers between different party committees, among others. This file is not available for 1984, which is why that election is not included in our sample.

4.4 Measuring the partisanship of contributions and candidate strength

In order to test our hypothesis about the relationship between the strength of a candidate and the partisan content of his or her contributions, we first need to construct those two measures.

We construct a partisanship measure for each contributing individual or PAC based on how much the contributions to the two major parties deviate from a 50-50 split. That measure is based on a sample that includes all contributions to Democrat or Republican candidates and party committees available in the FEC data.[25] For every election cycle, we compute how much a contributor gave to each of the two parties. The partisanship measure is then defined as the difference between the largest and smallest party share on the contributions. For example, if a PAC contributed 70% to Democrats and 30% to Republicans (or vice-versa), its partisan measure is 0.4. The partisan measure ranges from zero (corresponding to a 50-50 split) to one (corresponding to one party receiving all the contributions). Note that this measure does not distinguish between pro-Democrat or pro-Republican contributors. It only distinguishes partisan contributors from non-partisan ones. Each contributors' partisan measure is computed based on all contributions data available in the FEC files.[26]

A few itemized individual contributions also listed a committee in the contributor

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[25] We consider the committees classified by the FEC as "Delegate", "House", "Presidential", "Senate", "Non-Qualified Party" and "Qualified Party" to be party committees. The remaining classifications: "Communication", "Independent", "Non-Party non-Qualified" and "Qualified non-party" are considered non-party PACs.

[26] We understand the words partisan and non-partisan are often used to imply formal affiliation with or alignment to a party, and hope that our use of those words does not confuse the reader.

information. The majority of those entries correspond to contributions made by another candidate, with the committee listed being his or her own campaign committee. But some of the entries also listed PACs. We assume that those entries correspond to a situation where an individual contribution was routed through a PAC (for example, an individual contributes to a PAC that is supposed to forward the contribution to a specific candidate or spend it on his or her behalf) and attribute that contribution to the PAC (not to the individual contributor listed). These cases are relatively few in number. In order to focus on differences in the degree of partisanship between contributors to the two major parties, we do not use information on contributions to third parties in our partisan measure. For example, if a PAC contributes 75% to the Democratic Party, 20% to the Republican Party, and 5% to the Green Party, we would assign the PAC a partisan measure of .55. Since third party donations are very small relative to total donations, whether or not they are excluded has negligible effects on the results.

Table 1 summarizes the volume of contributions and the values of the partisan measure for different groups of contributors, using all itemized contributions available in the FEC data files. As one would expect, individual contributions are much more partisan than those of non-party PACs. In fact, the overwhelming majority of individual contributors have a partisan measure of 1. This is largely due to the fact that individuals donate to fewer candidates and are quite likely to make only one donation.

It is important to clarify how donors behave when contributing to both parties, given the implications this has for our model. Such contributions are almost always given to candidates in different races or to party committees. It is rare for a contributor to give to two candidates that are facing each other in the same race. For example, a donor may give to a Democrat candidate in Virginia and to a Republican candidate in California, or to different committees affiliated with each of the two parties. The extent of such overlap in contributions is shown in Table 2. We define overlapping contributions as the minimum amount received by one of the two parties, which corresponds to how much of the main contribution is "undone." For

example, if a donor gives $500 to a Democrat candidate and $300 to a Republican one in the same race, our measure of overlap is $300. As Table 2 indicates, only a very small share of the overlap occurs within a same race (for example, only about 1% of the overlap takes place through contributions to opposing general election House candidates).[27] Therefore our modeling approach, which predicts mainly one-sided or out-of-equilibrium threats, is compatible with the observed pattern of overlap in contributions.

For each candidate, we define the party's district strength as the share of that party's voter registration (among voters registered with a party) minus the share of voter registration of the other major party. For example, if in a given district 20% of the voters are registered as independents and among the 80% registered with a party 60% are registered as Democrats while 30% are registered as Republicans, the party district strength is .3 for the Democrat candidate and -.3 for the Republican one.[28]

The measure of a candidate's electoral strength is defined as the candidate's share of the vote in the general election minus that of his or her opponent. For example, if a candidate wins the election with 60% of the vote against 40% for the opposing candidate, he or she has an electoral strength of .2 while the loosing candidate has an electoral strength of -.2. Again, votes for third party candidates are ignored as all that matters to assess the closeness of an election is the difference between the front-runner and the closest other candidate.

Our sample consists of 951 observations, each of which corresponds to a candidate's

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[27]This suggests that some of the overlap may be due to changing preferences. For example, a donor's preferred candidate may lose the primary while the donor's second preferred candidate may be the winner in the opposing party's primary. It is also possible that a donor may dislike a candidate, and as a result contribute to its challengers both at the primary and at the general election stage.

[28]Alternatively, we could define the party district strength based on the registration share of each party among all registered voters (including independents) instead of the registration share among voters registered with a party. Our approach seems more appropriate since it extracts more information from the registration data. In fact, our computed measure would be observed if all independent voters were forced to chose a party and did so proportionately to the shares of voters registered with each party among voters that registered with a party in that district.

campaign in one of the three election cycles, covering 529 distinct races.[29] Among those 951 campaigns, 914 received itemized contributions and 825 received non-party PAC contributions. Table 3 provides some descriptive statistics of the contributions made to the candidates in this sample.

4.5   Results

Due to the lack of variation in the partisan measure for individuals and party committees, we focus our empirical analysis on non-party PAC contributions. This focus is also appropriate for additional reasons. The strategic behavior described in Section 3 seems more relevant for non-party PAC contributions. Most of the literature on campaign contributions also focuses on non-party PACs, and in doing the same we make our results more easily comparable to previous empirical findings. All of the results presented below are robust to the inclusion of individual and party committee contributions.

Figure 1 shows how the total amount of non-party PAC contributions varies with the candidate's strength. There is a well defined pattern where contributions tend to be higher for candidates in close elections, are also high for lopsided election winners and are very small for lopsided election losers. These empirical regularities had been documented in previous studies. For example, Snyder (1990) presents and tests a model showing that "economic" PACs[30] target their contributions to candidates that are more likely to win. Levitt (1998) shows that even though PACs contribute relatively large amounts to winning candidates in lopsided races, they contribute even more to ones involved in close races. The model presented in this paper can explain why these patterns arise. Our model predicts that partisan PACs will target close races while non-partisan ones will target stronger candidates. Their super-imposition yields the pattern of campaign contributions observed in Figure 1. This stylized

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[29]The number of observations is not as high as the number of races would suggest due to 73 uncontested races, as well as 34 races where only one of the two major parties was present (many of which were *de facto* uncontested races).

[30]Defined as PAC contributions from corporations; labor unions; trade, membership, and health organizations; and cooperatives, excluding independent expenditures.

prediction can be more clearly illustrated by dividing PAC contributions between partisan and non-partisan, and comparing the pattern of contributions for the two groups separately.

We consider a PAC to be highly-partisan if more than 75% of its contributions go to one the parties, and to be non-partisan otherwise. Figure 2 shows how non-party PAC contributions vary with a candidate's strength. Highly-partisan contributions peak around the vote margin of victory, while non-partisan contributions form a plateau at high levels of candidate strength. A similar pattern occurs when individual and party committee contributions are also considered, as well as when different thresholds are used to define partisanship.

In order to formally test the prediction that non-partisan PACs target lopsided winners, we use a spline regression approach. This allows us to capture the nonlinearities implied by the model and suggested by Figure 2. We use 3 splines, since that is the simplest specification that can yield the S-shaped curve predicted by the model. The observed relationship between a candidate's strength and the amount of non-partisan PAC contributions it raises may be driven by reverse causation or mutual causation. In order to address these issues, we instrument the measure of electoral strength with the measure for party district strength[31]. The regression results are presented in Table 5. Regressions (1) and (2) correspond to the first stage regression. In specification (1) we use only the instrument as a regressor, while in specification (2) we also include dummies for the interactions of Party and Year and the interactions of Party and State. The fitted values from the first stage are then regressed on the amount of non-partisan PAC contributions. Similar to the theory of

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[31]One potential worry about using party district strength as an instrument for electoral strength is that voters may register to vote for a popular candidate who also receives large amounts of campaign contributions. We calculated the average standard deviation across years of party registration within districts. The average standard deviation was less than 3%, suggesting little room for endogenous registration. Other studies have used presidential electoral strength as an instrument for electoral strength in the House. We feel that this instrument poses much greater endogeneity problems as voters may turn out for a popular candidate and vote for the presidential candidate of the same party while that candidate, due to her popularity, may receive large amounts of contributions.

bandwidth choice in non-parametric regression, the choice of the knots for the spline regression is somewhat arbitrary. The first knot should correspond to the level of electoral strength at which the PACs least able to make implicit threats would start contributing. The second knot should correspond to the level of electoral strength at which most non-partisan PACs would find equilibrium contributions more effective than an implicit threat of contributing to the opponent. Regressions (3) and (4) place the knots of the splines at an electoral strength measure of -.25 and .25 while regressions (5) and (6) place the knots at -.186 and .313, which correspond to the terciles of the electoral strength distribution. Regressions (4) and (6) include dummies for the interactions of Party and Year and of Party and State. The results in Table 5 indicate the slope of the amount of non-partisan non-party PAC contributions with respect to the instrumented electoral strength along each of the splines. All specifications yield a similar qualitative result: The slope is not statistically significantly different from zero in the first spline, is positive and statistically significant in the second spline, and is not statistically significantly different from zero in the third spline. The lack of statistical significance for the first and third splines could be due to a smaller sample size in the specification using knots at electoral strengths of -.25 and .25; however, the sample size is the same in all three splines in the tercile specification. That confirms the S-shaped relationship predicted by the model. Figure 3 shows the fit of these spline regressions. Similar results are obtained under different specifications, such as different placement of the knots or the inclusion of additional splines. It is worth noting that vote shares alone can explain 16% of the variation in contributions by non-partisan PACs and 30% of the variation once dummies for the interactions of Party and State and Party and Year are included. If one were to run the IV regression without the splines and without any additional controls (i.e. just the electoral strength instrumented by the party district strength), it would be able to explain 22% of the variation. Vote shares also can explain a substantial amount of the variation in partisan non-party PAC contributions. A regression including just the electoral strength and its square (since that relationship is non-monotonic) would explain 19% of the variation (that figure becomes 37% once the control dummies are

included).

Finally, it is worth noting that by focusing on general elections we may overestimate the strength of some candidates. A Democrat candidate in an overwhelmingly Democrat district is almost sure to win in the general election. But in order to make it to the general election, he or she may have to face a tough primary opponent. As a result, a candidate that won with a large share of the vote in the general election may not have been in as comfortable a position to begin with as the general election results might suggest. Moreover, since opposing primary candidates are likely to have similar positions on many issues, the availability of campaign funds may be one of the few deciding differences. Thus, primary elections may increase the scope for off-equilibrium contributions influencing the political process.[32] But on the other hand the people that vote on primary elections are more likely to follow the political process more closely, and may not be as easily influenced by money as general election voters. These considerations point to interesting possibilities for future research.

5   Conclusion

In the continuing and unresolved debate on the role of money in politics, the low levels of monetary donations by special interests have led some to believe that those special interests do not play a large role in the political process. The findings of this paper suggest that the role of money in politics should not be so easily dismissed. Previous papers have already shown how the mere existence of interest groups can cause politicians to support those special interests even without any money being actually spent. The model presented in this paper characterizes the circumstances in which off-equilibrium contributions can be effective and when equilibrium contributions must be made to gain support, providing a new framework that sheds light on the ways interest groups influence the political process. This new framework provides

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[32]Also, party committees may come to the rescue of a candidate if a special interest group makes substantial contributions to his or her opponent *in the general election*. But if those contributions are made to an opposing candidate *in the primary*, then party committees are less likely to get involved (since the contributions do not necessarily imply their loss of a congressional sit).

an explanation for the "missing money" puzzle while still explaining the contributions that actually take place. Our framework is also able to capture the differences in behavior between interest groups that have close ties to a party and those that do not. That distinction helps explain the observed profile of contributions and improves our understanding of the effects of money in the political process (for example who is more likely to receive money driven by partisan/ideological interests and who is more likely to receive money driven by economic/non-partisan interests).

Our theory has interesting implications for campaign finance reform efforts. We have shown that stricter limits on contributions may increase or decrease the level of campaign contributions but will always reduce the influence of special interests. By challenging the literature that has downplayed the effects of money on politics, our paper suggests that serious campaign finance reform efforts are likely to be reduce special interest power (even if they may lead to an increase in the level of contributions actually observed).

One limitation of our approach is that we have made analogies from the model to single legislative races while not modelling the entire legislature. The existence of multiple simultaneous races should increase the prevalence of out-of-equilibrium threats. In particular, the value of a dollar held in reserves could potentially be extremely high and actual donations very low if a dollar in reserves used in threatening many races simultaneously. This is a promising area for future research.

A APPENDIX

A.1 Proof of Proposition 3

Proposition 3 *A solution to the contract theory problem, (22) gives the equilibrium levels $[\tau_A, \tau_B, M_A, M_B]$ to a solution of the game theory problem, (20).*

Proof. Assume a multilateral contracting problem in game theory form. We will show that any solution of the game theory problem is representable as a solution to

the contract theory problem and vice versa. Lets define the game theory problem as:

$$\max_{M_A\left(\tau_A^*,\tau_B^*\right),M_B\left(\tau_A^*,\tau_B^*\right)} U_{SIG}\left[\tau_A^*,\tau_B^*,M_A\left(\tau_A^*,\tau_B^*\right),M_B\left(\tau_A^*,\tau_B^*\right)\right] \tag{35}$$

$$\text{s.t. } \tau_A^* = \arg\max_{\tau_A} U_A\left[\tau_A,M_A\left(\tau_A,\tau_B^*\right),M_B\left(\tau_A,\tau_B^*\right)\right]$$

$$\text{s.t. } \tau_B^* = \arg\max_{\tau_B} U_B\left[\tau_B,M_A\left(\tau_A^*,\tau_B\right),M_B\left(\tau_A^*,\tau_B\right)\right]$$

The above is a very complicated game theory problem with a solution using optimal control theory. We will show that the compensation levels and levels of support of any solution can be obtained by solving a simpler contract theory problem where the principal (the SIG) chooses the compensation levels and support levels subject to the constraint that each agent gets an outside option which would obtain if the agent didn't support the SIG at all, received no compensation and their opponent received the amount that she would get as a best response to the optimal contract given her opponent not supporting the SIG. In other words, the solution can be obtained from:

$$\max_{\tau_A,\tau_B,M_A,M_B} U_{SIG}\left[\tau_A,\tau_B,M_A,M_B\right] \tag{36}$$

$$\text{s.t. } U_A\left[\tau_A,\tau_B,M_A,M_B\right] \geq U_A\left[0,\tau_B,0,M_{SIG}\right]$$

$$\text{s.t. } U_A\left[\tau_A,\tau_B,M_A,M_B\right] \geq U_B\left[\tau_A,0,M_{SIG},0\right]$$

We now show that the constraint set for the equilibrium values of the game theory problem, $G\prime$, contains the constraint set, C, for the contract theory problem. Suppose that $[\tau_A^*,\tau_B^*,M_A^*,M_B^*]$ is a solution of the contracting problem. The SIG can create a differentiable function which obtains its maximum at $[0,\tau_B^*,0,M_{SIG}]$ and $[\tau_A^*,\tau_B^*,M_A^*,M_B^*]$ for candidate A and $[\tau_A^*,0,M_{SIG},0]$ and $[\tau_A^*,\tau_B^*,M_A^*,M_B^*]$ for candidate B. To see how this can be done: $M_k(\tau_k,\tau_{-k}) = -W(\tau_k) - R(\tau_k)$ where $R(\tau_k)$ is a differentiable function over the positive real numbers with the following properties: (1.) $R(0) = 0$, (2.) $R(\tau_k^*) = 0$ and (3.) $W(\tau_k) > R(\tau_k) > 0 \forall \tau_k \neq 0, \tau_k^*$. Thus, $[\tau_A^*,\tau_B^*,M_A^*,M_B^*]$ is in the constraint set of the game theory problem: $G\prime \supset C$.

Now we show that the constraint set of the contract theory problem contains the equilibrium values for the constraint set of the game theory problem: $C \supset G\prime$. Suppose

that the vector $[\tau_A^*, \tau_B^*, M_A^*, M_B^*]$ contains the equilibrium values of an element of the constraint set to the game theory problem. In any subgame where the interest group choose a policy $M_k(\tau_k, \tau_{-k})$, $M_k(\tau_k, \tau_{-k})$, $M_k \geq 0 \Rightarrow U_k[\tau_k, \tau_{-k}, M_k, M_{-k}] \geq U_k[0, \tau_{-k}, 0, M_{SIG}] \Rightarrow U_k[\tau_k^*, \tau_{-k}, M_k^*(\tau_k^*, \tau_{-k}), M_{-k}] \geq U_k[0, \tau_{-k}, 0, M_{SIG}] \Rightarrow$ the vector of equilibrium-path values $[\tau_A^*, \tau_B^*, M_A^*, M_B^*]$ is feasible in $(36): C \supset G\prime$. Thus $C = G'$.

Since the constraint sets for the two problems are the same and the objective functions are the same, the set of solutions must be the same. In other words, $[\tau_A^*, \tau_B^*, M_A^*, M_B^*]$ is a solution of (36) if and only if

$$[\tau_A^*(M_A^*(\tau_A^*, \tau_B^*), M_B^*(\tau_A^*, \tau_B^*)), \tau_B^*(M_A^*(\tau_A^*, \tau_B^*), M_B^*(\tau_A^*, \tau_B^*)), M_A^*(\tau_A^*, \tau_B^*), M_B^*(\tau_A^*, \tau_B^*)]$$

is a solution of (35). ∎

A.2 Campaign Finance Reform

Definition 1 *The GIG's problem is now given by (E_A denotes candidate A's expenditures and E_B denotes candidate B's expenditures):*

$$\max_{\{M_A(\tau_A), M_B(\tau_A)\}} (1 - F[-b - (W(\tau_A^*) - W(\tau_B^*) + E_A^* - E_B^*)])W_{GIG}(\tau_A^*) \quad (37)$$

$$F[-b - (W(\tau_A^*) - W(\tau_B^*) + E_A^* - E_B^*)]W_{GIG}(\tau_B^*) + M_{GIG} - M_A - M_B$$

$$s.t. \quad :$$

$$\{\tau_A^*, E_A^*\} = \arg\max_{\{\tau_{GIG}^A, E_A\}} (1 - F[-b - (W(\tau_A) - W(\tau_B^*) + E_A - E_B^*)] + M_A^* - E_A)$$

$$\{\tau_B^*, E_B^*\} = \arg\max_{\{\tau_B^*, E_B\}} (1 - F[-b - (W(\tau_A^*) - W(\tau_B) + E_A^* - E_B)] + M_B^* - E_B)$$

$$M_A \geq 0, \; M_B \geq 0, M_A + M_B \leq M_{GIG}$$

Definition 2 *The SIG's problem is now given by:*

$$\max_{\{M_A(\tau_{SIG}^A, \tau_{SIG}^B), M_B(\tau_{SIG}^A, \tau_{SIG}^B)\}} (1 - F[-b - (W(\tau_A^*) - W(\tau_B^*) + E_A^* - E_B^*)])W_{SIG}(\tau_A^*) +$$

$$(38)$$

$$F[-b - (W(\tau_A^*) - W(\tau_B^*) + E_A^* - E_B^*)]W_{SIG}(\tau_B^*) + M_{SIG} - M_A - M_B$$

$$s.t. \; :$$

$$\{\tau_A^*, E_A^*\} = \underset{\{\tau^A, E_A\}}{\arg \max} 1 - F\left[-b - (W(\tau_A) - W(\tau_B^*) + E_A - E_B^*)\right] + M_A^* - E_A$$

$$\{\tau_B^*, E_B^*\} = \underset{\{\tau_B^*, E_B\}}{\arg \max} F\left[-b - (W(\tau_A^*) - W(\tau_B) + E_A^* - E_B)\right] + M_B^* - E_B$$

$$M_A, M_B \geq 0, \; M_A + M_B \leq M_{SIG}, 0 \leq E_A \leq M_A, 0 \leq E_B \leq M_B$$

Proposition 6 *If candidates value contributions not spent on their own campaign, a limitation M' on spending by the SIG can lead to increases in equilibrium spending but not influence; it will lead at least weakly to decreases in both spending and influence for the GIG: $\exists \, b, M_{SIG}, M'$ such that $M_A^* \left(\tau_A^* (M'), \tau_B^* (M')\right) > M_A^* (\tau_A^* (M_{SIG}), \tau_B^* (M_{SIG}))$ but $\forall \, b, M_{SIG}, M' \; \tau_A^* (M_{SIG}) > \tau_A^* (M')$ and $\tau_B^* (M_{SIG}) > \tau_B^* (M')$*

Proof. There are three cases we have to consider: (1.) The outside option for the a candidate is zero before and remains zero after the reform, (2.) The outside option of a candidate declines from M_{SIG} to M' after the reform, and (3.) The outside option for the ex-ante winner goes from M_{SIG} to 0 after the reform.

Looking first at case (1.), Suppose (τ_A', M_A') is the new support levels and money given to the ex-ante winning candidate with (τ_A^*, M_A^*) being the old. Now suppose that $M_A' > M_A^* \Rightarrow (\tau_A', M_A')$ was feasible before the reform (since the outside option of candidate A has not changed) but either $W_{SIG}(\tau_A', M_A') > W_{SIG}(\tau_A^*, M_A^*)$ or vice versa; either way, without a violation of IIA (which the SIG's utility function satisfies), there is a contradiction. Since M_A must at least weakly go down and since we know that the outside option stays the same and is binding, then it must be the case that influence, τ_A must also go down.

Turning to case (2.): the before individual rationality constraint for the ex-ante winner is (without loss of generality assuming that the winning candidate is candidate A): $U_A[\tau_A, \tau_B, M_A, M_B] \geq U_A[0, \tau_B, 0, M_{SIG}]$; and the after outside option is $U_A[\tau_A, \tau_B, M_A, M_B] \geq U_A[0, \tau_B, 0, M']$. Since threats are fully credible, we know, by the SIG theorem that there will be no equilibrium donations. We also know, from the binding lemma that the outside option is binding; therefore, $U_A[\tau_A', \tau_B, 0, 0] = U_A[0, \tau_B, 0, M']$ and $U_A[\tau_A^*, \tau_B, 0, 0] = U_A[0, \tau_B, 0, M_{SIG}] \Rightarrow \tau_A^* \geq \tau_A'$ so influence

goes down.

In case (3.), we have the outside option donation to the opposing candidate being $\overline{M} \leq M_{SIG}$. If $M' \geq \overline{M}$, then again the constraint set for the SIG doesn't change, the utility function doesn't change and thus the optimal contract doesn't change. If $M' < \overline{M}$, then we have (since by the binding lemma we know that the politician's IR constraint always binds) $U_A[\tau'_A, \tau_B, 0, 0] = U_A[0, \tau_B, 0, M']$ but $U_A[\tau^*_A, \tau_B, 0, 0] = U_A[0, \tau_B, 0, \overline{M}] \Rightarrow$

Now we look at case (3.). How can case 3 occur? Suppose that b is sufficiently high that $f(b) < 1$. This means that the marginal value of money spent by a politician is below the marginal value of money kept so that for sufficiently small amounts of donated money, the money will be pocketed by the interest groups not spent on the race. However, suppose that M_{SIG} is sufficiently high that the special interest group is able to get support and does not spend an money in equilibrium. Let us call the equilibrium level of support for the SIG in this case: (τ'_A, τ'_B). Now, suppose that the government limits campaign spending to $M' < M_{SIG}$. If M' is sufficiently low, then even if the ex-ante losing politician received all the money, he would not have an incentive to spend the money in which case, the SIG is no longer able to threaten the ex-ante winner. In this case, the SIG will make one-sided donations to the ex-ante winner. Lets call the equilibrium policies here: $(\tau^*_A, 0)$. Note that (1.) candidate B will receive no money (from one-sidedness) and will not support the SIG at all; (2.) Candidate A will receive money which means that equilibrium contributions will have gone up. Then, in order for the ex-ante winner's IR constraint to be binding it must be the case that:

$$W_A(\tau^*_A) + 1 - F\left[-b - W(\tau^*_A) + W(\tau^*_B)\right] \geq 1 - F\left[-b + W(\tau^*_B) + M_{SIG}\right]$$

$$\Rightarrow W_A(\tau^*_A) \geq F\left[-b - W(\tau^*_A) + W(\tau^*_B)\right] - F\left[-b + W(\tau^*_B) + M_{SIG}\right]$$

$$\Rightarrow W_A(\tau^*_A) \geq F\left[-b - W(\tau^*_A) + W(\tau^*_B) - M_{SIG}\right] - F\left[-b + W(\tau^*_B)\right]$$

(from concavity of the distribution, symmetry and the fact that b>0)

$$\Rightarrow W_A(\tau_A^*) \geq F\left[-b - W\left(\tau_A^*\right) - M_{SIG}\right] - F\left[-b\right]$$

(from concavity of the distribution, symmetry and the fact that b>0)

$$\Rightarrow W_A(\tau_A^*) \geq F\left[-b - W\left(\tau_A^*\right) - M'\right] - F\left[-b\right]$$

$$\Rightarrow W_A(\tau_A^*) \geq F\left[-b - W\left(\tau_A^*\right)\right] - F\left[-b\right] + M'$$

$$\Rightarrow W_A(\tau_A^*) \geq W_A\left(\tau_A'\right)$$

$$\Rightarrow \tau_A' \geq \tau_A^*$$

The proof for the GIG is essentially identical to that of case (1.) for the SIG. ∎

References

[1] Ansolabehere, Stephen John de Figueiredo and James Snyder Jr. (2003). "Why is There so Little Money in U.S. Politics?" *Journal of Economic Perspectives* 17(1): 105-130.

[2] Baron, David (1994). "Electoral Competition with Informed and Uninformed Voters." *American Political Science Review* 88: pp.33-47.

[3] Bernheim, B. Douglas and Michael Whinston (1986). "Common Agency." *Econometrica* 54:4, pp. 923-942.

[4] Besley, Tim and Stephen Coate (1997). "An Economic Model of Representative Democracy". *Quarterly Journal of Economics*, Volume 108:1, pp. 85-114.

[5] Besley, Tim and Stephen Coate (2001). "Lobbying and Welfare in a Representative Democracy." *Review of Economic Studies* 68, pp. 67-81.

[6] Blundell, Richard and James Powell (2000). "Endogeneity in Nonparametric and Semiparametric Regression Models", Invited Lecture in the Econometric Society World Meeting, Seattle.

[7] Center for Responsive Politics, http://www.opensecrets.org.

[8] Chamon, Marcos and Ethan Kaplan (2005). "Multiple Principal and Multiple Agent Contracting With Externalities: Solutions and Characterizations with Applications to Labor and Political Economy", Mimeograph Forthcoming.

[9] Dixit, Avinash, Gene Grossman and Elhanan Helpman (1997). "Common Agency and Coordination: General Theory and Application to Policy Making." *Journal of Political Economy* 105:4 , PP. 752-769.

[10] Energy Information Administration (1999). "Federal Financial Interventions and Subsidies in Energy Markets 1999: Primary Energy." U.S. Department of Energy, Washington, DC.

[11] Federal Elections Commission. Campaign Finance Reports and Data, detailed files for 1986-1990 election cycles available at http://www.fec.gov.

[12] Federal Elections Commission. Federal Elections 2002: Election Results for the U.S. Senate and the U.S. House of Representatives, available at http://www.fec.gov.

[13] Goldberg, Pinelopi and Giovanni Maggi (1999). "Protection for Sale: An Empirical Investigation." *American Economic Review* 89:5, pp. 1135-1155.

[14] Gomes, Armando (2004). "Multilateral Contracting With Externalities", Mimeograph.

[15] Grossman, Gene and Elhanan Helpman (1994). "Protection for Sale." *American Economic Review* 84:4, pp. 833-50.

[16] Grossman, Gene and Elhanan Helpman (1996). "Electoral Competition and Special Interest Politics." *Review of Economic Studies* 63: 256-286.

[17] Grossman, Gene and Elhanan Helpman (2001). *Special Interest Politics*, MIT Press, Cambridge.

[18] Helpman, Elhanan and Torsten Persson (2001). "Lobbying and Legislative Bargaining." *Advances in Economic Analysis & Policy*, 1(1).

[19] King, Gary; Bradley Palmquist; Greg Adams; Micah Altman; Kenneth Benoit; Claudine Gay; Jeffrey B. Lewis; Russ Mayer; and Eric Reinhardt. 1997. "The Record of American Democracy, 1984-1990," Harvard University, Cambridge, MA [producer], Ann Arbor, MI: ICPSR [distributor].

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[20] Lee, David (2001). "The Electoral Advantage to Incumbency and Voters' Valuation of Politicians' Experience: A Regression Discontinuity Analysis of Elections to the U.S. House." NBER Working Paper No. 8441.

[21] Levin, Jonathan (2002). "Multilateral Contracting and the Employment Relationship." *Quarterly Journal of Economics* 117:3, pp. 1075-1103.

[22] Levitt, Steven (1998). "Who are PACs trying to Influence with Contributions: Politicians or Voters?", *Economics and Politics* 10(1): 19-36.

[23] McCloskey, Deirdre and Stephen Ziliak. "The Standard Error of Regressions" *Journal of Economic Literature* Vol 34(1): 97-114.

[24] Milyo, Jeffrey, David Primo and Timothy Groseclose (2000). "Corporate PAC Campgain Contributions in Persepctive." *Business and Politics.* 2:1, pp.75-88.

[25] Olson, Mancur (1971). *The Logic of Collective Action*, Harvard University Press, Cambridge.

[26] Persson, Torsten and Guido Tabellini (2000). *Political Economics: Explaining Economic Policy,* MIT Press, Cambridge.

[27] Prat, Andrea (2002). "Campaign Spending with Office-Seeking Politicians, Rational Voters, and Multiple Lobbies." *Journal of Economic Theory* 103(1): pp. 162-189.

[28] Prat, Andrea (2002). "Campaign Advertising and Voter Welfare." *Review of Economic Studies,* Volume 69:4, pp 997-1017.

[29] Segal, Ilya (1999). "Contracting with Externalities." *Quarterly Journal of Economics*: Vol. 114, pp. 337-388.

[30] Snyder, James Jr (1990). "Campaign Contributions as Investments: The House of Representatives, 1980-1986." *Journal of Political Economy* 98:6, pp. 1198-227.

[31] Strattman, Thomas (1991). "What Do Campaign Contributions Buy? Deciphering Casual Effects of Money and Votes." *Southern Economic Journal*, 57:4, pp. 606-20.

[32] Tullock, Gordon (1972). "The Purchase of Politicians." *Western Economic Journal* 10: 354-55.

[33] U.S. General Accounting Office (2000). "Sugar Program: Supporting Sugar Prices Has Increased Users' Costs While Benefiting Producers." GAO/RCED-00-126.

Table 1: Summary of All Contributions in the FEC Data Files:

	1986 Cycle	1988 Cycle	1990 Cycle
Contributions from individuals:			
Total ($ millions)	192.57	396.76	250.77
Average partisan content	.94	.94	.94
Std. dev.of partisan content	.19	.19	.19
Contributions from PACs:			
Total ($ millions)	161.99	170.53	182.66
Average partisan content	.52	.49	.47
Std. dev. of partisan content	.3439	.3391	.34
Contributions from party committees:			
Total ($ millions)	505.63	463.66	437.95
Average partisan content	.99	.99	.99
Std. dev. of partisan content	.04	.03	.05

Note: The large volume of contributions from party committees can be explained by the multiple counting of the same funds several times as they move from one party committee to another until they reach their final recipient.

Table 2: Overlap of PAC Contributions to Opposing Parties in a Same Race by the Same Donor ($ millions):

	1986 Cycle	1988 Cycle	1990 Cycle
House	.609	.569	.471
Senate	1.963	1.079	.710
Presidential Election		.376	
All Overlapping Contributions (Including Contributions to Party Committees)	43.281	50.206	54.060

Note: Overlapping Contributions defined as the amount received by the party that received the least when a contributor gives to candidates in both parties in a same (general election) race. "All Overlapping Contributions" also includes contributions to candidates from different parties in the primary election for a same race

Table 3: Summary of All Contributions Made to the Campaigns Used in the Regression Analysis

	1986 Cycle	1988 Cycle	1990 Cycle
Contributions from individuals:			
Total ($ millions)	19.688	20.803	27.184
Average partisan content	.930	.882	.923
Std. dev.of partisan content	.214	.274	.217
Contributions from non-party PACs:			
Total ($ millions)	36.780	35.213	43.778
Average partisan content	.517	.493	.458
Std. dev. of partisan content	.342	.344	.345
Contributions from party committees:			
Total ($ millions)	4.693	4.205	4.416
Average partisan content	.973	.998	.947
Std. dev. of partisan content	.097	.027	.089

Table 4: Summary Statistics for the Sample of Campaigns Used in the Regression Analysis.

Variable	Mean	Std. Dev.
Sample of 951 campaigns		
Non-Partisan Non-Party PAC Contributions	65033	81039
Partisan Non-Party PAC Contributions	56703	69592
Electoral Strength	.106	.458
District Strength	.036	.331
Incumbency Dummy	.508	.500
Party Dummy (Democrat = 1)	.517	.500
Sample of 825 campaigns receiving non-party PAC contributions		
Non-Partisan Non-Party PAC Contributions	74971	82615
Partisan Non-Party PAC Contributions	65365	70828
Electoral Strength	.187	.426
Party District Strength	.085	.304
Incumbency Dummy	.582	.494
Party Dummy (Democrat = 1)	.547	.498
Sample of 734 campaigns receiving non-partisan PAC contributions		
Non-partisan Non-Party PAC Contributions	84266	82995
Partisan PAC Contributions	72771	71641
Electoral Strength	.248	.402
Party District Strength	.106	.302
Incumbency Dummy	.647	.478
Party Dummy (Democrat = 1)	.544	.498

Notes:

Note: The mean for the Electoral Strength differs from zero due to uncontested races and races where only one of the two major parties was represented. The Party District Strength has a positive mean because such uncontested races tend to occur in districts where the most popular party is that of the uncontested candidate.

Table 5: Regression Results

	Electoral Strength		Non-Partisan Non-Party PAC Contributions			
	OLS (1st Stage) (1)	OLS (1st Stage) (2)	IV (3)	IV (4)	IV (5)	IV (6)
Party District Strength	.832 (.036)***	.998 (.044)				
Electoral Strength-1st Spline [-1, .-.25)			63944 (44479)	24287 (36481)		
Electoral Strength-2nd Spline [-.25, .25]			125969 (16771)***	179757 (19790)***		
Electoral Strength-3rd Spline (.25, 1]			-1547 (21495)	-13232 (21299)		
Electoral Strength-1st Spline [-1, -.186)					85430 (34916)	47574 (30713)
Electoral Strength-2nd Spline [-1.86, .313)					116688 (16517)***	170224 (19581)***
Electoral Strength-3rd Spline (.313, 1]					-17593 (26294)	-29183 (24941)
Party*State and Party*Year Dummies	No	Yes	No	Yes	No	Yes
Constant	.077 (.012)***		41809 (14977)***		51168 (10178)***	
N	951	951	951	951	951	951
R²	.361	.474	.157	.313	.156	.305

Notes: Standard Errors in parenthesis.
*, ** and *** denote statistical significance at the 10%, 5% and 1% level.
The location of the knots at -.186 and .313 correspond to the terciles of the Electoral Strength distribution

Figure 1: Total Contributions from Non-Party PACs
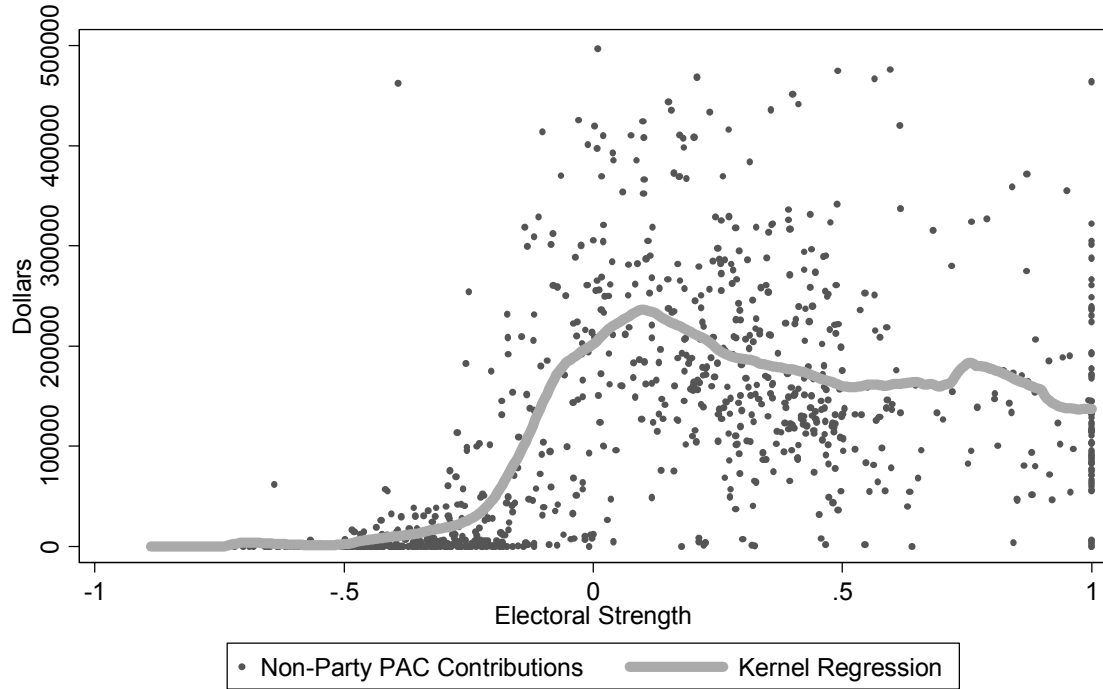
Note: There are 8 outlier observations that received more than $500,000.

Figure 2: Contributions from Non-Party PACs by Partisan Measure:
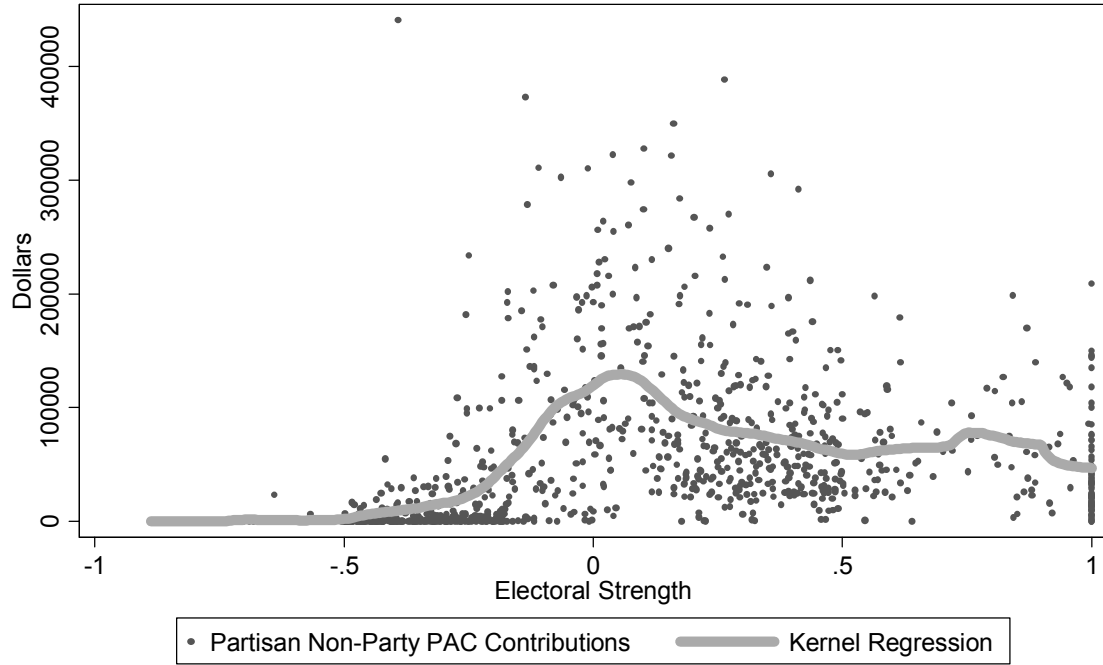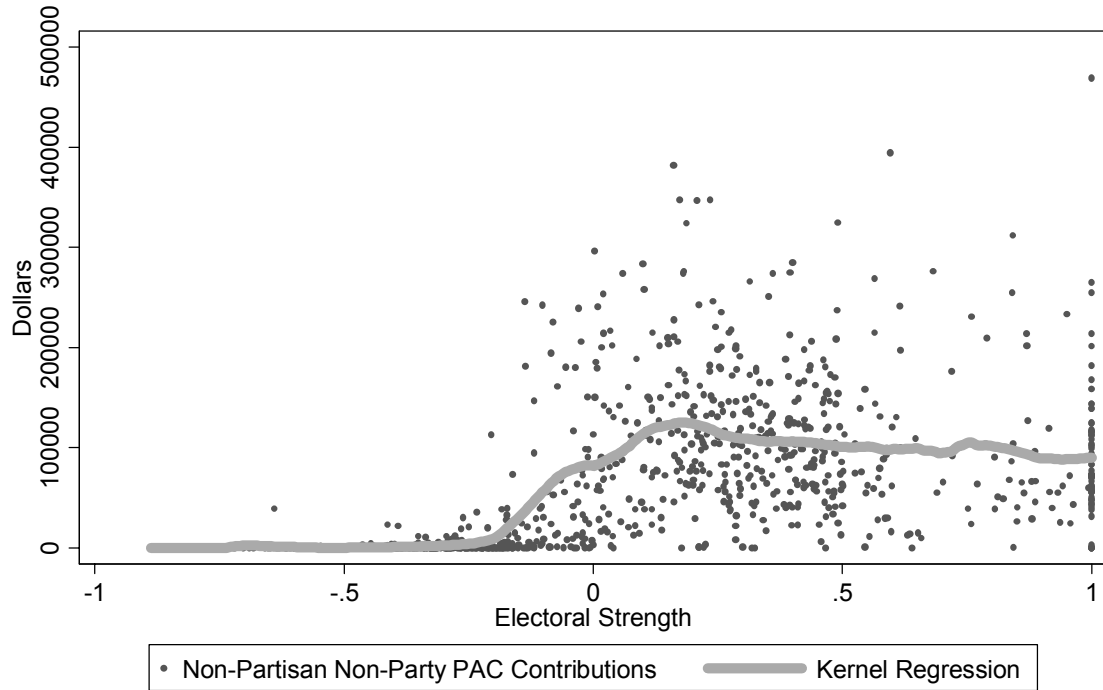Figure 2a: Partisan Non-Party PAC Contributions

Figure 2b: Non-Partisan Non-Party PAC Contributions

Note: There is 1 outlier observations that received more than $500,000 in both panels.

Figure 3: Non-Partisan Non-Party PAC Contributions Spline Regressions Fit

Knots at -.25 and .25

Without State*Party and State*Year Dummies
(Regression 3)

With State*Party and State*Year Dummies
(Regression 4)

Knots at Terciles of Electoral Strength Distribution:

Without State*Party and State*Year Dummies
(Regression 5)

With State*Party and State*Year Dummies
(Regression 6)