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Party Activists, Campaign Funding and the Quality of Government

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Abstract

We study the formation of government policy in democracies when turnout depends on party activists and campaign spending - parties' 'political capital'. The functional importance of political capital determines equilibrium rent-seeking in government. Often the more potent political capital is the greater the extent of rent-seeking. Limiting the level of political capital is distinct from reducing its potency, and whereas we find a strong case for reducing potency we find that placing limits on campaign spending are rarely optimal, and in particular that weak limits are never optimal. A limit on total campaign spending can increase government quality under certain conditions and if so then strong limits are always better than weak limits. However, finite limits on either national or local campaign spending alone, as often seen in practice, are never optimal.

Keywords
Party activists, campaign funding, rent-seeking, political finance

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1 Introduction

In the recent US presidential election the Obama and McCain campaigns respectively spent $730mn and $368mn. Obama in particular also managed to recruit several million volunteers, who contributed labor as well as money to their candidate.[1] It seems likely, taken in aggregate, that such resources played a part in the election outcome.[2] Furthermore, the non-trivial sums of both money[3] and time contributed are of course endogenous variables; but there is incomplete understanding of how contributors respond to policy platforms, and in turn how policy is modified to appeal to contributors.

An improved understanding of the linkages between policy, voting and contributions is desirable because there are important policy issues at stake. Calls for legal limits on either donations or campaign expenditure are frequently heard, typically on the grounds that such sums of money are perceived inevitably to be associated with corruption or some other distortion of policy. On the other hand economists and political scientists alike have frequently taken a more agnostic position, recognizing that finance can have an important functional role in the electoral process.

In our analysis two parties compete for election, setting policy defined by ideological position, and expenditure on public goods. Voters are distributed uniformly along the ideological scale, but all voters prefer greater amounts of the public good for given taxes. In contrast

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[1] Exact numbers of volunteers are not readily available, though an article in Time magazine (Newton-Small, 2008) reported an estimated 8mn for the Obama campaign. Obama's advantage in volunteers was at least clearly manifest in direct voter contact. Data from the American National Election Studies Time Series Study reveal that 17% of the population were contacted directly by the Democrats against 9% for the Republicans (Panagopoulos and Francia, 2009).

[2] The legitimacy of this argument is addressed in the literature review below.

[3] Notwithstanding the question posed by Ansolabehere et al (2003).

party leaders are motivated by office, and the wedge between tax and public good expenditure. Any surplus may be spent on ego-projects, wasted through bureaucracy, or more simply may reflect pure rent-seeking. By definition the greater the level of rent-seeking, the lower the quality of government. Importantly, voting is argued to be determined both by policy as well as by campaigning activities, which in turn are supported by financial donations and the contributed labor of activists - inputs which are themselves also determined by policy. But as we detail below the policy preferences of contributors are in general different from those of potential voters. In particular we assume they are more ideologically extreme,[4] and may also in general be distinct in how they respond to the quality of government. Because of random popularity shocks, elections are an imperfect check on politicians' behavior hence in equilibrium public good provision is inevitably below the optimum and there is an endogenously determined amount of public sector waste.[5] This waste depends critically on the respective but distinct responsiveness of donors, activists and potential voters to policy, as well as the potency of party campaigns in driving the vote.

A considerable academic literature has already pointed out that voters' turnout rates cannot be taken for granted.[6] Whilst voting may be a low cost activity the expected benefits at the level of the individual voter would appear to be vanishingly small. In such circumstances behavior can change critically depending on efforts made by parties in the run up to an election. To make this idea operational we define 'political capital' as the set of assets available to parties which can help deliver the vote. This is made more concrete

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[4] For example see Seyd et al (1996).

[5] This framework is used in a large and expanding literature, discussed in Persson and Tabellini (2000). Persson et al (2003) analyze the determination of rents under alternative electoral rules.

[6] Aldrich (1993) explains the theoretical difficulties and Wattenberg (2003) provides empirical evidence from around the world on (declining) turnout rates.

in what follows, but it is important at the outset to emphasize that such factors may be multi-dimensional. In particular we consider finance - advertising is not free, hence raising money becomes important, as well as party activists.[7]

If voters do respond positively to advertising and campaigning, then raising finances and pleasing activists becomes important to political parties. Given that donors and activists are not ideologically representative of the electorate as a whole then party leaders face a trade-off between ideological centralization as in standard Downsian models, and polarizing to please activists and donors. Political capital thus can explain ideological divergence.[8] However, the main focus of this paper is to analyze how the quality of government changes depending on the *importance* of political capital in driving turnout, and separately on the *quantity* of different elements of political capital. A key lesson of our analysis is that there should be a clear recognition of the distinction between importance and quantity. Whilst we find a strong case for wanting to reduce potency, we also find that policy aimed at reducing the volume of political capital, such as through limits on campaign expenditure, frequently only serves to worsen the quality of government.

Our first main finding is that for most parameterizations the greater the potency of political capital in driving the vote, the greater the equilibrium level of rent-seeking and hence the lower the quality of government. A key determinant of this, obviously, is the relative sensitivity of potential voters and political capital to public spending. Certainly if potential voters are sufficiently more sensitive to public spending then greater potency of political capital is detrimental to government quality. Parties set policy so as to maximize votes and if

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[7]Wattenberg (2002) and Moon (2004) also argue for a strong functional role for party activists.

[8]There are already a large number of separate explanations for polarization. This literature is partially reviewed below.

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turnout can be bought through pleasing contributors rather than directly addressing voters' concerns then under these circumstances the quality of government deteriorates. Additionally, and less obviously, we find that the ideological equilibrium also determines government quality. When political capital is potent, then the ideological equilibrium is characterized by polarity - parties are drawn to the extremes in order to please their contributors. However, in this scenario there is only one margin on which additional votes can be bought by reducing rent-seeking. When parties are polarized they cannot garner additional votes from their extreme flanks. In contrast when both parties are centralized in accord with the median voter, then both have two margins which can yield additional voters by reducing their rents, hence lower equilibrium rent-seeking. Aside from the relative sensitivity of potential voters and political capital to good governance there is therefore a separate reason for wanting to reduce the potency of political capital in driving the vote. In light of this we therefore discuss possible means to reduce the impact of political capital, in particular compulsory voting.

Reducing the importance of political capital is nonetheless a very distinct argument from limiting the *quantity* of political capital through particular legal limits on campaign spending and advertising. In order to address the consequences of specific legal limits the analysis disaggregates political capital into constituent parts: national spending on advertising, local spending, and activists. Our second main finding is that partial limits on total campaign expenditure, as frequently observed in practice, are never optimal. The problem essentially is that a partial limit is not compatible with maximizing the responsiveness of votes to better government. Imposition of a ban removes a margin on which parties would otherwise want to please donors by increasing public spending. It is nonetheless feasible that an absolute ban on total spending could maximize the quality of government, depending on activists

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being sufficiently more responsive to good government then donors. In this case the stronger the ban on spending the better.

The third main finding is that any limit on national spending as distinct from local spending simply serves to worsen the quality of government. Here the incentive to please donors through improved government is simply removed. The fourth finding is that any partial limit on local spending alone can never be optimal, as with partial limits on overall spending. Because activism is substitutable with local expenditure an outright ban will yield the optimum when activists are sufficiently more responsive to good government than donors.

In the next section we review some related literature before presenting the model framework in Section 3. Equilibrium government quality and its relationship with the potency of political capital is analyzed in Section 4. Section 5 analyzes how government quality changes when legal limits on spending are imposed and Section 6 concludes.

2   Related Literature

The argument that voters are somehow malleable and in particular that campaign expenditure can affect the vote is not uncontentious.[9] Austen-Smith (1991) and Baba (1997) argue that a positive voting response to campaign expenditure implies irrational voters because expensive advertising is a visible sign that money was paid over to promote special interests against their own. On the other hand recent theoretical work identifies a functional role for advertising. Prat (2002) rationalizes advertising in a micro-founded model of cam-

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[9]Our review of this literature is limited. Ashworth (2008) provides a good introduction to the issues involved.

paign advertising in which an interest group responds to insider signals relating to candidate quality. The interest group is able to distort the policy platform (which is orthogonal to candidate quality) in exchange for effectively broadcasting candidate quality. Advertising thus facilitates election of the better quality candidate. This insight is incorporated here in that campaign advertising generates a positive voting response, and also that better quality government generates larger donations and more willing activists thus creating a brake on politicians' rent-seeking behavior.[10] Coate (2004) also highlights the importance of advertising as a means of providing information about candidates.

Empirically Levitt (1994) found that campaign spending has little impact in determining voting in US House elections. Nonetheless more recent work has been supportive of the link. Ansolabehere and Iyengar (1996) find that advertising influences voting in field experiments. Gerber (2004) and Moon (2006) provide a rationale for the weaker evidence that seems to especially relate to incumbents, distinguishing between the objectives of maximizing vote share and gaining re-election. In straightforward terms it is hard for an incumbent to increase vote share, whilst evidence relating to re-election is more favorable. Relatedly Gerber and Green (2000) provide experimental evidence in support of the idea that wider campaigning activities undertaken by party activists have a positive effect on voter turnout. Ultimately the idea that campaign advertising matters, and hence that pleasing potential donors and activists matters through policy seems to us to be worth pursuing.[11]

The proposition that donors and activists can influence the vote, together with the obser-

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[10]If campaign advertising has no effect on voting, then the question of why parties advertise at all is hard to answer. Parties demonstrably do not have unlimited resources and could use scarce finances in other ways.

[11]This idea is also explored by Denzau and Munger (1986) who model special interest groups as potential donors.

vation that party activists and donors are more skewed toward the political extremes provides a mechanism underpinning ideological divergence. Of course, the academic literature is not at all short of candidate explanations for divergence. Palfrey (1984) suggests putting your party in the centre invites someone else to start a new one, place it on your outer flank, and steal all your support. Alternatively candidates might be policy motivated and partially liberated from the median voter due to a degree of uncertainty (Wittman, 1983; Calvert, 1985; Alesina, 1988.) The well-attested fact that incumbents have an advantage over challengers has been used to develop models where the candidates have different strategies which include different ideological positions (Londregan and Romer, 1993.) Schofield (2007) proposes that low quality politicians move away from the centre, in order to distinguish themselves at least on one dimension.

But a further version of the story - and one which is now popular following recent presidential elections in the US - has parties tacking away from the centre to mobilize their potential supporters actually to come out and vote for them (Peress, 2006). If both parties occupy the center, radicals of left and right will abstain through alienation, while some voters of all persuasions will abstain through indifference. 'Indifference abstention' is not in fact a good reason to polarize your party. Staying close to your rival creates equal amounts of indifference to both of you, which does not affect your chances of winning. Losing your more radical supporters through alienation, however, is a different matter.

Political commentators like the story that you do better if you make your 'core' voters turn out rather than chasing floating voters in the centre. (George Bush's campaign of 2004 is held up as a successful example of this.) Political scientists have looked at the evidence and are skeptical. Some of this skepticism rests on the finding that people who say they care

a lot who wins are scarcely more likely to vote than people who care little (Rosenstone and Hanson, 1993). So even if 'core voters' are alienated it doesn't make them that much less likely to vote.

But it may make them much less likely to work for or give money to the party and help deliver other people's votes. Party activists and donors have to date been a neglected force in Downsian theories of spatial political competition.[12] A notable exception, however, is Aldrich (1983a, 1983b). Aldrich's political activists are selected negatively – the ideologically alienated and indifferent exclude themselves. Each party's position is that of its median activist. The ideological position and the cohort of activists are thus simultaneously determined, and Aldrich shows that this always gives an equilibrium where the two parties are ideologically distinct. This an improvement over 'candidate selection' models where candidates get nominated by replicating the views of their party's median activist, a figure treated as exogenous. Where such models do score over Aldrich is when they bring in candidates who choose a position to maximize the joint probability of being nominated and then elected (Aranson and Ordeshook, 1972).

In this article we combine the approaches of Aldrich and of Aranson and Ordeshook. The number and political stance of activists and donors is endogenous, but at the same time someone is looking at the goal of being elected and sees pleasing the activists and potential donors as just a means to that end. We assume in fact that party policy is decided centrally, with an eye on both the potential vote and the political capital needed to get that vote out. The ideological location decision turns out to be non-trivial: Ideology drives voting

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[12]Roemer (2001) studies the behaviour of intra-party factions and finds that the presence of factions can help to solve the problem of cycling in political equilibria. Related to the theory proposed in this paper Cox (2006) studies redistributive politics and argues for a role for mobilisation.

through more than one channel. A party that moves to the center may gain territory from its opponent, but at the cost of party membership or income or both. For this reason parties don't necessarily converge in the middle.

However whilst ideological divergence is an interesting by-product of the analysis, the main concern of our paper is the quality of government. A key relationship in the analysis below is how donations respond to this variable. Donations have themselves been typically modelled in the literature, in our opinion rather narrowly, as either 'position-induced' or 'service-induced' (Ashworth, 2008). In the former case donations buy ideological influence, in the latter the quid pro quo is special favor "at the expense of citizens in general". On the other hand Ansolabehere et al (2003) document that the vast majority of campaign contributions in the case of the U.S. come in the shape of very small donations from individuals. Such donations seem inconsistent with policy procurement. Instead Ansolabehere et al (2003) propose that donating is a form of political participation or consumption. One possible story is that donors obtain a return in the shape of votes generated from ensuing advertising. Relatedly, it is not impossible that donors are acting out of altruism. This may be unappealing to much of the economics literature, but it has to be acknowledged that in most cases the quid pro quo from donations is far from obvious. An example could be the 2008 US Presidential race in which Barack Obama enjoyed a massive financial advantage over John McCain. Anecdotal evidence at least suggests that in many cases the donors were motivated through a perception that Obama was the more effective candidate and not solely through some self-interested agenda.[13]

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[13]Of course whether or not this perception is correct is a question for posterity.

3 Model Framework

The basic framework is two-party pre-electoral competition where both parties simultaneously announce policy, consisting of an ideological position and spending on a public good (as distinct from waste or rent). As is common in the literature we utilize a probabilistic voting framework, first proposed by Hinich (1977) and Lindbeck and Weibull (1987). Suppose there are two parties, L and R, facing an imminent election. Voters are forward-looking, parties pre-commit to policy, and the penalties of reneging are prohibitive.

The parties' objectives are symmetric, with party L's expected utility function written as

$$U_L = p_L \left(1 - g_L\right) \tag{1}$$

where p is its probability of being elected, and $0 \leq g \leq 1$ measures spending on a public good. Parties (or more accurately party leaders) are motivated firstly by office, and secondly the rents they may be able to extract in government. In (1) the normalized maximum possible rent equals unity.[14] There is no direct return to ideological position taking, but any money not spent on public goods adds to utility. As described in the introduction this may be spent on ego-projects, be wasted through bureaucracy, or more simply may reflect pure rent-seeking. An alternative interpretation of g is that it represents politicians' effort (good for voters, but a 'bad' for politicians). Whilst we use the term 'rent-seeking' it is worth bearing in mind throughout that more general interpretations of g are possible and that it is a measure of the overall quality of government.

So what determines p_L, which is the probability that $s_L > 0.5$, s_L being the party's

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[14]This occurs when spending on the public good is zero. To make ideas concrete, suppose that g represents the proportion of the fixed public purse spent usefully. That which is not usefully spent is termed 'rent'.

share of the total vote? Define $s_L \equiv S_L + h_L^*$, where h^* is a random variable uniformly distributed between $-h/2$ and $+h/2$, reflecting exogenous factors affecting the popularity of the two parties and S_L is the share of the vote when $h^* = 0$. Henceforth upper case lettering give values for variables when $h^* = 0$, whilst lower case lettering represent realized values. Without loss of generality assume $h_L^* = -h_R^*$ so that a positive shock for party L is also a negative shock, of equal magnitude, for R. It follows that

$$p_L = prob\,(s_L > 0.5) = 0.5 + \frac{S_L - 0.5}{h}. \tag{2}$$

Party L's probability of winning an election therefore depends on the vote share it would win in a shock-less world (S_L) and the density of the popularity shock variable (h).[15]

Notationally, $S_L = \frac{V_L}{V_L + V_R}$ where V_L and V_R are the total votes won by the two parties. Following the arguments outlined in the introduction we define a vote production function (hereafter VPF) as

$$V_L = K_L^\alpha J_L^{1-\alpha}$$

where voting performance depends on the potential voter base (J_L) and party finances and activists, or more generally the party machine, otherwise known as 'political capital' (K_L). This is a generalization of the standard Downsian model which is the special case of $\alpha = 0$. In this section and the next the determination of policy is analyzed using an aggregate measure of political capital, with the objective of asking how policy depends on the importance of political capital as a whole in driving votes (as captured by α). Section 4 disaggregates political capital into national advertising, local advertising and activism, enabling analysis

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[15] It is the presence of the shocks which enables parties to generate positive rents.

of the consequences of limiting campaign spending.

3.1   Potential Voters

Suppose the ideological scale runs from 0 (left) to 1 (right). Let θ_L and θ_R be the ideological positions chosen by the two parties. Now suppose the electorate are uniformly distributed across the ideological spectrum with the size of the electorate normalized to 1. The uniform distribution is common to the literature (see e.g. Persson and Tabellini (2000) chapter 3) and captures the concept of an ideologically diverse electorate. When $h^* = 0$, and government spending is the same by both parties, each elector is a potential voter for the party to which she is closest ideologically. Thus voters whose θ_i (personal ideological score) is less than (greater than) $(\theta_L + \theta_R)/2$ will vote, if they vote at all, for party L (party R).

Potential voters also respond to spending on the public good. Let the effect be to increase the number of potential L voters by $\omega (g_L - g_R)$ where $\omega > 0$. Thus a party can increase its territory beyond the critical point $(\theta_L + \theta_R)/2$ by spending more than its rival. If the left-wing party spends more ($g_L > g_R$) then the critical point is to the right of this point, and if the right-wing party spends more then the critical point moves to the left. To summarize, L's potential voters are defined as

$$J_L = (\theta_L + \theta_R)/2 + \omega (g_L - g_R).\tag{3}$$

3.2 Political Capital

Given the unanimity of political scientists (see e.g. Seyd et al, 1996) on the subject, we assume that party activists and donors are more skewed toward the political extremes than the electorate as a whole. In what follows we assume that political capital is spread across the ideological spectrum with a distribution

$$K(\theta) = Q \exp |c(0.5 - \theta)|$$

where $c \geq 0$, the size of c determining how skewed towards the extremes. (In the limiting case of $c = 0$ political capital, like potential voters, is distributed uniformly). Q is a scale parameter.

Thus there is a stock of political capital part of which parties can obtain through choosing their policy platforms. It is this that potentially drags parties away from the ideological middle ground. We assume that activists and contributors help a party if they like it enough (i.e. if the psychic gains of helping it exceed the trouble.) A natural assumption is that the psychic gains of helping a party are inverse to your ideological distance from it, but the cost (time, money and effort) is constant. Let z be the critical ideological distance. Holding public good spending constant L's range of activists therefore stretch from $\theta_L - z$ to $\theta_L + z$. The centrifugal force follows from the parameter c: parties can increase their political capital by moving away from the centre.

As with potential voters, we assume that activists and donors are also susceptible to good governance.[16] To incorporate this idea we assume that if party L spends more than

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[16] In the case of activists this seems obvious. In the case of donors a possible foundation for this argument

party R, that will widen L's range of capital, and narrow that of R, by $\beta (g_L - g_R)$ at either end (this amount of course can be positive or negative). Given the symmetrical distribution of both potential voters and political capital between left and right, it follows that the two parties' incentives, as they choose public spending and ideological distance from the centre, are identical. So in any Cournot-Nash equilibrium the parties' positions are symmetrical i.e. $\theta_L + \theta_R = 1$ and $g_L - g_R = 0$.

Given this structure it is possible that there are activists and donors simultaneously within distance z of both parties. In this instance we assume that they work for the one to which they are closest. In Cournot-Nash equilibrium, this amounts to working for L (R) if their ideological score is less (greater) than 0.5. Also note that the range of activists is truncated at 0 and 1, so that L's leftmost activist will be at $\max (0, \theta_L - z)$. But, precisely because of the truncation, $\theta_L - z$ will always be non-negative: as long as $\theta_L - z < 0$, a move to the centre would gain both potential voters and centre-ground political capital without losing any of the ideologically-extreme capital. Hence $\max (0, \theta_L - z) = \theta_L - z$.

To summarize L's range of political capital will be $\left[\theta_L - z, \bar{\theta}\right]$ where $\bar{\theta} = \min (\theta_L + z, 0.5)$. Its total capital will therefore be the integral of the density function between these two limits:

$$K_L = \int_{\theta_L - z}^{\bar{\theta}} K(\theta)\, d\theta = \frac{Q}{c} \left(\exp \left[c (0.5 - \theta_L + z) \right] - \exp \left[c \left(0.5 - \bar{\theta} \right) \right] \right) \qquad (4)$$

The comparative statics (i.e. how political capital responds to changes in ideological stance) can now be considered. Suppose θ_L increases by $d\theta$ (L moves towards the centre.) Given $\theta_L - z \geq 0$, L will lose $K\left(\theta|_{\theta = \theta_L - z}\right)$ capital on the left. If its stock of activists is abutting that

comes from Prat (2002), discussed above. Donors recognise that higher quality (better governance) politicians are more likely to be elected, and hence are more predisposed to donate.

of R at 0.5, then it will gain $0.5K\left(\bar{\theta}\right)$ capital from R; if not, it will gain $K\left(\bar{\theta}\right)$ unemployed capital. Either way, the sum of L's gain and R's loss will be $K\left(\bar{\theta}\right) - K\left(\theta|_{\theta=\theta_L-z}\right)$, i.e.

$$
\begin{aligned}
\frac{dK_L}{d\theta_L} - \frac{dK_R}{d\theta_L} &= K\left(\bar{\theta}\right) - K\left(\theta|_{\theta=\theta_L-z}\right) = Q\left(\exp\left[c\left(0.5 - \bar{\theta}\right)\right] - \exp\left[c\left(0.5 - \theta_L + z\right)\right]\right) \\
&= -cK_L
\end{aligned}
\tag{5}
$$

Equation (5) gives a useful and simple result: when the left-wing party marginally shifts to the centre, its relative political capital falls proportionately to its existing stock. Thus even though the centrist shift increases capital in the centre, and may also eat into the opposition's capital, the net effect on relative political capital is still negative due to the larger loss on the party's extremist wing.

3.3   Ideological Equilibrium

Now consider how the parties choose their ideological position so as to maximize their objective in equation (1). Substituting in (2) and differentiating with respect to θ_L yields

$$
\frac{h}{1-g_L}\cdot\frac{dU_L}{d\theta_L} = \frac{dS_L}{d\theta_L} = \frac{d}{d\theta_L}\left(\frac{V_L}{V_L+V_R}\right) = \frac{dV_L/d\theta_L - dV_R/d\theta_L}{4V_L}
\tag{6}
$$

The last equality follows from the fact we are considering a Nash equilibrium where pre-shock votes are equal and $V_L = V_R$. Substituting in $V = K^\alpha J^{1-\alpha}$, plus the facts that in equilibrium $J_L = J_R = 0.5$ and $dJ_L/d\theta_L + dJ_R/d\theta_L = 0$ gives

$$
\frac{dS_L}{d\theta_L} = \frac{\alpha}{4K_L}\left(\frac{dK_L}{d\theta_L} - \frac{dK_R}{d\theta_L}\right) + (1-\alpha)\frac{dJ_L}{d\theta_L}
\tag{7}
$$

hence

$$\frac{dU_L}{d\theta_L} = \frac{1 - g_L}{h} \frac{dS_L}{d\theta_L} = \frac{1 - g_L}{h} \left[\frac{1 - \alpha}{2} - \frac{\alpha c}{4} \right]$$

and thus for all $\theta_L \geq z$, $dU_L / d\theta_L > 0$ if and only if

$$\alpha < \frac{2}{c + 2}. \tag{8}$$

If, therefore, α is less than this critical value (call it α^*), it will always pay L (and R) to move nearer the centre, and the two parties will converge at $\theta_L = \theta_R = 0.5$. If $\alpha > \alpha^*$, it will always pay L to move away from the centre. However it will not end up at $\theta_L = 0$, but rather at $\theta_L = z$, the point at which, as we have discussed, any further leftward move results in an unambiguous loss of votes.[17] R, by similar reasoning will end up at $\theta_R = 1 - z$.

The intuition of this result is as follows. As capital becomes less important in delivering the vote (i.e. as α falls), parties move to the centre. This always picks up potential votes, but now does so at a reduced cost in terms of political capital. If the stock of capital is very skewed towards the political extremes (high c), the move to the centre as α falls will be delayed, but there will always be some α low enough to precipitate it. By contrast, if $c = 0$, parties converge at all positive α. When $c = 0$, activists have the same rectangular distribution as voters. It follows that, each time party L inches towards the centre it loses two left-wing activists and gains one centrist one from party R. Both parties are therefore down one activist, and party L has nothing to lose by moving towards the centre. Since it will be gaining potential voters by doing so, it will move to the centre. The value of α is

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[17]Equation (8) depends on (5), which was derived explicitly on the basis that $\theta_L \geq z$. At $\theta_L < z$, therefore, (5) ceases to hold and $dU_L / d\theta_L$ becomes positive whatever the values of α and c. This is why $\theta_L < z$ cannot occur in equilibrium.

beside the point. (If, contrary to our assumption, c were actually negative, this would all be true a fortiori.)

But, unless $c \leq 0$, we have discontinuity. Parties are either at the centre, with $\theta_L = \theta_R = 0.5$ or polarized to the point that their leftmost (rightmost) activist is the leftmost (rightmost) person in the country, the point where $\theta_L = z$. We will call these alternatives the 'median voter' outcome and the 'polarity' outcome.[18]

In summary the model predicts convergence or divergence depending on equation (8). It is possible that the model provides a vehicle for understanding the increased polarization of political parties in the US in the 1980s documented by Abramowitz and Saunders (1998).[19] If the value of α increases, then a tipping point may be reached at which the two parties diverge. One tentative possibility is that α might have increased with the development of widespread mass media and television advertising. Whilst this hardly represents a test of the model, we observe that political competition in Anglo-Saxon countries seems to fluctuate between consensual and polarized politics, and has on occasion switched rather rapidly. In contrast to most models of political competition, which either predict convergence or divergence, the model proposed here can accommodate both depending on the strength of α.

4 The Quality of Government

So far we have seen the two parties choosing ideological locations. Whether they converge on the centre, or locate themselves so as to maximize political capital, depends on the value of

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[18]The 'median voter' and polarity' outcomes would merge in the event of $x_L = z = 0.5$. We rule out such a high value of z as implausible.

[19]Heath et al (1985) also document a marked shift in the 1980s towards polarized two-party competition in the UK.

α. In this section we consider how the choice of public spending, g (and therefore equilibrium rent-seeking) depends on the model parameters. Social welfare therefore depends on g, and it turns out that g itself depends crucially on the importance of political capital in driving votes, that is the parameter α. Given this relationship, we discuss possible means by which α might be modified so as to maximize the quality of government, and compulsory voting in particular. As in the previous section the approach taken is to aggregate over political capital. The next section examines the effects of limits on particular types of campaigning activity.

From (1) the party maximizes its expected utility at

$$g_L = 1 - \frac{p_L}{dp_L/dg_L}. \tag{9}$$

In a Cournot-Nash equilibrium $p_L = 0.5$, hence (using (2))[20]

$$g_L = 1 - \frac{p_L}{dp_L/dg_L} = 1 - \frac{0.5h}{dS_L/dg_L}.$$

Maximizing welfare thus comes down to maximizing dS_L/dg_L, i.e. making a party's election chances as sensitive as possible to the sacrifice of rents. By analogy with (7), and also using (3)

$$dS_L/dg_L = \frac{\alpha}{4K_L}\left(\frac{dK_L}{dg_L} - \frac{dK_R}{dg_L}\right) + (1-\alpha)\omega \tag{10}$$

This first order condition clearly depends on how relative political capital responds to better government $\left(\frac{dK_L}{dg_L} - \frac{dK_R}{dg_L}\right)$. But the size of $\frac{dK_L}{dg_L}$ itself depends on whether $(\theta_L - z)$, the left

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[20]Thus in a deterministic version $(h = 0)$, $g = 1$ i.e. the parties compete rents down to zero as they seek election.

frontier of activism, is zero (as in the polarity outcome) or greater than zero (as in the median voter outcome). The next two subsections analyze these two cases separately and section 4.3 puts them together to ask how might be modified so to optimize the quality of government.

4.1   Case 1: The Median Voter Outcome ($\alpha < \alpha^*$, $\theta_L = 0.5$)

Here a rise in g will, on our above assumptions, rake in activists at both L's fringes and cause an equal loss to R. The sum of L's gain and R's loss can be written as:

$$\frac{dK_L}{dg_L} - \frac{dK_R}{dg_L} = 2\beta \left(K|_{\theta=0.5} + K|_{\theta=0.5-z} \right) = 2\beta Q \left(1 + \exp\left(cz \right) \right) \tag{11}$$

Substituting (11) into the first order condition (10), and using (4), (which gives the result that when $\theta_L = 0.5$, $K_L = \frac{Q}{c} \left(\exp\left(cz \right) - 1 \right)$), we have:

$$dS_L / dg_L = \frac{\beta \alpha c}{2} \cdot \frac{\exp\left(cz \right) + 1}{\exp\left(cz \right) - 1} + \omega \left(1 - \alpha \right). \tag{12}$$

Our objective is to see how public spending, g, responds to changes in the relative importance of the two arguments in the VPF, i.e. to the parameter α. Since g is monotonically increasing in dS/dg, the condition for $dg/d\alpha > 0$ is that $\frac{d}{d\alpha} \left(dS/dg \right) > 0$, i.e.

$$\frac{\beta}{\omega} > \frac{2 \left(\exp\left(cz \right) - 1 \right)}{c \left(\exp\left(cz \right) + 1 \right)}. \tag{13}$$

When (13) is fulfilled any increase in α is good for welfare, so that the optimum within the range is its top end, $\alpha = \alpha^*$. When it is not fulfilled, political capital is not sufficiently

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sensitive to good government. The ideal is $\alpha = 0$, i.e. we would like potential voters to have maximum say in the formation of government.

The intuition here is that the incentive to govern better (raise g) depends on how many extra votes this would bring in. The more freely the supply of a factor (potential voters or political capital) responds to better government, the more the standard of government will itself respond to that factor carrying more weight. If the supply of, say, political capital is sensitive to g and the vote is sensitive to the supply of political capital, the electoral payoff from giving up rents is high and parties will act accordingly.

4.2   Case 2: The Polarity Outcome $(\alpha > \alpha^*, \theta_L = z)$

If $\theta_L - z = 0$ there is no more capital on the leftward fringe to rake in if g rises any more. (i.e. the most left-wing person in the country is already working for party L.) Consequently L gains no activists at $\theta_L - z = 0$ by improving its behavior. But it still gains activists at its rightward fringe $\theta_L + z (= 2z)$ and, because the rise in g_L gives an equivalent rise in $g_L - g_R$, R will continue to lose activists at both ends. Hence:

$$\frac{dK_L}{dg_L} - \frac{dK_R}{dg_L} = \beta \left(K|_{\theta=2z} + K|_{\theta=1-2z} + K|_{\theta=1} \right) = \beta Q \left(\exp\left(0.5c\right) + 2\exp\left[c\left(0.5 - 2z\right)\right] \right) \quad (14)$$

Substituting (14) into (10), and using (4), which gives the result that when $x_L = z$, $K_L = \frac{Q}{c} \left(\exp\left(0.5c\right) - \exp\left[c\left(0.5 - 2z\right)\right] \right)$, we have

$$\frac{dS_L}{dg_L} = \frac{\beta\alpha c}{2} \cdot \frac{\exp\left(0.5c\right) + 2\exp\left[c\left(0.5 - 2z\right)\right]}{\exp\left(0.5c\right) - \exp\left[c\left(0.5 - 2z\right)\right]} + \omega\left(1 - \alpha\right). \quad (15)$$

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The condition for $dg/d\alpha > 0$ is again that $\frac{d}{d\alpha}\left(dS/dg\right) > 0$, i.e. that

$$\frac{\beta}{\omega} > \frac{4\left(\exp\left(0.5c\right) + \exp\left[\left(0.5 - 2z\right)c\right]\right)}{c\left(\exp\left(0.5c\right) - \exp\left[\left(0.5 - 2z\right)c\right]\right)}. \tag{16}$$

Once again, as in the median voter case (13), any fall in β/ω makes $dg/d\alpha$ more likely to be negative. We have already seen the essential intuition. Low β/ω means there is relatively little mileage to be got from trying to please activists and donors; it is thus potential voters' opinions which will be more effective in stopping governments from taking too many rents. We therefore want the power of potential voters to be enhanced still more by lower α. Think of the activists and potential voters as two vigilantes, both trying to enforce good government. If you have two vigilantes and two sticks, you get maximum enforcement when the bigger vigilante gets the bigger stick. So when β/ω is low (high), low (high) α will raise g.

4.3 Government quality and the potency of political capital

Here we put the insights of the previous two subsections together to analyze the relationship between government quality, g, and the parameter α - the potency of political capital in delivering votes. We also now drop the L and R subscripts for the rest of this section, because the results, following from (13) and (16) apply identically to either party. A first result is that if α increases to the point at which the ideological equilibrium tips from the median voter to polarity, then there is a downward jump in government quality.

Proposition 1 *g undergoes a downward jump as α rises through α^*.*

Proof. From (12) and (15), the change in dS/dg will have the same sign as $\frac{\exp(0.5c)+2\exp[c(0.5-2z)]}{\exp(0.5c)-\exp[c(0.5-2z)]} - \frac{2[\exp(zc)+1]}{\exp(zc)-1}$. Writing this as $\frac{H_1}{H_2} - \frac{H_3}{H_4}$, it must have the same sign as $\frac{H_1H_4-H_3H_2}{\exp[c(0.5-z)]} = -\exp(cz) - 3\exp(0.5cz)+4$. Given that z and c are both positive (if $c=0$ then $\alpha^*=1$), this expression must be negative, so that dS/dg and hence g falls at $\alpha=\alpha^*$. ∎

The logic behind this is that as α crosses α^* from below, the parties diverge from the centre. When the parties are located according to the polarity equilibrium higher g will no longer pull in activists from the ideological fringe as they will be contributing and working for party L anyway. Conversely when the parties are located according to the median voter parties have incentive to appeal to political capital on both flanks. Therefore, once political capital becomes sufficiently important (as α rises through α^*) to tip the equilibrium from the median voter to polarity the incentive to spend falls and equilibrium rents rise.

Lemma 2 *It is possible for $dg/d\alpha$ to be positive in α's lower range and negative in its upper, but not vice versa.*

Proof. From (12) and (15) it follows that

$$\frac{d}{d\alpha}\left(dS/dg\right)\Big|_{a=\alpha^{*+}} - \frac{d}{d\alpha}\left(dS/dg\right)\Big|_{a=\alpha^{*-}} = \frac{1}{\alpha}\left(\frac{dS}{dg}\Big|_{a=\alpha^{*+}} - \frac{dS}{dg}\Big|_{a=\alpha^{*-}}\right),$$

and so, from Proposition 1, $\frac{d}{d\alpha}\left(dS/dg\right)$ as well as $\frac{dS}{dg}$ jumps downwards at $\alpha=\alpha^*$. Given that $\frac{d}{d\alpha}\left(dS/dg\right)$ is independent of α at all other values of α, it follows that α^* is the only point at which $\frac{d}{d\alpha}\left(dS/dg\right)$ (and hence $dg/d\alpha$, given that g is monotonically increasing in dS/dg) can change sign. Hence $dg/d\alpha<0$ at $\alpha<\alpha^*$ necessarily implies $dg/d\alpha<0$ at $\alpha>\alpha^*$ but not vice versa. ∎

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The logic this time is as follows: $dg/d\alpha$ is positive when political capital is good at inducing better government, i.e. when its allegiance is sensitive to the quality of government. It will always be more sensitive in the median voter equilibrium because here higher g brings in capital from both wings of the party, not just the 'moderate' one. Thus if $dg/d\alpha$ is positive even in the polarity case, it will certainly be so when the median voter prevails.

Putting together Proposition 1, Lemma 1, and equations (13) and (16) gives us Fig. 1, which summarizes the analysis of this section, depicting the three possible cases depending on the relative responsiveness of political capital and potential voters to public spending.[21]

FIG 1 HERE

Let us now interpret and compare the situations in Fig. (1a), (1b) and (1c). Recall that for levels of α below α^* political capital is less important in terms of generating votes and parties locate at the centre (the median voter outcome.) For levels of α greater than α^*, political capital is sufficiently important in the vote production function to give the polarity outcome.

In Fig. (1a), activists and donors are more responsive to better government than voters are, and hence more effective at keeping the government up to the mark. As they become more important to the government, therefore, government improves – but with an interruption as α crosses α^*. At this point government spending no longer brings in activists and donations from the extreme left (right) as well as centrist ones – parties become polarized

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[21] There is a further detail in Fig. 1 that is not explicitly given by (13) and (16); namely that $g\left(C\right) > g\left(A\right)$ in Fig. (1a) but $g\left(A\right) > g\left(C\right)$ in Fig. (1b). This must always be the case, since the condition for $g\left(C\right) > g\left(A\right)$ turns out to be identical to the condition for being in Fig. (1a) rather than Fig. (1b) in the first place: Let $\frac{c}{4} \cdot \frac{\exp(0.5c) + 2\exp[c(0.5 - 2z)]}{\exp(0.5c) - \exp[c(0.5 - 2z)]} = X$. Then, from (12) and (15) $\frac{dS}{dg}\left(C\right) - \frac{dS}{dg}\left(A\right) = \omega\left(1 - \alpha^*\right) + \beta\alpha^* X - \omega = \alpha^*\left(\beta X - \omega\right)$. Hence $g\left(C\right) > g\left(A\right)$ iff $\beta X > \omega$. But this is simply condition (16) again, i.e. the necessary and sufficient condition for being in Fig. (1a) rather than Fig. (1b).

and the extremists would be helping them regardless of any improvement in the quality of government. This one-off drop in the electoral rewards from pleasing activists an donors produces a one-off drop in public spending.

In Fig. (1c) political capital is relatively insensitive to good government and it is potential voters who are most swayed by the government giving up rents. Government, therefore, improves with the reward to the government from pleasing potential voters (as α falls). If β is low, then anything is better than $\alpha = 1$, where the government faces a set of voters it has no incentive to please and a set of activists who give it little thanks when it does. As α rises, government spending falls, exacerbated by the one-off drop as α crosses α^*.

Fig (1b) is the intermediate case. When α is high, only the centrist activists and donors respond to better government (the extremists are helping it anyway). This is sufficient for the situation to resemble Fig (1c). But when the radicals' response kicks in as α falls through α^*, this not only produces the standard jump in g, but also gives the government enough "buyable" activists for the balance of incentive to change, tipping us into the world of Fig (1a). Further reductions in α are now undesirable; the ideal is to be just to the left of α^*.

So what is the optimal value of α? To an important extent this depends on which of the three scenarios we are in. In case (1c), anything which makes a party's vote less dependent on effective organization is unambiguously good for welfare. In case (1b), if $\alpha > \alpha^*$ (the ideological equilibrium is polarized) then again any increase in α improves government. In (1a), $\alpha = 0$ (organization irrelevant) is the worst outcome, but there is still a range of α in the neighborhood of α^* in which a reduction in α sufficient to tip the ideological equilibrium from polarity to the median voter outcome can increase the quality of government. In sum in many instances a reduction in α is found to be desirable.

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This raises the possibility that α might be 'fine-tuned'. One possibility is compulsory voting. When voting is compulsory, then theoretically at least turnout is guaranteed and mechanisms to get the voters out might be expected to be less important. In terms of the model presented here α would fall. However, even under compulsory voting it is unlikely that party workers and advertising would ever be completely superfluous, as a look at Australia will show. There is still a role for suasion, encouragement, and knocking up one hour before the polls close. Nonetheless by varying the penalties for not voting the potency of compulsory voting would change, and consequently α might itself be altered. If compulsory voting does serve to reduce α then as noted above it could conceivably lead to an improvement even in case (1a), provided that α is initially greater than α^*. In case (1b), moving to $\alpha = 0$ is always an improvement when $\alpha > \alpha^*$ and always bad when $\alpha < \alpha^*$. Compulsory voting, even assuming it does not lead to $\alpha = 0$, will be an improvement *if* it has the effect of making α fall below the α^* boundary.

Empirical research often finds that there are systematic party differences in ideology, as found e.g. in the US by Ansolabehere et al (2001) and Poole and Rosenthal (1984 and 1997) and internationally within analyses of Manifesto content (Budge et al, 1987). In the context of our model this evidence suggests that α is high enough for democracies to end up between points C and D in Fig 1 regardless of the sensitivity of political capital to good governance. A reduction in α of any size would unambiguously improve government in cases (1b), and (1c). If α is close to (but greater than) α^* then a reduction in α of the right size would also improve government quality. Assuming compulsory voting does reduce the role of capital (to the extent people now go and vote anyway), it would raise economic welfare in both these cases. The same could be said for on-line voting, or anything which either reduces the cost

of voting or raises the cost of not voting.

5   The effects of legal limits on campaign expenditure

We now generalize the vote production function to consider the consequences of legal limits on total election spending, as well as separate limits at the national and local levels. In contrast with Section 3, instead of examining how government quality is driven by the importance of political capital, that is through the parameter α, we now examine the consequences of limiting aspects of K. Farrell and Webb (2000) document limits on total campaign spending in general elections in Canada, France, Ireland, Japan as well as in presidential elections in the US. There are also limits on spending at the constituency level in the UK and New Zealand. The analysis requires a more exact specification of the role of campaign finance: not only have we been using 'political capital' to aggregate volunteers and money, but money spent on a national campaign plays a different role to that spent securing the election of local candidates. In order to separately analyze the effects of local and national limits we rewrite the production function for votes as:

$$V = M_1^\gamma \, (M_2 + A)^\alpha \, J^{1-\alpha} \tag{17}$$

where M_1 is money spent on the national campaign (advertising, broadcasts, spin etc.) and γ captures the effectiveness of this spending, M_2 is money spent on local campaigns and A is the effort put in by volunteers (who may also give money.) In the absence of legal restrictions, a party's money (M) can be divided between M_1 and M_2 as it pleases. For simplicity we

assume that M_2 and A are perfect substitutes in the production of votes. (Treating them as partial substitutes merely complicates the mathematics without producing any difference in the results.) We also now have increasing returns in the sense that doubling M_2, A and J doubles the vote even if M_1 stays the same. This is because we are taking the resources bought by M_1 as non-excludable: if you get twice as many potential voters, each getting as much local attention as before, you don't need to put on any more party political broadcasts because everyone can watch the existing ones.

Once again, we want to know what arrangements will maximize welfare by maximizing dS/dg, where

$$dS_L/dg_L = \frac{dV_L/dg_L - dV_R/dg_R}{4V_L}$$

as in equation (6). i.e.

$$dS_L/dg_L = \frac{1}{4V_L}\left[\frac{dV_L}{dM_L}.\frac{dM_L}{dg_L} - \frac{dV_R}{dM_R}.\frac{dM_R}{dg_R} + \frac{dV_L}{dA_L}.\frac{dA_L}{dg_L} - \frac{dV_R}{dA_R}.\frac{dA_R}{dg_R} + \frac{dV_L}{dJ_L}.\frac{dJ_L}{dg_L} - \frac{dV_R}{dJ_R}.\frac{dJ_R}{dg_R}\right]$$

(18)

In linking M to g, we are not assuming M depends only on g. This would be to ignore the money given to political parties in the hope of receiving favors. All we are saying is that, ceteris paribus, a party which hands rents back to the country may get more financial support as a result, and will not get any less i.e. $dM/dg \geq 0$.

Now, in a Cournot-Nash equilibrium, $\frac{dV_L}{dA_L} = \frac{dV_R}{dA_R}$, $\frac{dV_L}{dM_L} = \frac{dV_R}{dM_R}$, and $J_L = 0.5$ which, with (3) and (17) gives us

$$dS_L/dg_L = \frac{1}{4V_L}\left[\frac{dV_L}{dM_L}\left(\frac{dM_L}{dg_L} - \frac{dM_R}{dg_R}\right) + \frac{dV_L}{dA_L}\left(\frac{dA_L}{dg_L} - \frac{dA_R}{dg_R}\right)\right] + \omega\left(1 - \alpha\right)$$

We now drop the L subscript, and also write the two terms in curved brackets as M' and A' respectively, so that:

$$dS/dg = \frac{1}{4V} \left[M' \frac{dV}{dM} + A' \frac{dV}{dA} \right] + \omega (1 - \alpha) \tag{19}$$

Suppose initially that there is no limit on election spending. Then the VPF tells us that $dV/dM = dV/dA$,[22] and (19) becomes:

$$dS/dg = \frac{1}{4V} \frac{dV}{dA} \left[M' + A' \right] + \omega (1 - \alpha)$$

where $\frac{1}{V} \frac{dV}{dA} = \frac{\alpha}{M_2 + A}$. But optimization requires that $dV/dM_1 = dV/dM_2$, which in turn (given the form of the VPF) implies that $M_2 + A = \frac{\alpha}{\alpha + \gamma} (M + A)$.[23] Hence

$$dS/dg = \frac{\alpha + \gamma}{4 (M + A)} \left[M' + A' \right] + \omega (1 - \alpha) . \tag{20}$$

Now we can see whether legal limits on campaign spending would increase social welfare, by examining what happens to dS/dg under alternative rules.

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[22] If M increases by one unit you distribute the new money so that the optimizing condition $\frac{M_1}{M_2 + A} = \frac{\gamma}{\alpha}$ still holds. If A increases by one unit you redistribute the existing money to the same effect.

[23] We assume that $\alpha M > \gamma A$. Were this not the case, dV/dM_1 would exceed or equal dV/dM_2 even when $M_2 = 0$. i.e. there would be zero local spending.

5.1 Total spending limited to M^*

Here $dV/dM = 0$ and (19) becomes $dS/dg = \frac{1}{4V}\left[A'\frac{dV}{dA}\right] + 4\omega(1-\alpha)$ where $\frac{1}{V}\frac{dV}{dA} = \frac{\alpha}{M_2+A} = \frac{\alpha+\gamma}{M^*+A}$, so that

$$dS/dg = \frac{(\alpha+\gamma)A'}{4(M^*+A)} + \omega(1-\alpha). \qquad (21)$$

Clearly, if $M^* = M$ then (21) is a worse outcome than (20), i.e. social welfare jumps downwards if the spending limit is set infinitesimally below what parties would have chosen for themselves. The logic is simple: we have removed one of the incentives to govern well (that you will have more money to spend on re-election) and put nothing in its place. The RHS of (21) is in fact declining in M^*: if you are going to restrict spending at all, the bigger the restriction the better.[24] This is again straightforward: any limit removes the party's incentive to please donors so we want to maximize its incentive to please activists instead. This is done by removing the substitute resource of locally-spent money.

But is there any limit on total spending which will be better for welfare than no limit? A limit of zero gives

$$dS/dg = \frac{(\alpha+\gamma)A'}{4A} + \omega(1-\alpha). \qquad (22)$$

Comparison of (22) with (20) shows (20) represents higher welfare iff $\frac{M'}{M} > \frac{A'}{A}$, i.e. it all turns on whether better government produces a larger proportional increase in activism or campaign finance (Fig. 2).

FIG 2 HERE

In case (i) donors are more responsive than activists to public good provision. In this

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[24]We hesitate to say the optimum is literally zero because a small amount of election spending may have genuine informative content.

instance any limit on total spending is detrimental. In case (ii) activists are more responsive than donors, but still a partial limit increases rent-seeking due to the removal of the incentive to please donors. Nonetheless, in both cases increasing the severity of the limit increases the returns through good governance to pleasing activists; in case (ii) the best policy would be to take advantage of this to the extent of an outright ban on any campaign spending, thus maximizing the effect of the activists. In both cases a partial limit fails to maximize the quality of government.

5.2   A limit on national spending (M_1^*) but not on local spending

Here, as in the unconstrained case $dV/dM = dV/dA$, and (19) again becomes $dS/dg = \frac{1}{4V}\frac{dV}{dA}\left[M' + A'\right] + \omega\left(1 - \alpha\right)$, but now $\frac{1}{V}\frac{dV}{dA} = \frac{\alpha}{M_2+A} = \frac{\alpha}{M-M_1^*+A}$, therefore

$$dS/dg = \frac{\alpha}{4\left(M - M_1^* + A\right)}\left(M' + A''\right) + \omega\left(1 - \alpha\right) \tag{23}$$

The RHS is now increasing in M_1^*; the more permissive the limit, the higher social welfare. It follows that limiting national spending, while leaving local spending unrestrained, is always a bad policy. The intuition follows straight on from that of the previous case. The only good a limit on total spending could do was to force parties to pay more attention to their volunteers by starving them of local cash. This effect is no longer present, and thus the spending limit proposed here is a pure bad[25] (Fig. 3).

FIG 3 HERE

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[25] The comparison between (23) and (20) would be more complicated if restricting M_1 affected the value of M via its effect on g. We assume, however, that a party's funding depends on its relative (to the other party) quality of government which, in a Cournot-Nash equilibrium, will be unaffected.

In contrast to the case of a limit on total spending policy, there is no discontinuity in dS/dg as M_1^* approaches the freely chosen M_1 of $\frac{\gamma}{\alpha+\gamma}(M+A)$. As this happens, $\frac{\alpha}{M-M_1^*+A} \to \frac{\alpha+\gamma}{M+A}$, i.e. equation (23) converges to (20). The bottom line here is that a limit on national spending alone simply serves to blunt the return in votes to political capital and in doing so removes an incentive to please donors through better government.

5.3 A limit on local spending (M_2^*) but not on national spending.

Here M and A cease to be substitutes at the margin, and (19) remains in the form

$$dS/dg = \frac{1}{4V}\left[M'\frac{dV}{dM} + A'\frac{dV}{dA}\right] + \omega(1-\alpha)$$

where $\frac{1}{V}\frac{dV}{dM} = \frac{1}{V}\frac{dV}{dM_1} = \frac{\gamma}{M_1} = \frac{\gamma}{M-M_2^*}$ and $\frac{1}{V}\frac{dV}{dA} = \frac{\alpha}{M_2^*+A}$, so that

$$dS/dg = \frac{\gamma M'}{4(M-M_2^*)} + \frac{\alpha A'}{4(M_2^*+A)} + \omega(1-\alpha). \qquad (24)$$

Here the RHS could be either increasing or declining in M_2^*:

$$\frac{d}{dM_2^*}dS/dg = \frac{\gamma M'}{4(M-M_2^*)^2} - \frac{\alpha A'}{4(M_2^*+A)^2}.$$

This can be either positive or negative, but it can be seen by inspection that the second derivative of (dS/dg) with respect to M_2^* must be positive, i.e.(dS/dg) is *minimized* when $\frac{\gamma M'}{(M-M_2^*)^2} = \frac{\alpha A'}{(M_2^*+A)^2}$. Let $\overline{M}_2^*$ be the value of M_2^* that solves this equation, and let M_2^F

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be unconstrained M_2. Then, if $\overline{M}_2^* \leq 0$, dS/dg will be increasing in M_2^* (Fig. 4i)[26], if $\overline{M}_2^* \geq M_2^F$, dS/dg will be decreasing in M_2^* (Fig. 4ii), and if $0 < \overline{M}_2^* < M_2^F$ there will be a pessimal limit on local spending, from which either a reduction or an increase would raise welfare (Fig 4(iii) and (iv)). How is this so? We have the same two counteracting effects as in the case of a limit on total spending: limiting spending reduces the incentive to raise money but increases the incentive to raise volunteers. If the limit is low the second effect is strong (the scarcer the local cash, the greater the effect of making it scarcer still) but the first one is weak (the national campaign is awash with money that can't be spent locally; therefore the incentive to raise more is so weak that a change in M_2^* can have very little effect on it.) If the limit is high, the situation is reversed. So if M_2^* is already low, reducing it is more prone to increase welfare than when it is high, i.e. the curve relating M_2^* to welfare must be convex and may be U-shaped. If it is U-shaped, the question again arises of which is preferable, no limit (as in Fig.4(iii)) or a zero limit (Fig.4 (iv).) The answer, once again, is that freedom is best iff $\frac{M'}{M} > \frac{A'}{A}$. With a zero limit (24) becomes

$$dS/dg = \frac{\gamma M'}{4M} + \frac{\alpha A'}{4A} + \omega (1 - \alpha) \tag{25}$$

Let $\frac{A'}{A} = \dot{A}$ and $\frac{M'}{M} = \dot{M}$. Now, (20) gives more welfare than (25) iff $(\alpha M - \gamma A)\,\dot{M} > (\alpha M - \gamma A)\,\dot{A}$. But $(\alpha M - \gamma A)$ is positive by assumption (see note 18), so freedom is best if $\dot{M} > \dot{A}$.

FIG 4 HERE.

But is a local limit ever the optimum? The answer is no: there are no circumstances

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[26] Once again, there is no discontinuity as the cash limit ceases to bind. (As $M - M_2\,(= M_1) \rightarrow \frac{\gamma}{\alpha+\gamma}\,(M + A)$, and $(M_2 + A) \rightarrow \frac{\alpha}{\alpha+\gamma}\,(M + A)$, i.e. (24)→(20))

when it is preferable to either a total limit or no limit.

Proposition 2 *A purely local limit on spending can never be the optimal policy.*

Proof. We have already seen that if there exists M_2^* preferable to M_2^F, then $M_2^* = 0$ is preferable to any other M_2^*. To prove the proposition, it is therefore sufficient to show that $(M_2^* = 0) \succ M_2^F \Rightarrow (M^* = 0) \succ (M_2^* = 0)$. We have already seen that $(M_2^* = 0) \succ M_2^F \Rightarrow \dot{A} > \dot{M}$, so it is sufficient to show that $\dot{A} > \dot{M} \Rightarrow (M^* = 0) \succ (M_2^* = 0)$. And (22) and (25) give the result that $dS/dg|_{M^*=0} - dS/dg|_{M_2^*=0} = \frac{\gamma}{4}\left(\dot{A} - \dot{M}\right)$ which completes the proof. ∎

So a finite but non-zero limit on local but not national campaign spending, as found in the UK and New Zealand, is incompatible with maximizing the quality of government.

The effects of different limits on campaign spending can be summarized as follows. If the supply of activism is more responsive to good government than the supply of campaign finance, the lower the limit on total election spending the better. This maximizes the effectiveness of the reward to politicians to good government. If things are the other way round, any limit on election spending is a mistake. Second, it is never optimal to restrict national level spending on its own, this simply removes an incentive to provide better government. Third, finite limits on local spending are never optimal, though it is possible that an outright ban could be.

6 Conclusions

In this paper we analyze the importance of campaign advertising and finance in determining voting equilibria and the quality of government. In a model of probabilistic voting the

equilibrium level of rent-seeking, hence the quality of government depends on the potency, and the permitted level of political capital.

Government quality is maximized when parties can buy the largest number of additional votes by improving its performance and reducing its rent-seeking or wasteful activities. The lesson from Section 4 is that in many cases, there may be good reason to reduce the potency of political capital in driving voting, that is find means to reduce the size of the parameter α. A possibility is compulsory voting. If party organizations are valuable in improving turnout, then making turnout mandatory should reduce α. Certainly, if $\alpha = \alpha^* + \varepsilon$, where ε is sufficiently small then a reduction in α to the point that the ideological equilibrium tips from polarity to the median voter, then the quality of government will increase. This essentially is because parties can obtain votes through better government from two ideological wings instead of just one. Similarly if political capital as a whole is less responsive than potential voters to public good provision, then anything which makes it less important will make the total vote more responsive to rents, and so deliver better government in equilibrium.

Because of concerns that contributors influence policy, limits on expenditure and donations have been called for and implemented in many different countries. However, the core argument of this paper is that there needs to be a clear delineation between limiting the potency of finance in delivering the vote and limiting the quantity of finance available or usable to parties. The general case that we make here is that whilst legislation to reduce potency may frequently be desirable, in many cases limits on finance are counterproductive. In Section 5 we split political capital into money and volunteer effort. In the case of total expenditure the question of whether financial limits improve government quality depends on which factor has the greater power to deter rent-seeking, i.e. which factor has the more

elastic supply as government improves. If volunteers are the more elastic factor, then the tighter the limit on total spending the better. Nonetheless, it is always the case that a move from laissez faire to a weak limit reduces government quality, simply as a consequence of removing an incentive raise finance by reducing rent-seeking. Furthermore finite limits on particular types of spending, as used in a number of countries, are never socially optimal. In the case of national-level spending, limits again simply blunt incentive to improve government quality. In the case of local spending, which is more obviously directly substitutable with local activism, then in most cases partial limits are found to reduce government quality.

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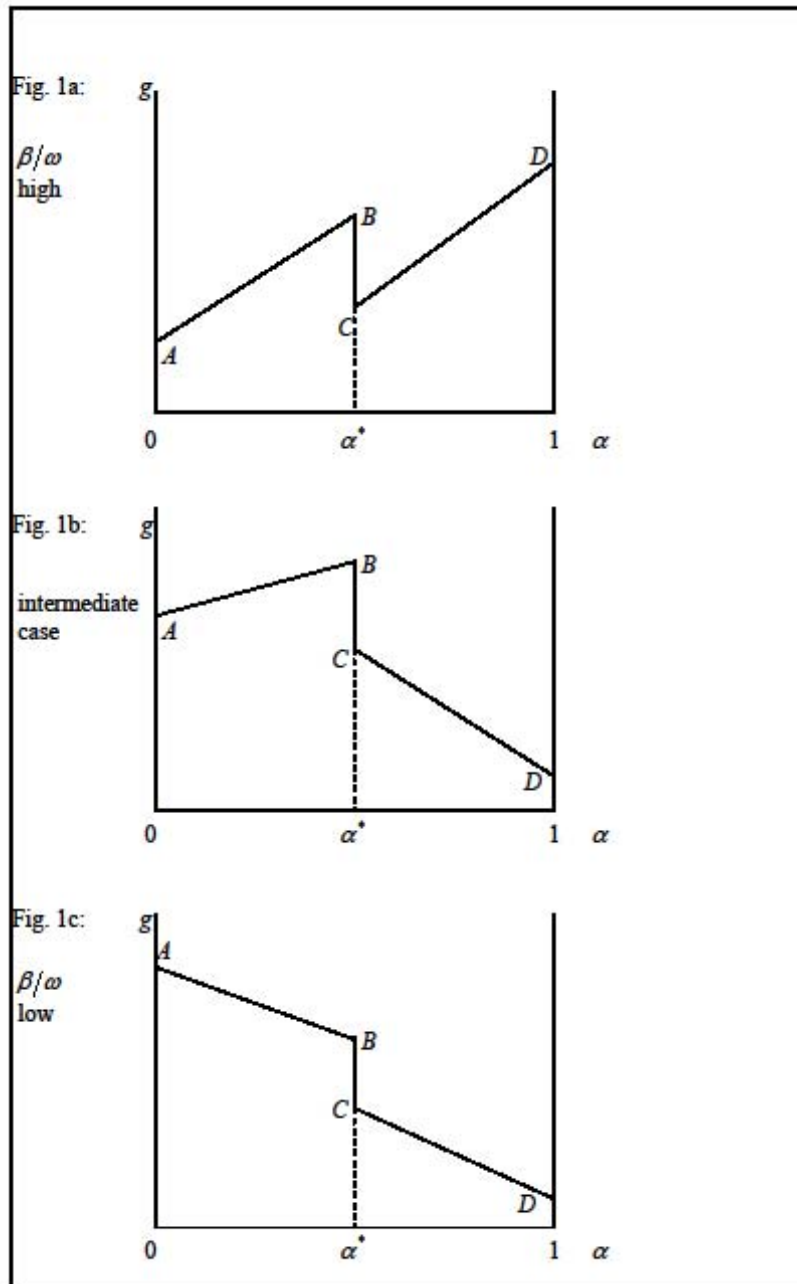
Figure 1: How public good provision responds to the importance of political capital in the vote production function
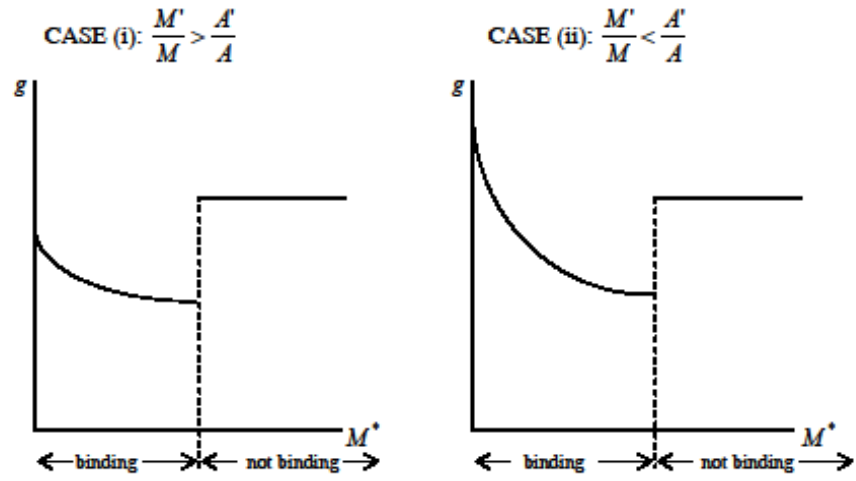
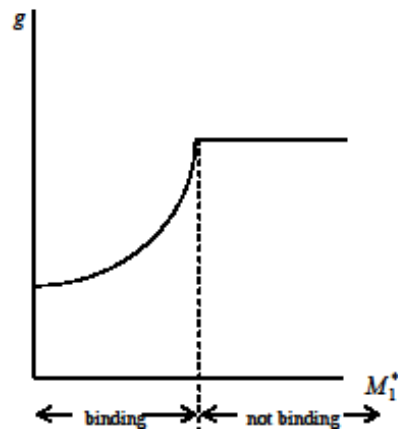Figure 2: How public good provision responds to limits on total party spending

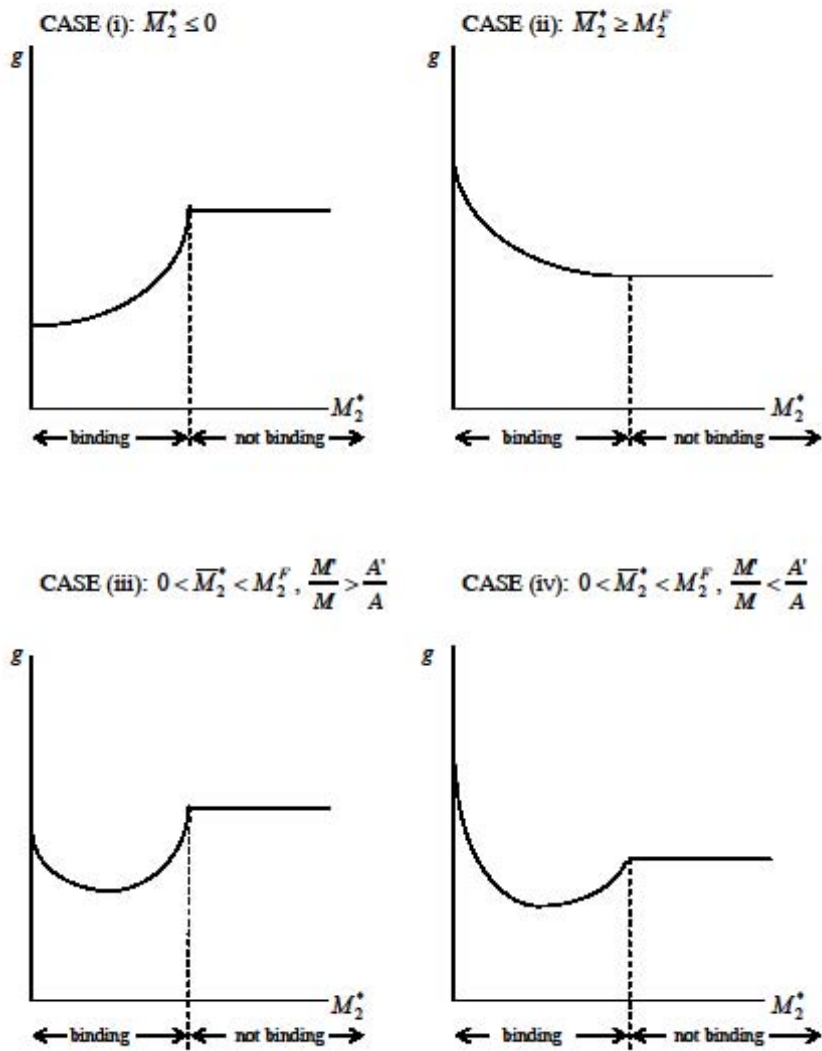Figure 3: How public good provision responds to limits on national party spending

Figure 4: How public good provision responds to limits on local party spending