

Direct Democracy & Representation:  
Institutionally Induced Substitution Between  
Symbolic and Substantive Representation<sup>ψ</sup>

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## **Abstract**

Direct democracy allows constituents to directly implement legislation, and thereby eliminate the legislature's monopoly over public policy. This paper extends the canonical model of the initiative's effect on legislative responsiveness in order to incorporate the initial selection of legislators by voters. Given that the initiative provides an alternative route to policy-making that bypasses the legislature (satisfies policy demands through extra-legislative means), the considerations used in selecting candidates are shown to be altered. To the degree that the initiative separates candidate selection from policy outcomes, voters will be more inclined to vote for candidates based upon their personal (or non-policy) characteristics.

This substitution effect explains three explicit puzzles in the literature. First, economic voting (voters punishing or rewarding legislators for economic performance) is diminished in initiative states. Second, voters in initiative states are considerably less likely to "Vote Correctly" in the sense of selecting the candidate with the most similar policy portfolio. Third, there is superior descriptive representation in initiative states in terms of gender.

New empirical tests find that voters in initiative states are more sensitive to how attractive candidates look, but less sensitive to how competent they look. Finally, the selection of more honest candidates is demonstrated by lower levels of corruption in initiative states.

## **Introduction**

The founders of the American political established a political system that balanced democratic instincts against democratic fears. The sovereignty of the citizenry was countered with a heavy dose of institutional insulation: the Electoral College, indirect election of Senators and presidential nomination of Supreme Court members. While these original institutions were designed to insulate representatives from the public, the last hundred years has seen greater pursuit of political responsiveness.

The initiative process, in which constituents can directly establish public policy, is fundamental to this evolution. Pushed by the Progressive movement of the early twentieth century to empower the “vox populi”, the twenty-four states which have this process are putatively more responsive to their constituents’ demands.

The empirical findings, however, are not clear. Most studies do find that initiative leads to greater responsiveness (Gerber 1996, 1999, Arceneaux 2002, and Hug 2001, 2004), but this is far from universal (Lascher et. al 1996 and Camobreco 1998 find null results, while Burden 2005 finds mixed results depending on policy area).

This paper returns to the underlying process through which the initiative is meant to make legislatures more responsive rather than focus solely on policy outcomes. I demonstrate that an unanticipated effect of the initiative is a change in voting behavior: voters respond to their ability to affect policy through the initiative by shifting their considerations in the voting booth away from policy and towards the quality of candidates. As voters seek candidates that represent their policy positions as well as exhibit high-quality personal characteristics, an exogenous satisfaction of their policy demands allows substitution toward personal qualities in their voting behavior. This theory of substitution is compatible with current instrumental and educative effects (Tolbert & Smith 2006), explains three current puzzles in the literature, and generates new testable hypotheses regarding voting behavior & candidate characteristics in different states.

In the following sections I first review a canonical model of the initiative & policy convergence (Romer & Rosenthal 1979, Gerber 1996). I then present an extension of the model in which legislators are still candidates and the median voter is selecting their legislature, discuss the empirical implications of the model, and conclude with existing empirical puzzles explained by the model.

## **Legislative Response to the Threat of Popular Initiatives**

Gerber's 1996 model provides the model of legislative behavior in the face of the initiative process. Like Romer and Rosenthal, Gerber posits that the initiative allows interest groups to directly compete with state legislatures for policy outcomes. Without the initiative, a legislature faces only the generic constraint of electoral prospects to induce them to pass the policies preferred by the median voter. In the presence of the initiative process, a legislature anticipates an interest group's initiative proposal and passes policies to pre-empt that initiative. When the initiative does change the outcome of policy, which is conditional upon the arrangement of preferences, policy is always better for voters and the proposing interest group, but worse for the legislature.

The model has three actors: the Legislature (L), Proposers (P) of initiatives, and the Median Voter (V) of a state. The legislature is a unitary actor with an ideal policy determined by its own internal preference aggregation function. This may or may not be the median voter of the legislature. The proposer of initiatives is an interest group; some organized entity with policy preferences able to expend the time and energy needed to propose and push an initiative to fruition.

Each actor has an ideal policy, but only the proposer has a potential cost to their action. If the proposer chooses not to accept the legislature's proposal at  $L^*$ , and instead proposes an initiative, they must pay the costs (C) associated with their counter proposal of  $l^*$ . Such costs predictably vary by state: the number of signatures required to get an initiative on the ballot, geography requirements for signatures, and the timeframe in which this process must be completed.

The sequence of action is as follows: the legislature selects a policy  $L^*$ , the proposer decides whether or not to propose an initiative, and where the policy of that initiative should be located ( $l^*$ ). If P does propose an initiative, then the median voter either votes for the initiative at  $l^*$  or accepts the legislature's policy ( $L^*$ ). The legislature anticipates the outcome of this process, and sets  $L^*$  at a point that is best for themselves given the predictable actions of the other actors. This process forms the basis of the equilibrium concept used herein: sub-game perfect equilibrium. Each actor determines their optimum strategy assuming that all following actors will do the same. Optimal actions, then, are derived through backward induction. This begins at the last of the four nodes: the decision calculus of the voter.

## **--Insert Figure 1 about here--**

The decision on the part of the voter is trivial: they select whichever of  $L^*$  or  $l^*$  that is closer to their ideal policy. The proposer faces a more complicated decision following from two factors. First, the proposed initiative must result in a utility greater than  $L^*$  after the cost of the process is taken into account. Second, this proposed initiative must be preferred by voters over the legislature's policy. The options available to the proposer are the result of the preference ordering among the three actors; the key factor is which actor's ideal point is central relative to the others. Intuitively, with three actors competing to bring policy closer to their ideal, the two extreme actors are competing with one another to provide the best option for the central actor. Given this structure to the competition, the central actor is privileged.

Consider the outcome when the legislature is the middle actor. If the legislature enacts their ideal policy, the proposer has no valid response given that any initiative must be preferred by the median voter. In this case, when the legislature's ideal point is between the median voter and the proposer, an initiative preferred by the median voter over the legislature's policy would be even worse for the proposer than accepting the legislature's ideal point. This preference ordering leaves the legislature unconstrained, and therefore the initiative has no effect.

Second, when the proposer is the ideological centrist, the resulting policy outcome is somewhere between the legislature and the proposer's ideal point. If there is no cost to proposing the initiative, the proposer would be able to successfully propose their own ideal point, and therefore the legislature's best option is to avoid the rebuke of the initiative by setting  $L^*$  to  $l^*$ . If, however, the initiative is costly, the legislature can extract concessions from the proposer. When the cost of the initiative is greater than the difference in the proposer's utility from  $L^*$  and  $l^*$ , then the legislature can enact their own ideal point. Although any policy position proposed by  $P$  would be selected by the median voter, the high cost of the initiative would outweigh any gain. If, however, the cost of the initiative is less than the difference in the proposer's utility from  $L^*$  and their ideal point, the legislature must anticipate and pre-empt a credible threat from  $P$  to propose an initiative at  $P$ 's ideal point. In this case, the legislature only needs to change its policy enough to make the proposer indifferent between the legislature's policy and the cost it would take to move that policy to the proposer's ideal point. Therefore, with a moderate proposer,

policy will remain at the legislature's ideal point when the cost to the initiative is sufficiently high, but will converge toward the proposer's ideal point as that cost decreases.

The last arrangement is when the median voter's ideal policy is central relative to the legislature and the proposer. With a costless initiative, the legislature must set policy directly at the median voter's ideal point. To do otherwise would allow P to propose an initiative somewhere between M and P. As the cost of the initiative increases, the legislature is able to take advantage of this by keeping the implemented policy closer to their ideal point. As P would only be able to move policy to the median voter's ideal point, the proposer is comparing their gain from moving  $L^*$  to M with the cost of the initiative.

All together, the result is that the presence of the initiative process brings policy closer to the position of the median voter with two exceptions: when the only interest group able to propose an initiative is on the other side of the legislature compared to the median voter (centrist legislature), or when a proposer faces a cost sufficiently high that they would prefer to accept the legislature's ideal point. In all other cases, the initiative makes policy more similar to what the median voter and the proposing interest group would like, but to the detriment of the legislature.

### **Legislators as Candidates: the extension**

This extension to the model considers the effects of the initiative on the initial selection stage when the legislator<sup>1</sup> is still a candidate. Given that initiative provides an avenue to circumvent the legislature in the policy-making process, the characteristics demanded of candidates ought to be different. In the extreme, in which we consider the initiative to have made the legislature completely superfluous, how would voters vote? This model permits substitution of personal characteristics in place of policy positioning for candidates. Therefore, the first additional element stemming from incorporation of a selection stage is the quality of the candidate. While candidates' quality is typically referred to as valence factors, Pitkin's (1967) typology of representation may be more substantively meaningful. According to Pitkin's typology a candidate's representational role beyond substantive policy-making is two-fold: descriptive and symbolic.

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<sup>1</sup> Gerber's model is about the legislature which behaves like a unitary actor. Carrying this unitary actor assumption into the selection stage is akin to considering the legislature a *solitary* actor; i.e. a single person in actuality instead of the result of an aggregation process. Conversely, this model could be considered being carried out in multiple identical districts.

While policy positioning has long been the dominant factor in analyses of voting behavior, it is certainly not the only factor in selecting a candidate. Candidates are bundles: selection of a single candidate entails acceptance of the candidate's positions on innumerable policy areas, their ability to bring pork back to their district, their leadership qualities, and other personal qualities about that candidate. Policy positioning, as developed in the Hotelling-Downs spatial models, has clearly been the dominant focal point of the candidate's bundle in the literature. This portion of the bundle is often (as in this model) reduced to a single horizontal policy dimension. The second part of the bundle can be considered valence characteristics. These are factors of candidate quality such as trustworthiness, competence or attractiveness. I.e. they are characteristics that all voters would like their elected officials to exhibit. These valence factors create another dimension to the candidate selection process that is not a part of the later policy making process. The valence dimension is often considered the vertical dimension as opposed to the horizontal dimension of policy positioning. This model predicts that the importance of this vertical element depends on the importance of the initiative process in a state.

The second change with the incorporation of the campaign (selection) is imperfect information. Unlike the later policy competition stage in which policy positions are actually established in the legislature, or put on an actual ballot by the proposer, candidates' claims of their policy positions or valence levels are far from perfect revelations. These claims by candidates indicating future behavior are fairly cheap talk with a questionable relation to actual behavior in the future. While the policy sub-game's assumption of perfect information is justified in those later stages of policy making<sup>2</sup>, this assumption is not tenable with regard to candidate selection. Instead, voters are likely to only have a vague sense of candidates' genuine policy positions and personal qualities.

Given this imperfect information, the median voter is modeled as having two actions. First, they choose a "research strategy" in which they choose to observe either a candidate's actual policy position or a candidate's actual quality. Second, they select the candidate that is

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<sup>2</sup> It may be argued that voters also have imperfect information about the interest group just as they have imperfect information about candidates. There are two reasons this is not the case. First, interest groups do not have the incentives to misrepresent their position. Misrepresenting their position is certainly possible, but there is no singular focus like the Median Voter that they must capture. Second, the model is largely robust to minor changes in the position of the interest group. The exact position of the interest group affects the exact amount of the convergent effect, but this position can vary widely and the convergent effect will still be present. It is the position ordering that matters and this is unlikely to change without large changes in the position of the interest group.

preferred given the information they now possess and the anticipated convergent effect of the initiative process.

The result is three additional actions preceding the initiative sub-game discussed previously: nature provides candidates with certain policy positions and valence levels, the median voter chooses which characteristic they will observe, and then the median voter selects a candidate. Figure two is the extensive game form. The equilibrium concept is sub-game perfect Nash, and so the following section will determine the equilibrium behavior through backward induction outlining the actions and utilities in reverse order.

Of some note is that this model presumes there is always a potential initiative-proposing interest group on the opposite side of the political spectrum as the legislature. In other words, wherever the legislature and median voter are located, there is always at least one interest group that makes the median voter the central actor. At most, this assumes one extreme interest group on both sides of the spectrum. As the effect of the initiative process is uni-directional, meaning that it either has no effect or makes policy better for the median voter, violation of this assumption only diminishes, and never reverses, the conclusions below.

**--Insert Figure 2 about here--**

### **Backwards Induction**

#### **Stage 7: Median Voter's Policy Choice**

The last stage of the game presents the Median Voter with the choice between the legislature's proposed policy of  $L^*$  or the interest groups proposal of  $I^*$ . While the Median Voter's choice is a simple selection of the closest policy, this selection acts as a critical constraint to the possible policy positions available to the legislature and the interest group. Without loss of generalization I center the policy space on the median voter at zero. This simplifies the mathematics. In this stage, this normalization means that the Median Voter simply selects the policy with the lowest absolute value.

**Stage 7: Outcome policy =  $\text{MIN}\{|L^*|, |I^*|\}$**

## Stage 6: Interest Group's Policy Proposal Position

The interest group will set  $l^*$  as close to their ideal point as possible subject to the constraint imposed by stage 7. This constraint,  $|l^*| < |L^*|$ , entails that  $l^*$  will exactly reflect the Legislature's distance from the Median Voter on the other side of the Median Voter.<sup>3</sup> This is the interest group minimizing the distance from their ideal point subject to that position being closer to the median voter than that of the Legislature's policy. This position,  $V + (V - L^*)$ , reverts to a simple  $-L^*$  in a policy space normalized such that  $V=0$ , i.e. it is the reflection of the legislature's policy on the other side of the median voter.

**Stage 6:  $l^* = -L^*$**

--Insert Figure 3 about here--

## Stage 5: Interest Group Decides to Propose Initiative or Not

The ideal position for the interest group to propose an initiative is only acted upon if that positioning increases the interest group's utility when the cost of the initiative is considered. That is, the utility gain to the interest group by getting  $l^*$ , instead of settling with  $L^*$ , must sufficiently compensate for the cost of proposing the initiative ( $C$ ). As illustrated in Figure 3, this utility gain is  $2|L^*|$ . Therefore, when  $C > 2|L^*|$  the interest group would expend more by pursuing the initiative than they would gain by achieving it.

**Stage 5: Propose Initiative If and Only If  $C < 2|L^*|$**

## Stage 4: Legislature Sets $L^*$

Ignoring the consideration of cost, the Legislature is in a very straight-forward competition with the Interest Group to propose a policy favored by the Median Voter. With a costless initiative, the only sub-game perfect equilibrium outcome is perfect convergence to the position of the Median Voter ( $L^* = V = 0$ ). Any other proposal by the Legislature would allow the Interest Group to invert that position and select  $-L^*$  which would make the Legislature worse off by the amount  $2|L^*|$ . Inclusion of the cost of the initiative, however, provides room for the Legislature to consume their advantage of moving first. The Legislature's optimal action is to

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<sup>3</sup> This position makes the Median Voter indifferent between the two proposals. Ties go to the last one to set the policy position.

pre-empt an initiative by setting  $L^*$  so that  $2|L^*| = C$ . This position,  $-.5C$  (or  $.5C$  when the preference ordering is inverted from figure 3), is the indifference point for the Interest Group when deciding between proposing an initiative and accepting  $L^*$ . This position keeps policy as close to the Legislature's ideal point while simultaneously pre-empting a counter proposal by the Interest Group.

**Stage 4:  $L^* = -.5C$   
( $.5C$  when preferences are inverted)**

### Stage 3: Voter Selects Candidate Type

At this stage the Median Voter has already chosen to reveal either the candidates' policy position or their valence levels. Therefore, there are two separate choices:

- 1) Having observed the candidates' policy positions, the Median Voter can select the more moderate or more extreme candidate.
- 2) Having observed the candidates' quality, the Median Voter can select the higher-quality or the lower-quality candidate.

For the latter choice, the dominant action is trivial. Since the valence level has no effect on the rest of the game tree and is uncorrelated to the policy position, there are no strategic elements to the choice: the Median Voter's selection of the high-quality candidate is strictly dominant over selection of the low-quality candidate. Since valence acts as a simple additive term to the voters' utility, to select the low-quality candidate is nothing but a direct loss in utility. With a continuous distribution of valence levels the probability of a tie is zero. This makes the selection of the high-quality candidate a strictly dominant strategy.

With regard to policy selection, however, a strategic choice to select an extreme legislature in order to spur an initiative closer to the Median Voter seems plausible but is inaccurate. An extreme legislature only uniquely spurs an initiative if that extreme legislature was more extreme than  $|.5C|$  and the moderate legislature was not. In that case, it is only the extreme legislature that spurs an initiative, but the moderate legislature would be better for the median voter by virtue of being less than  $|.5C|$ . Conversely, when both possible legislatures are more extreme than  $|.5C|$ , then the median voter would be indifferent between the two candidates. Therefore, the choice of the moderate legislature is weakly dominant. All legislative ideal points more extreme than  $|.5C|$ , will all be induced to select their policy at that critical value of  $|.5C|$ . If, however, by selecting the moderate candidate the Median Voter can get a legislature with an

ideal point between less than  $|.5C|$ , then the Legislature will propose their genuine ideal point as  $L^*$ , the Interest Group will forgo proposing an alternative, and the Median Voter will be better off. As such, selection of a moderate Legislature either has no effect (when both candidates are more extreme than  $-.5C$ ) or makes the Median Voter better off (when at least one of the candidates is more moderate than  $|.5C|$ ).

**No Initiative:**

	Policy was Observed		Valence was Observed	
	Select Extreme Candidate	Select Moderate Candidate	Select Low Valence Candidate	Select High Valence Candidate
<b>Policy Utility</b>	$-\text{MAX}\{ P_D ,  P_R \}$	$-\text{MIN}\{ P_D ,  P_R \}$	$-E( P_W )$	$-E( P_W )$
<b>Valence Utility</b>	$E(V_W)$	$E(V_W)$	$\text{MIN}\{V_D, V_R\}$	$\text{MAX}\{V_D, V_R\}$
<b>Total Utility</b>	$-\text{MAX}\{ P_D ,  P_R \} + E(V_W)$	$-\text{MIN}\{ P_D ,  P_R \} + E(V_W)$	$-E( P_W ) + \text{MIN}\{V_D, V_R\}$	$-E( P_W ) + \text{MAX}\{V_D, V_R\}$

$\uparrow \quad < \quad \uparrow \quad \uparrow \quad < \quad \uparrow$

**Policy**<sup>4</sup>

$$-\text{MAX}\{|P_D|, |P_R|\} + E(V_W) < -\text{MIN}\{|P_D|, |P_R|\} + E(V_W)$$

$$-2/3 + 1/2 < -1/3 + 1/2$$

**Valence**

$$-E(|P_W|) + \text{MIN}\{V_D, V_R\} < -E(|P_W|) + \text{MAX}\{V_D, V_R\}$$

$$-1/2 + 1/3 < -1/2 + 2/3$$

If  $|P_D| = |P_R|$  or  $V_D = V_R$  then the Median Voter is indifferent between the extreme versus moderate candidate or low-quality versus high quality candidate. With a continuous probability space this occurs with probability zero. Therefore, without the initiative, selection of the moderate or high quality candidate is strictly dominant.

<sup>4</sup> Proofs of can be found in the appendix.

**With Initiative:**

	Policy was Observed		Valence was Observed	
	Select Extreme Candidate	Select Moderate Candidate	Select Low Valence Candidate	Select High Valence Candidate
<b>Policy Utility</b>	$-\text{MIN}\{.5C, (\text{MAX}\{ P_D ,  P_R \})\}$	$-\text{MIN}\{.5C,  P_D ,  P_R \}$	$-\text{MIN}\{.5C,  P_W \}$	$-\text{MIN}\{.5C,  P_W \}$
<b>Valence Utility</b>	$E(V_W)$	$E(V_W)$	$\text{MIN}\{V_D, V_R\}$	$\text{MAX}\{V_D, V_R\}$
<b>Total Utility</b>	$-\text{MIN}\{.5C, (\text{MAX}\{ P_D ,  P_R \})\} + E(V_W)$	$-\text{MIN}\{.5C,  P_D ,  P_R \} + E(V_W)$	$-\text{MIN}\{.5C,  P_W \} + \text{MIN}\{V_D, V_R\}$	$-\text{MIN}\{.5C,  P_W \} + \text{MAX}\{V_D, V_R\}$



**Policy**

$$-\text{MIN}\{.5C, (\text{MAX}\{|P_D|, |P_R|\})\} + E(V_W) \leq -\text{MIN}\{.5C, |P_D|, |P_R|\} + E(V_W)$$

$$-\text{MIN}\{.5C, (\text{MAX}\{|P_D|, |P_R|\})\} \leq -\text{MIN}\{.5C, |P_D|, |P_R|\}$$

The Median Voter is indifferent between selecting the extreme or moderate candidate when  $.5C < \text{MIN}\{|P_D|, |P_R|\}$ , i.e. *both* candidates are more extreme than the most extreme policy position possible given the presence of the initiative process. Note that this occurrence becomes increasingly likely as the cost of the initiative converges to zero, this exemplifies the general theory: as initiative become easier, legislative policy-making becomes irrelevant. When one or more candidate is less extreme than the initiative-induced policy position, utility is maximized by selecting that candidate. Overall, selection of the moderate candidate is only weakly dominant in the presence of the initiative.

**Valence**

$$-\text{MIN}\{.5C, E(|P_W|)\} + \text{MIN}\{V_D, V_R\} < -\text{MIN}\{.5C, E(|P_W|)\} + \text{MAX}\{V_D, V_R\}$$

$$\text{MIN}\{V_D, V_R\} < \text{MAX}\{V_D, V_R\}$$

$$1/3 < 2/3$$

If  $V_D = V_R$  then the Median Voter is indifferent. As this occurs with probability zero,

selection of the high quality candidate is strictly dominant.

**Stage 3: Median Voter Votes for the Moderate or High-Quality Candidate  
(indifferent to policy positions when both candidates are more extreme than .5C and the initiative is present)**

## Stage 2: Voter Selects Candidate Characteristic to be Revealed

Without the initiative process facilitating ex-post amendments to the policy positions of elected officials, the decision of which characteristic the Median Voter selects to be revealed is a function of the Median Voter's differential valuation and expected values of the candidates' valence & policy position. With equality in expected positions and valuation of valence & policy (as is the baseline model presented herein) the Median Voter in a non-initiative state would be indifferent between observing valence or policy. With the initiative, however, this model predicts that the ex-post circumvention of legislators for policy-making entails ex-ante substitution of observing policy for observing valence. The initiative offers an avenue to affect policy after the election that is missing for the valence element of candidates. Upon election, the voters are stuck with whatever qualities present in the winning candidate. With policy, on the other hand, the policy position of the winning candidate does not simply become the outcome policy position. With the ability to enact policy outside of the legislative arena, the Median Voter has greater tolerance for candidates with extreme policies since those policies are functionally amended after the election.

### **No Initiative:**

	<b>Policy was Observed</b>		<b>Valence was Observed</b>	
	Select Extreme Candidate	Select Moderate Candidate	Select Low Valence Candidate	Select High Valence Candidate
<b>Policy Utility</b>	$-\text{MAX}\{ P_D ,  P_R \}$	$-\text{MIN}\{ P_D ,  P_R \}$	$-E( P_W )$	$-E( P_W )$
<b>Valence Utility</b>	$E(V_W)$	$E(V_W)$	$\text{MIN}\{V_D, V_R\}$	$\text{MAX}\{V_D, V_R\}$
<b>Total Utility</b>	$-\text{MAX}\{ P_D ,  P_R \}$ + $E(V_W)$	$-\text{MIN}\{ P_D ,  P_R \}$ + $E(V_W)$	$-E( P_W )$ + $\text{MIN}\{V_D, V_R\}$	$-E( P_W )$ + $\text{MAX}\{V_D, V_R\}$

↑

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↑

### **Observing Policy vs. Observing Valence**

$$-\text{MIN}\{|P_D|, |P_R|\} + E(V_W) = -E(|P_W|) + \text{MAX}\{V_D, V_R\}$$

$$-1/3 + 1/2 = -1/2 + 2/3$$

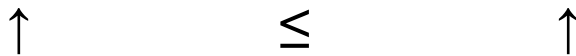
Without the initiative, the Median Voter is indifferent between observing policy positions or valence levels.

This is not the case in the presence of the initiative. The differential element is illustrated in figure 4. This graph shows the utility to the Median Voter (vertical axis) as a function of valence (dashed line), policy without the initiative (blue line), and policy with the initiative (red line). As valence (dashed line) and policy without the initiative (blue line) track each other exactly, the Median Voter is indifferent towards the two. In initiative states, the area between the red line and dashed line indicates the difference in expected utility between observing valence and policy. As the initiative becomes more costly, and the critical value at which an initiative limits the extremity of policy becomes greater, the red line converges with the blue line. This makes intuitive sense: as the initiative becomes excessively costly, the actors in that state will behave more like they are in a state without the initiative entirely.

--Insert Figure 4 here--

**With Initiative:**

	Policy was Observed		Valence was Observed	
	Select Extreme Candidate	Select Moderate Candidate	Select Low Valence Candidate	Select High Valence Candidate
<b>Policy Utility</b>	$-\text{MIN}\{.5C, (\text{MAX}\{ P_D ,  P_R \})\}$	$-\text{MIN}\{.5C,  P_D ,  P_R \}$	$-\text{MIN}\{.5C, E( P_W )\}$	$-\text{MIN}\{.5C, E( P_W )\}$
<b>Valence Utility</b>	$E(V_W)$	$E(V_W)$	$\text{MIN}\{V_D, V_R\}$	$\text{MAX}\{V_D, V_R\}$
<b>Total Utility</b>	$-\text{MIN}\{.5C, (\text{MAX}\{ P_D ,  P_R \})\} + E(V_W)$	$-\text{MIN}\{.5C,  P_D ,  P_R \} + E(V_W)$	$-\text{MIN}\{.5C, E( P_W )\} + \text{MIN}\{V_D, V_R\}$	$-\text{MIN}\{.5C, E( P_W )\} + \text{MAX}\{V_D, V_R\}$



**Observing Policy vs. Observing Valence**

$$-\text{MIN}\{.5C, |P_D|, |P_R|\} + E(V_W) \leq -\text{MIN}\{.5C, E(|P_W|)\} + \text{MAX}\{V_D, V_R\}$$

$$-\text{MIN}\{.5C, |P_D|, |P_R|\} + 1/2 \leq -\text{MIN}\{.5C, E(|P_W|)\} + 2/3$$

$$-\frac{c}{2} + \frac{c^2}{4} - \frac{c^3}{24} + \frac{1}{2} \leq -\frac{c}{2} + \frac{c^2}{8} + \frac{2}{3}$$

$$\frac{c^2}{8} - \frac{c^3}{24} \leq \frac{1}{6}$$

--Insert Figure 4 about here--

This inequality is the fundamental finding of the model. The initiative provides protection from policy divergence, and voters can increase their utility by relying on that protection and choosing to observe candidate quality instead of policy. This differential gain of substitution toward quality is moderated by the cost of the initiative. In the presence of the initiative it is always better to observe quality, with the single exception of when the cost of the initiative is at its maximum. In that case, which is equivalent to non-initiative states, voters are indifferent.

**Stage 2: Median Voter Observes Valence in Initiative State  
(is indifferent in non-initiative states)**

**Stage 1: Nature Selects Candidate Policy Positions & Quality**

For simplicity, I model the policy positions of candidates and their quality levels as being equally likely to exist at every value. While using a uniform distribution makes the utility representations straightforward, the results do not depend upon this modeling choice. To replace the uniform distribution with a normal distribution around the Median Voter (as imperfect Downsian convergence or an Achen (1977) selection model would predict) would simply reduce the probability that an unobserved candidate's policy was beyond the critical value in which the initiative matters. This reduction of the difference in expected utility does not alter the comparative static, however. In an initiative state, selecting valence to be observed still weakly dominates revealing policy positions. If, conversely, policy convergence toward the median from extremist parties is a costly act; and policy positions are therefore more likely to be extremist, observing valence instead of policy is still simply weakly dominant, but the probability that the median voter is indifferent would diminish.

**Model Conclusion**

The fundamental proposition of the model stems from the difference in expected utility between initiative states and non-initiative states for observing policy or valence. As the initiative establishes a boundary for utility loss due to policy divergence; a boundary that is

absent with regard to the personal characteristics of legislators (valence), *voters in initiative states ought to research the valence levels of their candidates instead of their policy positions*. This proposition (from stage 2) is followed by the strictly dominant choice to select the high-quality candidate (stage 3). Together, these establish the basis for a corollary finding: *legislators in initiative states have better valence characteristics than their non-initiative state counterparts*.

The proof of this is straightforward. In non-initiative states the median voter is indifferent between observing policy or valence (stage 2), and when they observe valence they will select the high-quality candidate (stage 5). In initiative states, however, the equilibrium behavior is for the median voter to always observe valence and then proceed to select the high valence candidate. Consistently selecting the high-quality candidate results in higher quality candidates than mixing between the high-quality candidate and the random-quality candidate.

Precisely, the median voter in the non-initiative states is indifferent between observing valence or accepting a random quality (but moderate) candidate. Their expected value for valence is the high-quality candidate half the time, and the random quality candidate the other half of the time. In the initiative state, however, they are expected to observe and select the high-quality candidate with probability one.

**Hypothesis one:** Voters in initiative states will investigate valence characteristics of candidates, and voters in non-initiative states will be indifferent to researching policy or valence.

**Hypothesis two:** Voters in initiative states are better able to discriminate between high and low valence candidates.

**Hypothesis three:** Voters in initiative states will base their votes more heavily upon the valence characteristics of candidates.

**Hypothesis four:** Legislators in initiative states have better valence characteristics.

## **Empirical Implications**

The initial prediction from the model is that voters in initiative states will investigate the personal (or non-policy valence) characteristics of candidates. This initial change in the unobservable internal calculations of the populace begins a chain of events.

Due to the institutional stimulus to seek greater discrimination on valence, and the resulting endogenously developed informational abilities to accomplish this discrimination, voters in initiative states ought to be better able to select high-valence candidates. This

discriminatory ability means that those candidates who hold office in initiative states ought to have more desirable non-policy characteristics. This means candidates in initiative states with superior leadership abilities, experience, or personal attractiveness.

The causal chain constitutes the first half of the implications of the model: an institutional structure allowing an ex-post remedy of policy divergence provides an incentive for voters to focus on non-policy aspects of candidates. The second half of the implications are how such an alteration affects the relationship between constituents and their elected officials.

The existing literature largely agrees that the presence of the initiative ought to breed greater policy convergence. This model is compatible with those findings with one critical caveat. While the initiative may provide structural incentives for a legislature to pass policies closer to the demands of the median voter, the existing models do not account for the *selection* of candidates. This model predicts that voters anticipate the ability to force policy convergence through the initiative, and that voters therefore shift their voting calculus away from the policy positions of candidates in favor of valence. This implies an adverse selection effect in terms of substantive representation, and may thereby lead to greater use of the initiative.

Heretofore, the tradeoff between valence and policy has not been explicit. A zero-sum tradeoff between valence and policy is not absolute. The model only speaks to the voters' research of policy versus valence. This research ability is finite: the amount of time and energy that voters spend seeking information and considering candidates is limited. Voters must make a choice between the types of information they will seek out. The resulting information environment created by the media and the campaigns are similarly limited as to what information they will spend the time and money to provide. Television time, newspaper space, and candidate commercials are all limited commodities, especially in state legislative races. Given this tradeoff in information, the discriminatory ability of voters with regard to policy positions will be diminished as their discrimination of valence increases. Without the initiative, voters are indifferent between research types (discriminatory abilities), but with the initiative they invest in valence discrimination to the detriment of policy discrimination.

The combination of previous models predicting convergence between a state's legislature and a state's median voter, and this model of candidate selection, results in an interesting tension: *less representative legislators are selected to occupy a body facing institutional incentives to be more representative as a whole.*

## **Empirical Tests**

At its core, this theory is quite simple: voters have two sets of considerations when voting for candidates (policy & valence), and exogenous satisfaction of policy diminishes the need to expend the costs to satisfy their policy demands in the selection stage. This entails two different categories of hypotheses: voting behavior (hypothesis three) and candidate characteristics (hypothesis 4).

<b><u>Hypothesis</u></b>	<b><u>Empirics</u></b>	<b><u>Description</u></b>	<b><u>Representation</u></b>	<b><u>Source</u></b>
Hypothesis 4:	Political Corruption	Convictions	Symbolic	Author
Characteristics	Descriptive Representation	Gender	Descriptive	Boehmke/Osborn
	Attractiveness	Facial	Symbolic	Spezio et al./
Hypothesis 3:	Competence	Characteristics	Substantive	Author
Behavior	Economic Voting	Re-election Factors	Substantive	Bali & Davis
	Voting Correctly	Voting Congruence	Substantive	Lau et al.

### **Political Corruption**

The first candidate characteristic used to test the model is corruption. As the theory predicts a greater interest/ability in selecting candidates for their personal qualities, one element of this is the candidates' honesty, or trustworthiness. If voters are shifting their voting calculus toward personal characteristics, they ought to select those candidates that are more honest, and therefore less corrupt. Greater use of the initiative should therefore correlate with reduced levels of corruption.

As a parallel, any electoral model of substantive representation is going to include two elements: initial selection of a representative, and periodic elections to hold them accountable to the selection criteria. While a large set of literature (too large for this paper) debates how effectual these two elements are, a common element is that the extreme penalty is the loss of office. Political corruption, on the other hand, has penalties far more severe. Even without successful prosecution, investigations or intonation of corruption can affect electoral prospects (Peters & Welch 1980, Ragsdale & Cook 1987, Krasno and Green 1988), and convictions entail heavy fines and likely time in prison. Combined with a position that is designed to be in the public's eye, and with multiple layers of prosecutorial bodies, political corruption is not a crime structured to have a low probability of detection. Given the protections that exist against

corruption and the fact that corruption still exists, it is not surprising how often corruption is considered inevitable and omnipresent (Klitgaard 1988).

A strong dose of inevitability is present in one of the dominant factors considered in the study of corruption: there is simply a culture of corruption (Peters & Welch 1978, Johnston 1983, and Fisman & Miguel 2006) in a certain country, region, or people. As this factor is not amenable for practical action, the majority of the literature focuses on either what increases officials' the demand for corruption<sup>5</sup>, or what increases the probability of detection.<sup>6</sup>

The typical theorized cause for an increase in demand for corruption is low wages. Low salaries increase the comparative gain for graft, bribery etc, (Heidenheimer 1990, Van Rijckeghem & Weder 2001, Becker & Stigler 1974, Mookherjee & Png 1995, di Tella & Schargrodsky 2003). While this side of the equation is unsurprisingly lacking in diversity, the factors thought to increase the probability of detection are quite diverse.

The income and education levels of the populace (Meier & Holbrook 1992, Glaeser & Saks 2006, Goel & Nelson 1998, Adserà et al. 2003, and Boylan & Long 2003) are quite typically thought to prevent corruption. This is income and education of the populace, not of the government officials. This increased ability of the populace to detect corruption is more directly captured by measures of political engagement (Maxwell & Winters 2004).<sup>7</sup> One of the difficulties of political corruption is that the actor is in the public glare, but the level of this glare is not the same in all places. While such general measures are fairly indirect, they are easy to collect. More direct measures of the ability to monitor corruption are more difficult. Meier & Holbrook (1992) attempt a fairly direct measurement of detection ability through the number of computer facilities available. While this exact measure would probably only be valid for a short period of time (after computers were used in legislatures, but before they were used so often they would be considered trivial), it demonstrates the difficulty with determining enforcement capabilities. As one consequence of corruption is loss of office, term limits are thought to increase corruption due to end-period effects (Becker & Stigler 1974). When an official is about to be term-limited out of office, loss of office is no longer a viable punishment.

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<sup>5</sup> A culture of corruption would fit within this type of literature.

<sup>6</sup> Meier & Holbrook (1992) consider four categories (historical/cultural, political, structural, and bureaucratic), but each instantiation of those categories are argued as factors affecting demand or detection.

<sup>7</sup> Meier & Holbrook capture this with measurements of voter turnout, competition, and campaign finance reporting requirements.

What is overwhelmingly absent in the literature on corruption is inclusion of the first prong of representation: selection.<sup>8</sup> In effect, we are witnessing the election of proto-criminals and then considering how to prevent their criminal acts. This paper seeks to demonstrate that voters are able to make better selections when given the proper incentives. Specifically, when voters are not forced to bundle a candidate's policy positions and personal characteristics in the same basket, these voters will be increasingly able to select-out candidates more likely to be corrupt. I test this theory using Federal convictions for political corruption.

The Department of Justice's Public Integrity Section prosecutes political corruption. It is critical that these convictions are by the Federal Government, as state convictions would likely be inversely associated with corruption.<sup>9</sup> This measure should be exogenous to the corruption within a state. Similarly, this measure ought to provide a uniform measure of underlying corruption as it is one agency with its own internal norms, promotion, pay and resources. Studies of corruption within the United States typically use this measure, while internationally comparative studies usually use elite surveys.<sup>10</sup>

Initially, these data demonstrate that political corruption varies considerably more between states than within states. This pattern indicates that states maintain some base-line level of corruption in spite of repeated demonstrations of the ability to hold elected officials accountable through criminal prosecution. This implies there is some consistent element within states that leads to repeated selection of officials willing and able to seek personal gain from their office.

Overall, the test of the model is if the initiative (or high use of the initiative) decreases the number of Federal convictions. The available data is for years between 1976 and 2007. Over this time period, there are 848 convictions in non-initiative states and 752 convictions in initiative states ( $p = .0874$ ). This marginally insignificant bivariate test is robust to a wide variety of multivariate tests. As the dependent variable is the count of convictions within a state-year, I estimate a negative binomial model (Cameron and Trivedi 1998; Long 1997). Overall, with

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<sup>8</sup> A good example of current models of selection effects comes from Besley & McLaren (1993). They find that there are certain wage levels in which only dishonest actors will seek the position.

<sup>9</sup> I.e. corrupt states don't prosecute corruption by virtue of their corruption.

<sup>10</sup> Internationally there is obviously no equivalent of an overarching body capable of such enforcement so there is no real alternative, but there is some disagreement as to which is best within the United States. Boylan & Long (2003) argue against the use of convictions in favor of survey based indicators (their survey is the only state-level survey on corruption I am aware of), while Alt & Lassen (2008) find no difference between the two.

average levels of initiatives on the ballot, the number of corruption convictions is cut in half. Additional model specifications and description of the variables can be found in table 2.

--Insert Table 1 about here--

--Insert Figure 6 about here--

### **Descriptive Representation**

The second candidate characteristic providing evidence of substitution toward personal-voting is descriptive representation with regard to gender. Drawing from an unpublished piece by Boehmke et al., they find that heavy use of the initiative substantially increases the number of women elected to office. This is evidence of an increase of descriptive representation as predicted by the model. When concerns about policy are diminished, voting preferences return to the symbolic role of representatives and results in a legislative profile that looks more similar to constituent demographics. With gender, this means a female proportion of the legislature closer to 50%.

--Insert Figure 7 about here--

### **Appearance**

Like selection of more honest/trustworthy (less corrupt) candidates, another form of symbolic representation is the appearance of a candidate. While appearance is often speculated as a factor in candidate selection (Jacobson 1989, Squire 1992, Squire & Smith 1996), actual measurement is atypical, but far from non-existent (see Spezio et al. 2008, Atkinson et al. N.D., Todorov et al. 2005, Berggren et al. 2006, Ballew II & Todorov 2007, Antonakis & Dalgas 2009 for examples). These researchers have consistently found that with nothing more than a picture, respondents will consistently select winners of real elections simply by choosing the more competent or attractive of two candidates. This paper is thought to be the first to posit that this effect is influenced by political institutions.

Spezio et al. (2008) generously provided their data of ratings of legislative candidates, which just needed the addition of contextual data. Attractiveness and competence are the common theme in the previous studies, and this follows suit. As the model predicts that voters in initiative states will substitute away from policy concerns and towards symbolic factors, there

should be a different effect on attractiveness and competence. Voters should be more sensitive to attractiveness, but less sensitive to competence (an indicator of substantive abilities). This is exactly what the data show.

**--Insert Figure 8 about here--**

Perhaps surprisingly, it turns out that voters are consistently more likely to select the less attractive candidate. It is probably the case that voters are voting for those candidates who look like them<sup>11</sup>, not like supermodels. If it is the case that political candidates are, as a class, more attractive than the general populace, then selecting the less attractive of the two candidates has echoes of a populist tone. Although the direction of preference is not what is expected, the theory is about degree, not direction. Voters overall happen to prefer more normal looking candidates, but this effect is amplified in initiative states and attenuated in non-initiative states (not statistically significant). Conversely, while competence increases the probability of election for all candidates, this effect is strong in non-initiative states (where voters entirely depend on those candidate/legislators for their policy), but not statistically significant for initiative states.

A further discriminating test of the theory is through the background of the candidates. An institution affecting the state policy-making process should have its greatest effect on state legislators. Therefore, I coded the political history of the candidates to determine if they had served in the state legislature. Given the dyadic nature of the data, there are three types of contests: dual state legislative history, mixed state legislative history, and no state legislative history. Put simply, the effect of the initiative should be strongest for races with a dual state legislative history and weakest (or non-existent) for races with no state legislative history.

**--Insert Figure 9 about here--**

The results are as expected for attractiveness. The race in which neither candidate has a background in a state legislature behaves like a non-initiative state race, while a race with both candidates hailing from the state legislature amplifies the previous finding. The mixed case is properly between the other two.

**--Insert Figure 10 about here--**

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<sup>11</sup> Note that researchers at the Stanford Political Communication Lab find that (male) subjects prefer candidates whose images were partially morphed with the subject's own image. Bailenson et. al N.D. "Transformed Facial Similarity as a Political Cue: A Preliminary Investigation"  
<http://pcl.stanford.edu/common/docs/research/bailenson/2005/similaritycue.pdf>

The results are the same for competence. Voters in non-initiate states reward competent-looking candidates, while voters in initiative states don't seem to care at all: a pattern that bears out when extended to the candidates' political background.

### **Economic Voting**

While the non-policy factors of corruption, descriptive representation, and attractiveness were correctly predicted to be more important in initiative states; there are two additional policy factors that should be less important initiative states. The first policy oriented factor was how competent a candidate looked, the last two are economic voting and voting "correctly." Evidence for these two findings comes from previous studies by different authors, both of which explicitly label these findings inexplicable puzzles.

The first puzzle comes from Bali and Davis' 2007 "One More Piece to Make Us Puzzle: The Initiative Process and Legislators' Reelection Chances." Due to the strong belief that use of the initiative signals discontent with the legislature, Bali and Davis expected that heavy use of the initiative would correlate with poor electoral prospects for incumbents. If the legislature was doing its job properly, the initiative would not be needed. Contrary to this strong expectation, Bali and Davis discover two puzzling findings. First, use of the initiative correlates to a higher probability of re-election for incumbents. Second, and more importantly, the initiative insulates legislators from the effects of economic swings.

"As the economic conditions go from worst to best, or from 0 to 1, the electoral chances of a legislator of the same party as the president improve by 14.8 percentage points without the initiative, and by only 8.5 percentage points with the initiative... (W)hen the legislator is of the opposite party of the president. In this case, as economic conditions improve, the legislators' reelection chances decrease, but the decrease is again steeper for those without the initiative process, by around 4 percentage points."

If voters are identifying two routes to policy-making, and substituting between the two, diminished punishment for disliked policies is a direct corollary of the voter's re-focus onto the personal characteristics of candidates. The initiative places greater responsibility for the policy arena on the shoulders of voters, and relieves that responsibility from elected officials. So while the initiative is most likely indicative of discontent, the initiative also provides an opportunity to circumvent the legislature and diminish the need to punish them at the ballot box for policy

failures. Voters are taking responsibility for policy themselves, and are more concerned with the symbolic roles that legislators play.

The second puzzle, and perhaps even more direct of a test, comes from Lau et al. (2008) revisiting their “voting correctly” model with data from the ANES. This survey data is used to estimate the voters’ policy position, and then is combined with estimated policy positions of candidates. Unsurprisingly, older, attentive and educated voters are more likely to be able to translate their personal policy position into a “correct” vote, in the sense that they are better able to select the candidate that is ideologically closer to them. The puzzle arises, however, with inclusion of referenda in the model.

The most interesting effect involves the interaction of education and the number of referenda on a state’s ballot. Education has a positive effect on the probability of a correct vote in states where there are no referenda on the ballot—about a 10% increase. The effect of education is still positive, albeit cut in half, at mean levels of state referenda. But as we move toward the upper end of number of referenda on the ballot (e.g., states like California), the effect of education actually reverses quite strongly so that the most educated have a 45% lower probability of voting correctly than the least educated.

**--Insert Figure 11 about here--**

As predicted by this theory of circumvention, when voters have the option of bypassing the legislature, their votes will be less dependent upon the policy position of candidates. Voters are substituting the personal for the policy in their voting behavior.

## **Conclusion**

While the design of our political institutional arrangements is vital to translate underlying normative conceptions of democracy into practice, the analyses of the effects of these institutions are often quite difficult. While the extant literature on the initiative has looked at numerous different effects, there has been little agreement. This lack of agreement is likely the result of the seemingly incoherent effects that institutional change can create. To change the ‘rules of the game’ is to initiate a complex set of reactions. This project grapples with this by returning to the basic questions: What is the role of the representative? Why do voters vote? What does the

initiative do? When those basic questions and answers are formalized into one mathematical model, the seemingly chaotic effects are brought under rein.

In this case, full examination of the process requires analyses of how the institutional process effects competition between interest groups and legislatures over public policy. The context that interest groups operate within, however, is affected by voters balancing their demands for substantive and descriptive/symbolic representation. While the empirical analysis of this substitution is just beginning, the effects are as surprising as they are diverse. Previously inexplicable puzzles on retrospective voting and “correct voting” are explained; seemingly unrelated findings by other scholars on descriptive representation contribute additional empirical evidence, and novel studies on the facial characteristics and corruption add further confirmatory evidence. All together, this package of diverse findings and methods provides credible evidence that the initiative provides an institutional impetus for substitution away from substantive representation to symbolic and descriptive representation.

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**Table 1.**

Variable	Description	Mean	SD	Min	Max
Number of Convictions	Convictions for political corruption by the Public Integrity Section of the Department of Justice.	14.97	21.61	0	155
Number of Initiatives	Number of Initiatives that appeared on the ballot on that year or the last election. Mean etc. provided for initiative states.	1.37	2.48	0	18
Initiative State	Indicator for the presence of the initiative in that state.	0.47	0.50	0	1
State Population	Log of population/10K	5.75	1.01	3.68	8.20
Citizen Ideology (Berry)	See Berry (1998)	47.09	15.17	8.45	95.83
Turnout (VAP)	Voting Age Population from previous Presidential election.	54.58	7.33	36.51	73.87
Legislative Prof (Squire)	See Squire (2007)	0.20	0.12	0.02	0.66
Term Limits (impact)	Indicator that term limits are in effect.	0.06	0.25	0	1
Herfindahl Index (normalized)	Where r is the proportion of the population of race i. This corrects for distortions generated by changes in the coding of race by the census.	0.62	0.20	0.16	0.98
Education (% greater than HS)	Current Population Survey	0.79	0.04	0.67	0.88
State Employees	Census of Governments	9.79	8.15	1.22	47.96
Volunteer Rate	Volunteer supplemental from the Current Population Survey	0.31	0.06	0.17	0.50
Year	Counter: Year-1976	15.50	9.24	0	31
Year Squared	Above counter squared.	325.50	296.27	0	961

**Table 2.**

Number of Convictions Negative Binomial Regression				
Number of Initiatives	-0.0505**	-0.0621***	-0.0836***	-0.0991*
	(0.0233)	(0.0207)	(0.0213)	(0.0522)
Initiative State	-0.0286	-0.00618	0.293**	0.0975
	(0.123)	(0.137)	(0.146)	(0.218)
State Population	1.005***	0.887***	0.684***	0.529**
	(0.0597)	(0.0788)	(0.187)	(0.216)
Citizen Ideology (Berry)		-0.00393	0.00322	-0.00315
		(0.00379)	(0.00469)	(0.00620)
Turnout (VAP)		-0.00819	0.0195	0.00729
		(0.00897)	(0.0121)	(0.0169)
Legislative Prof (Squire)		0.558	-0.221	-0.797
		(0.668)	(0.891)	(1.010)
Term Limits (impact)		0.207	-0.141	0.0875
		(0.204)	(0.206)	(0.256)
Herfindahl Index (normalized)		-0.836**	-0.648	0.527
		(0.426)	(0.502)	(0.508)
Education (% greater than HS)			-6.218***	-0.876
			(1.888)	(3.060)
State Employees			0.0433	0.0566*
			(0.0300)	(0.0325)
Volunteer Rate				-4.420***
				(1.620)
Year	0.0995***	0.124***	0.177	-1.899
	(0.0166)	(0.0167)	(0.256)	(6.326)
Year Squared	-0.00234***	-0.00352***	-0.00314	0.0357
	(0.000438)	(0.000560)	(0.00552)	(0.117)
Constant	-4.369***	-2.718***	-0.414	25.68
	(0.381)	(0.680)	(3.432)	(85.27)
Dispersion Parameter	-0.379***	-0.446***	-0.870***	-1.156***
	(0.111)	(0.106)	(0.137)	(0.207)
Observations	1600	1450	550	150
Valid Years	1976-2007	1976-2004	1993-2004	2002-2004

Standard errors (in parentheses) clustered by state. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



# Number of Convictions

## Negative Binomial Regression

Number of Initiatives	-0.0505** (0.0233)	-0.0523** (0.0239)	-0.0540** (0.0221)	-0.0587*** (0.0217)	-0.0612*** (0.0221)	-0.0621*** (0.0207)	-0.0836*** (0.0213)	-0.0991** (0.0522)
Initiative State	-0.0286 (0.123)	-0.0348 (0.120)	0.0416 (0.129)	-0.00462 (0.140)	-0.0248 (0.145)	-0.00618 (0.137)	0.293** (0.146)	0.0975 (0.218)
State Population	1.005*** (0.0597)	1.024*** (0.0592)	0.980*** (0.0632)	0.918*** (0.0858)	0.913*** (0.0868)	0.887*** (0.0788)	0.684*** (0.187)	0.529** (0.216)
Citizen Ideology (Berry)	-0.00542* (0.00320)	-0.00542* (0.00320)	-0.00326 (0.00316)	-0.00565 (0.00396)	-0.00579 (0.00399)	-0.00393 (0.00379)	0.00322 (0.00469)	-0.00315 (0.00620)
Turnout (VAP)			-0.0201** (0.00865)	-0.0199** (0.00883)	-0.0201** (0.00885)	-0.00819 (0.00897)	0.0195 (0.0121)	0.00729 (0.0169)
Legislative Prof (Squire)			0.795 (0.700)	0.795 (0.700)	0.824 (0.710)	0.558 (0.668)	-0.221 (0.891)	-0.797 (1.010)
Term Limits (impact)					0.207 (0.203)	0.207 (0.204)	-0.141 (0.206)	0.0875 (0.256)
Herfindahl Index (normalized)						-0.836** (0.426)	-0.648 (0.502)	0.527 (0.508)
Education (% greater than HS)							-6.218*** (1.888)	-0.876 (3.060)
State Employees							0.0433 (0.0300)	0.0566* (0.0325)
Volunteer Rate								-4.420*** (1.620)
Year	0.0995*** (0.0166)	0.129*** (0.0176)	0.125*** (0.0178)	0.127*** (0.0174)	0.131*** (0.0177)	0.124*** (0.0167)	0.177 (0.256)	-1.899 (6.326)
Year Squared	-0.00234*** (0.000438)	-0.00350*** (0.000515)	-0.00340*** (0.000523)	-0.00339*** (0.000519)	-0.00356*** (0.000541)	-0.00352*** (0.000560)	-0.00314 (0.00552)	0.0357 (0.117)
Constant	-4.369*** (0.381)	-4.361*** (0.409)	-3.130*** (0.642)	-2.837*** (0.718)	-2.805*** (0.725)	-2.718*** (0.680)	-0.414 (3.432)	25.68 (85.27)
Dispersion Parameter	-0.379*** (0.111)	-0.376*** (0.113)	-0.401*** (0.111)	-0.407*** (0.109)	-0.409*** (0.109)	-0.446*** (0.106)	-0.870*** (0.137)	-1.156*** (0.207)
Observations	1600	1450	1450	1450	1450	1450	550	150
Valid Years	1976-2007	1976-2004	1976-2004	1976-2004	1976-2004	1976-2004	1993-2004	2002-2004

Standard errors (in parentheses) clustered by state. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Number of Convictions

## Negative Binomial Regression

Unconditional Fixed Effects with lagged dependent variable and lag of number of initiatives (SE clustered by state)

Convictions Lag	0.012*** (0.0026)	0.012*** (0.0027)	0.0116*** (0.0027)	0.011*** (0.0027)	0.011*** (0.0027)	<b>0.011***</b> <b>(0.0028)</b>	0.0064*** (0.0018)	-0.009** (0.00408)
Initiative State	0.0450 (0.0591)	0.180*** (0.0643)	0.172*** (0.0660)	0.205*** (0.0677)	0.228*** (0.0725)	<b>0.250***</b> <b>(0.0868)</b>	-7.277 (7.579)	101.4 (90.62)
Number of Initiatives	-0.0353* (0.0202)	-0.0429* (0.0225)	-0.0427* (0.0224)	-0.0403* (0.0213)	-0.0419* (0.0224)	<b>-0.0402*</b> <b>(0.0213)</b>	-0.0240 (0.0197)	0.00825 (0.0249)
Number of Initiatives (Lag)	-0.0285* (0.0149)	-0.0403** (0.0189)	-0.0402** (0.0188)	-0.0367** (0.0179)	-0.0375** (0.0183)	<b>-0.0394**</b> <b>(0.0179)</b>	-0.0143 (0.0243)	-0.0195 (0.0524)
State Population	0.876** (0.419)	1.085** (0.468)	1.091** (0.468)	1.058** (0.474)	1.027** (0.465)	<b>0.876*</b> <b>(0.498)</b>	0.991 (1.143)	-11.00 (10.22)
Ideology (Berry)		-0.001 (0.0047)	-0.001 (0.0047)	-0.0014 (0.0047)	-0.0016 (0.0047)	<b>-0.0017</b> <b>(0.0048)</b>	-0.0014 (0.006)	-0.00623 (0.0122)
Turnout (VAP)			-0.0037 (0.0069)	-0.0025 (0.0068)	-0.0021 (0.0067)	<b>-0.0014</b> <b>(0.0064)</b>	0.0167 (0.0133)	-0.0237 (0.0357)
Legislative Prof (Squire)				1.395** (0.642)	1.504** (0.659)	<b>1.608**</b> <b>(0.687)</b>	-0.157 (1.396)	-0.838 (5.486)
Term Limits (impact)					0.167 (0.144)	<b>0.168</b> <b>(0.142)</b>	0.0387 (0.190)	-0.512*** (0.155)
Herfindahl Index (normalized)						<b>-0.160</b> <b>(0.850)</b>	0.354 (1.428)	-13.33 (24.70)
Education (% greater than HS)							-0.595 (2.237)	0.497 (6.430)
State Employees							0.00782 (0.0369)	0.0983 (0.329)
Year	0.0773*** (0.0149)	0.102*** (0.0170)	0.102*** (0.0171)	0.102*** (0.0173)	0.106*** (0.0176)	<b>0.100***</b> <b>(0.0170)</b>	0.140 (0.249)	-3.707 (5.908)
Year Squared	-0.0018*** (0.0004)	-0.0029*** (0.0005)	-0.0028*** (0.0005)	-0.0028*** (0.0005)	-0.0029*** (0.0005)	<b>-0.0028***</b> <b>(0.0005)</b>	-0.00268 (0.0053)	0.0709 (0.111)
Volunteer Rate								2.181 (3.901)
Inalpha	-0.922*** (0.108)	-0.907*** (0.114)	-0.907*** (0.114)	-0.915*** (0.114)	-0.917*** (0.114)	<b>-0.942***</b> <b>(0.113)</b>	-1.905*** (0.236)	-3.447*** (0.562)
Observations	1550	1400	1400	1400	1400	<b>1350</b>	550	150

### State Dummies Omitted

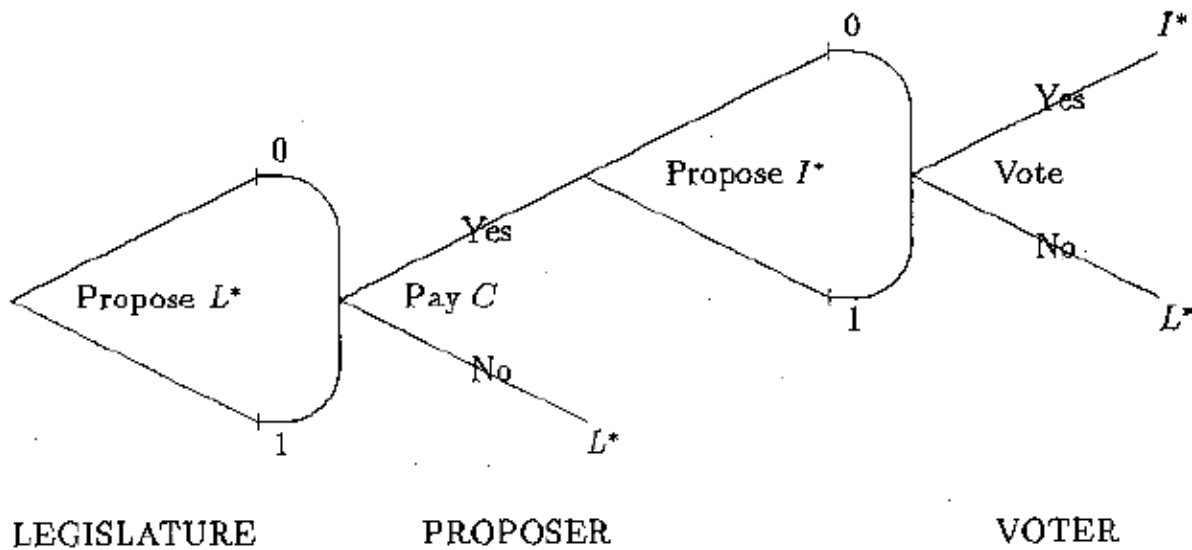
Standard errors clustered by state in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Hausman test strongly indicates that fixed effects are correct.

Replicated from Gerber (1996)

**Fig. 1. Extensive Form Game**



**Figure 2.**

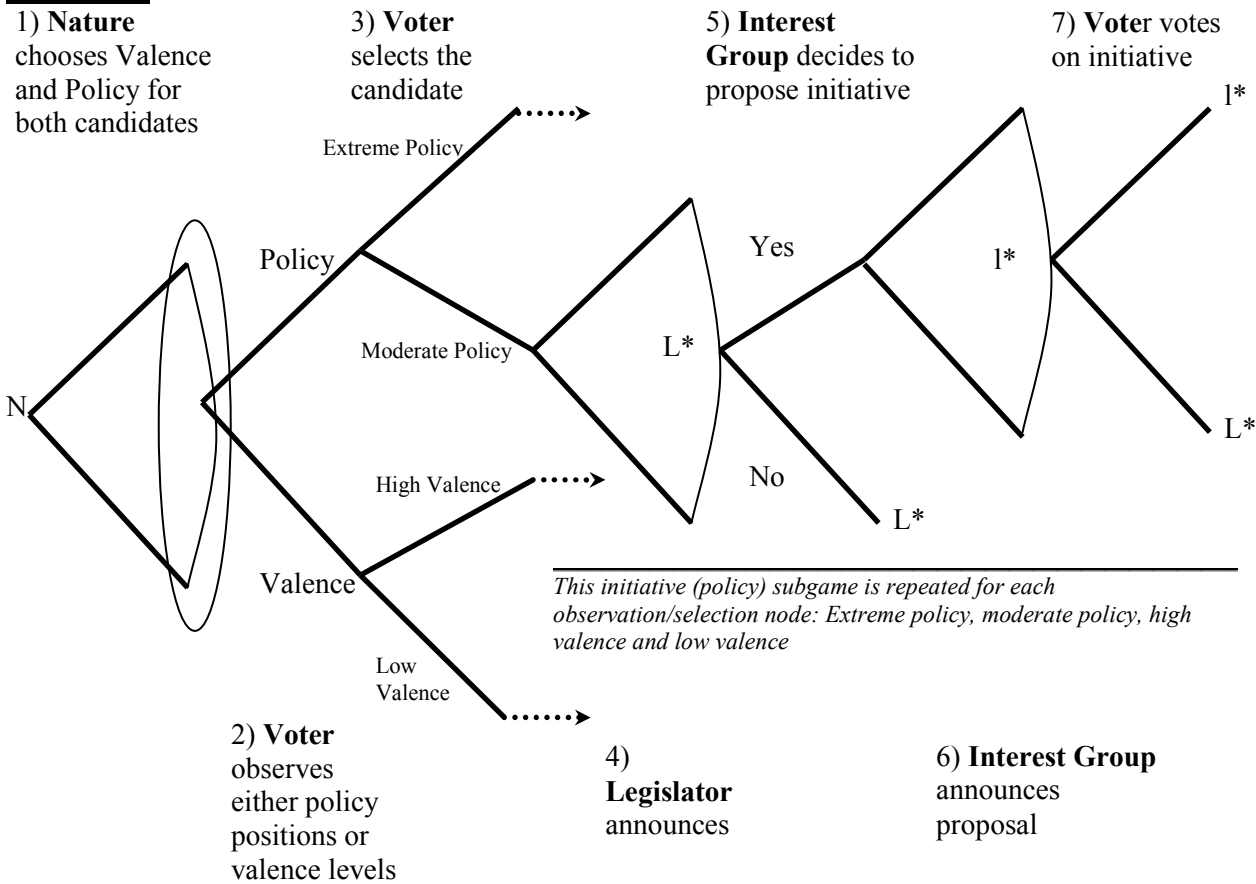


Figure 3.

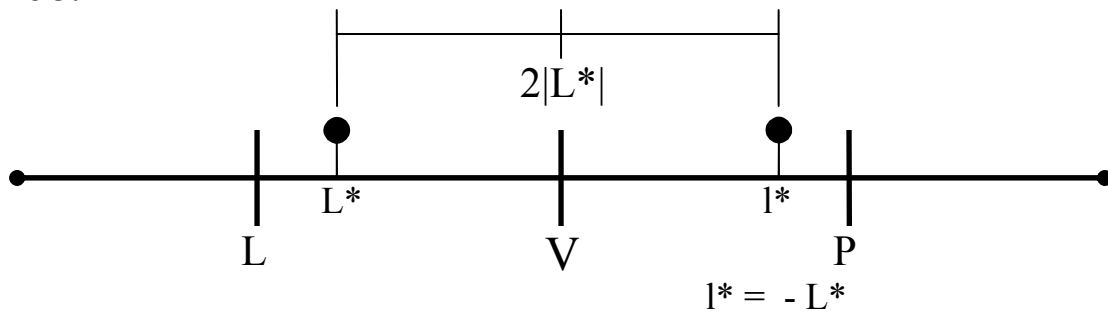


Figure 4.

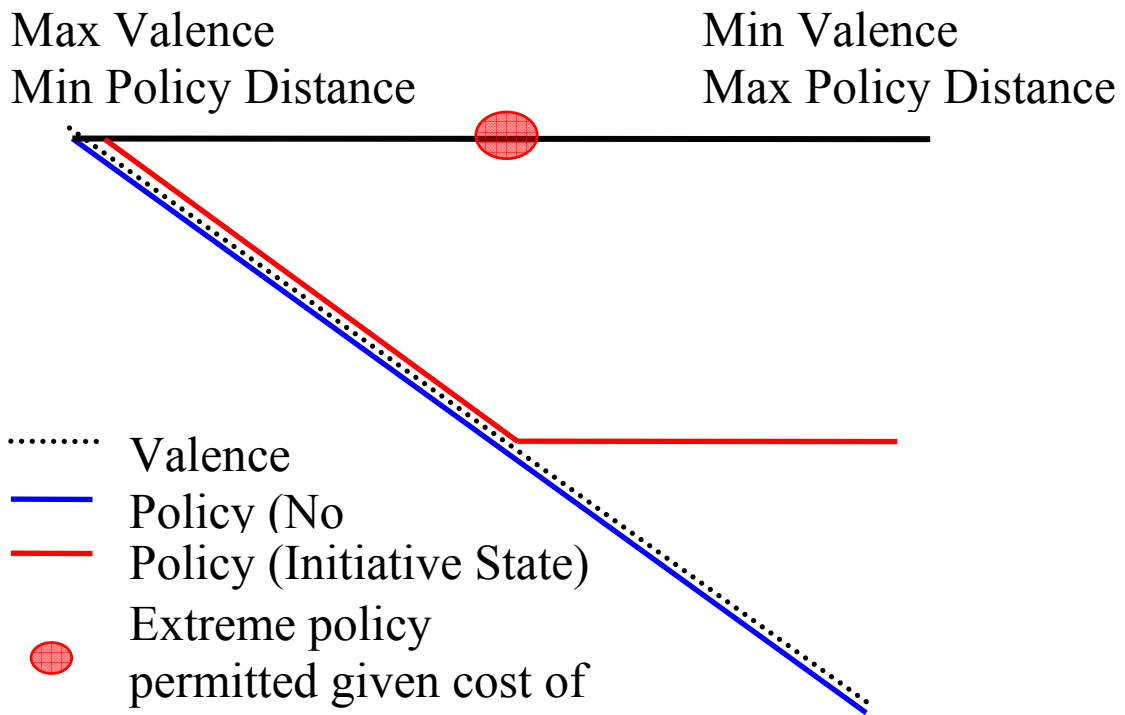
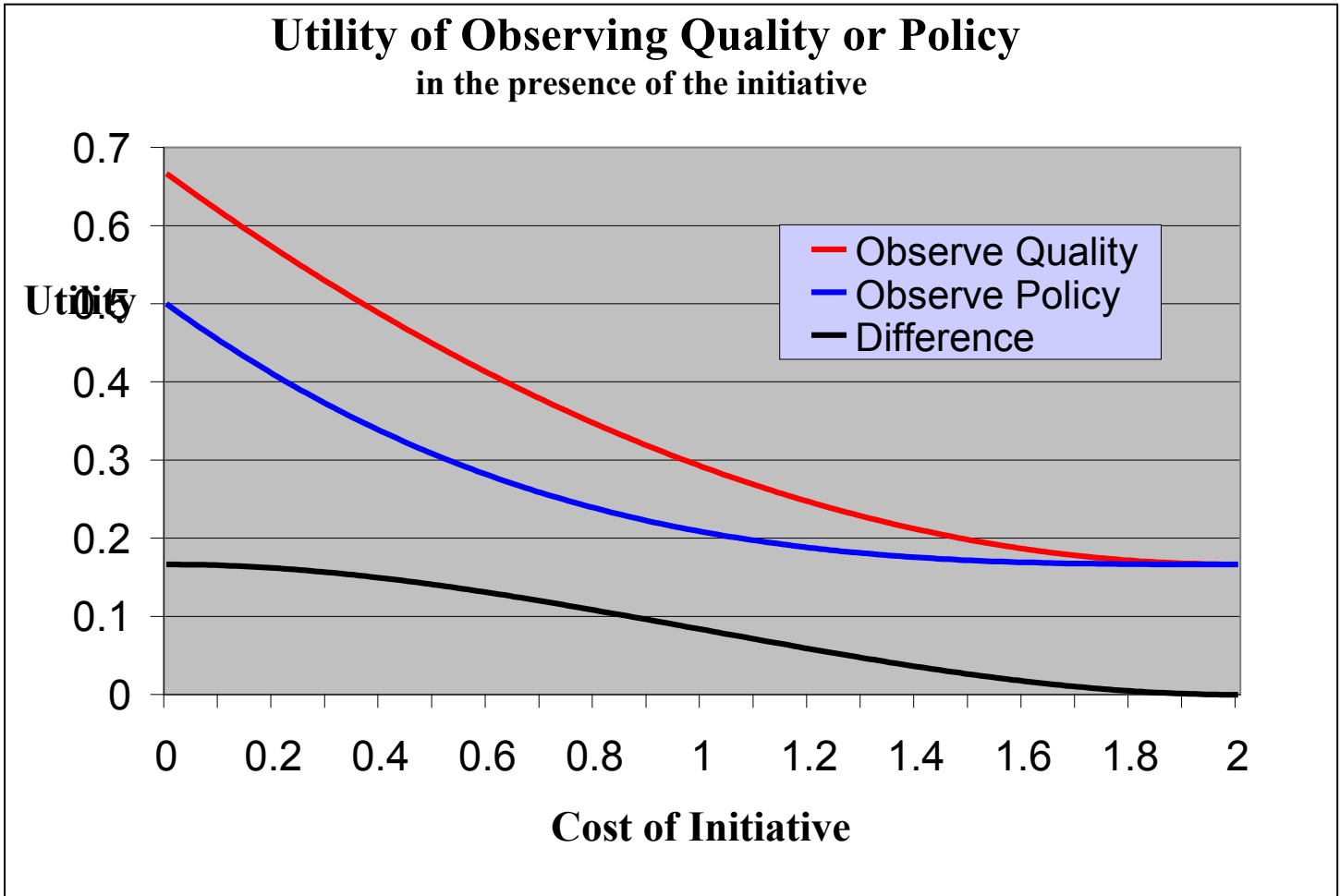
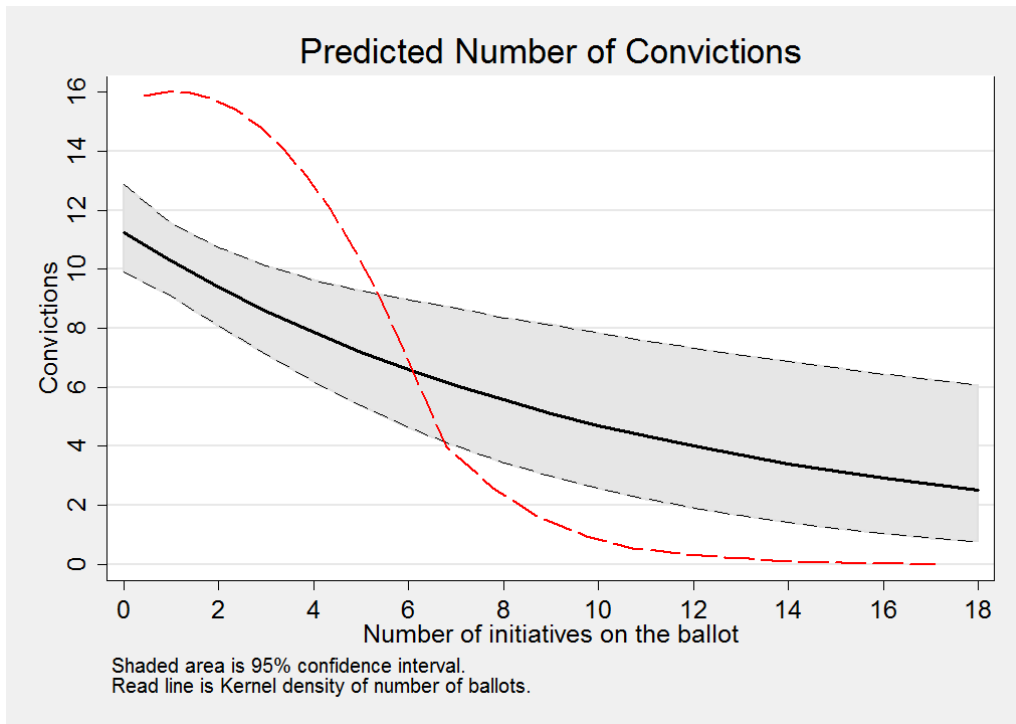


Figure 5.

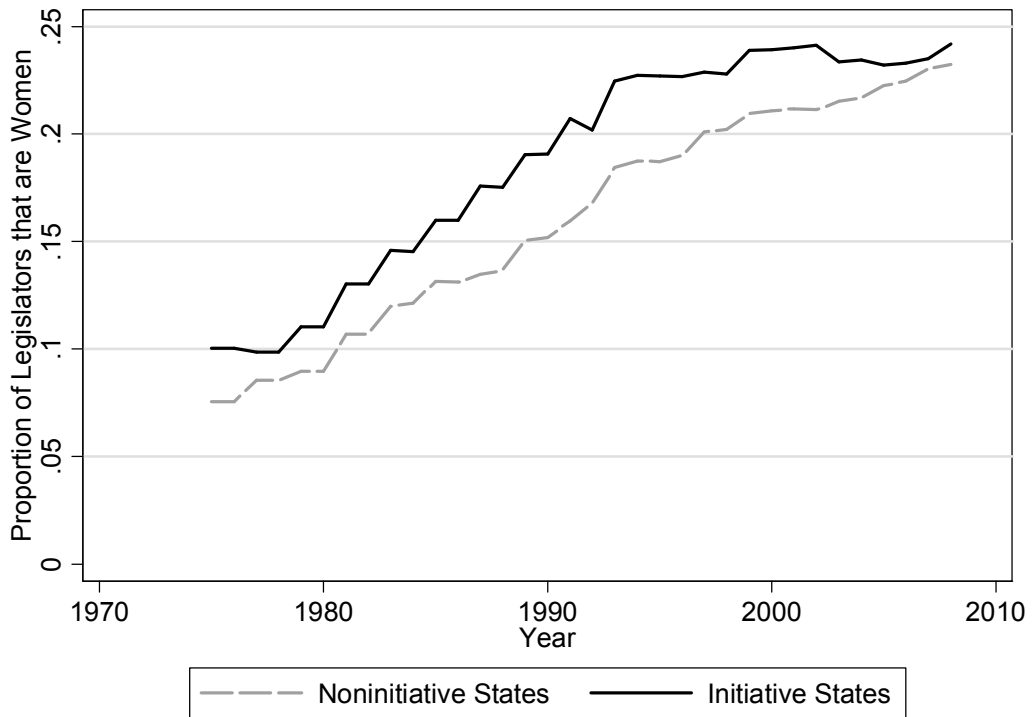


**Figure 6.**

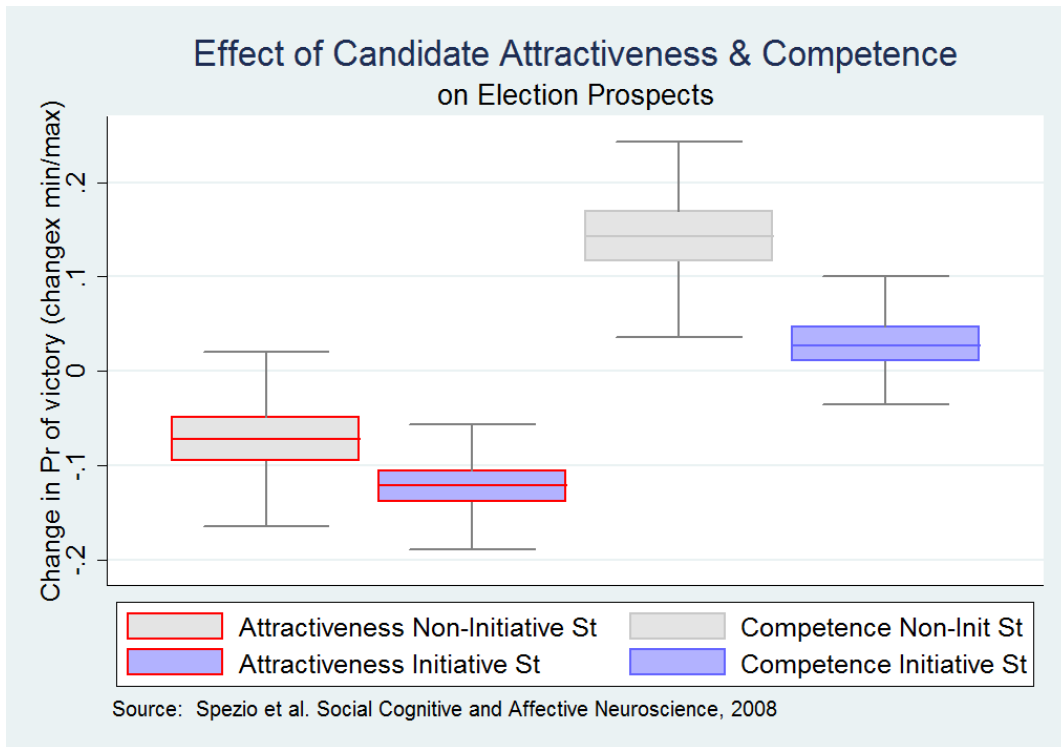


**Figure 7.**

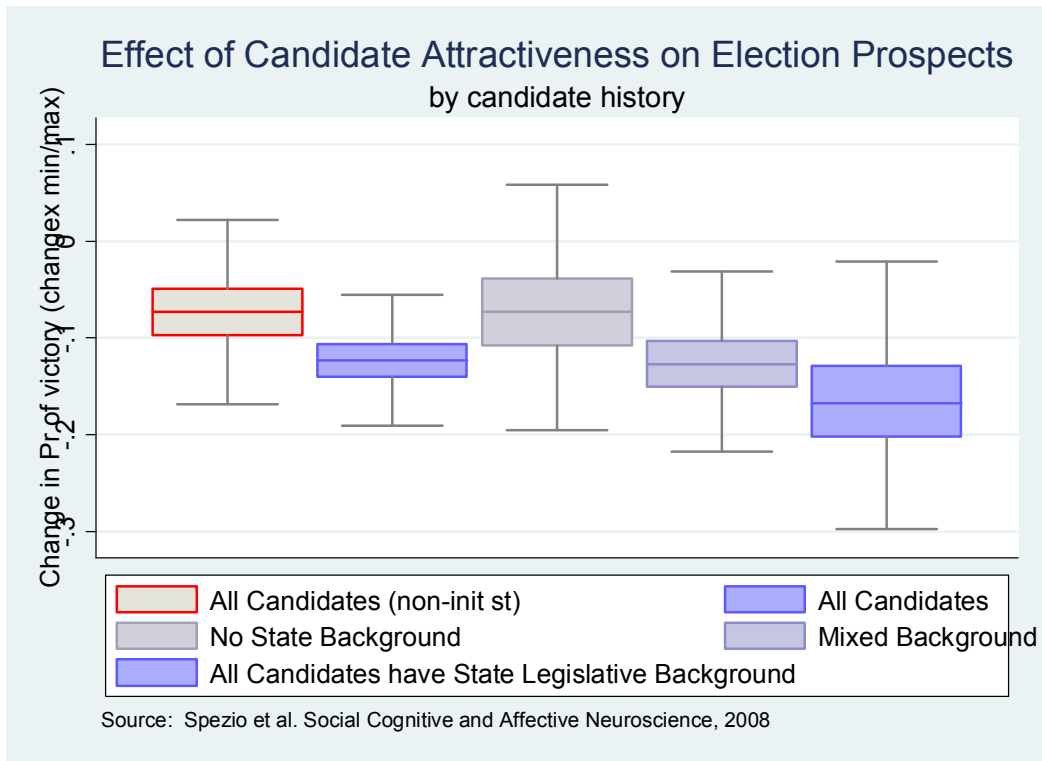
**Women as a Proportion of All State Legislators, 1975-2008**



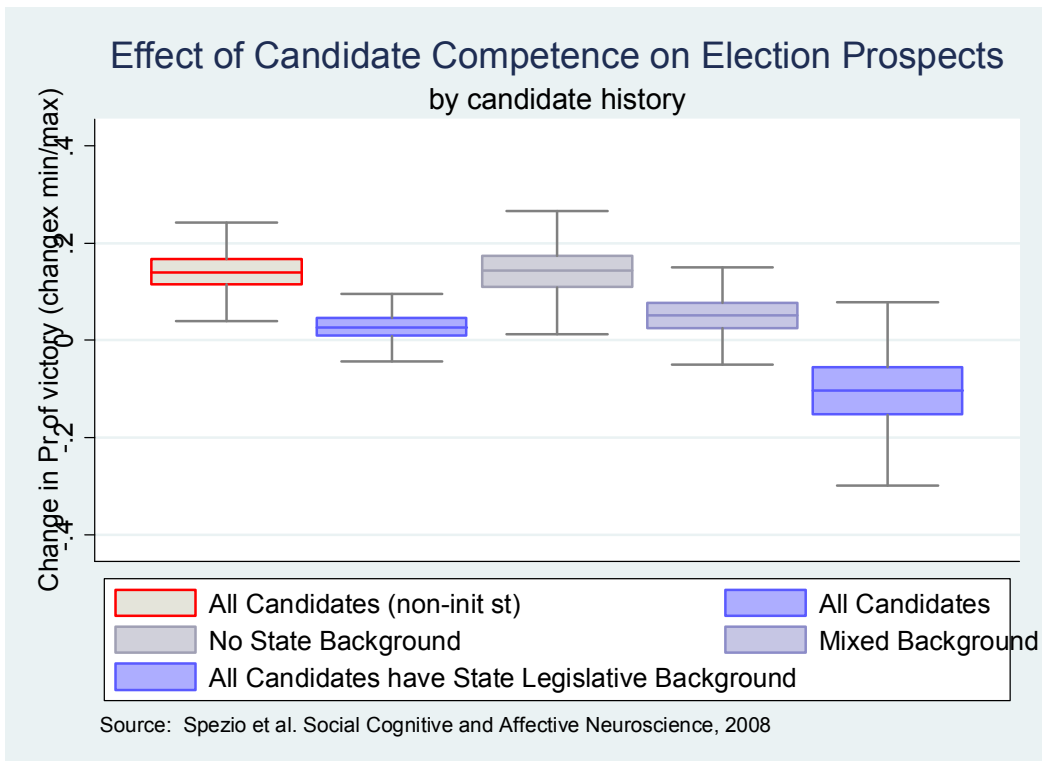
**Figure 8.**



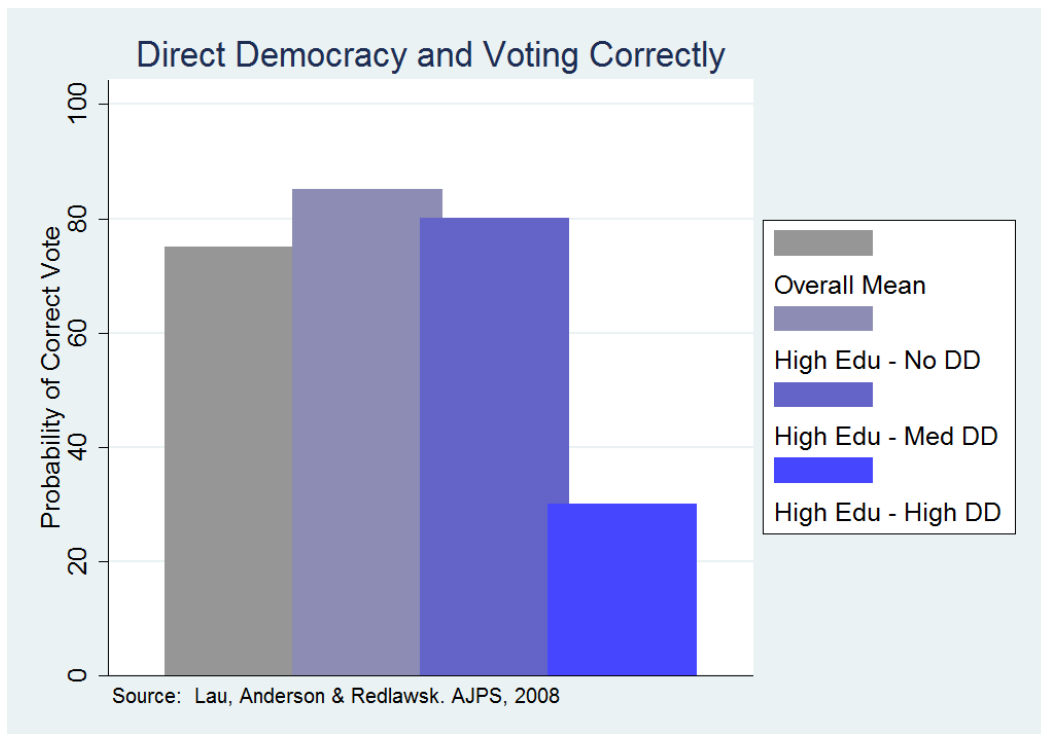
**Figure 9.**



**Figure 10.**



**Figure 11.**



### Appendix: Proofs

There are three types of quantities to be derived: expectation of random value from a uniform distribution, expectation of a selected min/max value from a uniform distribution, and expectation of a complex evaluation. Note:  $x_1, x_2$  iid  $U(0,1)$

Original	Reduced Form	Value
$E(Q_w)$	$E(x)$	$1/2$
$E( P_w )$	$E(x)$	$1/2$
$MAX\{ P_D ,  P_R \}$	$MAX\{x_1, x_2\}$	$2/3$
$MAX\{Q_D, Q_R\}$	$MAX\{x_1, x_2\}$	$2/3$
$MIN\{ P_D ,  P_R \}$	$MIN\{x_1, x_2\}$	$1/3$
$MIN\{Q_D, Q_R\}$	$MIN\{x_1, x_2\}$	$1/3$
$MIN\{.5C,  P_D ,  P_R \}$	$MIN\{.5C, x_1, x_2\}$	$= \frac{c}{2} - \frac{c^2}{4} + \frac{c^3}{24}$
$MIN\{.5C, E( P_w )\}$	$MIN\{.5C, E(x)\}$	$\frac{c}{2} - \frac{c^2}{8}$

#### Expectation of random value from a uniform distribution

$x \sim U(0,1)$

$$\int_0^1 xf(x)dx = \int_0^1 xdx = 1/2$$

### Expectation of a selected min/max value from a uniform distribution

MIN:

$$\int_0^1 \left[ x_1 \int_0^{x_1} x_2 \frac{1}{x_1} dx_2 + (1-x_1) \int_{x_1}^1 x_2 \frac{1}{1-x_1} dx_2 \right] f(x_1) dx_1$$

$$\int_0^1 \left[ \int_0^{x_1} x_2 dx_2 + \int_{x_1}^1 x_1 dx_2 \right] dx_1$$

$$\int_0^1 \left[ \frac{x_2^2}{2} \Big|_0^{x_1} + x_1 x_2 \Big|_{x_1}^1 \right] dx_1$$

$$\int_0^1 \left[ \frac{x_1^2}{2} + x_1 - x_1^2 \right] dx_1$$

$$\left[ \frac{x_1^3}{6} + \frac{x_1^2}{2} - \frac{x_1^3}{3} \right]_0^1$$

$$\frac{1}{6} + \frac{1}{2} - \frac{1}{3}$$

$$= \frac{1}{3}$$

**MAX:**

$$\int_0^1 \left[ (1-x_1) \int_{x_1}^1 x_2 \frac{1}{1-x_1} dx_2 + x_1 \int_0^{x_1} x_1 \frac{1}{x_1} dx_2 \right] f(x_1) dx_1$$

$$\int_0^1 \left[ \int_{x_1}^1 x_2 dx_2 + \int_0^{x_1} x_1 dx_2 \right] dx_1$$

$$\int_0^1 \left[ \frac{x_2^2}{2} \Big|_{x_1}^1 + x_1 x_2 \Big|_0^{x_1} \right] dx_1$$

$$\int_0^1 \left[ \frac{1}{2} - \frac{x_1^2}{2} + x_1^2 \right] dx_1$$

$$\left[ \frac{1}{2} x_1 - \frac{x_1^3}{6} + \frac{x_1^3}{3} \right]_0^1$$

$$\frac{1}{2} - \frac{1}{6} + \frac{1}{3}$$

$$\frac{2}{3}$$

**MIN{.5C, x<sub>1</sub>, x<sub>2</sub>}**

There are four sections to this:

1.  $C/2 < (x_1, x_2)$
2.  $x_1 < C/2 < x_2$
3.  $x_2 < C/2 < x_1$
4.  $(x_1, x_2) < C/2$

The entire expected utility is the sum of the probability of being in one of those categories times the expected utility of those categories after conditioning the distributions within the category.

$$\begin{aligned}
 1. & \left[ \frac{c}{2} \left( \left(1 - \frac{c}{2}\right) \left(1 - \frac{c}{2}\right) \right) \right] + \\
 2. & \left[ \left( \frac{c}{2} \left(1 - \frac{c}{2}\right) \right)^{\frac{c}{2}} \int_0^{\frac{c}{2}} x_1 \frac{1}{\left(\frac{c}{2}\right)} dx_1 \right] + \\
 3. & \left[ \left( \left(1 - \frac{c}{2}\right) \frac{c}{2} \right)^{\frac{c}{2}} \int_0^{\frac{c}{2}} x_2 \frac{1}{\left(\frac{c}{2}\right)} dx_2 \right] + \\
 4. & \left[ \left(\frac{c}{2}\right)^{2\frac{c}{2}} \left[ \frac{x_1}{\frac{c}{2}} \int_0^{x_1} x_2 \frac{1}{x_1} dx_2 + \left(1 - \frac{x_1}{\frac{c}{2}}\right) \int_{x_1}^{\frac{c}{2}} x_1 \frac{1}{\left(\frac{c}{2} - x_1\right)} dx_2 \right] \frac{1}{\frac{c}{2}} dx_1 \right]
 \end{aligned}$$

Result (work shown below):

$$\begin{aligned}
 & \left[ \frac{c}{2} - \frac{c^2}{2} + \frac{c^3}{8} \right] + \left[ \frac{c^2}{8} - \frac{c^3}{16} \right] + \left[ \frac{c^2}{8} - \frac{c^3}{16} \right] + \left[ \frac{c^3}{24} \right] \\
 & = \frac{c}{2} - \frac{c^2}{2} + \frac{c^3}{8} + \frac{c^2}{8} - \frac{c^3}{16} + \frac{c^2}{8} - \frac{c^3}{16} + \frac{c^3}{24} \\
 & = \frac{c}{2} - \frac{c^2}{4} + \frac{c^3}{24}
 \end{aligned}$$

**1.**

$$\left[ \frac{c}{2} \left( 1 - \frac{c}{2} \right) \left( 1 - \frac{c}{2} \right) \right]$$
$$= \left[ \frac{c}{2} - \frac{c^2}{2} + \frac{c^3}{8} \right]$$

**2.**

$$\left[ \left( \frac{c}{2} \left( 1 - \frac{c}{2} \right) \right)^{\frac{c}{2}} \int_0^{\frac{c}{2}} x_1 \frac{1}{\left( \frac{c}{2} \right)} dx_1 \right]$$
$$= \left( 1 - \frac{c}{2} \right)^{\frac{c}{2}} \int_0^{\frac{c}{2}} x_1 dx_1$$
$$= \left( 1 - \frac{c}{2} \right) \left( \frac{x_1^2}{2} \Big|_0^{\frac{c}{2}} \right)$$
$$= \left( 1 - \frac{c}{2} \right) \left( \frac{\left( \frac{c}{2} \right)^2}{2} \right)$$
$$= \left( \frac{c^2}{8} - \frac{c^3}{16} \right)$$

**3.**

$$\left[ \left( 1 - \frac{c}{2} \right) \left( \frac{c}{2} \right)^{\frac{c}{2}} \int_0^{\frac{c}{2}} x_2 \frac{1}{\left( \frac{c}{2} \right)} dx_2 \right]$$
$$= \left( 1 - \frac{c}{2} \right)^{\frac{c}{2}} \int_0^{\frac{c}{2}} x_2 dx_2$$
$$= \left( 1 - \frac{c}{2} \right) \left( \frac{x_2^2}{2} \Big|_0^{\frac{c}{2}} \right)$$
$$= \left( 1 - \frac{c}{2} \right) \left( \frac{\left( \frac{c}{2} \right)^2}{2} \right)$$
$$= \left( \frac{c^2}{8} - \frac{c^3}{16} \right)$$

$$\begin{aligned}
4. & \left[ \left( \frac{c}{2} \right)^2 \int_0^{\frac{c}{2}} \left[ \frac{x_1}{\frac{c}{2}} \int_0^{x_1} x_2 \frac{1}{x_1} dx_2 + \left( 1 - \frac{x_1}{\frac{c}{2}} \right) \int_{x_1}^{\frac{c}{2}} x_1 \frac{1}{\left( \frac{c}{2} - x_1 \right)} dx_2 \right] \frac{1}{\frac{c}{2}} dx_1 \right] \\
&= \left( \frac{c}{2} \right)^2 \int_0^{\frac{c}{2}} \left[ \frac{1}{\frac{c}{2}} \int_0^{x_1} x_2 dx_2 + \left( 1 - \frac{x_1}{\frac{c}{2}} \right) \left( \frac{1}{\left( \frac{c}{2} - x_1 \right)} \right) \int_{x_1}^{\frac{c}{2}} x_1 dx_2 \right] \frac{1}{\frac{c}{2}} dx_1 \\
&= \left( \frac{c}{2} \right)^2 \int_0^{\frac{c}{2}} \left[ \frac{1}{\frac{c}{2}} \frac{x_2^2}{2} \Big|_0^{x_1} + \left( 1 - \frac{x_1}{\frac{c}{2}} \right) \left( \frac{1}{\left( \frac{c}{2} - x_1 \right)} \right) x_1 x_2 \Big|_{x_1}^{\frac{c}{2}} \right] \frac{1}{\frac{c}{2}} dx_1 \\
&= \left( \frac{c}{2} \right)^2 \int_0^{\frac{c}{2}} \left[ \frac{1}{\frac{c}{2}} \frac{x_1^2}{2} + \left( 1 - \frac{x_1}{\frac{c}{2}} \right) \left( \frac{1}{\left( \frac{c}{2} - x_1 \right)} \right) \left( x_1 \frac{c}{2} - x_1^2 \right) \right] \frac{1}{\frac{c}{2}} dx_1 \\
&= \left( \frac{c}{2} \right)^2 \int_0^{\frac{c}{2}} \left[ \frac{x_1^2}{c} + \left( 1 - \frac{x_1}{\frac{c}{2}} \right) x_1 \right] \frac{1}{\frac{c}{2}} dx_1 \\
&= \frac{c}{2} \int_0^{\frac{c}{2}} \left[ \frac{x_1^2}{c} + \left( x_1 - \frac{x_1^2}{\frac{c}{2}} \right) \right] dx_1 \\
&= \frac{c}{2} \int_0^{\frac{c}{2}} \frac{x_1^2}{c} + x_1 - \frac{x_1^2}{\frac{c}{2}} dx_1 \\
&= \frac{c}{2} \left[ \frac{x_1^3}{3c} \Big|_0^{\frac{c}{2}} + \frac{x_1^2}{2} \Big|_0^{\frac{c}{2}} - \frac{x_1^3}{\frac{3c}{2}} \Big|_0^{\frac{c}{2}} \right] \\
&= \frac{c}{2} \left[ \frac{\left( \frac{c}{2} \right)^3}{3c} + \frac{\left( \frac{c}{2} \right)^2}{2} - \frac{\left( \frac{c}{2} \right)^3}{\frac{3c}{2}} \right] \\
&= \frac{c}{2} \left[ \frac{\left( \frac{c}{2} \right)^3}{3c} + \frac{\left( \frac{c}{2} \right)^2}{2} - \frac{\left( \frac{c}{2} \right)^2}{3} \right] \\
&= \frac{\left( \frac{c}{2} \right)^3}{6} + \frac{c \left( \frac{c}{2} \right)^2}{4} - \frac{c \left( \frac{c}{2} \right)^2}{6} = \frac{c^3}{48} + \frac{c^3}{16} - \frac{c^3}{24} = \frac{c^3}{48} + \frac{3c^3}{48} - \frac{2c^3}{48} = \frac{c^3}{24}
\end{aligned}$$

**MIN{.5C, E(x)}**

$$\left(\frac{c}{2}\right)\left(1-\left(\frac{c}{2}\right)\right)+\left(\frac{c}{2}\right)\int_0^{\frac{c}{2}}x\frac{1}{\frac{c}{2}}dx$$

$$=\left(\frac{c}{2}-\frac{c^2}{4}\right)+\int_0^{\frac{c}{2}}xdx$$

$$=\left(\frac{c}{2}-\frac{c^2}{4}\right)+\frac{x^2}{2}\Bigg|_0^{\frac{c}{2}}dx$$

$$=\left(\frac{c}{2}-\frac{c^2}{4}\right)+\frac{\left(\frac{c}{2}\right)^2}{2}$$

$$=\frac{c}{2}-\frac{c^2}{8}$$