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# Political Competition, Political Donations, Economic Policy and Growth

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#### Abstract

Greater political competition reduces the extent of rent-seeking or resource diversion by politicians in government. However, the potency of this effect depends on whether or not there are limits on donations to candidates standing for election, and on the objectives of donors themselves. Data from the US states suggest that the corruptionpolitical competition gradient is stronger under laissez-faire regimes. Consistent with our notion of 'weakly benign' donors, limits are associated with better policies and stronger growth performance at low levels of political competition, whilst laissez-faire is preferred when political competition is high.

# 1 Introduction

This paper proposes and finds that the extent to which political competition promotes growth-enhancing policies depends on whether or not there are limits on political donations. Typically in the literature, closer elections provide stronger incentives to candidates not to seek rents or divert resources towards special interests: greater political competition leads to better policy.<sup>1</sup> The novelty is that the strength of this relationship depends, theoretically and empirically, on regulations governing political donations. Two regimes are analyzed: a system of limits on donations, stringent enough for campaign spending to be equalized between candidates, and laissez-faire (when candidates can spend whatever they raise). In both cases political competition improves policy, but the effect is stronger under laissez-faire. Whether laissez-faire itself improves policy depends both on the degree of political competition and on the motivation of donors. The empirical analysis supports these hypotheses. Using the same data set as Besley et al (2010) we find consistent evidence that the impact of political competition on pro-growth policies increases under laissez-faire. Indeed in reduced form regressions, the positive link between political competition and economic growth is not even statistically significant when limits are applied.

In the theory a key element, on which we are agnostic, is the extent to which donors are motivated by rent-seeking or resource diversion. Donations have been typically modeled in the literature, in our opinion rather narrowly, as either 'position-induced' or 'service-induced' (Ashworth, 2008). Donations buy ideological influence in the former case, and special favors at the expense of citizens in the latter.<sup>2</sup> When donors' concerns are more closely aligned with

<sup>&</sup>lt;sup>1</sup>Becker (1958), Stigler (1972), Wittman (1989) and Acemoglu (2003) all draw a parallel between monopoly in economics and the absence of competition in politics. In both instances welfare is generally compromised when power is uncontested. In practice scale economies, high entry costs, commitment problems, voter ignorance or outright corruption of the process, may all serve to reduce political competition and undermine the democratic ideal. Nonetheless, the idea that political competition is always virtuous is not a total consensus. Acemoglu and Robinson (2006) suggest a mechanism wherein competition can lead to instability - leading to greater discounting by the incumbent.

<sup>&</sup>lt;sup>2</sup>For theoretical applications of these ideas see Potters et al (1997), Prat (2002) and Coate (2004b). In Coate (2004b) limits on donations can be Pareto optimal when they are motivated by policy favors. Nonetheless Coate acknowledges (p. 642) that the donors' incentives are narrowly defined as motivated only through (service-induced) direct transfers. Coate (2004a) analyzes the case of position-induced contributions and finds that imposition of limits raises the likelihood that parties will select extremist candidates - to the

the electorate, then limits on donations are potentially harmful. Ansolabehere et al (2003) document that the majority of campaign contributions in the case of the U.S. come in the shape of small donations from individuals. Arguably such donations are inconsistent with policy procurement.<sup>3</sup> 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 votes generated from ensuing advertising: either because voters believe its claims or because its mere existence is an endorsement signal. 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 the case of small donors the quid pro quo is not obvious.<sup>4</sup>

Our model is thus flexible on donor motives. These can vary from the 'strongly benign', when they are aligned with the electorate at large, to the 'strongly malign', when they are aligned with the rent-seeking politicians. It seems very likely, in reality as well as in our model, that donor motives are pivotal in determining whether or not limits on donations are desirable. The paper thus also speaks to this debate, and the literature empirically investigating the political and economic consequences of contribution limits.<sup>5</sup> On the one hand limits may interfere with free speech,<sup>6</sup> and on the other limits prevent the buying of favors or straightforward corruption. Milyo (2012) and Cordis and Milyo (2013) ask respectively whether contribution limits affect trust and confidence in state government, and whether they affect public corruption in the US. In both cases no relationship is found. Similarly Primo and Milyo (2006) find no significant link between campaign finance laws and political efficacy. As we show below all of this is consistent with our notion of 'weakly benign' donors (this will be defined more fully below). With such donors limits will lead to greater rent-seeking when political competition is high, but less rent-seeking when political competition is high.

detriment of the welfare of ordinary citizens.

<sup>&</sup>lt;sup>3</sup>Milyo, Primo and Groseclose (2000) also argue that there is no obvious link between political favors and contributions.

<sup>&</sup>lt;sup>4</sup>In a similar context the literature on charitable giving is not consensual on donor motives, e.g. see Andreoni (2006).

<sup>&</sup>lt;sup>5</sup>Stratmann (2005) reviews this literature.

 $<sup>^{6}</sup>$  The first amendment underpinned the decision of the Supreme Court of the United States to strike down campaign expenditure limits in Buckley v. Valeo (1976).

<sup>&</sup>lt;sup>7</sup>Relatedly, there is some disagreement on the impact of limits on political competition. Stratmann and

interpretation is that the arguments for laissez-faire are more potent when competition is high - the key rationale for laissez-faire, whilst the arguments for limits (that they will act against corruption or diversion of resources) are most potent when political competition is low.

A further related (and again unresolved) literature examines the effectiveness of campaign expenditure on voting. Its effectiveness or lack of it might say something about the perceived motives of donors. If donations were service-induced, voters might recognize that extravagant campaigns simply signal promised favors, and thus would not respond to the advertising, as argued by Coate (2004b). However, given position- (or even altruistically-) induced donations - donors who are aligned with the electorate - then a positive vote response is viable. In support of the first argument, Levitt (1994) found little effect using evidence from US House elections. However, recent work is more supportive, e.g. Ansolabehere and Iyengar (1996) and Rekkas (2007). Johnston and Pattie (2006) apply Levitt's methodology for the case of the UK and find that challenger campaign spending in particular has a substantial impact on the vote. Gerber (2004) provides a rationale for the weak evidence relating to incumbents, distinguishing between the objectives of maximizing vote share and gaining re-election. Gerber and Green (2000) and Green and Gerber (2008) identify interesting differences in effectiveness across types of campaigning: some are estimated to substantially increase vote shares, but others, notably broadcast advertising, have often been found to be relatively expensive in terms of delivering votes (Krasno and Green, 2008). Overall, this literature certainly doesn't allow us to rule out the possibility that advertising, and more generally candidate or party resources, play some role in affecting the vote.

The next section develops the theoretical analysis, showing how rent-seeking in government depends on the level of political competition and whether or not there are constraints on political donations. Section 3 contains the empirical analysis and section 4 concludes.

Aparicio-Castillo (2006) find that limits lead to greater political competition, in particular closer elections in the lower house of US state governments, whilst Lott (2006) conversely finds that contribution limits in US state senate elections reduces competitiveness. The approach taken in this paper, following Besley et al (2010), is to view the degree of political competition as exogenous. Following them we instrument for political competition in the empirical analysis to deal with the endogeneity problem.

# 2 Theory

The foundations of the model are similar to Besley et al (2010). There are two candidates standing for election, denoted L and R. Both are motivated by the rents they can extract from the electorate,<sup>8</sup> which in equilibrium are non-zero because of probabilistic voting. The electorate is split into three factions. There is an ideological spectrum from 0 (where L is positioned) to 1 (where R is positioned) with mass points at 0 and 1 representing habitual voters who vote for their party regardless of campaign advertising or indeed differences in rent-seeking. The sizes of these two factions are denoted by  $\gamma_L$  and  $\gamma_R$ , where relative advantage of the left is denoted  $\lambda = \gamma_L - \gamma_R$ .<sup>9</sup> The third group (size  $\sigma = 1 - \gamma_L - \gamma_R$ ) are swing voters, spread out uniformly along the ideological spectrum. The habitual voters are also the potential donors in the model. If donations are to be characterized by 'consumption' - as argued by Ansolabehere et al (2003), then it seems plausible that the donors be partisan.

#### 2.1 The political-economic model

In the first stage of the model candidates commit to policy platforms choosing policies conducive or otherwise to growth, and thereby implying rent extraction/resource diversion levels. Donors contribute funds in the second stage - assuming they are permitted - in order to maximize their own objective function, and voting occurs in the final stage. The model is solved backwards.

All electors votes for the party whose government they think will give them the most utility. A swing voter with ideology i obtains the following payoffs from left and right governments:

$$U_L^i = -\beta i - r_L + \frac{\mu}{2} \left( M_L - M_R \right) + \frac{\eta}{2}$$
(1)

$$U_R^i = -\beta (1-i) - r_R - \frac{\mu}{2} (M_L - M_R) - \frac{\eta}{2}$$
(2)

<sup>&</sup>lt;sup>8</sup>Rent extraction and resource diversion are synonymous in this analysis. Both are the antonym of progrowth policies.

<sup>&</sup>lt;sup>9</sup>Without loss of generality the democrats are modeled as potentially possessing electoral advantage, i.e.  $\gamma_L \geq \gamma_R$  (essentially because we have Southern Democrats in mind). The model is symmetric and the results below would not be altered if instead it were the right in a position of dominance.

where  $\beta$  denotes the (preference) weight attached to ideology. Define  $r_C$  (C = L, R) as rents associated with candidate  $C.^{10}$   $M_C$  represents funds raised by candidate C, which then facilitates advertising expenditure and  $\eta$  is a relative popularity shock distributed uniformly between  $-\frac{1}{2\xi}$  and  $\frac{1}{2\xi}$ .

To model utility as directly responsive to campaign expenditure is a reduced form representation of arguments outlined in the introduction.<sup>11</sup> This is undeniably a short cut, but a full justification is beyond the scope of this paper. The advertising may indirectly (Prat, 2002) or directly (Coate, 2004b) signal candidate quality, and having money in the utility function at least captures these consequences in the voting decision. The debate concerning advertising effectiveness is encapsulated in the parameter  $\mu \geq 0$ . The specification is essentially a generalization of Besley et al (2010) (though in their model advertising expenditure, or indeed any mobilization advantage engendered by the larger support base, is absent). Given (1) and (2) the indifferent voter is characterized by

$$i^* = 0.5 + \frac{r_R - r_L}{2\beta} + \frac{\mu \left(M_L - M_R\right)}{2\beta} + \frac{\eta}{2\beta},\tag{3}$$

hence given the uniform distribution of the popularity shock the probability of a left-wing victory  $(p_L)$  is

$$p_L = 0.5 + \frac{\beta \xi \lambda}{\sigma} + \xi \left( r_R - r_L + \mu \left( M_L - M_R \right) \right).$$
(4)

As conventional in this literature it is assumed that the popularity shock  $\eta$  is sufficiently large to rule out corner solutions.<sup>12</sup> The second term on the RHS encapsulates political competition. Its effect on the parties' chances declines with greater popularity shocks (lower values of  $\xi$ ), and increases with  $\beta$ , the weight placed on ideology by the swing voters (which, as with Besley et al (2010), serves to reduce the potency of the popularity shock). Political competition also increases (i.e. gets  $\frac{\beta\xi\lambda}{\sigma}$  closer to zero) when the proportion of swing voters

<sup>&</sup>lt;sup>10</sup>In our model we explicitly model rent-seeking, whereas Besley et al (2010) examine a payoff-function (in their model v) that depends monotonically on a policy variable (in their model -  $\tau$ ). Our approach is to model rents directly. The substance of the results relating to political competition are very similar.

 $<sup>^{11}{\</sup>rm Maloney}$  and Pickering (2013) model voting as a direct function of 'political capital', which includes finances.

 $<sup>^{12}</sup>$ See Persson and Tabellini (2000) pp. 54.

 $(\sigma)$  increases.

The point of departure from Besley et al (2010) is that there is now also a role for campaign advertising, and hence a role for the donors that finance the advertising. Donors come from the habitual voters ( $\gamma_L$  and  $\gamma_R$ ). They are "citizen-donors" in that an election loss yields ideological loss as well as a utility loss due to rent-seeking by the opposing candidate. Donors are also potentially motivated by rent-seeking of their own candidate. Formally the individual (*j*) donors' payoffs are represented by:

$$U_L^{D_L^j} = \theta r_L - \frac{\phi \left(M^j\right)^2}{2} \tag{5}$$

$$U_{R}^{D_{L}^{j}} = -\beta - r_{R} - \frac{\phi \left(M^{j}\right)^{2}}{2}$$
(6)

$$U_{L}^{D_{R}^{j}} = -\beta - r_{L} - \frac{\phi \left(M^{j}\right)^{2}}{2}$$
(7)

$$U_R^{D_R^j} = \theta r_R - \frac{\phi \left(M^j\right)^2}{2} \tag{8}$$

where  $U_L^{D_L^j}$  captures the utility to the leftist donors of a left-wing victory whilst  $U_R^{D_L^j}$  defines their payoffs under a right-wing victory.  $U_L^{D_R^j}$  and  $U_R^{D_R^j}$  symmetrically define the payoffs to the right-wing donors.  $\phi > 0$  is a quadratic costs parameter<sup>13</sup> and  $M^j$  is the money donated by individual donor j.  $\theta$  characterizes donor motives as follows:

When  $\theta = -1$  donors are entirely benign. Their interests are perfectly aligned with those of the electorate.

When  $-1 < \theta < 0$  donors are strongly benign. They expect a net disadvantage from their party's collecting rents but not to the extent that voters do.

When  $0 < \theta < 1$  donors are weakly benign.<sup>14</sup> They expect to gain from any rents

<sup>&</sup>lt;sup>13</sup>Donors also clearly incur financial costs of donating, which we model as quadratic. A simple plausible justification for this could be that larger donations incur increasing utility losses.

<sup>&</sup>lt;sup>14</sup>We prefer 'weakly benign' to 'weakly malign' because under these preferences individual donor aversion to opposition rent-seeking exceeds their weaker liking for own-candidate rent-seeking. Net preferences, at the individual level, are averse to rent.

collected by their party but to lose more from rents collected by the other party.

When  $\theta > 1$ , donors are malign. They are more positive about their own-party rents than they are averse to rents by the opposition. If  $\theta = 1$ , donors' interests are perfectly aligned with those of their candidate. If  $\theta$  actually exceeds 1, then donors expect to do even better from government rents than the government itself does. This might happen, for instance, if both the donors and their preferred candidate are going to profit from a tariff or licensed monopoly which keeps out competition in one or more industries but the donors stand to gain even more than the candidate does. We do assume, however, that  $\theta$  has an upper limit in order to rule out the implausible case in which higher rents attract so much donor money that their net effect on the candidate's chance of winning is non-negative. This would result in both parties going for infinite rents.  $\theta$ , then, is low enough to satisfy the condition  $\frac{dp_C}{dr_C} < 0$ . (This can be shown to mean that  $\theta < \frac{\phi + \xi N \mu^2 \gamma_R}{\xi N \mu^2 \gamma_L}$  when N is the state population size and  $\gamma_L > \gamma_R$ .) We have set the lower limit of  $\theta = -1$  because if it were any lower, donors would be even more averse to their candidate collecting rents than the electorate as a whole. We cannot think of any circumstances in which this would arise.

When donors are malign, candidates have a clear incentive to increase rents, to please donors thereby raising money for advertising. When donors are strongly benign they effectively hold the candidates to account and it pays candidates to raise money by cutting rents: were they to increase them this would now both mobilize opposition donors, and deter their own support base. The interesting case is where donors are 'weakly benign' - when  $0 < \theta < 1$ . Here, increasing rents generates a positive, though relatively small, financial response from the candidate's own support base, whilst simultaneously mobilizing the opposition's support to a larger extent. However, as one candidate's support base grows larger than the other's - i.e. as political competition deteriorates - it may reach the point where its rent-seeking gives it a larger aggregate financial, and therefore electoral, gain than is handed to its opponent. These issues are explored in greater detail below.

Leftist donors choose donations to maximize  $p_L U_L^{D_L^j} + (1 - p_L) U_R^{D_L^j}$  whilst right-wing

donors maximize  $(1 - p_L) U_R^{D_R^j} + p_L U_L^{D_R^j}$ . Using (4) and (5)-(8) yields

$$M_L = \frac{\xi \gamma_L N \mu \left(\beta + r_R + \theta r_L\right)}{\phi} \tag{9}$$

$$M_R = \frac{\xi \gamma_R N \mu \left(\beta + r_L + \theta r_R\right)}{\phi} \tag{10}$$

where  $M_L = \int_j M_L^j dj$  is total leftist donations and  $M_R = \int_j M_R^j dj$  is total rightist donations. Hence donations increase the greater the ideological stakes ( $\beta$ ) and also when rent-seeking by the opposing party increases. Whether or not donations increase with own-party rentseeking depends on the extent to which donors themselves accrue rents themselves when their party wins - the parameter  $\theta$ . Combining (9) and (10) yields

$$M_L - M_R = \frac{\xi N \mu \left(\beta \lambda + \left(\gamma_L \theta - \gamma_R\right) r_L + \left(\gamma_L - \gamma_R \theta\right) r_R\right)}{\phi},$$

or, using the definitions  $\gamma_L - \gamma_R = \lambda$  and  $\gamma_L + \gamma_R = 1 - \sigma$ ,

$$M_L - M_R = \frac{\xi N \mu \left(\beta \lambda + \left[ \left(\frac{1-\theta}{2}\right) \left(1-\sigma\right) - \left(\frac{1+\theta}{2}\lambda\right) \right] r_L + \left[ \left(\frac{1-\theta}{2}\right) \left(1-\sigma\right) + \left(\frac{1+\theta}{2}\lambda\right) \right] r_R \right)}{\phi}.$$
 (11)

Finally, candidates' expected payoffs are given by

$$U_C = p_C r_C$$

Since  $U_C = p_C r_C$ ,  $\frac{dU}{dr} = 0$  implies that

$$r_C = \frac{p_C}{-\frac{dp_C}{dr_C}}.$$
(12)

Equation (12) shows that  $r_C$  is increasing in  $p_C$ , i.e. that the candidate with the best chance of winning will sacrifice some of this advantage for increased rents. He will, however, remain the favorite to win: were he to take so much rent that  $p_L$  falls below 0.5 then (again from 12) his rents would be below those of the disadvantaged party too. As this is self-contradictory, we can conclude that  $\lambda > 0$  implies both  $p_L > 0.5$  and  $r_L > r_R$ . From (12) we can derive expected total government rents under limits and laissez-faire. In general:

$$E(R) = p_L r_L + p_R r_R = \frac{p_L^2}{-\frac{dp_L}{dr_L}} + \frac{p_R^2}{-\frac{dp_R}{dr_R}}.$$
(13)

The simpler case to analyze is that of limits on donations. The over-arching objective of this sort of policy is in some sense to 'level the playing field' so that one candidate does not have a financial advantage over another and advertising levels are equalized. To analyze this we consider the simple case where  $M_L = M_R$ . From (4)  $-\frac{dp_L}{dr_L} = -\frac{dp_R}{dr_R} = \xi$  and so, using  $\overline{R}$  to denote expected rents with limits and writing  $p_L$  simply as p,

$$\overline{R} = \frac{1}{\xi} \left( p^2 + (1-p)^2 \right). \tag{14}$$

Under laissez-faire money matters and putting (11) into (4) implies that

$$p = 0.5 + \frac{\xi \beta \lambda \left(1 + \xi m\right)}{\phi} - \pi_1 r_L + \pi_2 r_R \tag{15}$$

where  $m = N\mu^2$  and

$$\pi_1 = \frac{\xi\phi + \xi^2 m \left[ \left( \frac{1-\theta}{2} \right) (1-\sigma) - \left( \frac{1+\theta}{2} \lambda \right) \right]}{\phi} = -\frac{dp}{dr_L}$$
(16)

$$\pi_2 = \frac{\xi\phi + \xi^2 m\left[\left(\frac{1-\theta}{2}\right)(1-\sigma) + \left(\frac{1+\theta}{2}\lambda\right)\right]}{\phi} = -\frac{dp_R}{dr_R}.$$
(17)

Hence, writing R for expected rents under laissez-faire,

$$R = \frac{p^2}{\pi_1} + \frac{\left(1 - p\right)^2}{\pi_2}.$$
(18)

### 2.2 Rents, political competition and campaign donations

We are now in a position to see when limits will reduce government rents.

**Proposition 1** The greater the political competition, the lower the rents.

#### **Proof.** See Appendix.

Proposition 1 reflects standard arguments in favor of political competition. The stronger the constraints of electoral competition the better the quality of government. As rising  $\lambda$ gives one candidate a better chance of winning then the other, the stronger candidate will trade in some of her chances for additional rents, while the weaker candidate will mitigate their poorer chances by giving up rents. But given that the dominant candidate is still more likely to win, the rise in its rents raise expected rents by more than the fall in the weaker candidates's rents reduces them. The logic here is the same as the main prediction in proposition 1 of Besley et al (2010).

**Proposition 2** The more malign the donors, the higher the laissez-faire rents. **Proof.** See Appendix. ■

With malign donors, candidates have a second incentive to collect rents: to increase the utility of donors, raise more money from them, spend it, increase their own chance of election, and trade some of this additional chance for still more rents.

**Proposition 3** If donors are malign then rents under laissez-faire (i) are higher than under limits at maximum political competition and (ii) increase more rapidly as competition declines than they do under limits. Therefore with malign donors rents are always higher under laissez-faire.

#### **Proof.** See Appendix.

The intuition of this is that laissez-faire opens a channel through which candidates wish to please donors and, because politician and donor motives are aligned, money is raised by increasing total rents. As political competition deteriorates increases these arguments apply a fortiori: the larger number of donors contributing to the electorally advantaged candidate the more open finance contributes to their chances of winning.

**Proposition 4** If donors are weakly benign  $(0 < \theta < 1)$ , rents are lower under laissez-faire when political competition is high but higher under laissez-faire when political competition is low. Therefore they increase more rapidly as competition declines than they do under limits. **Proof.** See Appendix.

If donors are benign (even weakly so) and there is perfect political competition ( $\lambda = 0$ ), candidates will give up more rents under laissez-faire than under spending limits because laissez-faire gives them the added incentive of raising more money for sacrifice of rents. As political competition falls, however, the dominant candidate will trade in some of its increased probability of winning for higher rents. Since laissez-faire enhances its chances of winning still further (because it will have more money to spend than its rival) it will 'purchase' even more rents. (Furthermore the negative effect of rent-collecting via increased donations to the opposition becomes less of a consideration when that opposition is relatively small.) If donors are only weakly benign, there will be some level of political uncompetitiveness at which this last effect will dominate the first one, so that laissez-faire now leads to higher expected rents than spending limits do.

**Proposition 5** If donors are strongly benign rents are lower under laissez-faire at all levels of political competition.

#### **Proof.** See Appendix.

In this case declining competition cannot overcome the initial incentive that candidates have to give up rents under laissez-faire.

**Proposition 6** If donors are entirely benign then rents under laissez-faire are not only lower than under limits, but increase more slowly as competition declines than they do under limits.

#### **Proof.** See Appendix.

Increasing rents now loses so much campaign money that the stronger candidate's incentive to raise rents as competition declines is now weaker under laissez-faire than under limits (when the loss of money does not matter.) Exactly the same applies to the weaker party's incentive to cut rents, but the effects on the stronger party dominate the picture because it is more likely to be elected.

Whether or not limits will lower average rent-seeking in government thus depends on two factors: donors' motives, encapsulated in the parameter  $\theta$ , and the extent of political competition. When donors are malign it is unambiguous: regardless of political competition, laissez-faire should be avoided. However, if donors are strongly benign, then regardless of the degree of political competition, advertising and free donations act to enhance the democratic process. When donors are weakly benign, the amount of political competition makes all the difference.

Figure 1 depicts the various possibilities. All the curves slope upwards (proposition 1) and, with laissez-faire, the more malign the donors the higher the degree of rent-seeking (proposition 2). The malign donors' laissez-faire curve is above and steeper than the 'limits' curve (proposition 3). The curve for weakly benign donors under laissez-faire intersects the curve with spending limits (proposition 4), the curve for strongly benign donors stays below the curve with spending limits (proposition 5) and the curve for entirely benign donors does the same, with the gap between the two now increasing in  $\lambda$  (proposition 6).

The most interesting case is that of weakly benign donors  $(0 < \theta < 1)$ . For values of  $\theta$  in this range, we know from proposition 4 that rents under laissez-faire are lower than under limits when there is maximum political competition  $(\lambda = 0)$  but that as political competition deteriorates this result will eventually be reversed. The problem is that the citizen-donor argument is eroded when political competition deteriorates. If  $\lambda$  is large enough, the dominant candidate is incentivized to raise rents, in part because this now gives smaller financial benefits to the opposition as their donor base shrinks.

This is why weakly benign donors are the most interesting ones. Otherwise the debate over laws governing campaign finance has little traction: when donors are unambiguously malign, then limits are surely desirable; when they are clearly aligned with the electorate - i.e. strongly benign – their preferences will be served by advertising with a positive informative role. The fact that this debate is as vociferous as it is, suggests that we do not have a clear idea over donor motives. Perhaps there is truth to both sides of the argument. The clear insight from this analysis is the conditioning role of political competition. If this is high, then free-speech and advertising might be expected to have a positive role in the democratic process. If political competition is low, then permitting donations might only serve to exacerbate rent-seeking in government.

## **3** Empirical Evidence

The theory above guides the empirical work. Under limits on donations we expect a positive impact of political competition. Under laissez-faire the impact of political competition is also positive, and indeed more so if donors are either malign or weakly benign. To test these hypotheses we build on the empirical work of Besley et al (2010) and examine annual data for the US States over the period 1950-2001. In subsection 3.1 we analyze policy and in subsection 3.2 we investigate how the (reduced-form) link between political competition and growth changes with the existence or removal of limits.

#### 3.1 Policy

We use three policy variables - total state tax revenue as a percentage of aggregate personal income, state infrastructure spending measured by the percentage share of capital investment in government expenditure, and whether a state has a right-to-work law. In the first instance tax revenues are argued to be higher when there is greater resource diversion in government. In contrast the second variable - public investment - is taken to be positively related to government quality. Finally the third variable is argued by Besley et al (2010) to reduce trade union power - a potential driver of resource diversion under certain circumstances.

The political competition measure  $(\kappa_{st})$  used in the empirical analysis is the same as in Besley et al (2010), originating from Ansolabehere and Snyder (2002). This increases as the difference between the vote shares of the two main parties in state elections declines towards zero. Formally  $\kappa_{st} = -|d_{st} - 0.5|$  where  $d_{st}$  is the average vote share in all state-wide races in state s at time t. Higher  $\kappa$  thus means increased competition: in terms of the model in section 2,  $\kappa$  corresponds to  $-\left|\frac{\xi\beta\lambda(1+\xi m)}{\phi}\right|$  in equation (15), which in the case of limits  $(M_L = M_R)$  simplifies to  $-\left|\frac{\xi\beta\lambda}{\phi}\right|$ . As Besley et al (2010) discuss, the main story concerning political competition in the United States in the second half of the twentieth century is its increase over time in the Southern states.<sup>15</sup> Even though the poll taxes and literacy tests

<sup>&</sup>lt;sup>15</sup>The group of southern states are Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.

(and other barriers to voting) were formally eliminated in 1965, political competition in many of these states remained significantly less than the national average until the very end of the sample. There is also usable variation in the non-south as well.

Institutional data on campaign financing comes from Milyo et al (2011), which indicates when there were limits on individual donations. Table 1 describes these data, and shows that there has been a trend towards mandating limits across the US. At the start of the sample only Maryland and New Hampshire enforced limits, while by 2001 over 70% of states did. Nonetheless, there is interesting and usable variation in the start-date in which states have applied limits (if indeed they have at all).

We estimate regressions of the form

$$\tau_{st} = \theta_s + \upsilon_t + \delta_1 \kappa_{st} + \delta_2 L_{st} + \delta_3 L_{st} \kappa_{st} + \varepsilon_{st}, \tag{19}$$

which is a generalization of equation (6) in Besley et al (2010). The dependent variable captures the policy stance in state s at time t.  $\kappa_{st}$  is the measure of political competition, and the specification includes state and year effects as standard.  $L_{st}$  is an indicator variable set equal to one if there are limits on donations that individuals can make to candidates in state elections.

Initially think of the dependent variable as rents. Then  $\delta_1$  estimates the effect of political competition on the rents, and  $\delta_2$  the effect of limits on election spending at maximum political competition.  $\delta_3$  is the coefficient on the interactive variable: if opposite in sign to  $\delta_1$  it is saying that spending limits reduce the effects of political competition on rents.

Table 2 sets out our model's prediction on the signs of  $\delta_1$ ,  $\delta_2$  and  $\delta_3$  under different regimes when rents are the dependent variable.  $\delta_1$  is always negative (proposition 1: political competition cuts rents). The sign of  $\delta_2$  depends on whether donors are malign or benign (propositions 3 and 4), while  $\delta_3$  is positive as long as  $\theta > 0$  but can only be said to be unambiguously negative at  $\theta$ 's extreme value of -1 (propositions 4 and 6.)

Table 3 contains estimates of (19) extending the results presented in table 2 of Besley et al (2010) to include data for  $L_{st}$  and its interaction with political competition,  $\kappa_{st}$ . There are three alternative specifications for each dependent variable. The first (columns 1, 4 and 7) is a basic specification that includes fixed effects and time effects with robust standard errors clustered at the state level. The second (columns 2, 5 and 8) includes separate time dummies for the North and South given their separate histories. The third (columns 3, 6 and 9) instruments political competition following Besley et al (2010).<sup>16</sup>

Because we are taking taxes to be positively related to rents, the predicted signs of  $\delta_1$ ,  $\delta_2$  and  $\delta_3$  will be as in table 2 when taxes are the dependent variable. In the case of infrastructure spending and right-to-work laws (assumed inverse to rents), the predicted signs are reversed.

The first general observation is that the unconditional impact of political competition holds up in all cases. The second general observation is that the effect of limits at the point of maximum political competition (i.e. when  $\kappa_{st} = 0$ ) in all 9 cases is suggestive of benign donors. When political competition is maximized, then limits serve to increase taxes (in all specifications significantly), reduce relative infrastructure spending (though here the estimates are weaker), and reduce right-to-work laws (with borderline significance). These estimates suggest that laissez-faire is the desirable policy *if* political competition is maximized.

However, when political competition deteriorates, then in the cases of taxes and rightto-work laws, the degree to which policy worsens is statistically stronger under laissez-faire than under limits: the interaction term  $\delta_3$  is significant with the opposite sign to  $\delta_1$  (which measures the unconditional impact of political competition.) Taken together with the finding of a deleterious impact of limits when political competition is maximized ( $\delta_2$  negative for taxes and positive for right-to-work), this is consistent with our notion of weakly benign donors.

In fact our quantitative estimates are consistent only with weakly benign donors. Following Besley et al (2010) if we take the example of  $\kappa_{st} = -0.3$ , compared with maximum political competition ( $\kappa_{st} = 0$ ) then using the estimates of column (1) taxes are 1.03% higher (which is 0.72 standard deviations) under laissez-faire, but only 0.24% (0.16 standard devi-

<sup>&</sup>lt;sup>16</sup>The instrument variable used is derived from the exogenous (and as Besley et al (2010) note, surprising) federal government intervention in southern states via the 1965 Voting Rights Act (VRA). For observations prior to this date the instrument takes the value of the fraction of the population that was subject to either literacy tests or poll taxes (or both) - a substantial fraction in many states, and thereafter taking the value of zero. Clearly this event was pivotal, and also exogenous, in creating political competition in the south.

ations) higher under limits. When political competition is at its maximum, then the results suggest that laissez-faire would be preferred, because of the positive estimate for  $\delta_2$ . When  $\kappa_{st} = 0$  taxes are 0.344% higher under limits than under laissez-faire. However at  $\kappa_{st} = -0.3$  the greater increase in rent-seeking under laissez-faire means that at this level of political competition limits would be preferred. Mathematically 1.03% - 0.24% > 0.344%.

So, as political competition declines, at what point do limits become the best option? From equation (19), taxes with laissez-faire will exceed taxes with limits when  $\delta_2 + \delta_3 \kappa < 0$ i.e. when  $\kappa < -\frac{\delta_2}{\delta_3}$ . So columns (1), (2) and (3) of table 3 predict, respectively, that limits are better for a state when  $\kappa$  is less than -0.129, -0.178 and -0.104, i.e. when, in an average election in that state, the leader has a majority exceeding 25.8%, 35.6% and 20.8%. Less weight should be given to the middle figure because not all the coefficients in column 2 were significant.

Table 4 extends the analysis to control for the governor affiliation, and indicators for cases where both the lower and upper state houses are controlled by one party.<sup>17</sup> Columns (1), (3) and (5) contain results for the three alternative dependent variables controlling for these additional variables. Columns (2), (4) and (6) additionally control for the Democratic vote share (though as noted by Besley et al (2010), it is unlikely to be an exogenous regressor). The econometric specification here in all cases includes separate time dummies for the North and South. In all 6 regressions the coefficient estimates are signed consistently with the case of benign donors. The parameter estimates for  $L_{st}$  are positive in the case of taxes and negative for relative infrastructure expenditure and right-to-work laws, whilst the interaction terms in all cases offset the estimated unconditional effect. Nonetheless, significance levels tend to be lower in these more demanding specifications.

#### 3.2 Growth

Besley et al (2010) establish an empirical link between state level growth  $(g_{st})$ , measured as the annual growth rate of personal income in state s at time t and political competition. The

<sup>&</sup>lt;sup>17</sup>Table 4 corresponds to table 3 in Besley et al (2010), but with additional terms for  $L_{st}$  and  $L_{st}\kappa_{st}$ . Columns (1) and (2) correspond to their column (1) and (2). Columns (3) and (4) correspond to their (5) and 6). Columns (5) and (6) correspond to their (9) and (10).

relationship is unambiguously positive - higher growth levels are positively associated with greater political competition. In this subsection we investigate whether and how this relationship is qualified depending on the political finance regime. The regression specification in this instance is

$$g_{st} = \theta_s + \upsilon_t + \beta y_{st-1} + \delta_1 \kappa_{st} + \delta_2 L_{st} + \delta_3 L_{st} \kappa_{st} + \varepsilon_{st}, \tag{20}$$

where  $y_{st-1}$  is lagged log income and other variables are defined elsewhere. It seems plausible that rents taken by government, perhaps in the form of higher taxes, weak public investment, corrupt labor laws, or indeed otherwise, would act to suppress economic growth. Therefore the predicted signs of the coefficients are reversed as compared with table 2 and we now have

Donor motives	$\delta_1$	$\delta_2$	$\delta_3$
Malign $(\theta > 1)$	+	+	_
Weakly benign $(0 < \theta < 1)$	+	_	_
Strongly benign $(-1 < \theta < 0)$	+	_	-/+
Entirely being $(\theta = -1)$	+	—	+

Table 5 contains estimation results. These results correspond to Table 5 in Besley et al (2010), though note that our sample is reduced because the limits data begin in 1949. The findings here are surprisingly strong. The results are consistent with the picture of benign donors that emerged from the analysis of policy. Limits have a small but persistently negative effect on growth when political competition is at its maximum ( $\kappa_{st} = 0$ ). In all four specifications estimated in table 5, laissez-faire in political finance is congruent with (very slightly) higher growth performance under conditions of strong political competition. The interesting finding here, again which holds in all specifications, is that the positive impact of political competition is estimated to only manifest itself under systems of laissez-faire.  $\delta_3$  is consistently of greater magnitude than  $\delta_1$ : the interaction effect here is sufficiently strong that under limits political competition if anything has a negative impact on growth. Statistically, however, this effect is never significantly different from zero, whilst under laissez-faire,

departures from maximum levels of political competition are associated with a significant lowering of economic growth.

In order to quantify these results consider a permanent one standard deviation deterioration in political competition from 0 to -0.1 (which is approximately one standard deviation over the entire period 1949-2001). When  $\kappa_{st} = 0$  income per capita in the long run is estimated to be higher by 3.1% under laissez-faire than under limits (assuming of course that the regime change is permanent).<sup>18</sup> However at  $\kappa_{st} = -0.1$  the greater sensitivity of growth under laissez-faire means that at this level of political competition limits would be preferred. The growth differential of 5.95% (the net growth improvement under limits) exceeds the loss of 3.1% at  $\kappa_{st} = 0$ . Thus limits might be preferred as the policy when political competition is not at its maximum.

Table 6 mirrors table 6 in Besley et al (2010) to extend the analysis of economic growth. Column (1) includes political control variables. Consistent with the results from table 5, the effect of political competition is estimated to be absent in regimes with limits on donations. Column (2) additionally includes the democratic vote share, and if anything the results are strengthened. The effect of limits at maximum political competition is estimated to be negative and significant at the 10% level. However because under laissez-faire growth is estimated to deteriorate as political competition falls, then limits may still be the preferred policy at lower levels of political competition.

The key criterion is again whether  $\kappa < -\frac{\delta_2}{\delta_3}$ . If so, then limits on campaign spending are better for growth then laissez-faire. In column 2 of table 6 (the only one where all three coefficients are significant)  $-\frac{\delta_2}{\delta_3}$  approximately equals -0.06. A state therefore does not have to be given to landslide elections (the threshold percentage lead is 12%) for limits to be preferable.

Column (3) of table 6 looks at 5 year averages of growth as the dependent variable.<sup>19</sup> The results again suggest that political competition is *bad* for growth when limits are applied,

<sup>&</sup>lt;sup>18</sup>Following Besley et al (2010) (their footnote 28), the long-run effect of political competition on income per capita is given by the estimates obtained from (20) for  $\delta_1/\beta$ .

<sup>&</sup>lt;sup>19</sup>Columns (3) and (4) in table 6 respectively correspond to columns (7) and (8) in table 6 in Besley et al (2010). As they note the advantages of using 5-year-averages are that it smooths out cyclical variations and fluctuations in both the dependent variable (income growth), and the explanatory variable (political competition).

and this time the results are statistically significant. Under laissez-faire political competition is positively associated with growth as found previously. As noted in the introduction it is possible that political competition could under particular circumstances (that are not modeled here) be detrimental to policy - perhaps raising politicians' discount rates as proposed by Acemoglu and Robinson (2006). This regression is an outlier compared with the other results reported here, but certainly lays bare the conditionality of the political competition result. Column (4) also uses 5 year averages of growth as the dependent variable, but this time the estimation method is the Arellano and Bond GMM 1st difference estimator. The panel is a little shorter here than estimated previously, and so the Nickell (1981) bias may be more of a problem and so these results might be considered preferable. The interaction term again works strongly against the unconditional effect (of political competition), though quantitatively the results are similar to previous.

Finally column (5) replaces growth with a measure of structural change variable - the share of non-farm income. The argument is that economic development may be proxied by a move away from agriculture. Consistent with all of the other results here the interaction term is estimated to work against the unconditional effect, although here the significance is lower. It is possible that the smaller sample here is more of a problem in that a lot of the structural change happened prior to 1960 (by which time the average non-farm-income share was already 94%). The longer sample analyzed by Besley et al (2010) is likely to be more conducive to significant results - though to repeat, the results found are supportive of the general argument.

#### 3.3 Discussion

The analysis permits an evaluation of policy in practice across US states. Table 7 lists actual current policy and the degree of political competition in the most recent observation (2001). In subsection 3.1, using the point estimates of table 3 column 1 the threshold value of political competition (below which limits induce lower rents than laissez-faire does) is estimated to be  $\kappa = -0.129$ . In subsection 3.2, the point estimate of the threshold value of political competition as far as maximizing income per capita (taken from column 2 of table 6) is  $\kappa = -0.06$ . If we take these estimates at face value then states with political competition higher than the chosen threshold value should have laissez-faire, whilst states with low political competition should have limits. It can be seen that only two states have political competition lower than the first threshold value (West Virginia and Wyoming), and indeed both of these actually do apply limits. There are also 8 states with political competition greater than -0.06 who allow laissez-faire. There are 22 states whose political competition measures lie between the two values (denoted in bold, unitalicized lettering), and for these intermediate levels of political competition there is greater uncertainty about the optimal policy. However, there are 16 states (denoted with bold and italicized lettering) applying limits where political competition is high, and so where laissez-faire would unambiguously be preferred.

Interestingly when the same exercise is performed using older data, there are generally lower levels of political competition, yet a greater proclivity towards laissez-faire. Arguably the tendency towards limits on donations would have been correct if political competition were not simultaneously increasing. Given that political competition has increased, the tendency towards application of limits may well be mistaken.

# 4 Conclusions

The idea that political competition is good for policy, and subsequently growth, is integral to arguments for democracy. However, our understanding of the mechanisms through which political competition operates is incomplete. This paper has argued that its effect is conditional on legislation governing political finance. When donations are unconstrained (laissez-faire in political finance), then political competition has a sharper effect on policy and growth.

The paper sheds light on the debate on the desirability of limits on political finance. Historically this debate has been rather ideological - with proponents on the one side arguing for the sanctity of free speech and on the other that donations and corruption must in all instances be synonymous. Both the theory and the evidence presented here are more nuanced. Under weakly benign donors, when political competition is at its maximum, then laissez-faire is preferred. Because rent-seeking also increases donations to the opposition, when the two candidates' donors are as numerous as each other, then free finance can act as a deterrent to rent-seeking. Our interpretation is that the benefits of free speech - and advertising - are maximized when political competition is also at its maximum. However, in states where incumbents have electoral advantage, then free-finance may act against the public interest, because the deterrent of increased donations to the opposition is weakened.

Recent trends show that political competition is increasing, and also that limits on donations are becoming prevalent. From the perspective of our model and empirical results, then either *one* of these developments would undoubtedly be beneficial from a starting point of political monopoly. However, it is possible that enforcing limits may be misguided if political competition has now become sufficiently strong.

# Appendix

#### **Proof of proposition 1:**

Under limits (14) is minimized at p = 0.5. Thus the greater the political competition (closer p is to 0.5), the lower  $\overline{R}$ .

Under laissez-faire  $R = \frac{p^2}{\pi_1} + \frac{(1-p)^2}{\pi_2}$  (18). Hereafter denoting  $(.)' = \frac{d(.)}{d\lambda}$  then  $R' = \frac{2pp'\pi_1 - p^2\pi'_1}{\pi_1^2} + \frac{(2p-2)p'\pi_2 - (1-p)^2\pi'_2}{\pi_2^2}$ . From (16) and (17),  $-\pi'_1 = \pi'_2$ , hence

$$R' = \pi'_2 \left[ \frac{p^2}{\pi_1^2} - \frac{p^2}{\pi_2^2} + \frac{(2p-1)}{\pi_2^2} \right] + p' \left[ \frac{2p}{\pi_1} + \frac{(2p-2)}{\pi_2} \right].$$

Assume without loss of generality that  $\lambda > 0$ . We have seen (in particular the discussion on p. 11) that this means p > 0.5, whilst (15), (16) and (17) show that (given our assumption that  $\theta \ge -1$ ) p' > 0,  $\pi_2 > \pi_1$  and  $\pi'_2 \ge 0$ . In addition we assuming that  $\pi_1, \pi_2 > 0$ . Therefore

$$\frac{p^2}{\pi_1^2} - \frac{p^2}{\pi_2^2} + \frac{(2p-1)}{\pi_2^2} \ge \frac{(2p-1)}{\pi_2^2} > 0$$

and

$$\frac{2p}{\pi_1} + \frac{2p-2}{\pi_2} \geq \frac{(4p-2)}{\pi_2} > 0.$$

Therefore R' > 0.

#### **Proof of proposition 2:**

We prove this in two parts: (i) With maximum political competition, the more malign the donors, the higher the rents.

When  $\lambda = 0$  (maximum political competition), p = 0.5 and hence (18),  $R = \frac{1}{4\pi_1} + \frac{1}{4\pi_2}$ . Also at  $\lambda = 0$ , from (16) and (17)  $\pi_1 = \pi_2$ , hence  $R = \frac{1}{2\pi_1}$ . But  $\frac{d\pi_1}{d\theta} < 0$  hence  $\frac{dR}{d\theta} > 0$ .

(ii) As political competition declines, the more malign the donors, the faster rents increase.

When  $\lambda = 1$  (minimum political competition), p = 1 and hence (18),  $R = \frac{1}{\pi_1}$ . Therefore

$$\Delta \equiv R \left( \lambda = 1 \right) - R \left( \lambda = 0 \right) = \frac{1}{2\pi_1} + \frac{1}{4} \left( \frac{1}{\pi_1} - \frac{1}{\pi_2} \right)$$

But from (16) and (17)  $\frac{d\frac{1}{\pi_1}}{d\theta} > \frac{d\frac{1}{\pi_2}}{d\theta}$  and  $\frac{d\frac{1}{\pi_1}}{d\theta} > 0$ . Therefore  $\frac{d\Delta}{d\theta} > 0$ .

#### **Proof of proposition 3:**

We start with the case where  $\lambda = 0$ .  $\overline{R} = \frac{1}{\xi} \left( p^2 + (1-p)^2 \right)$  (14). But if  $\lambda = 0$ , p = 0.5, hence  $\overline{R} = \frac{1}{2\xi}$ . Similarly  $R(\lambda = 0) = \frac{1}{4\pi_1} + \frac{1}{4\pi_2}$ . But

$$\frac{1}{4\pi_1} + \frac{1}{4\pi_2} = \frac{\phi}{4\left[\xi\phi + \xi^2 m\left[\left(\frac{1-\theta}{2}\right)(1-\sigma) - \left(\frac{1+\theta}{2}\lambda\right)\right]\right]} + \frac{\phi}{4\left[\xi\phi + \xi^2 m\left[\left(\frac{1-\theta}{2}\right)(1-\sigma) + \left(\frac{1+\theta}{2}\lambda\right)\right]\right]} = \frac{\phi}{2\left[\xi\phi + \xi^2 m\left[\left(\frac{1-\theta}{2}\right)(1-\sigma)\right]\right]}$$

when  $\lambda = 0$ . Therefore  $\theta < (>) 1 \implies \frac{1}{4\pi_1} + \frac{1}{4\pi_2} > (<) \frac{1}{2\xi}$ . Therefore  $R > (<) \overline{R}$  when  $\theta > (<) 1$  (proposition 3(i)).

In the instance of  $\lambda > 0$  note first (from proposition 1)  $\overline{R}' = \frac{p'}{\xi} (4p-2)$  and  $R' > p' \left[\frac{2p}{\pi_1} + \frac{(2p-2)}{\pi_2}\right]$ . But  $\lambda > 0 \Longrightarrow \frac{1}{\pi_1} > \frac{1}{\pi_2} \therefore \left[\frac{2p}{\pi_1} + \frac{(2p-2)}{\pi_2}\right] > \left[\frac{2p-1}{\pi_1} + \frac{2p-1}{\pi_2}\right] = (4p-2) \left[\frac{1}{2\pi_1} + \frac{1}{2\pi_2}\right] > (4p-2) \frac{1}{\xi}$  (given  $\theta > 1$ ). Therefore  $R' > \overline{R}'$  (proposition 3(ii)). Combined with proposition 3(i) (that  $R > \overline{R}$  when  $\theta > 1$  and  $\lambda = 0$ ) this shows that rents are *always* higher under limits when  $\theta > 1$ .

#### **Proof of Proposition 4:**

When  $\theta < 1$  and  $\lambda = 0$ ,  $R < \overline{R}$  (proposition 3). When  $\lambda = 1$ , p = 1,  $\sigma = 0$  and hence (14), (18), and (16),  $\overline{R} = \frac{1}{\xi}$ ,  $R = \frac{1}{\pi_1}$  and  $\pi_1 = \xi - \frac{\xi^2 m \theta}{\phi}$ .

Hence when  $\lambda = 1$ ,  $R > \overline{R}$  iff  $\theta > 0$ .

#### **Proof of Proposition 5:**

 $-1 \leq \theta < 0 \Rightarrow \pi_1, \pi_2 > \xi \text{ (using (16) and (17))}.$  $\therefore R - \overline{R} = \left(\frac{1}{\pi_1} - \frac{1}{\xi}\right) p^2 + \left(\frac{1}{\pi_2} - \frac{1}{\xi}\right) (1-p)^2 < 0.$ 

**Proof of Proposition 6:** 

 $\theta = -1 \Rightarrow \pi_1 = \pi_2 \text{ and } \pi'_1 = \pi'_2 = 0 \ ((16) \text{ and } (17)) \text{ Hence, since } \overline{R} = \frac{1}{\xi} \left( p^2 + (1-p)^2 \right)$ and  $R = \frac{p^2}{\pi_1} + \frac{(1-p)^2}{\pi_2}$  it follows that  $\overline{R}' = \frac{\pi_1}{\xi} R'$ . But at  $\theta = -1, \ \pi_1 > \xi. \ \therefore \overline{R}' > R'.$ 



Figure 1: The effect of political competition on rent-seeking in government.

Notes.  $\overline{R}$  corresponds to the case of limits.  $R_M$ ,  $R_{WB}$ ,  $R_{SB}$ ,  $R_{EB}$  respectively denote rent-seeking when donors are malign, weakly benign, strongly benign and entirely benign (under laissez-faire conditions). Political competition is at its maximum when  $\lambda = 0$ , and at its minimum when  $\lambda = 1$ .

AL neve AZ 198							
AZ 1988	3T	IA	never	NE	1971-78	RI	1992-present
	3-present	KS	1975-present	NV	1992-present	$_{\rm SC}$	1992-present
AR = 1978	b-present	КУ	1975-present	ΗN	throughout	SD	1975-present
CA 198(	<b>)-</b> 91	$\mathbf{LA}$	1989-present	NJ	1975-present	$\mathbf{N}\mathbf{I}$	1993-present
CO 1998	3-present	ME	1975-present	NM	never	$\mathbf{T}\mathbf{X}$	never
CT 197:	)-present	MD	throughout	NΥ	1975-present	$\mathbf{TU}$	never
DE 197:	)-present	$\mathbf{M}\mathbf{A}$	1971-present	NC	1975-present	$\mathrm{T}\mathrm{T}$	1975-present
FL 196:	3-present	III	1975-present	ND	never	$\mathbf{VA}$	never
GA 199:	P-present	MN	1977-present	НО	1998-present	$\mathbf{W}\mathbf{A}$	1993-present
ID 2000	)-present	MS	never	OK	1971-present	$\mathbf{W}\mathbf{V}$	1975-present
IL neve	)r	MO	1975-76; 79-80; 98-present	OR	never	IM	1975-present
IN neve	Ĩ	TM	1975-present	PA	never	WY	1979-present

# Table 1. Limits on Donations

Notes: The data describes when and where legal limits have been applied on individual donations to candidates standing in state elections, for the period 1949-2001. Thus limits were never applied in Alabama, and were applied between 1988 and the present in Arizona, and so on. Limits have been applied in Maryland and New Hampshire throughout the period 1950-present.

Donor motives	$\delta_1$	$\delta_2$	$\delta_3$
Malign $(\theta > 1)$	—	—	+
Weakly benign $(0 < \theta < 1)$	_	+	+
Strongly benign $(-1 < \theta < 0)$	_	+	+/-
Entirely being $(\theta = -1)$	_	+	_

 Table 2. Theoretical Predictions

	Tax revenue as a % of state income	Tax revenue as a % of state income	Tax revenue as a % of state income	Infrastructure spending as a % of state	Infrastructure spending as a % of state	Infrastructure spending as a % of state	Right-to- work laws	Right-to- work laws	Right-to- work laws
	(1)	(2)	(3)	government expenditure (4)	$\begin{array}{c} \text{government} \\ \text{expenditure} \\ (5) \end{array}$	government expenditure (6)	(7)	(8)	(6)
$\kappa_{st}$	$-3.440^{***}$ (0.716)	$-2.671^{***}_{(0.865)}$	$-4.645^{***}_{(1.424)}$	$\substack{4.886^{***}\\(1.827)}$	$\begin{array}{c} 4.707 \\ (3.165) \end{array}$	$7.610^{**}_{(3.600)}$	$0.655^{st} \\ (0.323)$	$\begin{array}{c} 0.577^{*} \\ (0.313) \end{array}$	$0.929^{**}_{(0.432)}$
$L_{st}$	$0.344^{**}$ (0.169)	$\begin{array}{c} 0.311^{*} \ (0.182) \end{array}$	$\begin{array}{c} 0.403^{**} \ (0.175) \end{array}$	-0.888 $(0.597)$	-0.812 (0.631)	-1.022 $(0.629)$	-0.061 (0.038)	-0.058 (0.041)	$-0.074^{st}$ (0.042)
$\kappa_{st} * L_{st}$	$2.668^{**}_{(1.316)}$	$\underset{(1.486)}{1.746}$	$3.860^{**} (1.804)$	-0.788 (3.982)	$\begin{array}{c} 0.003 \\ (4.733) \end{array}$	-3.484 (4.700)	$-0.820^{**}$ (0.358)	$-0.729^{st}$ (0.395)	$-1.091^{**}_{(0.446)}$
South $\times$ year interactions	No	Yes	No	No	Yes	No	No	Yes	No
Method	SIO	SIO	IV	SIO	SIO	IV	SIO	SIO	IV
Sample	1950-2001	1950-2001	1950-2001	1950-2001	1950-2001	1950-2001	1949-2001	1949-2001	1949-2001
Joint test of $\delta_2 = \delta_3 = 0$	$0.051^{*}$	0.224	$0.038^{**}$	0.242	0.244	0.252	0.065*	0.166	0.057*
Observations	2496	2496	2496	2496	2496	2496	2544	2544	2544
$R ext{-squared}$	0.831	0.840		0.837	0.844		0.876	0.878	

Table 3. Basic Results.

*Notes*: All regressions include state and year fixed effects. Robustly estimated standard errors, clustered at the state level, are in parentheses. \*, \*\*, \*\*\* respectively denote significance at the 10%, 5% and 1% level.

	Tax revenue as a % of state income	Tax revenue as a % of state income	Infrastructure spending as a % of state	Infrastructure spending as a % of state	Right-to- work laws	Right-to- work laws
	(1)	(2)	government expenditure (3)	government expenditure (4)	(5)	(9)
$\kappa_{st}$	$-2.678^{***}_{(0.866)}$	$-1.881^{**}$ (0.771)	$egin{array}{c} 4.621 \ (3.179) \end{array}$	$egin{array}{c} 4.591 \ (3.035) \end{array}$	$\begin{array}{c} 0.582^{*} \\ (0.313) \end{array}$	$\begin{array}{c} 0.132 \\ (0.275) \end{array}$
$L_{st}$	$\begin{array}{c} 0.293 \\ (0.179) \end{array}$	$\begin{array}{c} 0.260 \\ (0.172) \end{array}$	-0.778 (0.644)	-0.777 (0.629)	-0.053 $(0.041)$	-0.035 $(0.037)$
$\kappa_{st} * L_{st}$	$1.958 \\ (1.452)$	$\underset{\left(1.374\right)}{1.526}$	-0.281 (4.800)	$\begin{array}{c} 0.265 \\ (4.766) \end{array}$	$-0.749^{*}$ (0.393)	$-0.512 \\ (0.316)$
Democratic governor	$\begin{array}{c} 0.024 \\ (0.054) \end{array}$	$\begin{array}{c} 0.000\\ (0.059) \end{array}$	-0.234 (0.214)	-0.233 $(0.227)$	$\begin{array}{c} 0.004 \\ (0.011) \end{array}$	$\begin{array}{c} 0.017 \\ (0.011) \end{array}$
Democratic control	$\begin{array}{c} 0.166^{**} \\ (0.075) \end{array}$	$\begin{array}{c} 0.169^{**} \ (0.074) \end{array}$	$-0.552^{*}$ (0.305)	$-0.552^{*}$ (0.306)	-0.023 (0.020)	-0.024 (0.020)
Republican control	-0.105 (0.089)	-0.067 (0.087)	$\begin{array}{c} 0.031 \\ (0.454) \end{array}$	$\begin{array}{c} 0.029 \\ (0.465) \end{array}$	$0.045^{**}$ (0.022)	$\begin{array}{c} 0.021 \\ (0.018) \end{array}$
Democratic vote share		$1.095^{**}$ (0.468)		-0.041 (1.895)		$-0.625^{***}$ (0.141)
South $\times$ year interactions	Yes	$\mathbf{Yes}$	Yes	Yes	Yes	Yes
Method	SIO	SIO	SIO	SIO	OLS	STO
Sample	1950-2001	1950-2001	1950-2001	1950-2001	1949-2001	1949-2001
Joint test of $\delta_2 = \delta_3 = 0$	0.224	0.289	0.315	0.317	0.162	0.276
Observations	2478	2478	2478	2478	2526	2526
<i>R</i> -squared	0.842	0.844	0.844	0.844	0.878	0.884

Table 4. Results including political controls.

Notes: As for table 3. Democratic and Republican control implies simultaneous control of both house and senate.

	Growth of personal	Growth of personal	Growth of personal	Growth of personal
	income	income	income	income
	(1)	(2)	(3)	(4)
κ <sub>st</sub>	$0.058^{***}$ (0.019)	$0.045^{**}$ (0.019)	$0.092^{***}$ (0.030)	$0.062^{*}_{(0.032)}$
$L_{st}$	$-0.004^{*}_{(0.002)}$	-0.004 (0.003)	$-0.006^{*}$ (0.003)	-0.005 (0.003)
$\kappa_{st} * L_{st}$	$-0.078^{***}$ (0.028)	$-0.061^{**}$ (0.028)	$-0.113^{***}$ (0.038)	$-0.079^{*}_{(0.042)}$
Lagged personal income	$-0.129^{***}$ (0.033)	$-0.137^{***}_{(0.035)}$	$-0.145^{***}$ (0.035)	$-0.141^{***}$ (0.035)
South $\times$ year interactions	No	Yes	No	Yes
Method	OLS	OLS	IV	IV
Sample	1949-2001	1949-2001	1949-2001	1949-2001
Joint test of $\delta_2 = \delta_3 = 0$				
Observations	2544	2544	2544	2544
<i>R</i> -squared	0.495	0.516	0.492	0.515

# Table 5. Economic growth basic results.

*Notes*: As for table 3.

	Growth of personal income (1)	Growth of personal income (2)	Growth of personal income (3)	Growth of personal income (4)	Share of non- farm income (5)
$\kappa_{st}$	$\begin{array}{c} 0.046^{**} \\ (0.019) \end{array}$	$\begin{array}{c} 0.061^{***} \\ (0.020) \end{array}$	$0.149^{***}_{(0.043)}$	$\begin{array}{c} 0.231^{***} \\ (0.084) \end{array}$	$0.078^{***}_{(0.026)}$
$L_{st}$	-0.004 (0.003)	$-0.004^{*}$ (0.003)	-0.017 (0.011)	-0.045 (0.034)	-0.003 (0.010)
$\kappa_{st} * L_{st}$	$-0.060^{**}$ $(0.028)$	$-0.067^{**}$ (0.028)	$-0.282^{**}$ (0.112)	$-0.287^{*}$ (0.172)	-0.063 (0.039)
Democratic governor	$0.002^{*}$ $(0.001)$	$\begin{array}{c} 0.001 \\ (0.001) \end{array}$	$\begin{array}{c} 0.008^{*} \\ (0.004) \end{array}$	$\begin{array}{c} 0.005 \\ (0.003) \end{array}$	$\begin{array}{c} 0.001 \\ (0.002) \end{array}$
Democratic control	$\begin{array}{c} 0.002 \\ (0.001) \end{array}$	$\begin{array}{c} 0.002 \\ (0.001) \end{array}$	$\begin{array}{c} 0.015^{*} \\ (0.008) \end{array}$	$\begin{array}{c} 0.008\\ (0.006) \end{array}$	$-0.007^{*}$ (0.004)
Republican control	$\begin{array}{c} 0.002 \\ (0.002) \end{array}$	$\begin{array}{c} 0.001 \\ (0.002) \end{array}$	$\begin{array}{c} 0.004 \\ (0.008) \end{array}$	$\begin{array}{c} 0.004 \\ (0.008) \end{array}$	$\begin{array}{c} 0.005 \\ (0.006) \end{array}$
Democratic vote share		$0.020^{**}_{(0.01)}$			
Lagged personal income	$-0.138^{***}$ (0.035)	$-0.138^{***}$ (0.035)	$-0.447^{***}$ (0.049)	$-1.059^{***}$ (0.059)	
Method	SIO	SIO	5-Year averages	Arellano-Bond	SIO
$\operatorname{Sample}$	1949-2001	1950-2001	1950 - 1999	1950-1999	1949-2000
Joint test of $\delta_2 = \delta_3 = 0$	0.116	0.066*	$0.046^{**}$	0.150	0.251
Observations	2526	2526	527	479	2480
$R ext{-squared}$	0.516	0.517	0.844		0.878
Table 6. Additional resu	ilts on growth.				

Note South  $\times$  year interactions are included in all regressions.

tate	PC	Regime	State	PC	Regime	State	PC	Regime	State	PC	Regime
L	-0.030	LF	IA	-0.041	LF	NE	-0.104	LF	RI	-0.036	Limits
Z	-0.027	Limits	KS	-0.079	Limits	NV	-0.114	Limits	$\mathbf{SC}$	-0.014	Limits
R	-0.054	Limits	КУ	-0.111	Limits	ΗN	-0.019	Limits	SD	-0.098	Limits
A	-0.069	LF	$\mathbf{LA}$	-0.053	Limits	ſN	-0.073	Limits	NT	-0.093	Limits
00	-0.056	Limits	ME	-0.108	Limits	NM	-0.020	LF	XT	-0.089	LF
T	-0.120	Limits	MD	-0.119	Limits	NΥ	-0.090	Limits	$\mathbf{TU}$	-0.124	LF
ЭE	-0.005	Limits	MA	-0.102	Limits	NC	-0.003	Limits	$\mathrm{TV}$	-0.063	Limits
Ţ	-0.047	Limits	MI	-0.012	Limits	ND	-0.042	LF	VA	-0.021	LF
ЧЧ	-0.018	Limits	MIN	-0.020	Limits	НО	-0.114	Limits	WA	-0.053	Limits
D	-0.100	Limits	MS	-0.088	LF	OK	-0.085	Limits	$\rm WV$	-0.135	Limits
Γ	-0.058	LF	MO	-0.043	Limits	OR	-0.003	LF	ΙM	-0.070	Limits
N	-0.074	LF	$\operatorname{TM}$	-0.001	Limits	$\mathbf{PA}$	-0.021	$\mathbf{LF}$	WΥ	-0.172	Limits

Table 7. Policy in Practice

Notes: PC denotes the average measure of political competition ( $\kappa$ ) in the year 2001. 'Regime' denotes whether Limits or laissez-faire (LF) applies. Bold lettering denotes 'intermediate' cases of political competition (where it is unclear what the optimal regime is. Bold and italics denote cases of Limits with low political competition.

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