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Soft money and hard choices: Why political parties might legislate against soft money donations

DAVID GILL[1] & CHRISTINE S. LIPSMEYER[2,*]
[1]*Nuffield College, University of Oxford;* [2]*University of Missouri-Columbia*
*(*Author for correspondence: lipsmeyerc@missouri.edu)*

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Abstract. In contrast to the bulk of the campaign finance literature that highlights political action committee (PAC) contributions and single donations, this paper emphasizes soft money and the rationale for dual contributions. Employing a formal model of unregulated contributions and political access, we show that donors will rationally choose to contribute to both political parties. While the parties accept these dual contributions, they lead to an imbalance between the benefits of contributions and the costs of providing access. This race to acquire unlimited soft money leads to a situation where the parties agree to campaign finance reform legislation.

Introduction

"How do the parties attract large, soft money contributions? Often they offer access—access to decision makers in return for tens or hundreds of thousands of dollars. The parties advertise the sale of access for huge sums. It is blatant. Both parties do it—openly" (Sen. Levin, *Congressional Record* 2002).

With the extensive media coverage into the Enron influence, the Lincoln bedroom shenanigans during the Clinton presidency, the lawsuit by the General Accounting Office for a list of Vice President Dick Cheney's Energy Taskforce advisers, and other assorted stories showing the links between politicians/political parties and their financial donors, the final passing of the McCain–Feingold/Shays–Meehan Campaign Finance Bill seems anticlimactic.[1] In recent U.S. national elections, the amounts of campaign funds, especially unlimited soft money donations, collected by the Democratic and Republican parties have become an issue at the same time that connections between contributions and access have come under scrutiny. As Senator Feinstein explained during the debate on the Senate floor, "Soft money threatens to overwhelm our system and the public's confidence in its integrity" (Sen. Feinstein, *Congressional Record* 2002).

Unlike the bulk of the literature that highlights political action committee (PAC) contributions, we focus on a more recent, and highly controversial, source of funds—soft money. In this paper, we ask two questions, why would donors contribute soft money in such large quantities, often to both parties, and why would members of political parties vote to stop the in-flow of unlimited funds to their organizations? We argue that the campaign contribution literature has taken too narrow a view of the relationship between funding and access. More specifically, since the empirical evidence shows that donations of soft money to both parties are not infrequent, researchers should reconsider the notion that these "dual contributions" compose a rare, irrational event. To begin this process, we build a realistic formal model in which donors do indeed use dual soft money contributions as an effective tool to gain political access, and we find that the prohibition of soft money by members of parties becomes a rational response to the circumstances.

In particular, in a static "one-shot" environment, where donors and parties interact only once, our model predicts that dual funding will not occur. However, when we move to a more realistic dynamic "repeated game" environment, where donors and parties interact over a number of elections, dual funding is the prediction of our model. The winning party finds itself constrained to provide postelection access, despite the fact that the contributor also funds the other party, so the net electoral advantage of the funding is vitiated. The reason is that the party's failure to accommodate the donor leads to a loss of trust in the party by the contributor. The party thus loses that donor's funding in all future elections, giving its rival a significant advantage. Although the parties find themselves unable to refuse to provide access within the framework of the model, they may be able to solve their coordination problem by agreeing to legislate against funding.

We organize the paper as follows: First, we place the issue of soft money, and our model, in the broader campaign finance literature, highlighting the rise of this type of contribution and its subsequent political influence. The section on "the model" presents the assumptions of our basic model, culminating with the results in the section on "results". We extend the model in the section on "extending the model" to allow the donor a continuous choice of funding levels and to allow asymmetries between the parties (which might include an incumbency advantage). The section on "party cooperation and the end of soft money" discusses the implications of the model for soft money contributions and campaign finance reform, followed by the section on "conclusion".

The Campaign Contribution Literature and the Anomaly of Soft Money

One of the key topics of the campaign contribution literature is how interest groups influence the electoral process through monetary donations. Whether the research concerns the different strategies of various types of groups (Herndon, 1982; Snyder, 1993) or the "contract" between actors (McCarty & Rothenberg, 1996), these studies emphasize the prominence of political action committee (PAC) funds and/or other regulated forms of contributions. Because of this bias, the research either assumes single giving to one party or candidate, or concludes dual contributions to be rare. Some of this rationale is corroborated; for example, Sabato (1985) notes that some PAC bylaws prohibit dual giving, and Morton and Cameron theoretically find that "... a candidate has an incentive to reward only those contributors who do not also give to her opponent" (Morton & Cameron, 1992, p. 93).[2]

The empirical work on regulated hard money donations has colored the theoretical work, thereby limiting the analysis of campaign contributions. In particular, the focus of the empirical work on PACs has meant that theorists have not been much interested in models that propose dual contributions. Furthermore, the emphasis in the literature on donations to candidates, which are consistent with hard money contributions, also bypasses an important distinction between party and candidate donations. Soft money donations are made to parties, and compared to these political organizations, individual candidates are short-lived. Therefore, an explicit repeated game framework makes more sense with respect to long-lived national parties; in our model, which explicitly looks at soft money donations to parties in a repeated framework, we find dual contributions.

The role of soft money

With the introduction of soft money[3] in 1978, and its increasing importance throughout the 1980s and 1990s, scholars need to reevaluate the framework underlying existing models of campaign contributions. Up to the late 1970s, the Federal Election Commission (FEC) strictly regulated contributions to federal election campaigns (hard money). However, in 1978 the FEC decided that state party organizations (i.e., the Kansas Republican State Committee) could "spend money on administrative expenses and get-out-the-vote (GOTV) drives that would benefit both state and federal candidates" (Harvard Law Review, 1998, p. 1325).[4] The decision has allowed state-level organizations to use funds to assist federal campaigns by, for example, "buy[ing] televised issues advertisements that are really designed to bolster the party's candidate or disparage the opponent" (Oppel, Jr., 2002, p. A1). This landmark decision opened the way for federal party organizations to raise large amounts of unregulated soft money dollars, which they can then shift down to the state level. Because state laws guide the collecting and spending of soft money at the state level, the regulation of these donations becomes more difficult. Michigan, Ohio, and South Carolina, for instance, are examples of states, where soft money is not reported, whereas Virginia requires reporting of all contributions (Mosk, 2002). In contrast, the FEC regulates and strictly limits federal "hard" money.[5]

The ability to bypass the hard money limits with unlimited soft money alters the contributory incentives. Instead of looking to multiple individuals and groups to give maximum regulated amounts, parties appeal to donors to give them vast amounts under the soft money umbrella. The FEC in

1990 did introduce some changes to the way parties handled soft money donations by requiring separate accounts for hard funds and soft money, but the parties' national committees were quick to find loopholes through these restrictions. Although state party organizations could use soft money for party activities, the laws stipulated that parties should use federal money for the portion that benefited federal candidates. As the FEC pointed out in 1995, "some argued that—among other things—committees were underestimating the federal share of their expenses. As a result, soft money covered not only the costs attributable to nonfederal candidates, but also those related to federal candidates" (FEC, 1995).

In all, this led to a situation, where both the Republican and Democratic parties were able to solicit large amounts of unregulated contributions, channel them to state party apparatuses, and then employ them to help elect their federal candidates. And the more state-level soft money pays for campaign advertisements and activities that benefit federal candidates, the more hard money national party organizations have for strictly federal activities. The ability to use soft money to bypass the FEC's regulations on campaign contributions and spending alters the assumptions found in the campaign contribution literature, because by definition donors give to political parties and not individual candidates, although the parties spend the money to elect their specific nominees.

Whereas the campaign contribution literature continues to focus on hard funds, soft money contributions exploded throughout the 1990s. Soft money has not equaled more than a half of the hard money in-takes, but its sudden rise in importance is startling.[6] As Table 1 shows, both the Democratic and

Table 1. Nonfederal (soft money) contributions to national party committees ($) through the complete two-year election cycles

Year	Democratic	%	Republican	%	Total
1992	36,256,667	42.1	49,787,433	57.9	86,044,100
1994	49,143,460	48.3	52,522,763	51.7	101,666,223
1996	122,347,119	46.4	141,166,366	53.6	263,513,485
1998	91,507,706	41.1	131,014,507	58.9	222,522,213
2000	243,124,802	49.9	244,440,154	50.1	487,564,956
2002	245,850,711	49.6	250,032,620	50.4	495,883,331

Source FEC (2002).
Note The FEC required the parties to disclose soft money donations starting in 1991. "Democratic" includes: the Democratic National Committee, the Democratic Senatorial Campaign Committee, and the Democratic Congressional Campaign Committee. "Republican" comprises: the Republican National Committee, the National Republican Senatorial Committee, and the National Republican Congressional Committee.

Table 2. Percentages of dual and single party soft money contributions largest party donors ($100,000 and up), 2000 election cycle

Dual contributor?	Democratic	Republican	Total
Yes (%)	27.6	44.2	37.8
No (%)	72.4	55.8	62.2
	100.0	100.0	100.0
Total no. of contributors	392	609	1001

Source Common Cause (2001); Cited as FEC statistics.
Note Donors are classified as Democratic or Republican depending on the party to which they donated the most.

Republican parties acquired increasingly large amounts of unregulated funds for their campaigns during the 1990s. The FEC instituted the disclosure of soft money donors in 1991, so these amounts are the official reported numbers leading up to the 2002 Congressional campaign. Although talk concerning campaign finance reform has become more urgent, as Table 1 highlights, the rise in contributions continues at a similar rate to that witnessed in previous years.

Although the increases appear staggering, our emphasis in this paper concerns the giving of these dollars. Table 2 presents figures for the 2000 election cycle with the percentage breakdown of donors into single or dual contributors. Note the total percentage of dual contributors—37.8%. Rather than being a rarity or miniscule portion of soft money donors, we find that they compose a rather healthy segment of the contributors, especially among Republicans. Table 3 gives a glimpse into the substantial amounts that individual donors have been contributing, emphasizing that of the top 25 dual contributors in the 2000 election cycle, 12 gave at least $500,000 to each party.

The finding that dual contributions compose a sizeable share of soft money donations calls into question the assumption in campaign contribution models that the action of contributing to more than one party is not worth considering, and consequently that the irrationality of the act allows us to overlook the possible reasons behind it. Therefore, we proceed to examine the logic behind these dual contributions, as well as the vote to eliminate soft money donations entirely, through a realistic formal modeling process.

Formal models in the campaign contribution literature

There exist three strands of formal models of preelection campaign contributions in the literature. In the first type, position-induced models, donors contribute funds to the candidate or party whose policy platform most closely reflects the donor's preferences, so as to increase that candidate or party's chances of winning the election (e.g., Austen-Smith, 1987). This in turn induces recipients to choose platforms that will elicit contributions. In the

Table 3. Top 25 dual contributors of soft money ($), 2000 election cycle

Contributor	Democratic	Republican	Total
Service Employees Intl Union (SEIU)	5,090,696	30,000	5,120,696
AT&T	1,457,469	2,302,451	3,759,920
AOL Time Warner	1,425,637	1,139,861	2,565,498
Freddie Mac	1,025,000	1,383,250	2,408,250
Philip Morris Cos Inc	296,663	2,098,922	2,395,585
Microsoft Corp	1,029,792	1,296,079	2,325,871
Enron Corp	607,565	1,433,850	2,041,415
Thompson Medical Co Inc	1,882,000	20,000	1,902,000
SBC Communications Inc	895,718	984,094	1,879,812
Bristol-Meyers Squibb Co	193,250	1,518,019	1,711,269
Joseph E Seagram & Sons Inc	1,100,794	576,394	1,677,188
Pfizer Inc	160,250	1,398,592	1,558,842
MGM Mirage Inc	658,086	861,997	1,520,083
Verizon Communications	553,800	906,304	1,460,104
Global Crossing Development Co	1,007,768	394,268	1,402,036
Citigroup Inc	641,204	758,616	1,399,820
FedEx Corp	470,478	852,766	1,323,244
Angelos, Peter G	1,297,900	25,000	1,322,900
Loral Space & Communications	1,313,500	1,200	1,314,700
American Financial Group	622,000	685,000	1,307,000
Cablevision Systems Corp	710,000	550,000	1,260,000
MBNA Corp	200,000	1,035,905	1,235,905
BP Amoco	295,376	920,900	1,216,276
United Parcel Service	216,888	993,744	1,210,632
Walt Disney Co	822,798	382,235	1,205,033

Source Common Cause (2001); Cited as FEC statistics.

second strand of models, interest groups use donations for strategic information transmission purposes. For example, in Austen-Smith (1995), interest groups employ contributions to credibly signal that access will be beneficial to both donor and recipient, where the interest group has access to valuable private information and is politically aligned with the donor.[7] Our model falls into the final category, service-induced models: Donors are buying postelection services in exchange for preelection contributions. In some respects, our model is similar to previous formal models of this type, epitomized by papers such as Welch (1980), Baron (1989a), Snyder (1990), and Morton and Cameron (1992). However, in many important aspects, the focus is different.

First, we focus the analysis on political parties rather than individual candidates. The previous literature highlighted candidates rather than parties for the simple reason that, in general, it is elected officials who provide services to donors. Our focus on parties stems from the observation that soft money contributions are made to party committees rather than individual candidates.

To the extent that candidates may have different preferences, and hence act contrary to the interests of their parties, we assume parties are able to implement mechanisms which compel the candidates to follow the party line. On this, see Cremer (1986) who shows how a long-lived organization made up of finitely lived members that are replaced over time can induce cooperation from its members. Alesina and Spear (1988), using a similar framework in a specifically political context, show how parties can align member candidates' incentives to their own. Clearly, party discipline can never be perfect, but our model does present a simplified representation of a more subtle real-world situation, in which the donor understands the limits on party discipline and accepts some shirking by elected officials before considering that the party has reneged on the implicit access provision contract.

In a more narrow sense, party discipline and the link between the parties and their candidates or legislative members continues to be discussed. Some recent empirical work, e.g., Snyder and Groseclose (2000), backs up the role of party discipline in the United States in the context of roll-call voting. Others find little substantive evidence for a relationship between the distribution of party campaign funds and party loyalty (e.g., Cantor & Herrnson, 1997). However, within this ongoing debate is the issue of soft money—donations to parties for "party building activities"—whose effects on party discipline remain unclear. If it remains possible that a party can use its resources to discipline its members, then by extension, it may use similar tactics to ensure that its members provide access to donors.

Second, the existing literature is candidate-centered rather than donor-centered. For example, Baron (1989a), Snyder (1990), and Morton and Cameron (1992) all assume that the candidates set the terms of access, whereas donors simply take the price as given. In contrast, our framework is donor-centered: We take the donor as being able to induce dual funding, given the existing convention regarding the terms of access, because of his first-mover advantage.[8]

Third, earlier models are one-shot: There is no explicit modeling of the repeated interaction between donors and candidates or parties. For example, Baron (1989a) simply assumes that some unmodeled reputational effect will ensure that candidates do not shirk on providing the promised access post-election.[9] In contrast, we explicitly model the repeated interactions between donors and parties, which allows us to develop the credibility of the access provision as an explicit feature of the equilibrium of the game.[10] This especially makes sense in relation to soft money donations, which are made to long-lived parties rather than more ephemeral individual candidates. Though McCarty and Rothenberg find little empirical evidence of commitment in campaign contributions, they adopt a candidate-centered perspective, focusing on candidates punishing donors for failing to contribute or for dual contributing. The authors explicitly acknowledge that if in fact "market power is principally in the hands of organizations, then a world with strong commitment might exist which has been obscured by a scholarly focus on the wrong side of the relationship" (McCarty & Rothenberg, 1996, p. 899).

These new modeling assumptions allow us to develop quite different conclusions. First, we find that dual funding will result as the equilibrium of the game. Baron (1989a) also found dual funding to be possible, but Morton and Cameron (1992) make the very reasonable objection to Baron that if it is the candidates who set the terms of access they will choose to "sell" access in return for a net contribution advantage rather than simply the gross level of contributions, as it is net contributions which the candidates value. Thus, Morton and Cameron find that in their candidate-centered model only single funding by a particular contributor can arise. Turrning the focus onto donors allows us to re-introduce dual funding as the outcome of the game. Furthermore, our model explains why parties can rationally choose to provide costly access in return for contributions from dual funders, despite gaining little or no apparent net advantage. As we explain below, the credible threat of losing future funding for reneging on the implicit contract, and hence putting a party's rival at a future funding (and hence electoral) advantage, can be sufficient to discipline the party in a repeated game framework. This process depends crucially on our donor-centered focus and on the explicit repeated nature of the game.

The Model

The model incorporates two symmetric[11] parties, A and B, one donor, and voters. (In an extension in the fifth section, we introduce asymmetric parties and incumbency advantage.) The parties and donor are risk-neutral expected utility maximizers.

Before every election, the donor has $2x$ to spend on campaign contributions.[12] (Appendix C lists all the mathematical symbols used.) His strategy space is {fund party A by x, fund party A by $2x$, fund party B by x, fund party B by $2x$, fund each party by x, fund neither party} where $x > 0$ is fixed. (We consider a continuous choice of funding levels in an extension in the fifth section.) After the contributor makes his funding decision, an election takes place. If both parties have been funded by the donor, or if neither has, they have an equal probability of winning the election of $\frac{1}{2}$.

Each extra x of funding for a party over its rival's funding increases its probability of winning the election by $q \in (0, 1/4)$, and so reduces its rival's probability by the same amount.[13] This assumes a "black box" technology linking campaign fundraising and spending to votes.[14] The size of some of the soft money donations in recent federal campaigns (see Table 3) motivates a positive (but small) impact of donations on winning probabilities, and a small q makes sense if we interpret the model as a partial equilibrium analysis of a world with multiple donors, where the effect of the other donors' actions are already given in the *ex ante* probabilities of winning.

Each party places a value on winning the election of $w > 0$. Each unit of access costs the winning party $a > 0$. The units are normalized, that is, we measure extra units of access as the extra amount of access, which costs the party a further a to provide.[15] Note the cost of providing access can be uncertain, so long as the expected cost of providing a unit is a. In particular, the risk of negative publicity and postelection voter sanctions for providing access perceived as improper can be considered an integral part of the cost of providing the access.

We assume that each x of funding has become "associated" with one unit of access of cost a to the party, which the donor expects to receive in return. We might think that a convention regarding the terms of access has developed from previous play determining this level of a, which the donor and parties understand.[16]

Postelection, the winning party decides whether to grant the donor no access, one unit of access, or two units of access.[17] The access services provided should be seen, in the terminology of Baron (1994), as "particularistic." Following Baron, particularistic services provide essentially private benefits with costs that are diffused across voters and other donors. For example, the services might include giving an ear to grievances, listening to information, helping with regulatory agencies, providing special exemptions or provisions in bills, etc. Collective services, on the other hand, take the form of explicit public policy positions which the donor values, but that may directly hurt other particular donors or voters. Our model is best viewed as pertaining to particularistic services, as parties can provide such services to multiple donors, so our modeling simplification of looking at just one donor, and hence abstracting from any inter-donor competition for services, is more reasonable than for the case of collective services.

The access benefit function is such that the donor values the first unit of access at y_1 and two units of access at y_2, where $y_2 \geq y_1 > 0$. $\delta \in (0, 1)$ is the common discount factor. The game is infinitely repeated (or indefinitely repeated, where we adjust the discount factor to allow for the probability that the game ends after each period).

Results

The one-shot game

In the one-shot (two-stage) game, the unique subgame-perfect Nash equilibrium (SPNE) has the donor funding neither party. Once the election has taken place, the winning party has no incentive to grant access as it has already benefited from any funding while it has a strictly positive cost of granting access. Given the winning party will not grant access post-election, the donor will have no incentive to fund either party.

The repeated game

As usual, one SPNE of the infinitely repeated game is for the SPNE of the one-shot game to be played in every period, i.e., one SPNE of the repeated game has the donor funding neither party before every election. However, the repeated game also has a SPNE in which the donor funds both parties, as is shown in the following proposition.[18]

Proposition 1
Given

$$\frac{2y_1 - y_2}{y_2} \geq 4q \tag{1}$$

$$y_1 \geq \frac{x}{(\frac{1}{2} - q)} \tag{2}$$

and

$$a \leq \frac{2\delta}{2 - \delta + 4q\delta} qw, \quad \text{if } (y_2 - y_1).\left(q + \frac{1}{2}\right) + y_2 \cdot q \geq x \tag{3a}$$

$$a \leq \frac{2\delta}{4 - 3\delta + 2q\delta} qw, \quad \text{if } (y_2 - y_1).\left(q + \frac{1}{2}\right) + y_2 \cdot q < x, \tag{3b}$$

the following strategies, which induce dual funding, form a SPNE:

- *Donor – In each period, fund each party by x if neither party has reneged on providing a unit of access for each x of election funding in the past. If both parties have reneged in the past, fund neither. If just one party has reneged in the past, then in case (i) where* $(y_2 - y_1) \cdot (q + \frac{1}{2}) + y_2 \cdot q \geq x$ *fund the other party by 2x and in case (ii) where* $(y_2 - y_1) \cdot (q + \frac{1}{2}) + y_2 \cdot q < x$ *fund the other party by x.*
- *Party A – After an election victory, always provide a unit of access for each x of election funding, so long as have never reneged in the past. If have reneged in the past, then renege again.*
- *Party B – As for party A.*

The proof is presented in Appendix A.

The three conditions required for dual funding

The reader should refer to Appendix A for a rigorous proof of Proposition 1, but we give some flavor of it here. Given the parties use the postulated equilibrium strategies, the donor has four strategic options, (i) fund both parties, which gives a per-period payoff of $y_1 - 2x$ as the donor is then guaranteed a unit of postelection access at a cost of $2x$; (ii) fund just one party by $2x$, which gives $y_2 \cdot (2q + \frac{1}{2}) - 2x$ as with probability $2q + \frac{1}{2}$, the funded party wins and provides two units of access of value y_2; (iii) fund one party by just x, which gives $y_1 \cdot (q + \frac{1}{2}) - x$ as with probability $q + \frac{1}{2}$ the funded party wins and provides one unit of access of value y_1; and (iv) fund neither party, returning a payoff of 0.

The first condition follows from the fact that the donor must prefer to dual fund than to fund a single party by $2x$. Thus we require $y_1 - 2x \geq y_2 \cdot (2q + \frac{1}{2}) - 2x$, which with some manipulation gives condition (1), namely that $\frac{2y_1 - y_2}{y_2} \geq 4q$. The left-hand side of (1) measures the degree of concavity of the access benefit function. We require some degree of curvature, or the donor will prefer to spend all of his budget of $2x$ on a single party. With no concavity ($y_2 = 2y_1$), the donor would do better to give all of his funds to just one party. By doing so, he increases his expected return, as by funding just one party he increases that party's chances of winning to greater than a half. Thus, the increase in the expected value of access from that party is greater than the decrease from the party no longer funded, whose probability of winning falls to less than a half. This is the *probability enhancing effect.* However, *the concavity effect* acts as a countervailing force. With a concave access benefit function ($y_2 < 2y_1$), the value of two units of funding is less than twice that of one unit, so there is a cost to skewing all funding onto a single party. For the dual funding equilibrium, we require the concavity effect to dominate the probability enhancing effect. Condition (1) tells us that for small q, i.e., for a small probability enhancing effect, the concavity required of the access benefit function will also be small, and from the discussion of the assumptions in the third section, a small q fits in with the most natural interpretation of our model.

Remember that we have normalized units of access, i.e., we measure extra units of access as the extra amount of access which costs the party a further a to provide. Therefore, the concavity of the access benefit function (which is equivalent to diminishing marginal returns from access) could simply follow from the fact that extra "access" becomes more and more costly for the party to provide, so each extra unit of access, given the normalization, becomes of less and less value to the donor. (Effective limits on the amount of access that a party can provide will translate into extra units of access becoming of almost zero value to the donor.) We might think, for instance, that the chance of a scandal grows more than proportionately with the amount of access.

Alternatively, extra access may not be more and more costly to the party, but may in fact benefit the donor less and less. For example, having two top level meetings with officials may not be twice as valuable to the donor as having just one. Finally, although we have described all the players in the model as risk neutral, the curvature of the access benefit function could reflect a degree of risk aversion on the part of the donor, who then dual funds to "hedge his bets."

Not only must the donor prefer to dual fund than to fund a single party by $2x$, we must also check that he prefers dual funding to funding a single party by just x. Thus we require $y_1 - 2x \geq y_1 \cdot (q + \frac{1}{2}) - x$, which gives condition (2), namely that $y_1 \geq \frac{x}{(\frac{1}{2}-q)}$. This says that the value of access to the contributor has to be sufficiently large relative to the funding cost. Where the funding does not have a large effect on the probability of winning, i.e., q is small, this condition is not particularly onerous.[19] It is equivalent to $y_1 \cdot (\frac{1}{2} - q) \geq x$, whereas to make funding one party by x ever worthwhile we require $y_1 \cdot (\frac{1}{2}+q) \geq x$. Therefore, for small q the condition is only slightly more stringent than that required to make single-party funding by x better than no funding at all.

Finally, the donor must prefer dual funding to no funding at all. This requires $y_1 - 2x \geq 0$, which holds iff $y_1 \geq 2x$. However, this follows automatically from condition (2).

The third condition is the incentive-compatibility constraint on the party. This condition says that the value to a party of receiving a funding level above that of its rival has to be sufficiently large compared to the cost of giving access, so that the threat of losing funding is sufficiently strong to force the party to provide the access, rather than accept donations once and then renege. Note that there are two incentive-compatibility constraints. Condition (3a) applies, where after a party reneges, the donor finds it optimal to fund the other party by $2x$, whereas condition (3b) applies, where the party finds it optimal to fund the other party only by x. Note that where $a < qw$, that is, the cost of a unit of access is less than the expected benefit to the party of the associated funding, incentive-compatibility must be satisfied for δ sufficiently close to one. In case (i), this can be seen by rearranging condition (3a) to give $\delta \geq \frac{2a}{2qw+a.(1-4q)}$ and remembering that $1 - 4q \geq 0$, so $\frac{2a}{2qw+a.(1-4q)} < 1$. In case (ii), rearranging (3b) gives $\delta \geq \frac{4a}{2qw+a.(3-2q)}$. Now $\frac{4a}{2qw+a.(3-2q)} < 1$ for $a < qw$ as $\frac{4a}{2qw+a.(3-2q)} < 1$ can be rewritten as $a < \frac{2}{1+2q}qw$ and $1+2q < 2$.

Dominance of dual funding

Given our three conditions, the above dual funding equilibrium is not unique. The game has multiple equilibria,[20] so why should the above dual funding equilibrium be played? In many ways, our dual funding equilibrium appears quite attractive. First, the strategies played seem quite natural and simple. The parties are trusted to provide the access so long as they have done so in the past, and if they renege on the implicit contract, they lose out on future funding. Second, the equilibrium is symmetric. Finally, and most strikingly, given the assumed convention regarding the terms of access, whereby each x of funding has become associated with one unit of access of cost a to the party, the donor is best off in the dual funding equilibrium, given conditions (1) and (2). (The proof of the optimality of the SPNE strategies for the donor in Appendix A makes this clear.)

The contributor gets to act first, so through the level of funding he provides to the parties he is able to "signal" the equilibrium he expects to see played. He may also be able to make statements (at least to the parties) regarding the nature of the equilibrium he expects. If a party correctly understands the signal and expects the other party to do so as well and play the equilibrium the donor has chosen, then its best response is also to play according to the postulated equilibrium. Thus, we claim the donor is likely to be able to coordinate play onto the dual funding equilibrium, due to his "first-mover" advantage. The argument here makes use of "forwards induction" logic: The parties can forwards induce from the donor's behavior the equilibrium that the donor expects to see played, coordinating play onto that equilibrium.[21]

Extending the Model

Continuous choice of funding levels

For ease of analysis, we have so far restricted the donor to a simple strategy set, which might make one wonder whether this restrictive strategy set forces the contributor to choose less than optimal funding levels. In particular, might the donor not prefer to fund both parties, but fund one more than the other? In this section, we look at this question just from the perspective of the donor: If the donor could choose continuous levels of funding, keeping the overall budget constraint of $2x$, what funding levels would he choose?

We address this question restricting the access benefit function to the family of concave functions $f(a) = ma^{\beta}$ with $\beta \in (0, 1]$ and $m > 0$. This functional family has the desirable properties that $f(0) = 0$, $f'(a) = m\beta a^{\beta-1} > 0$, for $a > 0$ and $f''(a) = m\beta.(\beta - 1)a^{\beta-2} \leq 0$. Furthermore, β can be seen as a measure of the degree of concavity of the function: A higher β implies a less concave function. (Comparing two specific functions with $\beta_1 > \beta_2$, we can see that, both starting from a value of zero at $a = 0$, the β_2 function starts off with a steeper slope, but at some $a \in (0, 1)$ becomes flatter than the β_1 function for all further a values.[22] The β_2 function crosses under the β_1 function at $a = 1$, where both take on the value m.) The factor m just multiplies the function up or down to allow us to scale the benefits that the donor gets from access as we wish. Note that in the basic model $y_1 = f(a)$ and $y_2 = f(2a)$.

The donor can now choose a continuous level of funding for each party, x_a to party A and x_b to party B. To simplify, we restrict the donor to spending all his budget, i.e., $x_a + x_b = 2x$, so we are just looking at the optimal allocation of funding across the parties. In effect, we are asking whether the donor might want to move away from dual funding by increasing one party's funding at the other's expense. The following proposition gives us the condition under which equal funding remains optimal.

Proposition 2

For $\beta \leq 1 - 8q$, equal funding is a global maximum. As β rises above $1 - 8q$, the donor skews funding more and more towards one of the parties (though he doesn't care which party he funds more).

The proof is presented in Appendix B.

Thus, we see that a donor with a completely unrestricted choice of funding levels would in fact wish to remain at the equal funding equilibrium, given a sufficient degree of concavity of the access benefit function.

Supposing q to be small, which as already explained fits in with a natural interpretation of the model, then this condition will be satisfied for most values of β. For example, with $q = 0.01$, so that an extra unit of funding increases the probability of winning by just 1%, then the condition is that $\beta \leq 0.92$. For 92% of the possible β values, dual funding is the optimum, so one might expect a reasonable amount of fairly equal donations. Only if the concavity of the access benefit function is very weak will the donor wish to move away from equal funding. As q falls even lower, the condition is weakened further.

If, on the other hand, the donor's funding has a very large impact on the probability of winning the election for the recipient, equal funding will be much less likely. In fact, for $q \geq \frac{1}{8}$, i.e., where a unit of funding increases a party's chances of winning by 12.5% or more, equal funding is impossible as β must be positive. For q close to $\frac{1}{8}$, equal funding will be very unlikely as it would arise only for extremely concave access benefit functions (e.g., for $q = 0.12$, we would require $\beta \leq 0.04$).

Note that for small q, the condition on concavity is only slightly more onerous than the one required for condition (1), which for the specific functional form of the access benefit function we are using reduces to $\beta \leq \frac{\ln 2 - \ln(4q+1)}{\ln 2}$.[23] For example, for $q = 0.01$, the condition here is $\beta \leq 0.92$ versus the slightly weaker condition required before that $\beta \leq \frac{\ln 2 - \ln(0.04+1)}{\ln 2} \approx 0.94$. The reason we require a little bit more concavity here is that for β between 0.92 and 0.94, it will be optimal to move away from equal funding even though single funding is worse than dual funding. In this range, taking some advantage of the winning probability enhancing effect of increasing one party's funding is beneficial, but the concavity effect is still too strong to make single funding worthwhile. Because this range turns out to be small, we can conclude that our modeling restriction does not significantly bias the donor's choice of funding levels. In any case, even if the donor moved somewhat away from equal funding, the parties' coordination problem (discussed in the sixth section) would remain: Both would still be losing out overall, though one would do a little better than the other.

Asymmetric parties and incumbency advantage

We now extend this continuous choice setting to introduce asymmetric parties which provide the donor with different access benefit functions. We could, for example, think that the access benefit function might in part depend upon how easily a given party's ideology allows it to provide access to the donor. As an extreme case, the Republicans' stronger civil liberties credentials might enable them to provide more access services per unit of cost to the gun industry than would be the case for the Democrats. Alternatively, the asymmetry may represent an incumbency advantage.

Formally, we can multiply the access benefit functions by d_A and d_B, where $d_A + d_B = 2$. Letting $z = \frac{x_a}{x}$, so z can range from 0 to 2 and $\frac{x_b}{x} = 2 - z$, we get a new objective function for the donor $d_A m.(za)^\beta[\frac{1}{2} + (-2+2z)q] + d_B m.((2 - z).a)^\beta[\frac{1}{2} + (2 - 2z)q] - 2x$. Simulation methods show that the function is well behaved. As expected, the optimal allocation of campaign contributions becomes skewed in the direction of the party with the higher d, so the donor gives more to the party that can offer him more access per x of funding. For high degrees of concavity, the effect is small as the concavity effect dominates both the winning probability enhancing effect and the incentive to give more to the party that can give you more per dollar. But funding becomes more and more skewed as concavity falls. To illustrate, we have used numerical optimization methods to solve for the optimal levels of funding for $d_A = 1.01, d_B = 0.99$ (i.e., a quite mild asymmetry) and $q = 0.01$.[24] We find that for $\beta = 0.5, z^* = 1.03$, so the strong concavity pushes the donor to give almost equally to the two parties. However, as concavity falls, funding becomes more and more skewed toward party A, as follows: $\beta = 0.6 \Rightarrow z^* = 1.03; \beta = 0.7 \Rightarrow z^* = 1.05; \beta = 0.8 \Rightarrow z^* = 1.09; \beta = 0.9 \Rightarrow z^* = 1.40; \beta = 1 \Rightarrow z^* = 2$.[25]

In conclusion, we find that incumbents, or parties better able to serve a given donor for ideological reasons, are likely to receive a higher proportion of the donor's funding, but that for high concavity of the access benefit function, the effect is small.

Party Cooperation and the End of Soft Money

Once 41 Republicans in the U.S. House of Representatives broke rank and voted for the campaign finance reform law—named the Shays–Meehan Bill—the question quickly emerged as to why members of a party would vote to end a system that benefits their group. And even more surprising, President George Bush signed the final version, typically called the McCain–Feingold Bill, which eliminates unlimited soft money. The reasons behind these actions are complex, but as our model posits, the key to them remains the agreement by the parties to eliminate this source of funding because it had become a liability.

In particular, unease was growing among the media and public concerning the influence on the electoral process of these large and increasingly talked about sums of money. As instances of supposedly special access being granted to large soft money donors became more numerous, members of both parties began to realize that the costs of accepting unlimited soft money contributions were becoming too high, and that the benefits appeared to be no longer in proportion to these costs. The discussion leading up to the final vote on the Senate floor shows the unease on both sides of the partisan divide. As Senator Schumer explains the situation, "We all know that soft money is slowly but inexorably poisoning the body politic" (Sen. Schumer, *Congressional Record* 2002), whereas his Republican colleague, Senator Thompson, explains the link between soft money and the public more explicitly, "The American people think, the average Joe on the street thinks, that with that much money being paid to that few people, they are expecting something for it" (Sen. Thompson, *Congressional Record* 2002). Even Senator McConnell from Kentucky, who was vehemently opposed to the Campaign Finance Bill, acknowledges the perception of impropriety, "With no basis in fact or reality, the media consistently and repeatedly alleges that our every decision can be traced back to money given to support a political party" (Sen. McConnell, *Congressional Record* 2002). Members of both parties felt the possible backlash of public opinion that would result from killing the reform. President Bush, for example, signed the bill into law after announcing for months his intention to veto it, which underscores the link between the publicity surrounding the Enron scandal, the company's soft money donations to the Republicans, and the growing cost of access (Van Natta, Jr., 2002). To downplay the link between soft money donations and contributor access, the executive branch downplayed the law; as John Nichols explains, "he was . . . signing the bill without notifying Senators John McCain and Russ Feingold . . ." (Nichols, 2002, p. 16).

Although the passing of the bill did not signal the end of the campaign finance reform debate, members from both parties did vote to end the unlimited soft money donations in their current form. In some cases, even those opposed to the banning of these donations recognized the problems with the situation, "Effective limitations on soft money are necessary to reduce real and perceived corruptions in the system, but a complete ban would undermine the role of national political parties" (Sen. Grassley, *Congressional Record* 2002). Our model explains why the parties would agree to such a measure, and why neither party, despite the costs, could unilaterally agree to refuse to provide access to dual contributors of soft money.

In contrast to donors, for whom dual funding is the best outcome in our model, the parties are worse off under dual funding than in the absence of any funding. They provide costly access but gain little or no net benefit, as the contributor's donations to each party cancel out. If the parties could act cooperatively, they could agree to refuse to provide access to dual funders. In the noncooperative game we are modeling, it is hard to see how the parties could stop dual funding and reach this cooperative optimum. To borrow terminology from the economics literature, the parties would find it hard to "tacitly collude" on refusing to provide access without an explicit legal bar on donations.[26] Instead, they are constrained by the credible threat of losing their funding from a particular donor if they renege on providing access, and hence seeing their rival gain a considerable advantage in future elections. One way of acting cooperatively beyond the framework of our model to solve their coordination problem would be to agree jointly to legislation that bans donors' contributions. This may indeed help to explain the recent legislation in the U.S. Congress limiting soft money campaign contributions—"This was a truly bipartisan problem, and now we have a truly bipartisan solution' (Sen. Corzine, *Congressional Record* 2002).[27]

Finally, the equalizing of soft money totals to the parties may help to explain the timing of the legislation. The massive increase in soft money donations over the last few electoral cycles and the narrowing of the gap in donations between Republicans and Democrats have lessened the relative advantage of soft money funding to the Republicans. The Republicans' lead has fallen substantially over the last few cycles, from a range of 3% to 18% in the 1990s, to less than 1% (see Table 1). This narrowing is most apparent in the cycles culminating in presidential elections—the gap has fallen from 15.8% in 1992, to 7.2% in 1996, and finally to 0.2% in 2000.

Conclusion

The passing of the McCain–Feingold Bill does not mean the immediate demise of the issues surrounding campaign contributions. On the one hand, this begins a round of debate over the constitutionality of the law, and on the other, contributors and parties are expanding into new ways of donating. As others have highlighted, the campaign reforms left ways of acquiring money that alter the landscape of campaign contributions—for example, an increase in hard money donation limits and the use of "power brokers" who can persuade their friends to contribute up to the maximum amount (Waller, 2002).[28] The FEC's interpretation of the McCain–Feingold Bill may also allow independent groups or party "spin off committees" to collect and spend money analogous to that of political parties and soft money contributions (Woellert and Dwyer, 2002).

Although these changes, and in some cases loopholes, show that those involved will attempt to get around the legislation, they do not alter the fact that party members willingly committed their organizations to ending a form of contribution that had no limits and few regulations. In any case, our model is consistent with postlegislative attempts to circumvent the new law. No legislation can be watertight, and contributors will endeavour to get around the restrictions wherever possible. Where donors succeed in doing this, the parties will once again find themselves forced to compete for funds and provide the expected levels of access.

The dual contributory aspect of soft money creates a unique situation that does not exist in the case of regulated types of campaign donations. Although our model does not purport to explain every reason for soft money contributions,[29] by overlooking this distinction, previous work cannot explain why parties would legislate the demise of such an increasingly important source of funds. Incorporating soft money into the campaign finance literature leads to a more complete picture of the relationship between donors, political parties, and access that ultimately ends with the McCain–Feingold Bill.

Although this paper focuses on campaign contributions and reform legislation in the United States, our framework of campaign contributions can offer general insights into the incentives for actors to reform other contributory systems in other jurisdictions. In the final analysis, we contend that our model may have implications for the campaign finance framework, beyond the United States case, whenever interactions between contributors and parties are repeated over time. By extending the debate to include soft money donations, our paper furthers the understanding of the relationship between donations, political parties, and political access—a relationship common in most representative democracies.

Appendix A: Proof of Proposition 1

Optimality for the donor

First, we show that if neither party has reneged in the past, funding each party by x is optimal. The per-period payoffs are as follows:

- Fund neither: 0
- Fund A only, by $x : y_1.(q + \frac{1}{2}) - x$
- Fund A only, by $2x : y_2.(2q + \frac{1}{2}) - 2x$

- Fund B only, by x : $y_1.(q + \frac{1}{2}) - x$
- Fund B only, by $2x$: $y_2.(2q + \frac{1}{2}) - 2x$
- Fund both: $y_1 - 2x$

The optimality of funding each party by x requires $y_1 - 2x \geq y_2.(2q + \frac{1}{2}) - 2x$, which holds iff $y_1 \geq y_2.(2q + \frac{1}{2})$ which in turn holds iff $y_1 - \frac{y_2}{2} \geq y_2.2q$, finally giving us the condition $\frac{2y_1 - y_2}{y_2} \geq 4q$.

We further require $y_1 - 2x \geq y_1.(q + \frac{1}{2}) - x$. This holds iff $y_1.(1 - (q + \frac{1}{2})) \geq x$, which in turn holds iff $y_1 \geq \frac{x}{(\frac{1}{2} - q)}$.

Finally, the optimality of funding each party by x requires $y_1 - 2x \geq 0$, which holds iff $y_1 \geq 2x$. However, this follows from $y_1 \geq \frac{x}{\frac{1}{2} - q}$.

Next, we show if that if A has reneged in the past but B has not, funding B only is optimal, with the amount of funding depending on whether or not $(y_2 - y_1).(q + \frac{1}{2}) + y_2.q \geq x$, as outlined in the SPNE strategies. The per-period payoffs are as follows:

- Fund neither: 0
- Fund A only, by x : $-x$
- Fund A only, by $2x$: $-2x$
- Fund B only, by x : $y_1.(q + \frac{1}{2}) - x$
- Fund B only, by $2x$: $y_2.(2q + \frac{1}{2}) - 2x$
- Fund both: $\frac{y_1}{2} - 2x$

Clearly, we can rule out any funding of A as the funding is wasted. Some funding of B will be optimal given $y_1 \geq \frac{x}{(\frac{1}{2} - q)}$, which implies $y_1 \geq \frac{x}{(\frac{1}{2} + q)}$ and hence $y_1.(q + \frac{1}{2}) - x \geq 0$. Finally, we see that in case (i) where $y_2.(2q + \frac{1}{2}) - 2x \geq y_1.(q + \frac{1}{2}) - x$, i.e., $(y_2 - y_1).(q + \frac{1}{2}) + y_2.q \geq x$, funding B by $2x$ is optimal whereas in case (ii) where $y_2.(2q + \frac{1}{2}) - 2x < y_1.(q + \frac{1}{2}) - x$, i.e., $(y_2 - y_1).(q + \frac{1}{2}) + y_2.q < x$, funding B by only x is optimal.[30]

A symmetric argument applies where B has reneged in the past, but A has not.

Finally, if both parties have reneged in the past, neither will provide any access, so funding neither is optimal.

Optimality for the parties[31]

We establish optimality for party A. Optimality for party B can be established by a symmetric argument. We look separately at cases (i) and (ii).

In case (i), where $y_2.(2q + \frac{1}{2}) - 2x \geq y_1.(q + \frac{1}{2}) - x$, we show that the strategy is optimal given $a \leq \frac{2\delta}{2 - \delta + 4q\delta} qw$.

(a) *Nobody has reneged or deviated (A and B both receive x).* A's gain from reneging now[32] is a this period and $\frac{1}{2}a$ in every future period, as A saves on the expected amount of access it would have provided each period under dual funding. However, the cost is a loss of funding in all future elections which costs it $2qw$ in every future period, as B will be funded by $2x$ each period but A will get nothing, reducing A's probability of winning by $2q$. Comparing to case (i)(b) below, we see the gain is smaller but the cost is the same, so the condition on a will be weaker. Thus as a sufficient condition, A will not renege for $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$. A could of course choose to renege in the future, but if reneging now is not optimal, neither will reneging in the future.

(b) *B has reneged in the past, A has not (A receives 2x).* A's gain from reneging now is $2a$ this period and $(\frac{1}{2}+2q)2a$ in every future period. However, the cost is a loss of funding of $2x$ in all future elections which costs it $2qw$ in every future period. Thus, A will provide the access iff $2a + (\frac{\delta}{1-\delta}).(\frac{1}{2}+2q)2a \leq (\frac{\delta}{1-\delta})2qw$. The left-hand side reduces to $2a[\frac{2-2\delta+\delta(1+4q)}{2(1-\delta)}]$ or $a[\frac{2-\delta+4q\delta}{1-\delta}]$, so the condition reduces to $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$. Again, not wanting to renege now implies A does not want to renege in the future.

(c) *B has reneged in the past, A has not, the donor deviates and gives A x.* [33,34] Given the donor's strategy, A will expect to receive $2x$ in future elections. The gain from deviating now is therefore $a + (\frac{\delta}{1-\delta}) \cdot (\frac{1}{2}+2q)2a$. The cost is a loss of funding of $2x$ in all future periods which costs it $2qw$ per period. Comparing to case (i)(b) above, we see the gain is smaller but the cost is the same, so the condition on a will be weaker, so clearly A will not renege for $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$. The argument in case (i)(b) applies to show A will not want to renege in future periods, given the same condition.

(d) *B has reneged in the past, A has not, the donor deviates and gives A nothing.* A cannot renege now, as it receives no funding. A will expect to receive $2x$ in future elections, so the argument in case (i)(b) applies to show A will not want to renege in future periods, given $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$.

(e) *A has reneged in the past.* If A has reneged in the past, then its decision as to whether to renege again if it gets funding has no effect on the donor's future funding decisions. Thus reneging again is optimal as $a > 0$.

(f) *Neither party has reneged, the donor deviates and gives A 2x.* Given the donor's strategy, A will expect both parties to receive x in future elections. Thus the gain to reneging now is $2a$ this period and $\frac{1}{2}a$ in every future period, while the cost is $2qw$ per future period for the same reasons as in (i)(a). Comparing to case (i)(b), we again see the gain is smaller but the cost is the same, so the condition on a will be weaker. Thus, again A will not renege for $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$. The argument in case (i)(a) applies to show A will not want to renege in future periods given this condition.

(g) *Neither party has reneged, the donor deviates and gives A nothing.* A cannot renege now, as it receives no funding. A will expect both parties to receive x in future elections, so the argument in case (i)(a) applies to show A will not want to renege in future periods, given $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$.

Case (i) conclusion. We have covered all possible subgames, and shown $a \leq \frac{2\delta}{2-\delta+4q\delta}qw$ to be a necessary and sufficient condition for optimality.

In case (ii), where $(y_2 - y_1) \cdot (q + \frac{1}{2}) + y_2 \cdot q < x$, we show that the strategy is optimal given $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$.

(a) *Nobody has reneged or deviated (A and B both receive x).* A's gain from reneging now is a this period and $\frac{1}{2}a$ in every future period, as A saves on the expected amount of access it would have provided each period under dual funding. However, the cost is a loss of funding in all future elections which costs it qw in every future period, as B will be funded by x each period but A will get nothing, reducing A's probability of winning by q. Comparing to case (ii)(c) below, we see the gain is smaller but the cost is the same, so the condition on a will be weaker. Thus as a sufficient condition, A will not renege for $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$. A could of course choose to renege in the future, but if reneging now is not optimal, neither will reneging in the future.

(b) *B has reneged in the past, A has not (A receives x).* A's gain from reneging now is a this period and $(\frac{1}{2} + q)\ a$ in every future period. The cost is a loss of funding of x in every future period, which costs it qw per period. Comparing to case (ii)(c) below, we see the gain is smaller but the cost is the same, so the condition on a will be weaker. Thus, as a sufficient condition, A will not renege for $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$. Again, not wanting to renege now implies A does not want to renege in the future.

(c) *B has reneged in the past, A has not, the donor deviates and gives A 2x.* Given the donor's strategy, A will expect to receive x in future elections. The gain from deviating now is $2a$ this period and $(\frac{1}{2} + q)a$ in every future period. The cost is a loss of funding of x in all future periods at a cost of qw per period. Thus A will provide access iff $2a + (\frac{\delta}{1-\delta}) \cdot (\frac{1}{2} + q)a \leq (\frac{\delta}{1-\delta})qw$. The left-hand side reduces to $a[\frac{4-4\delta+(1+2q)\delta}{2(1-\delta)}]$ or $a[\frac{4-3\delta+2q\delta}{2(1-\delta)}]$. Thus A will provide access iff $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$. The argument in case (ii)(b) applies to show A will not want to renege in future periods, given the same condition.

(d) *B has reneged in the past, A has not, the donor deviates and gives A nothing.* A cannot renege now, as it receives no funding. A will expect to receive x in future elections, so the argument in case (ii)(b) applies to show A will not want to renege in future periods, given $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$.

(e) A has reneged in the past. If A has reneged in the past, then its decision as to whether to renege again if it gets funding has no effect on the donor's future funding decisions. Thus reneging again is optimal as $a > 0$.

(f) Neither party has reneged, the donor deviates and gives A 2x. Given the donor's strategy, A will expect both parties to receive x in future elections. Thus A's gain from reneging now is $2a$ this period and $\frac{1}{2}a$ in every future period. The cost is a loss of funding of x in every future period, which costs it qw per period. Comparing to case (ii)(c) below, we see the gain is smaller but the cost is the same, so the condition on a will be weaker. Thus as a sufficient condition, A will not renege for $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$. The argument in case (ii)(a) applies to show A will not want to renege in future periods, given this condition.

(g) Neither party has reneged, the donor deviates and gives A nothing. A cannot renege now, as it receives no funding. A will expect both parties to receive x in future elections, so the argument in case (ii)(a) applies to show A will not want to renege in future periods, given $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$.

Case (ii) conclusion. We have covered all possible subgames, and shown $a \leq \frac{2\delta}{4-3\delta+2q\delta}qw$ to be a necessary and sufficient condition for optimality.

Appendix B: Proof of Proposition 2

Letting $z = \frac{x_a}{x}$, so z can range from 0 to 2 and $\frac{x_b}{x} = 2-z$, the donor's objective function becomes $m\cdot(za)^\beta[\frac{1}{2}+(-2+2z)q)]+m\cdot((2-z)a)^\beta[\frac{1}{2}+(2-2z)q]-2x$, which is equal to $ma^\beta\ \{z^\beta[\frac{1}{2}-2q+2zq]+(2-z)^\beta[\frac{1}{2}+2q-2zq]\}-2x$. As ma^β and $2x$ are strictly positive constants, the donor's problem reduces to maximizing $z^\beta[\frac{1}{2}-2q+2zq]+(2-z)^\beta[\frac{1}{2}+2q-2zq]$ with respect to z. Differentiating, we get $\beta z^{\beta-1}[\frac{1}{2}-2q+2zq]+z^\beta.2q-\beta\cdot(2-z)^{\beta-1}[\frac{1}{2}+2q-2zq]-(2-z)^\beta\cdot(2q)$. At $z=1$, this expression reduces to zero, so equal funding satisfies the necessary first-order condition for a local maximum for all parameter values. Differentiating once more, we get $\beta\cdot(\beta-1)z^{\beta-2}[\frac{1}{2}-2q+2zq]+\beta z^{\beta-1}\cdot(4q)+\beta\cdot(\beta-1)\cdot(2-z)^{\beta-2}[\frac{1}{2}+2q-2zq]+\beta\cdot(2-z)^{\beta-1}\cdot(4q)$. At $z=1$, this second derivative is strictly negative iff $\beta < 1-8q$ or equivalently $q < \frac{1-\beta}{8}$. At $\beta = 1-8q$ the second derivative is zero for $z=1$, so the second-order condition is inconclusive. However, the third derivative is also zero, while the fourth derivative is strictly negative at $\beta = 1-8q$ and $z=1$, so equal funding is a local maximum for $\beta \leq 1-8q$. [35] In fact, simulation methods show the objective function to be quasi-concave up to this bound on β (but not beyond), so equal funding is a global maximum for $\beta \leq 1-8q$.[36] As β rises above $1-8q$, numerical optimization methods show that there are two global optima, z^* and $2-z^*$, with z^* increasing in β. As β rises, the concavity effect becomes weaker, so the donor skews funding more and more toward one of the parties (though he does not care which party he funds more due to party symmetry).

Appendix C: List of Mathematical Symbols

Table A1. List of mathematical symbols

Symbol	Meaning
x	Monetary value of one unit of funding
q	Increase in probability of winning an election from each unit of funding
w	Value of winning an election to a party
a	Cost of each unit of access to a party
y_1	Value of one unit of access to the donor
y_2	Value of two units of access to the donor
δ	Discount factor
$f(a)$	Access benefit function (generalization of $\{y_1, y_2\}$ where funding levels are continuous choice variables for the donor)
m	Multiplicative constant in the access benefit function
β	Power coefficient in the access benefit function (which acts as a measure of concavity)
β_1, β_2	Particular values of the β coefficient
n	Time period n periods in the future
x_a	Funding to party A (where funding levels are continuous)
x_b	Funding to party B (where funding levels are continuous)
z	We define $z = \frac{x_a}{x}$
d_A	Extra multiplicative factor on the benefit of access provided by party A (where parties are asymmetric)
d_B	Extra multiplicative factor on the benefit of access provided by party B (where parties are asymmetric)

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Notes

1. President George W. Bush signed the legislation—the Bipartisan Campaign Reform Act of 2002 (H.R. 2356)—into law on March 27, 2002. There is some concern that the Federal Election Commission (FEC) may dilute the new finance reform law. See Woellert and

Dwyer (2002) for an analysis of the FEC's ruling and Mitchell (2002) for a discussion of its possible dilution.

2. However, McCarty and Rothenberg (1996), uncovering a small number of dual contributors, empirically conclude that political actors do not punish them.
3. In its 'Twenty Year Report,' the FEC states the definition of soft money as, "[slang]: funds raised and/or spent outside the limitations and prohibitions of the Federal Election Campaign Act. Sometimes called nonfederal funds, soft money often includes corporate and/or labor treasury funds, and individual contributions in excess of the federal limits, which cannot legally be used in connection with federal elections, but can be used for other purposes" (FEC, 1995).
4. See *Harvard Law Review* (1998) for an analysis of the FEC's decision—FEC Advisory Op. 1978–1980: Allocation of Costs for Voter Registration (1976–1990 Transfer Binder) Fed. Election Camp. Fin. Guide (CCH) 5340, at 10,335.
5. The amount individuals can give in total to political party organizations and candidates per year is +25,000 with the restrictions as such: maximum to political parties is +25,000 and to a candidate is +1,000.
6. See Common Cause (2002) for details on the increase and its comparison with hard contributions.
7. Of course, it is very hard to reconcile dual contributions with position-induced or information-signaling models, under which donors would be expected to donate only to the most closely aligned candidate or party. Further donations would only increase the chance of a less favored recipient winning or undermine the credibility of the signal.
8. Where contributions are linked to explicit policy platforms, some existing models have taken a donor-centered perspective. See for example Grossman and Helpman (1996) and Prat (2002).
9. Baron (1989b) does look at how splitting donor funding between this election and the next can force the winning candidate not to shirk, where shirking is not directly observable as the cost of effort to the winning candidate is private information. However, the model relies on both donors and candidates being able to commit to future pricing schedules and contributions. It is this issue of credible commitment which our model explicitly addresses.
10. Models in related areas have introduced some element of repeated play. For example, in Sloof and van Winden (2000), interest groups do not use contributions to influence policy, but may enforce preelection threats to build a reputation if policymakers do not concede to their demands. There is also literature, for example Barro (1973), Austen-Smith and Banks (1989), on how the repeated nature of elections can force elected officials to keep to preelection policy pledges.
11. The assumption of symmetry may be thought of as making most sense in the context of the donor as a corporation that views the parties purely in terms of their ability to provide access rather than in any ideological way.
12. As in Baron (1989a), for simplification purposes we do not allow postelection contributions in return for access.
13. One might think that having a funding advantage of x versus zero would make more of a difference than $2x$ versus x. For simplicity, we assume a constant effect on probabilities, which makes sense if q is small and the model is viewed as of a partial equilibrium nature, taking other donors' contributions as given.
14. This follows Baron (1989a). A literature exists on how to formally explain this relationship. For example, Hinich and Munger (1989) theorize that campaign spending increases votes by fleshing out candidates' policy positions more clearly under uncertainty.
15. See the section on "results" for an explanation of how this normalization relates increasing costs of providing access to the concavity of the access benefit function.

16. In his concluding comments, Snyder (1993) puts the case for the existence of a well-understood access "price" (in the context of Senatorial elections), based on the observation that the key actors interact repeatedly, that contributors know how they have been treated in the past, and that they know much about how other contributors are treated as well.
17. This restriction on the number of units is without loss of generality. The party will never be expected to provide more than two units as the donor faces a budget constraint of $2x$. Thus, providing more than two units can never be optimal.
18. We could apply a folk theorem to show that dual funding can be supported as a SPNE for δ sufficiently close to one. For example, we can apply Abreu, Dutta and Smith's (1994) NEU folk theorem as the stage game is finite (in actions and players) and the NEU condition clearly holds. The minimax payoffs are 0 for the donor and $-2qw$ for each party. Thus, allowing the use of complex "carrot and stick" type punishment mechanisms, the NEU theorem tells us that $y_1 - 2x$ for the donor and $-\frac{a}{2}$ for each of the parties (payoffs in our dual funding equilibrium) can be supported given $y_1 > 2x$ and $-\frac{a}{2} > -2qw$ (so the payoffs are strictly individually rational). These inequalities must be satisfied given conditions (2) and (3) hold. However, we believe our approach is more illuminating. We have chosen a specific, but natural, set of strategies to support the dual funding equilibrium, and then find conditions with appealing economic interpretations for the strategies to form a SPNE. In particular, the strategies involve loss of trust in a party once it reneges. From condition (3), we can also derive a specific minimum required discount factor [e.g., $\delta \geq \frac{2a}{2qw + a \cdot (1-4q)}$ in case (i)] to support the equilibrium. In contrast, simply applying the folk theorem does not give a specific bound on the discount factor and will require complicated 'minimax' strategies (in particular, a deviating party must be trusted in the future in order optimally to punish further deviation by the other party).
19. Again, note that a small q fits in with the most natural interpretation of our model.
20. For example, the one-shot SPNE in which there is no funding at all is a SPNE of the repeated game. We could also construct equilibria in which only one party is funded: If the donor never provides funding to one of the parties, an optimal response is to never provide access, which justifies the no funding. Also, there are likely to be more complicated equilibrium strategies which also give dual funding.
21. One possible objection to the selection of this equilibrium is that the donor might try to induce access provision without providing any funding at all, using the threat of funding only the other party in future elections if the winning party fails to provide the desired level of access. Although costless bribing can work under certain circumstances (see Dal Bo, 2000 for a model of costless bribing of a committee), access at zero cost cannot occur in our model because we assume that the amount of access associated with each unit of funding is a constant determined by convention. We believe this to be a reasonable restriction, because it allows the price of access to be clearly understood by all the players. Where the donor does not fund either party initially, the threat of future punishment is neither credible nor clear, as the donor is not willing to put money on the table now in exchange for access after the election.
22. The ratio of the β_1 slope to the β_2 slope is $\frac{\beta_1}{\beta_2} a^{\beta_1 - \beta_2}$. Note $\beta_1 - \beta_2 \in (0, 1)$. For small enough a this ratio will be less than one, but the ratio is rising in a. Furthermore, at $a = 1$, the ratio is $\frac{\beta_1}{\beta_2} > 1$, so the β_1 slope catches up before a reaches one.
23. Condition (1) is satisfied so long as $\frac{f(a)}{f(2a)} \geq 2q + \frac{1}{2}$. Here this reduces to $\frac{ma^\beta}{m \cdot (2a)^\beta} = \frac{1}{2^\beta} \geq \frac{4q+1}{2}$, which holds iff $-\beta \ln 2 \geq \ln(4q+1) - \ln 2$, which in turn holds iff $\beta \leq \frac{\ln 2 - \ln(4q+1)}{\ln 2}$, irrespective of the value of a.
24. The form of the objective function means we cannot solve explicitly for the optimum.
25. The result here is similar in spirit to that in Baron (1989a), where candidates with a lower cost of providing access receive more funding.

26. The standard analysis of tacit collusion from the economics literature suggests that the parties would find it very hard to agree to reject requests for access from dual funders. Access provision is not clearly measurable postelection by the losing party, and it is difficult to see what punishment mechanisms the parties could use beyond simple reversion to the status quo *ex ante* of providing access to dual contributors. As a result, punishment for defection, if it can occur effectively at all, will not be immediate. Furthermore, if the winning party sticks to the agreement and refuses to provide access, the losing party will be tempted to take advantage of the fact that the other party is no longer trusted by providing access in exchange for funding in future elections. Finally, any agreement would leave the door open for a third party to take advantage of the agreement and compete effectively by raising large amounts of soft money in return for providing access.
27. We acknowledge that even in the absence of any dual funding, the parties could reach a situation where single contributions cancel out overall, potentially giving rise to a similar incentive to legislate.
28. See Nichols (2002) for a discussion of what some see as the next step in the campaign finance debate: Public financing of elections.
29. Not all soft money donations are dual, and as noted in the second section, contributions may also be position-induced or made for informational reasons.
30. This assumes that where he is indifferent between giving the nonreneger x or $2x$, the donor gives the party $2x$, but this is not crucial.
31. Throughout this proof, we implicitly use the one-stage deviation principle, which states that we need only check that one-stage deviations do not pay to show perfectness.
32. Assuming A has just won the election, or it does not have the opportunity to renege—this caveat applies throughout the proof.
33. This subgame and some of the further ones involve the parties assuming the donor will continue with his equilibrium strategy following deviation—as usual SPNE requires optimality at all possible subgames, even those off the equilibrium path.
34. Note that the argument in this case does not depend on whether or not B receives any funding, because A expects the donor to play his equilibrium strategy next period. The same point applies in cases (i)(d), (i)(g), (ii)(b), (ii)(d) and (ii)(g).
35. The fourth derivative can be shown to reduce to $\beta \cdot (\beta - 1) \cdot (\beta - 2) \cdot ([\beta - 3] + 16q)$ at $z = 1$, which equals $\beta \cdot (\beta - 1) \cdot (\beta - 2) \cdot (\beta + 1) \cdot (-1)$ at $q = \frac{1-\beta}{8}$. This is clearly strictly negative as β is strictly less than one at $q = \frac{1-\beta}{8}$.
36. The form of the objective function means we cannot solve explicitly to show concavity.

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