

# Direct Democracy and the Executive Branch

John G. Matsusaka

Marshall School of Business & Gould School of Law

University of Southern California

Los Angeles CA 90089-1427

[matsusak@usc.edu](mailto:matsusak@usc.edu)

## Abstract

This paper examines the impact of direct democracy on the executive branch. Direct democracy is a mixed blessing for the executive in theory: it weakens the legislature by cutting it out of the lawmaking process, but also allows new laws to avoid the governor's veto. Empirically, the constitutional initiative is associated with several changes in the organization of the executive branch, including term limits and lower salaries. By taking away the government's ability to set policy on some issues, the initiative permits citizens to target their votes more narrowly when the governor stands for re-election, providing stronger incentives for good performance. Some evidence from gubernatorial elections over 1950-1988 suggests that voter sanctions are stronger when the initiative is available.

*Published in: Direct Democracy's Impact on American Political Institutions, edited by Shaun Bowler and Amihai Glazer, New York, NY: Palgrave Macmillan, 2008. Chapter 7, pages 115-135.*

I received valuable feedback from participants at the UCI/USC conference, "The Impact of Direct Democracy." Research support was provided by the USC Marshall School of Business. I thank Jianfei Sun for able research assistance and USC for financial support.

## **Introduction**

The executive branch seems like a bystander in direct democracy. The main instruments of direct democracy – the initiative and referendum – are legislative in nature, and the ultimate purpose of direct democracy is to break the legislature’s monopoly over lawmaking. Not surprisingly, the study of how direct democracy impacts the legislature has been a staple of the literature for decades. Little if any research is available that focuses specifically on how direct democracy impacts the executive branch.<sup>1</sup> Yet in a system where government is fragmented between branches of government and constrained by a system of checks and balances, a reduction in the power of one branch might be expected to have repercussions on the power and functions of the other branches. The executive branch may stand to gain from a vigorous use of direct democracy. Indeed, governors have been the driving force behind adoption of the initiative and referendum from Hiram Johnson in California in 1911 to Kirk Fordice in Mississippi in 1992.

This paper explores the relation between direct democracy and the executive branch, with an eye toward identifying what changes, if any, are brought about in the executive branch when citizens are given the power to propose and pass laws directly. The paper is organized around three questions. How does direct democracy change the balance of power between the legislature and executive branch? What changes does the initiative bring about in the institutional characteristics of the executive branch? And how does direct democracy change the way voters behave when electing governors? I attempt

---

<sup>1</sup> For example, the appendices of Oberholzer (1912), Key and Crouch (1939), Magleby (1984), Cronin (1989), Bowler, Donovan, and Tolbert (1998), Gerber (1999), and Matsusaka (2004) – a sample that stretches from the Progressive period to the present – refer to a total of 20 pages for “governor” or “executive” compared to 177 pages for “legislature” or related terms.

to answer the questions using conventional theories and straightforward empirical approaches. The evidence indicates that direct democracy brings about material changes in the functioning of the executive branch. A counterintuitive implication of the analysis is that even though the initiative and referendum are targeted at legislative functions, they may end up causing elected executive officials to perform their *executive* functions more effectively.

## 1. Checks and Balances

This section makes a few observations about how direct democracy affects the balance of power before turning to the more substantive empirical and theoretical analysis in the following sections. The main point is that the initiative and referendum have an ambiguous effect on the power of the legislative and executive branch relative to each other in a standard spatial model, but unambiguously reduce the power of each branch relative to the voters.

Consider a simple model along the lines of Gerber (1996) and Matsusaka and McCarty (2001). Policy  $x$  is a point on the real line,  $L$  is the legislature's ideal point,  $G$  is the governor's ideal point,  $V$  is the (median) voter's ideal point, and all actors have single-peaked preferences. Without loss of generality, suppose  $L < G$ . The equilibrium policy  $x^*$  is the outcome of a game between the parties. The question of interest is whether  $x^*$  moves closer to  $L$  or  $G$  when the initiative becomes available.

When the initiative is unavailable, the voter plays no role in the policy decision (as conventional, this ignores the voter's role in selecting  $L$  and  $G$ , a point discussed below). For the moment, ignore the possibility that the governor has veto power. Then

the legislature simply sets the policy at its ideal point, and the policy with no initiative is  $x_{NI}^* = L$ .

If the initiative is available, then outside groups can propose alternatives to the legislature's policy, and the voter chooses between the two options. A realistic case is where the governor is able to propose an alternative. This is not a constitutional right, but a de facto power that stems from the governor's ability to raise funds and marshal interest groups to qualify a measure for the ballot. Arnold Schwarzenegger in California is a recent example.

If the governor has the power to make a proposal, the ultimate policy can never be farther from the governor's ideal point than when the initiative is unavailable (see Gerber (1996), where the governor takes the place of the interest group). A first case to consider, shown in Figure 1(a), is where  $V < L$ . Here the legislature can set the policy at its ideal point and there is no alternative preferred by the governor that the voter also prefers. Given a fallback of  $x = L$ , the governor does not want any policy to the left of  $L$ , and the voter does not want any policy to the right of  $L$ . Therefore, the governor will not propose an initiative and the legislature can set the policy at its ideal point with impunity. The ultimate policy with the initiative is then  $x_I^* = L$ , the same as without the initiative. The initiative has no effect.

The second case, shown in Figure 1(b), is where  $L < V$ . Here there is always a policy that both the governor and voter prefer to  $x = L$  so the legislature cannot set the policy at its ideal point without running the risk of being overridden by an initiative. For example, if the legislature were to choose  $x = L$  then the governor could propose a policy closer to  $V$ , such as  $x = V$ . The voter prefers and will approve this alternative, making the

voter and the governor both better off. As shown by Romer and Rosenthal (1979), the governor would not be so accommodating to the voter as to choose  $x = V$ , however. Instead the governor would choose a policy that makes the voter indifferent between the legislative option and the alternative, here  $x = z$  if the legislative status quo is  $x = L$  (chosen so that  $z$  and  $L$  are equidistant from  $V$  measured in the voter's utility). In anticipation, the legislature will want to preempt the initiative by choosing  $x = V$  at the start (from the legislature point of view,  $x = V$  is better than  $x = z$ .) Because the voter will not approve  $z$  or any other alternative if the existing policy is  $x = V$ , the legislature's policy stands:  $x_l^* = V$ .<sup>2</sup> Observe that the final policy is closer to the governor's position than when the initiative is unavailable. The change is brought about not by an actual initiative but by the legislature's response to a *possible* initiative, often called the "indirect effect" or "threat effect" of the initiative. It is fairly easy to see from perturbations of Figures 1(a) and 1(b) that there is no configuration in which policy moves *away* from the governor's position when the initiative is introduced. Similarly, it is clear that the voter is never worse off when the initiative is available.<sup>3</sup>

There is a countervailing effect that can reduce the governor's power relative to the legislature when the initiative is available. In 43 states, the governor has the power to veto some types of legislation. Initiatives are not subject to this veto. It is easy to think of situations where the loss of veto power causes the governor to lose influence relative to

---

<sup>2</sup> If it is costly to propose an initiative, the legislature can pre-empt the initiative threat without moving all the way to the voter's ideal point, that is, by choosing some  $x < V$ .

<sup>3</sup> The finding that availability of the initiative helps the governor if he has the power to propose initiatives is robust to incomplete information about policy effects and the preferences of the voter. See Gerber and Lupia (1995) and Matsusaka and McCarty (2001), respectively. However, with incomplete information the initiative can make the *voter* worse off.

the legislature when the initiative is available. Figure 1(c) illustrates one case. Let  $Q$  be the status quo policy, that is, the policy that prevails if the governor vetoes the legislature's proposal. In this example, the legislature and voter would like policy to move to the left of the status quo, but the governor will veto any proposal in that direction. For simplicity, suppose that the governor's veto cannot be overridden. Without the initiative,  $x_{NI}^* = Q$  will prevail. When the initiative is available, any alternative to the left of  $Q$  will be approved by the voters when faced with  $Q$  as the reversion point. The exact location of the final policy will depend on the position of the interest group sponsoring the initiative, but will always be to the left of  $Q$ :  $x_I^* < x_{NI}^*$ . In short, the ability of outside groups to make proposals that are not subject to the governor's veto can shift policy in favor of the legislature and against the governor. Such shifts never hurt the voter.

To summarize, there is no purely theoretical reason to believe the initiative tips the balance of power in favor of the governor or the legislature. Each case is possible under some scenarios. However, some practical considerations suggest that governor will usually benefit. The governor is chosen by the electorate at large, and thus is more likely to be representative of the median voter than the legislature, that is,  $G \approx V$ . The legislature is comprised of members elected from geographically distinct areas, each of whom is likely to represent the median voter in his or her district. If the legislature's position  $L$  is the median of its members, the position will seldom correspond to the median of the population, that is,  $L \neq V$  (Gilligan and Matsusaka, 2007). A fair amount of evidence suggests that districting does in fact cause a divergence between the position

of the legislature and the median voter in the general population.<sup>4</sup> If the governor is closer to the median than the legislature, then the configuration most likely to hold is the one shown in Figure 1(b). As discussed, in this case the initiative helps the governor by allowing him to take proposals directly to the voters. The governor loses little from being unable to veto initiatives.

The recent history of California provides a good example. The legislature is heavily gerrymandered so that the Democratic Party has a majority in both the upper and lower house that exceeds its popular vote majority. Nevertheless, after taking office in 2003, Republican Gov. Schwarzenegger was able to use the threat of an initiative to force the legislature to repeal legislation granting drivers licenses to illegal immigrants just months after it was passed. He also used an initiative threat to get the legislature to repeal an unpopular car tax and adopt workers compensation legislation that was closer to his ideal point than what the legislature has passed less than a year earlier. Because Schwarzenegger is closer to the median voter than the legislature, direct democracy has been a central part of his governing strategy and has allowed him to implement more of his agenda than he would have been able to if the initiative was unavailable.

The initiative only empowers the governor to the extent that the governor is closer than the legislature to the median voter. If the legislature is closer to the median voter, then the tables would be turned. The political actor that always wins (never loses) from having the initiative available is the median voter (in a spatial model, and subject to the caveats discussed above and others). In some sense, then, the primary effect of the initiative is transfer power from both branches of government to the median voter. The

---

<sup>4</sup> For example, see the evidence on the “Law of 1/n” in Gilligan and Matsusaka (1995, 2001); Bradbury and Crain (2001), and Baqir (2002).

evidence is fairly strong that the initiative does in fact bring about policies favored by the majority (Lupia and Matsusaka, 2004; Matsusaka, 2004).

## **2. Executive Institutions**

The initiative gives voters the power to change the institutional structure of the executive branch. Voters can rewrite the rules that determine the balance of power, the amount of fragmentation, and so on. It is well known that initiatives often are used to curtail the power of legislatures. Most notably, initiatives or the threat of initiatives recently brought about legislative term limits in 22 of 24 initiative states. Only 2 of 26 noninitiative states have adopted legislative term limits. This section investigates how the initiative changes the institutional structure of the executive branch.

Unfortunately, little theory is available to guide the analysis. Most research on institutions has focused on how they affect policy, not on what leads to their adoption. A notable exception is de Figueiredo (2003) that advances the idea that institutional change is driven by incumbent politicians attempting to insulate their policies from revision by future officeholders. Consistent with this idea, de Figueiredo finds that states were more likely to adopt the item veto when the incumbent government's re-election prospects were bleak. While de Figueiredo's study represents an important contribution to the issue of institutional change, it does not help much here since it emphasizes political determinants while the question at hand concerns institutional determinants (that is, direct democracy as a causal factor). Absent a compelling theoretical framework, the analysis in this section proceeds at a descriptive level. I look for differences across states in



executive institutions, and then consider whether those differences can be attributed to the availability of direct democracy.

The empirical strategy is to compare the institutions in initiative states with those in noninitiative states, controlling for other determinants of the differences. I will not examine the content of actual initiatives, except in passing. The reason for comparing states with and without the initiative rather than examining the actual measures on the ballot is because initiatives have both a direct effect on policy (when the voters approve a measure) and an indirect effect (when the threat of an initiative causes the legislature to modify its policy choice). If we were to try to measure the effect of initiative by looking only at the measures that actually passes, we would not capture the indirect effect, which turns out to be important. We can capture both direct and indirect effects by comparing initiative and noninitiative states. Intuitively, however the institutional changes come about – directly or indirectly – the effects will show up in the actual institutions. This strategy is conventional in the empirical literature; see Matsusaka (2004, 2005) for further discussion, examples, and references.

Table 1 examines difference in executive institutions between initiative and noninitiative states along four dimensions.<sup>5</sup> For the purposes of this analysis, an “initiative state” is a state in which voters are allowed to amend the constitution by initiative. States that only allow statutory initiatives are excluded because many of the institutional features under consideration are provided in the state constitution and cannot

---

<sup>5</sup> Institutional data were drawn from the following tables in *The Book of the States* (2004). Term limits: any limit on the number of terms or consecutive terms, taken from Table 4.1. Number of officials elected from 11 top offices, Governor, Lt. Governor, Secretary of State, Attorney General, Treasurer, Auditor, Comptroller, Agriculture, Education, Labor, Insurance (Table 4.9). Open cabinet meetings required (Table 4.6). Item veto available on all bills (Table 4.4).

be reached by statutory initiatives.<sup>6</sup> The left panel shows the means for noninitiative and initiative states, and the right panel reports the coefficients from regressions that estimate the difference between initiative and noninitiative states controlling for region and population.

The first row shows that initiative states are 24 percent more likely than noninitiative states to impose term limits on their governors. Part of this difference may be regional rather than due to the initiative. The regression in the first row controls for population and whether the state is in the South or not. Southern states are more likely to limit the terms for the governors, all else equal, but there is no measurable difference between large and small states. The difference between initiative and noninitiative states remains after including the controls, and the effect is statistically significant at better than the 5 percent level. The second row shows that initiative states fill more constitutional offices by election than noninitiative states, and the difference is statistically significant after controlling for region and population. The third row shows that initiative states are almost three times as likely to require open cabinet meetings as noninitiative states, an effect that is statistically significant after controlling for region and population.

These results suggest that citizens require higher levels of government accountability in initiative states than noninitiative states. The question arises whether the initiative caused the differences or whether direct democracy and accountability were

---

<sup>6</sup> The 17 constitutional initiative states are Arizona, Arkansas, California, Colorado, Florida, Massachusetts, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, North Dakota, Ohio, Oklahoma, Oregon, and South Dakota. Illinois was counted as not having a constitutional initiative because its constitutional initiative cannot be used to modify provisions pertaining to the executive. Alaska, Idaho, Maine, Utah, Washington, and Wyoming allow statutory but not constitutional initiatives. I estimated the effects including statutory initiatives (not reported) and the results typically are statistically insignificant. Classifications were taken from Matsusaka (2004, Appendix A1.1).

themselves caused by an underlying “progressive” sentiment among voters. One reason to suspect that the initiative was the forcing factor is that most states adopted the initiative in the early 20th century while in many cases gubernatorial term limits were not adopted until relatively recently (for example, Arkansas, California, Colorado, Florida, Maine, Michigan, Montana, Nebraska, Ohio, Utah, Washington, and Wyoming all adopted gubernatorial term limits measures since 1990.)<sup>7</sup> Erikson, Wright, and McIver (1993) show that there is virtually no correlation in state ideology before and after World War II. Moreover, survey and other evidence on ideology summarized in Matsusaka (2004, Ch. 3) reveals no meaningful difference in the ideology of citizens in initiative and noninitiative states.

While the first three comparisons suggest that direct democracy constrains the executive branch, the last column points in the other direction: initiative states are almost twice as likely to give the governor a line item veto on all bills. This difference is significant at better than the 10 percent level. In this case, it is unlikely that the initiative caused the difference: most states adopted some form of line item veto many years before they adopted the initiative (de Figueiredo, 2003). Moreover, I could not find instances of actual initiatives that were used to expand or curtail the governor’s veto power.

Table 2 examines a different characteristic of the executive branch: salaries. Initiatives can and have been used to set or constrain the salaries of government officials. Table 2 compares the salary for five important state officials in initiative and noninitiative states.<sup>8</sup> Initiative states consistently pay less than noninitiative states, with

---

<sup>7</sup> Washington’s measure was struck down by the state Supreme Court in 2002 on the grounds that statutory initiatives cannot be used to alter structures set down in the constitution.

<sup>8</sup> Data are taken from Table 4.11 in *The Book of the States* (2004).

the average difference ranging from \$9,000 per year for the Secretary of State to \$3,000 per year for the Treasurer. Salaries are affected by a variety of factors in addition to the initiative. The regressions control for region, state population, and state income. As expected, populous and wealthy states pay higher salaries, possibly because the jobs are more complex and require personnel with higher opportunity costs. Even after controlling for these factors, initiative states pay less than noninitiative states on average. None of the differences are statistically distinguishable from zero at conventional levels of significance. To see if this is just an issue of degrees of freedom, the last row reports a regression that pools the observations for all five offices and includes a dummy variable for each office to adjust for differences in means. On average, initiative states pay their officeholders \$5,000 per year less than noninitiative states, and this number can be distinguished from zero at better than the 10 percent level. This evidence mirrors the conclusion of Di Tella and Fisman (2004) based on a more extensive panel data set that governors are paid less in initiative states. It also fits with evidence in Matsusaka (2007) that public employees earn less in initiative cities than noninitiative cities. Given the frequent appearance of actual initiatives that attempt to regulate salaries, there is some reason to believe that the salary differences between initiative and noninitiative states are caused by availability of the initiative.

### **3. Elections and Accountability**

Direct democracy changes the nature of the executive branch by allowing policy to be made without the consent of the legislature or the governor (Section 2) and by altering the institutional structure of the executive branch (Section 3). Because the

governor's job is different in initiative and noninitiative states, there is reason to believe that voters will evaluate the governor's performance differently in the two types of states. This section develops a simple model that illustrates how voters behave differently in candidate elections when direct democracy is available and provides some empirical evidence from gubernatorial elections. The main conclusion is that direct democracy may lead to better performance by the executive, even on purely administrative tasks.

#### *A. A Model of Elections as Incentive Schemes*

The model adopts the view that voters use elections to provide incentives for their representatives to perform well. It therefore follows the path broken by Barro (1973) and Ferejohn (1986) in focusing on the moral hazard problem of the principal-agent relationship. The model preserves the basic features of previous work but extends the analysis to consider multiple issues and the impact of direct democracy on incentive schemes.

The incumbent governor chooses an action  $g_i \in [l, h]$  for  $i = 1, \dots, I$  different issues. The issues may concern legislation such as whether or not to support a minimum wage increase, or may be purely administrative. The governor derives benefits from each policy of  $B_i f(g_i)$ , where  $f$  is increasing and concave. There is also a fixed benefit  $R$  from being re-elected that could represent wages, perquisites, the consumption value of being in the news, and so on; the only critical feature is that  $R$  is not a choice variable for the voters. The probability of being re-elected, which the voters will choose, is  $p$ .<sup>9</sup> If the

---

<sup>9</sup> Alternatively, it can be assumed that the governor cares about his vote share not just winning (Stigler, 1972), in which case  $p$  is the vote share and  $R$  is the value he assigns to each point of support.

governor does not seek re-election, say because of term limits,  $p$  represents the probability that the governor's party win re-election and  $R$  is a payoff provided by the party to the incumbent, for example, appointment to a cushy commission, as a reward for helping to elect his successor. The governor is risk neutral and maximizes his expected utility

$$u = \sum_{i=1}^I B_i f(g_i) + pR.$$

Incentives are only necessary when the incumbent's preferences differ from the voter's preferences. To study an extreme case, I assume that voters and politicians have exactly opposite views about the desirability of  $g$  for all issues. All voters are identical and suffer a "cost" of  $C_i k(g_i)$  for each issue, where  $k$  is increasing and convex.<sup>10</sup> I abstract away from the issue of voter heterogeneity and distributional politics to be able to focus on incentive issues.

From the governor's perspective, the optimal choice is  $g_i = h$  for all  $i$ , while from the voter's perspective, the optimal choice is  $g_i = l$ . Elections are the mechanism by which voters try to control the governor. The voter chooses a probability function  $p(g_1, \dots, g_I)$  that induces the governor to choose  $g_i$ 's that minimize their cost. Good performance is rewarded with a high probability of re-election while poor performance earns a low probability of re-election.

In principle, candidates for governor could differ in their  $B_i$ 's. If so, elections would have a selection function as well as providing incentives: candidates whose

---

<sup>10</sup> Nothing hinges on the cost interpretation. The voter's payoff could be interpreted as benefits that are declining in  $g$ .

campaign promises suggested low  $B_i$ 's would be elected, and incumbents whose actions suggested high  $B_i$ 's would be turned out of office. In order to draw out the implications of the incentive side of elections, I will put this issue aside by assuming that all candidates for office have identical preferences.<sup>11</sup> Elections are thus referendums on the performance of the incumbent, not a means to select candidates of different abilities or with different platforms. There is in fact a large empirical literature showing that voters treat elections as a referendum on the incumbent to a significant degree (see Peltzman (1998) for an overview and references.)

In some respects, this problem has the appearance of a standard principal-agent problem where  $pR$  plays the role of wages. The critical difference from a standard problem is that  $p$  is bounded from above and below ( $p \in [0,1]$ ). This limits the voter's ability to incentivize the governor and, as Barro (1973) demonstrated, means that voters generally cannot induce the governor to adopt their ideal positions. Intuitively, there may not be "enough  $p$ " to reward the governor for making the right choice. The model is essentially a version of Barro (1973) that incorporates multitasking a la Holmstrom and Milgrom (1991).

A general property of this type of model is that voters adopt a cutoff rule to determine the re-election probability. In the present model with no uncertainty, the cutoff can be expressed as a maximum total cost imposed on the voter or as issue-by-issue thresholds, each of which incurs a re-election penalty if it is exceeded. The issue-by-issue approach is more useful for the subsequent empirical research. Therefore, let  $\bar{g}_i$  be the

---

<sup>11</sup> Banks and Sundaram (1998) study an abstract principal-agent model with both moral hazard and adverse selection problems, and provide references to related work. See also Fearon (1999).

threshold for issue  $i$  and let  $\pi_i$  be the penalty in re-election probability if the threshold is exceeded, that is, if governor chooses  $g_i > \bar{g}_i$  the voters reduce his re-election probability by  $\pi_i$ , all else equal.

Given such an incentive scheme, the governor's choice boils down to  $g_i = \bar{g}_i$  or  $g_i = h$  (if he is going to exceed the threshold, he might as well go all the way to  $h$ ). He chooses  $\bar{g}_i$  if  $B_i f(\bar{g}_i) > B_i f(h) - \pi_i R$ . To induce any given  $\bar{g}_i$ , then, the voter sets  $\pi_i = B_i(f(h) - f(\bar{g}_i)) / R$ . The limits of incentives are apparent: because  $\pi_i \leq 1$ , there is only so much  $\bar{g}_i$  that can be induced. Note that  $\pi_i$  is decreasing in  $\bar{g}_i$ , all else equal.

Incentives are also weakened by a multitasking constraint. For  $\pi_i$  to be the true marginal probability, it must be the case that  $\sum_{i=1}^I \pi_i \leq 1$ . If the sum exceeds 1 then the probabilities will be ineffective at the margin and the governor will exceed all of the thresholds. It is the adding up constraint that makes the initiative valuable in controlling the governor.

Given these basic features of the incentive scheme, we can state the voter's problem as follows:

$$\min_{\bar{g}_1, \dots, \bar{g}_I} \sum_{i=1}^I Ck(\bar{g}_i)$$

subject to

$$(1) \quad \pi_i = B(f(y) - f(\bar{g}_i)) / R$$

$$(2) \quad \sum_{i=1}^I \pi_i \leq 1.$$



Constraint (2) is always binding at an optimum. Substitute (1) into (2) and let  $q$  be the Lagrange multiplier on the constraint. Assuming an interior solution, the first order condition for an optimum is

$$(3) \quad C_i k'(\bar{g}_i) - q B_i f'(\bar{g}_i) / R = 0 \text{ for all } i.$$

The voter chooses the thresholds so that marginal gain in cost reduction is equal to the marginal cost of inducing the governor to choose the threshold. The multiplier  $q$  scales the shadow price of the scarce resource “probability.” Across issues, (3) implies

$$\frac{C_i k'(\bar{g}_i)}{B_i f'(\bar{g}_i)} = \frac{C_j k'(\bar{g}_j)}{B_j f'(\bar{g}_j)}.$$

Since  $k' / f'$  is increasing in  $g$ , it is easy to show that  $\bar{g}_i > \bar{g}_j$  if  $C_i / B_i < C_j / B_j$ , and therefore that  $\pi_i$  is lower for issues with high  $C_i / B_i$  ratios. When the governor derives a large benefit from a particular policy or the voter’s cost of indulging the governor along that dimension is low, the threshold is set high, and the sanction for that activity is low. Intuitively, the voter must allocate his scarce  $p$  in an economical way, and it is inefficient to deter activities that the governor really likes or that are not particularly costly for the voter.

So far there has been no discussion of direct democracy. The key question is what happens to this scheme when direct democracy is introduced? When the initiative and referendum are introduced, the voters override the governor and make their own policy

decisions along some dimensions. This “frees up” some of the  $p$  to be used to provide incentives along other dimensions. Formally, we assume that the governor no longer has the power to choose  $g_i$  for some  $i$ . This has the effect of reducing the shadow price of  $p$ , that is, reducing  $q$ . Comparative statics on the optimization condition (3) give

$$\frac{d\bar{g}_i}{dq} = \frac{B_i f'}{RC_i k'' - q B_i f''} > 0,$$

which implies that  $d\pi_i / dq < 0$ . Thus, when direct democracy is introduced, the voters lower the acceptable thresholds for the issues they do not decide directly, or put differently, they impose larger penalties on the governor when he ignores their wishes. The main empirical implication here is that voters will punish governors more for their transgressions in initiative than noninitiative states.

Because stronger incentives are available in initiative than noninitiative states, governors in initiative states will be better agents than governors in noninitiative states. It is often argued that direct democracy will lead to better policy outcomes because voters can override their representatives, or the threat to override will itself bring about better policy choices from the electorate’s perspective. The analysis here implies that there is another more subtle (and I believe previously unrecognized) benefit of direct democracy, that it improves the performance of elected officials on tasks that are not subject to initiatives or initiative threats. The set of issues under consideration could include purely administrative functions that are unreachable by initiatives. The analysis implies that

direct democracy could bring about better performance on those tasks by allowing voters to concentrate votes there.

Besley and Coate (2003) develop a related model in which direct democracy makes the electorate better off by unbundling issues. Their approach is different in that elections do not provide incentives but are used to select a candidate with the best preferences. Initiatives help by simplifying party competition and increasing the probability that a candidate with the “right” preferences is elected. In contrast to the model developed here, Besley and Coate assume that candidates faithfully implement their promised platforms although there is no mechanism forcing them to do so. Because elections are essentially forward-looking in the analysis, their model does not generate empirical implications for how voters would respond to actions of the incumbent while in office.

### *B. Evidence from Gubernatorial Elections*

Citizens can sanction representatives who do a poor job by denying them votes when they stand for re-election. The model in the previous section shows that the threat of being ousted may not be severe enough to guarantee the incumbent’s full compliance with the voter’s wishes. In such a situation, the voter is better off saving the strongest sanctions for a subset of issues he considers most important, or easiest to control. In direct democracy states, where some issues are taken out of the hands of elected officials, voters are able to apply stronger sanctions on the remaining issues when the incumbent’s performance falls short.

To get a sense of the empirical relevance of the model, this section reports evidence on the strength of electoral sanctions from gubernatorial elections over the period 1950-1988. The main question is whether voters reward and sanction incumbents more when direct democracy is available.

The basic empirical setup follows Peltzman (1992).<sup>12</sup> Voters are assumed to reward or punish the candidate representing the incumbent's party based on performance of the incumbent. Formally, I estimate the following model:

$$(4) \quad V_{it} = a + b \cdot V_{i,t-1} + c \cdot ECON_{it} + d \cdot SPENDING_{it} + e \cdot INCUMBENT_{it} + u_{it},$$

where  $i$  indexes a state and  $t$  indexes an election year,  $V$  is the share of votes received by the candidate of the incumbent party,  $ECON$  is an index number describing economic performance during the incumbent's term (the index is roughly income growth minus inflation),  $SPENDING$  is annual spending growth during the incumbent's term,  $INCUMBENT$  is a dummy variable equal to 1 if the incumbent is standing for re-election,  $a$ ,  $b$ ,  $c$ ,  $d$ , and  $e$  are coefficients to be estimated, and  $u$  is an error term.<sup>13</sup> Peltzman (1992) documented that voters rewarded strong economic performance ( $c > 0$ ) and penalized government spending growth ( $d < 0$ ) during the period under investigation. The question

---

<sup>12</sup> The data are those used in Peltzman (1992) with the addition of state initiative status.

<sup>13</sup> I omitted other control variables that Peltzman used in his study to conserve space: federal spending growth, a party dummy, a "coattails" variable equal to 1 if the incumbent governor and president were from the same party and -1 otherwise, and 31 state/region fixed effects. The first two of these variables invariably fell short of statistical significance, and inclusion of them changes none of the substantive findings. The main features of the data are described in the text and notes to the table. Peltzman made some corrections to the raw spending data to adjust for the Korean War, described in his paper.

here is how the size of the rewards and punishments *differ* when the initiative is and is not available. Specifically, do voters in initiative states reward good performance more and punish bad performance more than voters in noninitiative states?<sup>14</sup>

Table 3 reports the estimates. The results are divided into three panels that differ in the time horizon that voters are assumed to use when assessing the incumbent. Panel A assumes that voters have short memories and only look at the past year, panel B assumes they consider the preceding two years, and panel C assumes they consider all four years of the incumbent's term. Within each panel, the first two columns present the coefficient estimates and standard errors for regression (4) estimated separately for noninitiative and initiative states, respectively. The last column reports the *F*-statistic for the hypothesis that the coefficients are the same.

Panel A, which assumes that voters evaluate information only from the year preceding the election, shows that voters reward economic performance in both initiative and noninitiative states. Both coefficients on economic performance are positive and statistically different from zero at the 5 percent level. The coefficient in noninitiative states is smaller than the coefficient in initiative states, but they cannot be distinguished from each other with statistical confidence. It seems voters apply roughly the same

---

<sup>14</sup> The empirical approach is not entirely consistent with the theoretical model as written. In the model, the incentive scheme is perfectly calibrated so the governor never exceeds the thresholds and therefore the sanctions are never observed in equilibrium. However, sanctions would be observed in equilibrium with slight changes in the model to allow for uncertainty and incomplete information. For example, suppose (1) there is a small exogenous probability that  $g = h$  even if the governor attempts to set the policy at the cutoff level, and (2) voters cannot observe whether the governor deliberately violated the threshold or it was done against his will. This setup might describe a situation in which there are minor bureaucrats involved who with some probability disobey orders. In this extended model, the optimal punishment schemes would be the same as before, but the governor would occasionally be sanctioned by the voters when he loses control of the policy.

rewards for economic performance in initiative and noninitiative states. This is not inconsistent with the model because there are policy dimensions where sanctions will not change materially when the initiative is introduced.

Peltzman (1992) found that voters punished incumbents for spending growth in elections for president, senator, and governor during the period 1950-1988. Apparently, spending was disliked by the marginal voter during this time. Abundant survey evidence also indicates that citizens favored reductions in government spending during this period (Matsusaka, 2004). Panel A shows spending growth was punished more in initiative states than noninitiative states. In initiative states, each percentage point of annual spending growth cost the incumbent party's candidate 0.348% vote share, a number that is significantly different from zero. The effect in noninitiative states, 0.038%, is much smaller and not distinguishable from zero. The *F*-statistic confirms that the effect is larger in initiative than noninitiative states. For this policy it appears that voters employed stronger sanctions in initiative than noninitiative states, as the model predicts.

A similar pattern emerges when the estimates allow the voters to incorporate more information. In panel B, votes are conditioned on information over the two years preceding the election. Again we see that voters reward economic performance but the effects cannot be statistically distinguished between initiative and noninitiative states. Voters punish spending growth only in initiative states. Observe that the coefficients on the performance variables are larger in Panel B than Panel A. This indicates that voters incorporate information from both years, that is, they do not have extremely short term memory (Peltzman, 1990).

Panel C incorporates information from the entire four years of the incumbent's term. There is an argument that not all of this information is relevant since some of what happens in the first year of office is outside the incumbent's control. This is especially true when it comes to the first year budget, much of which may have been approved by the previous administration. In any case, the pattern is essentially unchanged. Voters in initiative states continue to punish spending growth more than voters in noninitiative states. The effect is significantly different from zero only in initiative states and the *p*-value for the difference is 0.11.

To put the numbers in perspective, note that the incumbent starts with a 3.9 percent advantage in initiative states (focusing here on Panel C). The coefficient on spending of 48.4 implies that spending can grow by about 8 percent per year during the four-year term before the governor dissipates his incumbency advantage. The mean spending growth in the sample was 4 percent with a standard deviation of 3.7 percent so it is clear that governors can engage in significant spending growth before seriously endangering their chances of re-election. This is consistent with the idea that sanctions are not strongly linked to a single dimension but are spread across multiple issues.

The evidence is generally consistent with the idea that voters in initiative states can deliver stronger incentives to their governors than voters in noninitiative states by taking some issues out of the hands of the governor. If voters use an initiative to legalize capital punishment, they do not have to use their votes to prod the governor in the right direction on that policy; they can save their ire for other issues, spending growth apparently being one of them. The stronger incentives in initiative states appear to be

effective: during the sample period, state spending was about 12 percent lower in initiative states than in noninitiative states (Matsusaka, 1995).

A possible alternative explanation for the findings is that voters in initiative states are simply more fiscally conservative to begin with than voters in noninitiative states. If true, the regressions would be revealing not so much a different incentive scheme in initiative and noninitiative states, but different voter preferences over policy. This possibility, while plausible, seems unlikely in light of a large amount of opinion data collected in Matsusaka (2004, Ch. 3). There I compare the “ideology” of voters in initiative and noninitiative states using six different metrics over roughly the same time period, and find only trivial differences.

#### **4. Discussion**

The initiative and referendum are legislative processes, and most research has approached direct democracy from a legislative perspective. Little attention has been paid to the effect of the direct democracy on the executive branch, and very little empirical evidence is available. This paper attempts to describe the lay of the land, touching on a variety of topics with an eye toward identifying the main issues and empirical relations. The cost is that the paper does not drill extremely deep on any particular part of the problem. Nevertheless, I believe a number of interesting issues have emerged. I hope there will be enough here to suggest that further investigation of how the initiative affects the executive branch is worthwhile.

Two findings are particularly noteworthy. First, a variety of populist and progressive-style changes to the powers and functions of the executive branch seem to



follow in the wake of the constitutional initiative. Voters use the process to bring about term limits, require more offices to be filled by election, and require open cabinet meetings. Governors in initiative states are also more likely to have a full line item veto than governors in initiative states, but this seems to be coincident with the initiative process, not caused by the initiative.

A second observation is that by taking some issues out of the hands of elected officials and deciding them directly, the initiative seems to enable voters to more effectively sanction their representatives for poor performance on the issues that remain under their control. Some evidence from gubernatorial elections is reported showing that governors were punished more intensely for spending growth by voters in initiative than noninitiative states. The ability to bring to bear stronger punishments means that the performance of elected officials will be more satisfactory to the voters. Thus, the evidence (again, only suggestive at this point) has the interesting implication that direct democracy improves the functioning of elected officials in their role as agents. The analysis is couched in terms of the governor, but the logic is general enough to apply to all elected officials, including the legislature. It has long been argued by direct democracy advocates that the initiative is desirable because it allows voters to correct policy mistakes by their representatives. The evidence here suggests that it might have a second, and previously unrecognized, benefit of improving the incentives of elected officials to act as faithful agents for the issues that remain under their control. The point extends to purely administrative as well as legislative functions, that is, the initiative may improve the performance of the executive in his purely executive functions.

Dalton's chapter in this volume finds that initiative states fare worse than noninitiative states in terms of several "good government" indexes. At first glance, this appears to contradict the prediction that initiatives lead better governance. A possible explanation for the discrepancy is that the indexes may be a measure of what good government is in the eyes of the scholars and activists that construct the indexes, and not what good government means to the voters. For example, the educational performance measure gives higher scores to states that spend more on higher education and provide greater subsidies to low income students, which that may not be how voters define good government. The tax performance measure gives higher scores to states with more progressive tax structures and states that allow exemptions that are means-tested, again not necessarily the tax structure that voters favor. The government performance index, constructed by public administration scholars and officials, tends to reward states that give government administrators a large amount of flexibility. Initiatives that tie the hands of government officials tend to reduce a state's score, but voters may support such constraints because they do not trust government officials. In short, Dalton's evidence shows that direct democracy changes the way government works, but whether this is for better or worse is an open question.

Tolbert's chapter in this volume (as well as Smith and Tolbert (2004) more generally) show that ballot propositions increase civic engagement and the degree to which citizens are informed. More informed voters will be better judges of their representatives, and so this effect would tend to reinforce the performance-improving feature of direct democracy that I have emphasized.

The intuition behind the model also suggests that sanctions will become less effective as the scope and complexity of government increases. Since government has expanded over the last 100 years, an implication is that it should be becoming increasingly difficult to control representatives with elections – there are simply too many issues to send a clear message on Election Day. This could be one of the factors fueling the growing demand for direct democracy worldwide.

## References

Banks, Jeffrey S. and Rangarajan Sundaram, "Optimal Retention in Agency Problems,"

*Journal of Economic Theory*, 1998, Vol. 82, 293-323.

Barro, Robert J., "The Control of Politicians: An Economic Model," *Public Choice*,

1973, Vol. 14, 19-42.

Baqir, Reza, "Districting and Government Overspending," *Journal of Political Economy*,

December 2002, Vol. 110(6), 1318-1354.

Besley, Timothy and Stephen Coate, "Issue Unbundling via Citizens' Initiatives,"

working paper, London School of Economics and Cornell University, 2003.

*The Book of the States*, Volume 36, Lexington, KY: The Council of State Governments,

2004.

Bowler, Shaun, Todd Donovan, and Caroline J. Tolbert, *Citizens as Legislators: Direct*

*Democracy in the United States*, Columbus, OH: Ohio State University Press,

1998.

Bradbury, John Charles and W. Mark Crain, “Legislative Organization and Government Spending: Cross Country Evidence,” *Journal of Public Economics*, December 2001, Vol. 82, 309-325.

Cronin, Thomas E., *Direct Democracy: The Politics of Initiative, Referendum, and Recall*, Cambridge, MA: Harvard University Press, 1989.

de Figueiredo Jr., Rui J.P., “Budget Institutions and Political Insulation: Why States Adopt the Item Veto,” *Journal of Public Economics*, 2003, Vol. 87, 2677-2701.

Di Tella, Rafael and Raymond Fisman, “Are Politicians Really Paid Like Bureaucrats?” *Journal of Law and Economics*, October 2004, Vol. 47(2), 477-514.

Erikson, Robert S., Gerald C. Wright, and John P. McIver, *Statehouse Democracy: Public Opinion and Policy in the American States*, New York, NY: Cambridge University Press, 1993.

Fearon, James D., “Electoral Accountability and the Control of Politicians: Selecting Good Types versus Sanctioning Poor Performance,” in *Democracy, Accountability, and Representation*, edited by Adam Przeworski, Susan C. Stokes, and Bernard Manin, Cambridge, UK: Cambridge University Press, 1999.

Ferejohn, John, "Incumbent Performance and Electoral Control," *Public Choice*, 1986,  
Vol. 50, 5-25.

Gerber, Elisabeth R., "Legislative Response to the Threat of Popular Initiatives,"  
*American Journal of Political Science*, February 1996, Vol. 40(1), 99-128.

Gerber, Elisabeth R., *The Populist Paradox: Interest Group Influence and the Promise of  
Direct Legislation*, Princeton University Press, 1999.

Gerber, Elisabeth R. and Arthur Lupia, "Campaign Competition and Policy  
Responsiveness in Direct Legislation Elections," *Political Behavior*, 1995, Vol.  
17(2), 287-306.

Gilligan, Thomas W. and John G. Matsusaka, "Systematic Deviations from Constituent  
Interests: The Role of Legislative Structure and Political Parties in the States,"  
*Economic Inquiry*, July 1995, Vol. 33, 383-401.

Gilligan, Thomas W. and John G. Matsusaka, "Fiscal Policy, Legislature Size, and  
Political Parties: Evidence from the First Half of the Twentieth Century,"  
*National Tax Journal*, March 2001, Vol. 54, 57-82.

Gilligan, Thomas W. and John G. Matsusaka, "Public Choice Principles of  
Redistricting," *Public Choice*, December 2006, Vol. 129(3), 381-398.

Holmstrom, Bengt and Paul Milgrom, "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design," *Journal of Law, Economics, and Organization*, 1991, Vol. 70 (special issue), 24-52.

Key, V.O. Jr. and Winston W. Crouch, *The Initiative and Referendum in California*, Berkeley, CA: University of California Press, 1939.

Lupia, Arthur and John G. Matsusaka, "Direct Democracy: New Approaches to Old Questions," *Annual Review of Political Science*, 2004, Vol. 7, 463-482.

Magleby, David, *Direct Legislation: Voting on Ballot Propositions in the United States*, Baltimore, MD: The Johns Hopkins University Press, 1984.

Matsusaka, John G., "Fiscal Effects of the Voter Initiative: Evidence from the Last 30 Years," *Journal of Political Economy*, June 1995, Vol. 103, 587-623.

Matsusaka, John G., "Fiscal Effects of the Voter Initiative in the First Half of the 20th Century," *Journal of Law and Economics*, October 2000, Vol. 43, 619-648.

Matsusaka, John G., *For the Many or the Few: The Initiative, Public Policy, and American Democracy*, Chicago, IL: University of Chicago Press, 2004.

Matsusaka, John G., "Direct Democracy Works," *Journal of Economic Perspectives*,  
Spring 2005, Vol. 19(2), 185-206.

Matsusaka, John G., "Direct Democracy and Public Employees," Working paper, USC  
Marshall School of Business, 2007.

Matsusaka, John G. and Nolan M. McCarty, "Political Resource Allocation: Benefits and  
Costs of Voter Initiatives," *Journal of Law, Economics, and Organization*,  
October 2001, Vol. 17, 413-448.

Oberholtzer, Ellis Paxson, *The Referendum in America* (revised edition), New York, NY:  
Charles Scribner's Sons, 1912.

Peltzman, Sam, "How Efficient Is the Voting Market?," *Journal of Law and Economics*,  
April 1990, Vol. 33, 27-63.

Peltzman, Sam, "Voters as Fiscal Conservatives," *Quarterly Journal of Economics*, May  
1992, Vol. 107(2), 327-361.

Peltzman, Sam, *Political Participation and Government Regulation*, Chicago, IL:  
University of Chicago Press, 1998.

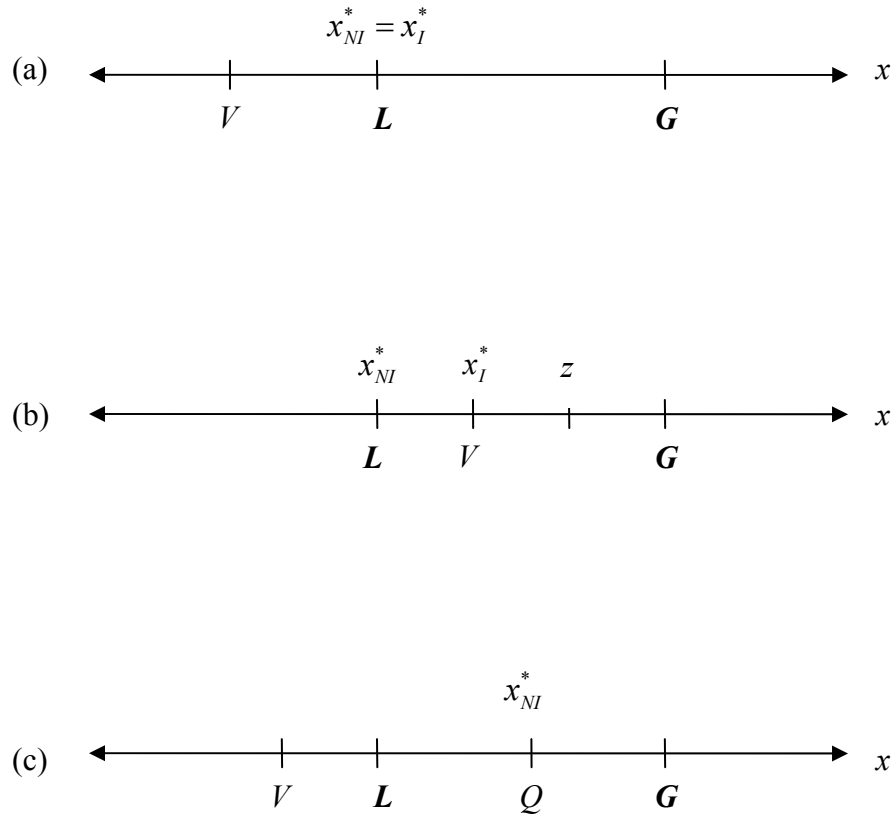


Romer, Thomas and Howard Rosenthal, "Bureaucrats versus Voters: On the Political Economy of Resource Allocation by Direct Democracy," *Quarterly Journal of Economics*, 1979, Vol. 93, 563-587.

Smith, Daniel A. and Caroline J. Tolbert, *Educated by Initiative: The Effects of Direct Democracy on Citizens and Political Participation*, Ann Arbor, MI: University of Michigan Press, 2004.

Stigler, George J., "Economic Competition and Political Competition," *Public Choice*, Fall 1972, Vol. 13, 91-106.

**FIGURE 1**  
**Ideal Point Configurations of the Legislature (*L*), Governor (*G*), and Voter (*V*) to Illustrate the Impact of Initiative on Balance of Power**



**Table 1. Comparison of Executive Branch Institutions in Initiative and Noninitiative States, 2003**

	<u>Means</u>		<u>Regressions</u>			
	Noninitiative states	Initiative states	Dummy = 1 if initiative state	Dummy = 1 if southern state	Population (log)	Constant
Governor is term limited (1 = yes, 0 = no)	.64	.88	1.75** (0.88)	2.12* (1.18)	-0.35 (0.35)	5.46 (5.28)
Number of elected officials	5.2	6.1	1.05* (0.59)	0.97 (0.71)	-0.13 (0.29)	6.93 (4.31)
Open cabinet meetings required <sup>(a)</sup> (1=yes, 0=no)	.15	.43	1.60* (0.80)	0.48 (1.02)	-0.33 (0.39)	3.04 (5.69)
Governor has item veto on all bills (1 = yes, 0 = no)	.39	.71	1.27* (0.67)	-1.46* (0.82)	0.29 (0.32)	-4.51 (4.80)

*Note.* An “initiative state” is a state that allows constitutional initiatives (17 in all). Each row reports the mean values for noninitiative and initiative states and coefficients from a regression in which the dependent variable is in the leftmost column (governor is term limited, etc.) and the independent variables are listed under “Regressions.” Standard errors are in parentheses beneath the coefficient estimates. The coefficient on the intercept is not reported. Logistic regressions are used when the dependent variable is binary. Significance levels are indicated as follows: \* = 10%, \*\* = 5%, \*\*\* = 1%. All regressions use 50 observations except for (a) which uses 41. Institutional variables are taken from *The Book of the States* (2004). Initiative status is taken from Matsusaka (2004). Population is from the Census Bureau ([www.census.gov](http://www.census.gov)).

**Table 2. Comparison of Executive Office Salaries between Initiative and Noninitiative States, 2003**

Annual salary (\$thousands)	<u>Means</u>		<u>Regressions</u>					
	Noninitiative states	Initiative states	Dummy = 1 if initiative state	Dummy = 1 if southern state	Population (log)	GSP per capita	Constant	R <sup>2</sup>
Governor	116	112	-3 (6)	-14** (7)	16*** (3)	1.5*** (0.6)	-163*** (40)	0.54
Lieutenant Governor <sup>(a)</sup>	83	76	-8 (7)	-22** (9)	16*** (4)	1.3 (0.8)	-199*** (53)	0.46
Secretary of State <sup>(b)</sup>	95	86	-4 (5)	12* (7)	9*** (3)	2.0*** (0.5)	-114*** (37)	0.50
Attorney General	105	97	-7 (5)	2 (7)	12*** (3)	1.1** (0.5)	-112*** (39)	0.44
Treasurer	93	90	-2 (6)	2 (8)	12*** (3)	1.3** (0.6)	-133*** (42)	0.41
All offices <sup>(c)</sup>	...	...	-5* (3)	-4 (3)	13*** (1)	1.4*** (0.3)	...	0.97

*Note.* An “initiative state” is a state that allows constitutional initiatives (17 in all). Each row reports the mean values for initiative and noninitiative states and coefficients from a regression in which the dependent variable is the salary of the office in the leftmost column and the independent variables are listed under “Regressions.” GSP is gross state product. Standard errors are in parentheses beneath the coefficient estimates. Significance levels are indicated as follows: \* = 10%, \*\* = 5%, \*\*\* = 1%. All regressions use 50 observations except for (a) which use 46, (b) which uses 49, and (c) which uses 246. The last row pools the data from all five offices into a regression with office-fixed effects. Salary data are from *The Book of the States* (2004). Initiative status is from Matsusaka (2004). Population and GSP are from the Census Bureau ([www.census.gov](http://www.census.gov)).

**Table 3. Regressions of Incumbent Party Vote Share on Economic Performance and Government Spending for Gubernatorial Elections 1950-1988**

Variable	Noninitiative States	Initiative States	F-statistic
<i>A. Assessment period: Preceding 1 year</i>			
Constant	25.0*** (6.7)	57.5*** (7.0)	11.3***
Vote share in last election	0.4*** (0.1)	-0.1 (0.1)	10.4***
Economic performance during assessment period (HAPI)	107.8** (38.0)	116.3*** (34.2)	0.0
Annual state spending growth during assessment period	-3.8 (10.0)	-34.8** (11.6)	4.11**
Dummy=1 if incumbent	4.8*** (1.2)	3.8*** (1.3)	0.4
<i>B. Assessment period: Preceding 2 years</i>			
Constant	23.5*** (6.6)	57.2*** (7.1)	12.6***
Vote share in last election	0.5*** (0.1)	-0.1 (0.1)	10.9***
Economic performance during assessment period (HAPI)	185.3*** (60.7)	151.4*** (56.6)	0.2
Annual state spending growth during assessment period	6.7 (12.3)	-40.1*** (14.9)	5.9**
Dummy=1 if incumbent	5.0*** (1.2)	4.0*** (1.3)	0.3
<i>C. Assessment period: Preceding 4 years</i>			
Constant	25.4*** (6.8)	57.4*** (7.0)	10.7***
Vote share in last election	0.4*** (0.1)	-0.1 (0.1)	10.2***
Economic performance during assessment period (HAPI)	285.7*** (89.2)	289.6*** (83.6)	0.0
Annual state spending growth during assessment period	-8.5 (14.4)	-48.4** (20.7)	2.51
Dummy=1 if incumbent	4.7*** (1.2)	3.9*** (1.3)	0.2

*Note.* The panels differ in how far back voters look at economic performance and government spending when assessing the incumbent. The main entries are coefficient estimates multiplied (standard errors in parentheses) from a regression in which the dependent variable is the vote share of the candidate representing the incumbent party. Economic performance is the HAPI index,  $y - i$ , where  $y$  is income growth in excess of its permanent component and  $i$  is inflation in excess of its expected value (see Peltzman (1992) for details). Spending growth is as a fraction not a percentage. The  $F$ -statistic is for the hypothesis that the coefficients are the same. Significance levels are indicated as follows: \* = 10%, \*\* = 5%, \*\*\* = 1%.