

Civic initiatives in the context of legal uncertainty

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Martin Gregor

Charles University, Czech Republic

Michael L. Smith

Academy of Sciences of the Czech Republic, Institute of Sociology, Prague, Czech Republic

Abstract

In this article, we analyse initiatives organized by groups outside of formal politics that involve political confrontation with elected officials, and the need for recourse to the courts. We show that a civic initiative submitted by a proposer gives the voter not only the option to constrain the mayor but also the possibility of learning the mayor's type from the signals conveyed in the legal contest over the validity of the initiative. We show that, *ex ante*, signalling in the context of legal uncertainty improves responsiveness. In addition, our setup identifies limits to empirical inference based on linear models: first, having a more adversarial mayor can lead to either the introduction or the withdrawal of an initiative; second, although initiatives effectively constrain incumbents, they do not necessarily imply increasing distrust in incumbents. Examples from Central European countries are used to illustrate how our model corresponds to real-world conditions.

Keywords

civic initiatives; direct democracy; referendum; signalling

1. Introduction

The purpose of a civic initiative¹ is to make the government more responsive to the people, but the literature is fairly mixed on whether initiatives indeed have such effects. Directly, an initiative curbs the actions of the representative through an *ex post* correcting vote or an *ex ante* threat (Gerber, 1999; Lupia and Matsusaka, 2004; Matsusaka,

Corresponding author:

Martin Gregor, Institute of Economic Studies, Faculty of Social Sciences, Charles University, Opletalova 26, 110 00 Prague 1, Czech Republic.
Email: gregor@fsv.cuni.cz

2005, 2007). Indirectly, however, politicians lose the ability to set policy at the expense of uninformed voters, and the initiative process may come under the purview of wealthy economic interests (Broder, 2000), especially if the campaign spending in favour of the initiative works effectively (de Figueiredo et al., 2011). Beyond responsiveness, the other effects of initiatives are manifold, ranging from issue unbundling (Lacy and Niou, 2000; Besley and Coate, 2008), changing the size and diversity of the state interest group population (Boehmke, 2002), enhancing civic engagement and trust (Smith and Tolbert, 2004; Torgler, 2005) and constraining union bargaining in the public sector (Matsusaka, 2009) to improving public investments and thereby growth prospects (Blomberg et al., 2004).

There is vast empirical research on the strong policy effects of direct democracy (not only initiatives) on the sub-national level, especially for Switzerland, starting from Pommerehne (1978), with recent contributions by Vatter and Rueffli (2003), Armingeon et al. (2004) and Funk and Gathmann (2011). Empirical research on responsiveness, especially on state-level public opinion data in the U.S. (Lascher et al., 1996), taxing and spending policies (Camobreco, 1998; Primo, 2010), happiness (Dyck and Lascher, 2009), or legislator-level evidence (Smith, 2001) is nevertheless inconclusive, and empirical methodologies of the initiative studies have recently witnessed substantial criticisms and improvements (Matsusaka, 2001, 2010; Hug, 2011). Also, institutional detail matters a great deal; for example, Blume et al. (2009) find that initiatives increase spending but mandatory referendums constrain it. Matsusaka and McCarty (2001) further show that initiatives produce more responsive legislatures only when the agency problem is not severe.

From the voter's perspective, one of the prime obstacles to the effective use of initiatives is uncertainty about the effects of the mayor's and alternative policies. Before a dissatisfied voter challenges the mayor's policies in a referendum by voting against the mayor's proposal, he or she must assess why the initiative has been submitted in the first place, and what it implies in terms of the implementation of either the mayor's or alternative policy. Thus, in our view, an initiative submitted by a third party is primarily an information problem for the voter. This problem is partly addressed by signalling; namely, by observing costly actions of the mayor and proposer in a conflict over the initiative (i.e. signals), the voter sharpens his or her beliefs on the mayor's and proposer's types, and consequently on the true effects of policies. Thus, during a conflict over an initiative, the actions by the mayor and the proposer not only promote their interests, but also deliver valuable information to the voter.

We argue that signalling is a key and heretofore not an extensively studied aspect of direct democracy, and the aim of this article is to show in detail how signalling works in an initiative process. We explain how a rational voter updates his or her beliefs if uncertainty over the mayor's and alternative policies exists, and derive which policy outcomes emerge as a consequence. Our particular interest is in signalling in the context of legal uncertainty for which we have collected detailed case-study evidence from local civic initiatives in Central and Eastern Europe (Smith, 2007, 2011). Namely, we analyse initiatives that do not automatically materialize into a referendum, and where there are always viable strategic options for an incumbent to delay or obstruct a referendum through court or administrative challenges. In our setting, the proposer's actions, such as submitting a referendum proposal, waging the campaign and dealing with a legal dispute over the validity of an initiative, serve as signalling devices of the incumbent's policy position.

Similarly, the mayor's decision to strategically obstruct an initiative or to acquiesce is an additional valuable signal to the voter.²

In our setup, once a referendum is eventually held, the voter tends to vote against the mayor, thereby checking the mayor's implementation power and responsiveness improves. In addition, signalling effects take place and these influence the voter's perceptions of the mayor. If an initiative is not submitted, but is legally available, we show that the voter perceives the mayor more favourably. If an initiative leads to a legal contest, we show that the voter perceives him or her less favourably. Most interestingly, if an initiative is submitted but not challenged, we cannot conclude unambiguously how the perception of the mayor changes. Our analysis thus shows that improvements in responsiveness associated with the direct democratic institution have very weak or no relation to changes in beliefs about the quality of the mayor's policy. This is one channel that helps us understand why voters do not trust their politicians more in states with direct democratic institutions (Kelleher and Wolak, 2007), even if their information objectively and subjectively improves (Benz and Stutzer, 2004).

Second, we find non-monotonicities and non-linearities in the policy space that complicate the Bayesian learning of the voter. For our purposes, there are two types of referendums, uncontested and contested, each of which has different implications on voter's beliefs about the mayor's type. Importantly, if an incumbent becomes in increased conflict both with the voter and proposer of the initiative, a contested initiative may be launched, but also an existing uncontested initiative may be withdrawn. The frequency of the use of initiatives is thus not indicative of the need for a more stringent control of the incumbent, because the motives of the proposers matter equally importantly as the motives of the mayors.

Our analysis also explains how legal uncertainty motivates the use of costly initiative proposals and costly legal battles. Legal uncertainty gives rise to a triplet of equilibrium outcomes, depending only the mayor's and proposer's type: no initiative, uncontested initiative and a legal battle ending in a lottery over a referendum and status quo. The sequential game grants each contestant (mayor or proposer) a veto on continuation. We show that under common legal uncertainty, the contestants may escalate with costly actions since both become residual claimants to the prize of the legal contest.

The article is structured as follows. Section 2 motivates our setup. Section 3 constructs primitives of the model. Section 4 solves for perfect Bayesian equilibria, and the following Section 5 studies robustness and properties of the equilibrium to parametrical changes. Section 6 proposes a few extensions. Section 7 summarizes the findings of the article.

2. Motivation for key assumptions

2.1. Legal uncertainty

In order to shed light on the model's scope and relevance, we motivate its key assumptions and features. A key feature that makes our model rich in results, and distinguishes it from the often-studied U.S. experience, is the incumbent's (or local council's) gate-keeping option. In U.S. municipalities, the formal conditions for proposed initiatives are overseen by non-partisan local or county clerks, who generally do not have a political

stake in the propositions that they review. In our model, as in much of Central and Eastern Europe, either the mayor or a local council (usually strongly aligned with the mayor) decides whether formal conditions have been met, and is obliged to call the referendum if everything is in order. However, since the initiatives directly relate to, and often challenge, the policy positions of the mayor (which is not the case for a non-partisan clerk), he or she may also utilize legal opportunities to challenge the initiative, either by claiming that not all formal conditions have been met, or by seeking recourse from a third party. If the third party (in Central and Eastern European countries, this could be regional-level authorities, the Ministry of the Interior or even the Constitutional Court) provides rulings or opinions approving the initiative, the mayor suffers a popularity or reputation cost from being overridden. Otherwise, the mayor's status quo policy prevails.³

Our evidence indicates that the incidence of obstructions is indeed high, and we also observe frequent cases in which proposers and local governments sue each other for alleged illegal infringement in the referendum process. We can support the point with two anecdotal examples, one from the Czech Republic and the other from Poland. In the first example from the Czech city of Tabor, local residents organized a referendum campaign in 2000 to prevent the city from developing a road through a popular local botanical garden. The mayor, who was opposed to the referendum, sought recourse by contacting district-level state officials, who concurred that the referendum question was invalid, claiming that land-use issues are not in the jurisdiction of local government, but of the state. The district authorities then issued an executive order cancelling the upcoming referendum (it is doubtful whether the law even granted them such authority). Local activists appealed the issue to the Ministry of the Interior and threatened to take the issue to the Constitutional Court. In the face of significant public pressure, the district authorities withdrew their executive order, and the city council in Tabor called the referendum. Local residents voted overwhelmingly to stop the planned road development, in what became the first local civic initiative in the history of the Czech Republic (Smith, 2007, 2011).

The second example is from the Polish city of Lomianki, a critical juncture for the planned re-routing of the S7 motorway connecting Warsaw with Gdansk. Lomianki is situated between the Vistula river and the Kampinos National Park, making the precise route of the motorway controversial from an environmental point of view. Local residents opposed to the planned route of the motorway near the national park succeeded in having a local referendum held on the issue in 2006 (the referendum was also supported by the mayor at the time), which was declared invalid due to low turnout (28%; valid referendums in Poland needed at that time a minimum 30% turnout). The next year, residents campaigned for a second referendum on the issue, but faced stiff resistance from another, newly elected mayor, who preferred the S7 route near the national park. Similarly to the Tabor example, the Lomianki city council refused to call the referendum due to jurisdictional concerns, claiming that a local referendum can only relate to matters falling within the scope of tasks and responsibilities of local authorities, and thus that the S7 cannot be subject to local referendum because it is a national road. The proponents of the initiative then appealed to the Governor of the Mazowiecki province, who annulled the decision of the city council, pointing out that the Constitution of Poland allow citizens the right to express their opinion on local matters, even in the form of a referendum. The city council then took the issue to the Provincial Administrative Court in Warsaw, which also ruled

that the decision of the city council was invalid.⁴ Rather than accepting the verdict, the city appealed the ruling, with the court ultimately repealing its prior verdict,⁵ because the investor had not previously sought building permits or other requests requiring a policy decision on the part of the city (and, thus, a referendum should not be held if there is not a specific policy decision to be made). Ironically, because of all of the controversy, the investor never pursued the re-routing, which can be seen as a victory for the initiative organizers, even in the absence of a referendum.

These examples indicate that while civic initiatives are intended to be mechanisms of citizen decision making, they are in fact sites of major political and legal contestation. The number of cases is not irrelevant: since the collapse of communism, there have been over a hundred local referendums in both the Czech Republic and Hungary, several hundred in Poland and the numbers are also growing in other countries, such as Bulgaria. There are also dozens of unrealized initiative campaigns due to political disputes. All of the political conflicts observed in the literature and media (Smith, 2007) occur when local governments want to prevent a referendum from taking place that could potentially overturn local policy. In this type of game, it is both empirically and theoretically valuable to investigate how signalling between competing players affects policy responsiveness and how initiative outcomes impact the mayor's popularity.

2.2. *Information structure*

Exactly as Gerber and Lupia (1995), who first recognized and modelled initiative signalling effects, showed the key mechanisms behind the success of a civic initiative are the rational belief updates of voters. We assume a representative voter who is asymmetrically informed about the mayor's and proposer's policy positions. A relevant example in the context of local politics could be uncertainty over the distribution of royalties from an installed wind power plant, a typical local infrastructure project. A voter capable of Bayesian learning need not know precisely what the mayor's preferred distribution will be, yet observing an initiative campaign opposed to the municipal approval of the infrastructure development would allow the voter to rationally update his or her initial beliefs. The substance of the initiative campaign itself may be purely uninformative, yet a voter may nonetheless change his or her mind by observing the initiative being submitted. The campaign with an initiative, launched by the proposer, is thus primarily instrumental in revealing the mayor's policy position, and assessing the degree of conflict between the mayor and the voters.

We focus on uncertainty over the preferred policies, instead of uncertainty over the contingencies of the world, or the skills or abilities of the players. Two approaches are outstanding in the literature on initiatives, depending on whether the informational disadvantage lies on the side of the contesting players (Matsusaka and McCarty, 2001; as a one-sided asymmetry also in Hug, 2004) or on the side of voters (Gerber and Lupia, 1995). We maintain the latter, for three reasons. (i) We study post-electoral, not pre-electoral politics. Popularity shocks that make a voter's behaviour stochastic play a significant role only in electoral models where policy platforms are strategically and credibly announced. (ii) Informational advantage is far more plausible on the side of experienced players, i.e. professional politicians and interest groups. (iii) Our main interest is in what happens when not only the mayor's, but also the proposer's actions help to

reveal the policy position of the mayor. Uncertainty over the voter's action induces only extra mutual risk to the contestants, and reduced incentives for signalling. In our setting, it therefore represents nothing but pure noise.

2.3. *Incumbent's implementation power*

Nearly all models allow the proposer to determine the referendum proposal from a continuous policy space. However, for typical local policies (mining, local transportation, housing construction), referendum questions are bound to be technically simple and issue specific, which restricts the sets of feasible referendum questions. Implementation of the policy, such as contracting out and outsourcing services related to a public facility, and dealing with uncertainty over price developments rests with the mayor. Therefore, we deviate by distinguishing between the major decisions that can be put as referendum questions and minor implementation decisions that are exclusively at the discretion of the executive. In the robustness section we show that this in fact enriches the model. Specifically, we suppose that a single referendum question involves a binary choice over two alternatives (e.g. whether to allow a wind power plant or not), and each alternative contains a subsets of implementable policies. The subsets are disjoint. Partition of the policy set is mostly exogenous, related to a technological feature and/or the investor's plan (e.g. if the city does not approve of an investor-proposed factory with certain technical specifications, the investor will move elsewhere), rather than to the strategic choice of the proposer of the referendum.

The referendum proposal is thus not a fully fledged policy proposal; it only selects one alternative that restrains the executive in implementation. As a result, there does remain a large scope for implementation discretion on the part of the mayor. We reflect these issues by assuming that the voter casts a vote about two predefined subsets (i.e. whether to approve of a project or not), and the mayor selects within the chosen subset. This is close to the founding rational choice model of direct democracy put forward by Romer and Rosenthal (1979), where voters also choose between the level of education spending preferred by the agenda-setter or a default policy.

Moreover, in contrast to Gerber and Lupia (1995), we do not impose Stackelberg leadership where the mayor can commit to a policy other than his own preferred one. The absence of commitment devices disregards pre-electoral announcements and electoral competition as such. The mayor cannot even bargain to implement a compromising 'initiative-proof' (campaign-less) policy through a take-it-or-leave-it offer to the proposer. Thereby, we abstract from elements of bargaining between the mayor and proposer, which appear to be particularly relevant in local politics.⁶ Introducing mayoral bargaining power to avoid initiatives would also bring unwelcome features into our otherwise simple model: first, the theory would not explain the occurrence of referendums as such, since referendums would be unrealized threats off the equilibrium path; and second, there would be a question of renegotiation since local projects typically involve sunk costs, and hold-up problems exist. In the hold-up problem, if sunk costs are present, as is typical in infrastructure projects, early mayor's implementation promises can be safely violated since ex post, the proposer lacks the incentive to challenge implementation of the already carried out investment.

3. The setup

3.1. Policies and players

Suppose that a single referendum question $q \in \Theta$ partitions an interval (policy space) $\Theta \subseteq \mathbb{R}$ into two intervals (alternatives or policy subsets) H and L , such that $\max L = q = \min H$. The mayor's optimal policy is $m \in H$ and the proposer's optimal policy is $p \in \Theta$. There is a representative voter with an optimal policy $v \in \Theta$. All agents have preferences represented by a standard quadratic cost (disutility) function $c(x^*, x) = (x^* - x)^2$ that is strictly quasiconcave in $x \in \Theta$, and differs across agents only in parameter x^* characterizing the optimal policy, $x^* = \arg \min_x c(x^*, x) \in \{m, p, v\}$.⁷ With constant relative-risk aversion in policy deviation, $|x^* - x|$, this setting represents the most convenient mean-variance framework, enabling us to easily check for dominance, in particular the first-degree and second-degree stochastic dominance.

The mayor and the proposer have better information about their optimal policies than the voter. To capture that, we fix their information as complete, whereas the voter's prior belief over the mayor's and proposer's optimal policies is a joint density function $f(m, p) : H \times \Theta \rightarrow [0, 1]$, with not necessarily independent marginal densities (i.e. the mayor's and proposer's policies may be positively or negatively correlated), where $\tilde{m} := \int_m \int_p m \tilde{f}(m, p) dp dm$ is the expected mayor's optimal policy and $\tilde{\sigma}$ denotes the standard deviation of the mayor's position. Empirically, the lower standard deviation can be attributed to mayors with party affiliation, and the higher to unaffiliated independents.

If an initiative is not submitted, or if the referendum is not approved by the court or is lost by the proposer, the mayor is free to implement m ; otherwise, the mayor is restricted by implementing a policy inside a subset L , where due to the quasiconcavity of preferences, the mayor implements the corner $\max L = q \leq m$. The conflict over policies thus can be represented by a pair of prizes for winning the contest,

$$w^m := c(m, q) - c(m, m) = (m - q)^2 \geq 0, \quad (1)$$

$$w^p := c(p, m) - c(p, q) = (p - m)^2 - (p - q)^2 \underset{>}{<} 0, \quad (2)$$

where the contestants (mayor and proposer) know each other's valuation. Note that we have a pure conflict over both the policy alternative and its implementation ($p \in L$), an impure conflict involving only the H 's policy implementation ($p \in H, w^p \geq 0$) or no conflict ($p \in H, w^p < 0$). To sum up, our setting restricts the shape of the disutility functions but works with any admissible distribution of voter's beliefs and any admissible triplet (m, p, v) . Nevertheless, the main results on responsiveness and non-monotonicity of referendums in the degree of conflict are derived from the indirect preferences only, independently of how direct preferences are mapped from the policy outcomes.

3.2. Game

First, a triplet $(m, p, v) \in H \times \Theta$ is determined by nature. The voter's optimal policy is common knowledge, while the mayor's and proposer's optimal policies are known only to the mayor and proposer. The game is then divided into proposal and implementation stages. In the proposal stage, a decision involving selection of an alternative $S \in \{H, L\}$ is made, possibly through an initiative. In the implementation stage, the mayor selects

his or her optimal policy within the given policy subset, which is m for $S = H$ and q for $S = L$. The game starts with the proposer, who either submits an initiative, or acquiesces. If the proposer acquiesces, the mayor implements m . Otherwise, the game proceeds as follows: submitting an initiative implies an entry cost $e_1 > 0$ for the proposer (costs associated with putting an initiative on the ballot, e.g. signature-gathering within a circulation period, political mobilization, or legal consulting), and the subsequent decision of the mayor to call for the referendum, or launch a legal dispute. The mayor's participation cost is zero, given that the city pays for the mayor's expenses.⁸ Next, the mayor either calls for the referendum, or legally disputes the initiative.

If the referendum is called by the mayor, we have an uncontested referendum, alternatively called Referendum 1 (R1). The voter then updates his or her beliefs into $f_1(m, p)$, expects $m_1 := \int_m \int_p m \cdot f_1(m, p) dp dm$ with a standard deviation σ_1 , and votes for initiative if $\mathbb{E}[c(v, q)|f_1] \leq \mathbb{E}[c(v, m)|f_1]$. Given the shape of the voter's cost function, we easily derive that $\mathbb{E}[c(v, m)|f_1] = (v - m_1)^2 + \sigma_1^2$, which after rearranging yields that the voter supports the initiative rather than the lottery about the mayor's optimal implementation policy if and only if⁹

$$\mathbb{E}[c(v, q)|f_1] = (v - q)^2 \leq (v - m_1)^2 + \sigma_1^2 = \mathbb{E}[c(v, m)|f_1]. \quad (3)$$

If the mayor calls for a legal dispute, then the proposer either chooses to retreat (and $S = H$), or escalates the conflict. Like submitting an initiative, we assume that the legal dispute is costly, and increases the proposer's cost to $e_2 > e_1$.¹⁰ A legal dispute is won by the proposer with exogenous probability $\omega \in [0, 1]$, and lost with the probability $1 - \omega$. Uncertainty is typically related to issues such as the legal validity of signatures, the wording of the referendum question, and the jurisdiction of decision-making rights for the local authority. Empirically, some disputes are resolved prior to a court's decision, which may also reflect exogenous (e.g. popularity) shocks leading to concession.

A won dispute implies that the mayor bears a popularity cost $r > 0$ for being convicted (i.e. through some form of moral or legal censure) of obstructing a legally valid referendum which is subsequently ordered by the court.¹¹ We have then a contested referendum, or Referendum 2 (R2), where the voter updates beliefs into $f_2(m, p)$, expects $m_2 := \int_m \int_p m \cdot f_2(m, p) dp dm$ with standard deviation σ_2 , and votes for the initiative if and only if $c(v, q) \leq \mathbb{E}[c(v, m)|f_2]$. By analogy to (3) derived for uncontested Referendum 1, this amounts to comparing

$$\mathbb{E}[c(v, q)|f_2] = (v - q)^2 \leq (v - m_2)^2 + \sigma_2^2 = \mathbb{E}[c(v, m)|f_2]. \quad (4)$$

Finally, since the game can result in the proposer's decision not to submit an initiative, we denote by $f_0(m, p)$ the voter's beliefs supporting this outcome, and R0 denotes this no-initiative outcome. A subgame drawn for a particular realization $(m, p) \in H \times \Theta$ is summarized in Figure 1.

The conditions for the voter's support of an initiative (L-policy), $c(v, q) \leq \mathbb{E}[c(v, m)|f_i]$, as expressed in (3) and (4), can be rewritten in the general form. For any beliefs on the mayor's type, characterized by (m, σ) , the voter supports an initiative if and only if

$$v \leq \frac{m^2 + \sigma^2 - q^2}{2(m - q)}. \quad (5)$$

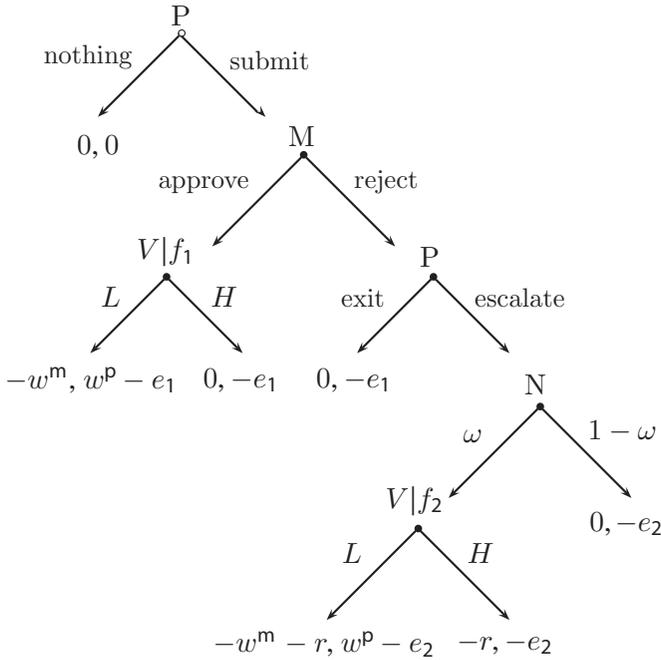


Figure 1. A subgame for a realization $(m, p) \in H \times \Theta$ with mayor’s and proposer’s gains or losses relative to status-quo policy m

This yields that the voter’s preferences over the alternatives $\{H, L\}$ are stepwise monotonic in the voter’s type v . Thus, the preferences satisfy a single crossing (monotonicity) of types in alternatives. Given such monotonicity, even if we have a set of voters, the median voter’s optimal alternative defines a Condorcet winner in the set of alternatives $\{H, L\}$. This lends extra support to the assumption of a single representative (median) voter. Namely, our results are robust to introduction of heterogenous voters and any voting system that implements the winner of a pairwise voting.

The generalized condition in (5) shows that only extremeness and riskiness of the mayor’s implementation (m, σ) matter in the representative voter’s decision making.¹² The condition defines pairs of parameters (m, σ) for which the voter supports the proposed initiative (to be called the P-zone), and the other pairs of parameters define support for the mayor’s unconstrained implementation (to be called the M-zone). We can now characterize the M-zone in the closed form by solving for the voter’s indifference. Keeping standard deviation σ constant, the boundary levels of m are as follows:

$$(\underline{m}, \bar{m}) := \left(v - \sqrt{(v - q)^2 - \sigma^2}, v + \sqrt{(v - q)^2 - \sigma^2} \right). \tag{6}$$

Clearly, if $(v - q)^2 < \sigma^2$, the M-zone does not exist and irrespective of beliefs on the mayor’s type, the initiative is supported. Otherwise, we recall that by assumption $m \in H$, hence $m \geq q$, and the M-zone satisfies $m \in (\max\{\underline{m}, q\}, \max\{\bar{m}, q\})$. The M-zone

thus exists if and only if $(v - q)^2 \geq \sigma^2$ and $q \leq \bar{m}$. Then, it is easy to observe that $d \max\{\underline{m}, q\}/dv \leq 0$ and $d \max\{\bar{m}, q\}/dv \geq 0$. That the interval of m -types that support becomes enlarged with a growing v can be summarized in the following way: other things being equal, having a more extreme voter implies that the voter is more likely to support the initiative.

4. Equilibria

To find perfect Bayesian equilibria, we proceed in two steps. The first step, solved in Section 4.1, is to check for the contestants' (the mayor's and proposer's) equilibrium that best responds to the correspondences from the strategy set of the voter. In our game, the voter's strategy defines the last-stage actions, and the knowledge of the last-stage actions is sufficient to quickly infer actions of the other (completely informed) contestants in early stages. Moreover, we will see that as long as any outcome (R0, R1 or R2) can be supported by some (m, p) and the voter has positive initial beliefs for this $\tilde{f}(m, p) > 0$, then out-of-equilibrium beliefs do not exist.

In Section 4.2 we check which voter strategies (or which profiles) survive in equilibrium assessments, if the voter applies Bayesian learning. This will narrow down the set of candidate equilibria. When observing multiple equilibria, we focus exclusively on those that involve complete separation. In other words, unless the proposer's participation constraint binds, the proposer is expected to signal the existence of conflict by submitting an initiative. This is equivalent to assuming a coordination or tacit strategy-proof collusion between the voter and the proposer, where the proposer initiates the contest with the mayor as often as possible, and the voter anticipates this behaviour.

4.1. Mayor's and proposer's best responses

We first focus on contestants' escalation actions when an initiative has been submitted. Then, we check the participation constraint of the proposer, recognizing when it pays off for the proposer to collect signatures. Escalation occurs in two nodes. Solving backwards, we start with the proposer's decision to escalate towards a contested referendum (R2). If the voter in this escalated referendum chooses H , the expected continuation value for the proposer is only the marginal cost of escalation, $e_1 - e_2 < 0$; if the voter chooses L , the expected continuation value is $\omega w^p + e_1 - e_2$. Next, consider the mayor's incentives to escalate by rejecting the initiative proposal. The mayor's incentive to escalate is given by comparison of the continuation values for R1 ($-w^m$ or 0) and R2 (0, $-\omega r$ or $-\omega w^m - \omega r$).

The set of actions for the voter is $\{H, L\}$ for both Referendum 1 and 2, hence we denote the admissible voter's pure strategies HH, HL, LH and LL. Note that the pure strategies are the voter's best responses if and only if the pair (m_1, σ_1) (and similarly also pair (m_2, σ_2)) falls into the corresponding zone (the M-zone for H and the P-zone for L). For each combination of contestants' positions $(m, p) \in H \times \Theta$ and each voter's strategy, we obtain the optimal contestants' strategies, hence a full strategy profile, and the corresponding payoff function.

4.1.1. HH strategy Voting in both kinds of referendums maintains the status quo $S = H$. There is no way to implement $q \in L$. Hence, adding the participation cost $e_1 > 0$ or even

Table 1. Candidate outcomes for the voter’s LL strategy

Proposer		Mayor	
		approval, $w^m \leq w_2^m$	escalation, $w^m > w_2^m$
No entry	$w^p \leq w_1^m$	R0	R0
Entry, not escalate	$w_1^p < w^p \leq w_2^p$	R1	R0
Entry and escalate	$w^p > w_2^p$	R1	R2

$e_2 > 0$ above the status quo zero payoff makes the proposer not propose the initiative, and equilibrium payoffs are (0, 0).

4.1.2. HL strategy The voter is expected to support the initiative only under escalated R2. The mayor would be willing to escalate only if R1’s continuation payoff were less than R2’s continuation payoff, $0 < \omega(-w^m - r)$, which is however untrue. A win in R1 is naturally preferred to a potential loss in R2, and the mayor strategically does not dispute the initiative. Adding the early entry cost $e_1 > 0$, the proposer does not propose instead of allowing for a lost R1, and equilibrium payoffs are again (0, 0).

4.1.3. LH strategy The mayor can avoid the lost non-contested referendum by escalating to a contested referendum which he or she wins. This sounds paradoxical, but we cannot a priori exclude the possibility that the mayor’s willingness to escalate the prize makes the voter change his or her beliefs in favour of the mayor. In such a case, the proposer faces a negative continuation value $e_1 - e_2 > 0$ when deciding on escalation, and since they cannot commit to escalation, they exit.¹³ The mayor thus tends to escalate, the proposer does not submit an initiative, and equilibrium payoffs are again (0, 0).

4.1.4. LL strategy The last case is when both referendums are expected to be won by the proposer. This defines a necessary condition for a referendum to occur in equilibrium. First, note that the mayor strictly escalates under the LL strategy if and only if $-w^m < \omega(-w^m - r)$, or $w^m > \frac{\omega}{1-\omega}r$. Under such a condition, the proposer decides to submit an initiative if and only if $\omega w^p - e_2 > 0$ or $w^p > \frac{e_2}{\omega}$. If the mayor doesn’t escalate, the proposer decides to submit an initiative if and only if $w^p > e_1$. For convenience, denote the above-mentioned threshold levels of the contestants’ valuations in the following way:¹⁴

$$w_2^m := \frac{\omega}{1-\omega}r, \tag{7}$$

$$w_1^p := e_1 \leq \frac{e_2}{\omega} =: w_2^p. \tag{8}$$

Table 1 summarizes which outcome (R1, R2 or R0 if none applies) may be the candidate for an equilibrium. For the LL strategy, it shows that a weak conflict (the low proposer’s prize) implies no initiative, a moderate conflict brings about an uncontested referendum, and a large conflict (both prizes high) brings about a contested referendum.

To understand the logic of escalation, we may restate the problem in terms of non-cooperative bargaining. When the LL strategy is expected and the proposer submits an

initiative, the game actually involves a sequence of two alternate offers. In the first step, the proposer proposes one division (R1). If the mayor disagrees, he may propose, in the second step, another division (R0). If the proposer disagrees, a bargaining failure occurs and the disagreement point realizes. The disagreement allocation is defined by the uncontested referendum (R2). There are three outcomes in the non-cooperative bargaining: (i) R2 is Pareto-superior to other divisions and both players escalate; (ii) R1 is Pareto-superior to R2 and both players avoid escalation by having uncontested referendum; (iii) R0 is Pareto-superior to R2, the proposer is therefore expected to exit, and there is no referendum.

Naturally, no player wants to be the loser who acquiesces and voluntarily hands over the prize to the opponent. Moreover, in our setup, with complete information and subgame perfection, legal uncertainty makes both players residual claimants to the prize in the last stage. Therefore, in the absence of escalation costs (campaign/legal costs for the proposer, popularity cost for the mayor), the conflict always escalates. (Notice that for $e_1 = e_2 = r$ and $\omega \in (0, 1)$, we have $w_2^m = w_1^p = w_2^p = 0$.)

The conditions in Table 1 partition all prize combinations (w^m, w^p) into three subsets. Since the prizes are functions of (m, p) , we may define these subsets over the fundamentals, $\{(m, p) \in H \times \Theta\}$:

$$\mathcal{R}_2 := \{(m, p) \in H \times \Theta : w^p > w_2^p, w^m > w_2^m\}, \quad (9)$$

$$\mathcal{R}_1 := \{(m, p) \in H \times \Theta : w^p > w_1^p, w^m \leq w_2^m\}, \quad (10)$$

$$\mathcal{R}_0 := \{(m, p) \in H \times \Theta\} \setminus \mathcal{R}_1 \setminus \mathcal{R}_2. \quad (11)$$

The first point is that \mathcal{R}_1 and \mathcal{R}_2 are constructed differently. While both require the proposer to be sufficiently interested in winning the conflict, each treats the mayor's prize in an opposite way. The mayor approves an initiative without escalation (R1) only if his or her prize is low and, in contrast, escalates toward the contested referendum (R2) if his or her prize is high. Unlike for the contested referendum, there is an upper bound in the mayor's prize to the existence of the uncontested referendum, w_2^m . This upper bound implies that the uncontested referendum ceases to exist if the mayor's prize exceeds the bound. Importantly, the uncontested referendum is then replaced either by no referendum (conflict moderation, see Row 2 in Table 1) or contested referendum (conflict escalation, see Row 3 in Table 1). There is no similar non-monotonic effect with respect to the proposer's prize. Other things being equal, an increase in the proposer's prize always implies a lower likelihood of a referendum. Note that all of these properties stem only from the game structure and the contestants' indirect utilities evaluated at (m, q) , independently on the particular shape of the contestants' direct utilities.

4.2. Voter's beliefs and strategies

If the LL strategy is expected by the contestants, we may observe three paths along the equilibrium.

1. No initiative (R0), with m implemented. All of a voter's actions are played in out-of-equilibrium nodes, hence the voter's assessments cannot be verified.
2. Uncontested referendum (R1), with q implemented. This requires that the profile with the LL strategy is expected by the contestants, the mayor is unwilling to escalate and

the proposer is willing to bear an entry cost. Since only the uncontested referendum occurs in this equilibrium, the only posterior verified along the equilibrium path is the belief over an uncontested referendum.

3. Contested referendum (R2), with a lottery $(\omega, 1 - \omega)$ over (q, m) . This again appears only if the LL strategy is expected by the contestants, and if both the mayor and proposer are willing to escalate. Only the contested referendum occurs in this equilibrium, so only the belief over a contested referendum is verified along the equilibrium path.

As is typical in sequential incomplete-information games, uniqueness is not ensured. Out-of-equilibrium beliefs create a significant problem for a proposer who wants to signal the mayor's position by submitting an initiative. If the voter suspects that some proposers who meet the entry condition do not enter, and updates posteriors such that by observing an initiative it is rational to vote against the initiative, a profile with HH (or LH/HL) strategy occurs, and the proposers are indeed forced not to enter.

A remedy to this coordination problem is full separation assumption: for any (w^m, w^p) that allows for a candidate R1 or R2 (see Table 1), the proposer submits an initiative with certainty. This assumption effectively means that the voter knows that the proposer, once he or she meets his or her participation condition from the conflict, enters the conflict. It is added to the purpose of avoiding cumbersome pooling equilibria that favour the incumbent. As mentioned in the opening part of Section 4, this refinement is equivalent to perfect coordination between the voter and the proposer. If it is relaxed, uniqueness will not be guaranteed and the only effect will be that the sets \mathcal{R}_1 and \mathcal{R}_2 will shrink. The refinement is justified also by two more reasons. (i) Coordination between the voters is eliminated by focusing on the representative voter only. The separation assumption eliminates the remaining coordination, namely coordination between the voter and the proposer. In either case, the assumptions intentionally avoid modelling of coordination failures or traps leading to self-fulfilling negative prophecies. Once coordination is in the centre of attention, it must be consistently modelled as coordination in a group of proposers as well as coordination of a group of voters, and this is a topic for further research.¹⁵ (ii) We will observe below that separation creates a net surplus for the voter in terms of an improved expected policy. If the voter had leadership, he or she would commit to a vote in favour of the initiative. This would motivate the candidate proposers to enter. Importantly, the ex post vote of the voter would be perfectly time-consistent.

With this refinement, Proposition 4.2 proves that the equilibrium is unique and looks like either of the two possible equilibria.¹⁶

Proposition 1 *With full separation refinement, either of the two perfect Bayesian equilibria exists.*

- **Signalling equilibrium.** For $(m, p) \in \mathcal{R}_0$, no referendum occurs. For $(m, p) \in \mathcal{R}_1$, initiative is submitted and approved by the mayor. For $(m, p) \in \mathcal{R}_2$, initiative is submitted and rejected by the mayor. The introduction of an initiative has an effect on beliefs in all cases, where the voter updates beliefs to respective beliefs $f_i(m, p)$, where $i = 0, 1, 2$. The policy is changed to L if an initiative is submitted and the referendum is held. A sufficient and necessary condition for this equilibrium is that the voter's beliefs $f_1(m, p)$ support policy L and the voter's beliefs $f_2(m, p)$ also support policy L.

- **Pooling equilibrium.** For all (m, p) , the proposer immediately acquiesces. The voter maintains prior beliefs $\tilde{f}(m, p)$. The introduction of an initiative does not have an effect on either the policy or beliefs.

Proof. For all proofs, see the Appendix.

In a signalling equilibrium, unilateral changes in prizes have monotonic effects on the occurrence of an initiative. Specifically, an increase in the proposer's prize w^p or a decrease in the mayor's prize w^m makes an initiative more likely. In other words, an initiative is submitted if the proposer is sufficiently motivated to enter or if the mayor is sufficiently unmotivated to escalate. Nevertheless, this monotonicity is not preserved if we transform the prizes into the contestants' policy points. Proposition 2 shows that a unilateral decrease in the proposer's optimal policy p leads to a more likely referendum, but a unilateral increase in the mayor's optimal policy m gives a non-monotonic prediction on the occurrence of a referendum. The non-monotonicity stems from different roles that the mayor's and proposer's policy positions have in the derivation of the prizes. While the mayor's prize is only the function of m , the proposer's prize is the function of both m and p .

Proposition 2 (Non-monotonicity in the mayor's type) *Other things being equal, an increase in the proposer's optimal policy makes an initiative less likely. Other things being equal, an increase in the mayor's optimal policy makes an initiative either more or less likely.*

The effect identified in Proposition 2 is crucial, because it is the mayor's type not the proposer's type that matters for the well-being of the voter. (Recall that the proposer's type only serves to shape the posterior voter's beliefs.) It states that an initiative may appear but also disappear once the voter faces a more extreme mayor.

A next property of the signalling equilibrium is that the voter's learning is most difficult if a referendum does not take place. While both \mathcal{R}_1 and \mathcal{R}_2 are convex in (w^m, w^p) , \mathcal{R}_0 is not convex as long as $\mathcal{R}_1 \neq \emptyset$. Consequently, the voter observing R_0 has to discriminate between three explanations of why the proposer has not submitted an initiative. (i) Both policy alternatives $\{H, L\}$, once implemented, yield a practically similar outcome. (ii) Implementation of policies yields significantly different outcomes, but the proposer's values from both outcomes are similar. This occurs for an impure conflict, when the proposer calls a referendum not in order to drastically change policy, but only to strategically constrain the mayor's implementation in the situation where the proposer cannot better influence the mayor. (iii) The proposer values the outcomes quite differently, but the mayor is extremely motivated to escalate, hence the proposer is deterred to enter a conflict that is expected to escalate into a legal battle. Later we will see that this multiplicity of explanations complicates comparisons of posterior beliefs across outcomes.

Convexity of \mathcal{R}_1 and \mathcal{R}_2 as well as non-convexity of \mathcal{R}_0 in (w^m, w^p) are preserved by a non-linear transformation to optimal points (m, p) .¹⁷ For illustration of the shapes of the zones, Figure 2 depicts the zones $\mathcal{R}_0, \mathcal{R}_1$, and \mathcal{R}_2 in space $m \times p$. We let $q = r = e_1 = 1 < 2 = e_2$ and demonstrate the effect of changing legal uncertainty parameter $\omega \in \{\frac{1}{6}, \frac{1}{2}, \frac{2}{3}\}$ that affects two critical values of prize, w_2^m and w_2^p .

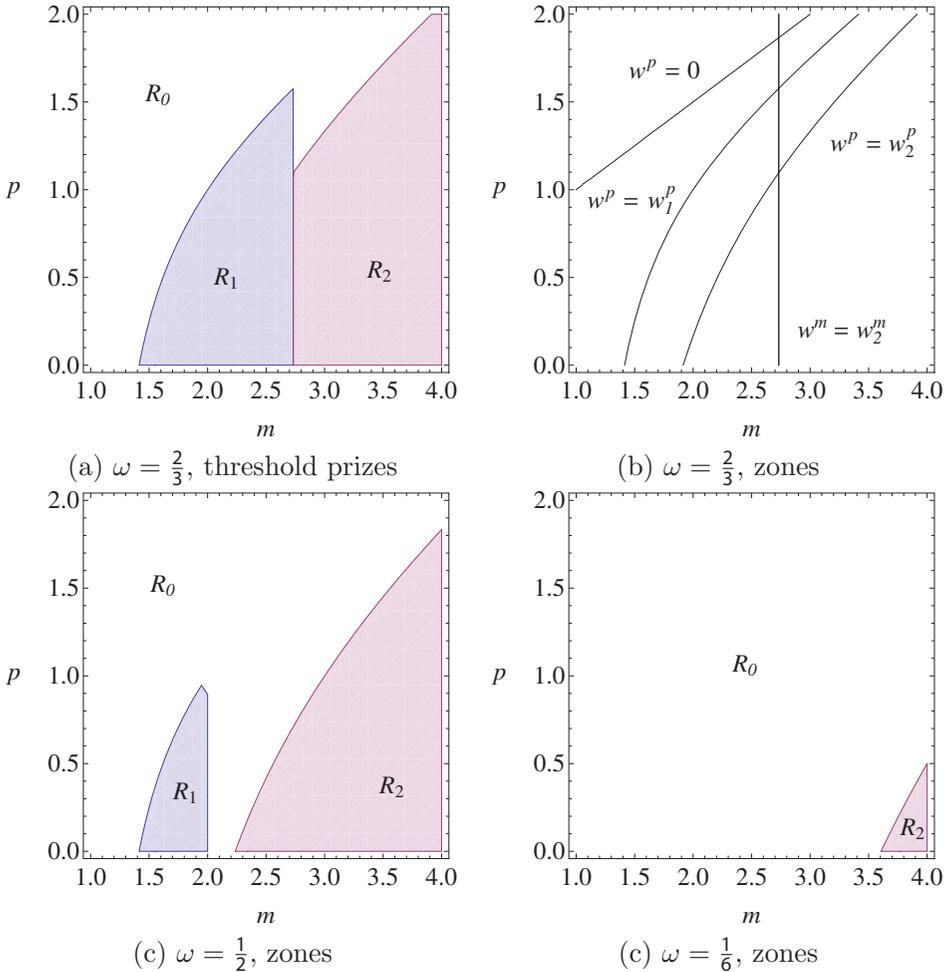


Figure 2. Outcomes under the voter's LL-strategy ($q = r = e_1 = 1, e_2 = 2$)

4.3. Benefits of initiatives

When benefits of initiatives are analysed, a common interest is to identify an average benefit associated with initiatives as a democratic institution. Precisely, the difference between having a system with initiatives versus not having a system with initiatives is analysed. The following Proposition 3 shows that a contest between a mayor and the proposer that leads to a signalling equilibrium is, on average, unambiguously to the benefit of the voter.

Proposition 3 (Responsiveness) *Civic initiatives submitted by proposers do not decrease responsiveness relative to the absence of initiatives.*

Note that the net positive expected effect of initiatives does not imply that the voter's decision to vote for policy subset L actually improves policy for any realization $(m, p) \in \mathcal{R}_1 \cup \mathcal{R}_2$. The voter commits an error and suffers from a utility loss whenever the mayor is in fact located in the M-zone, but the voter calculates that the average mayor's type is located in the P-zone, and erroneously constrains the mayor in implementation. Only in expectation does voting in any type of referendum improve the policy.

One must also distinguish between interpretations of what 'having an initiative' implies. To avoid confusion, consider two variables that can be attributed to different observations (e.g. time periods in states, districts or municipalities): $Legal = 0, 1$ denoting if civic initiatives are legally permitted and $Submitted = 0, 1$ if an initiative has been held (alternatively, frequency of initiatives). Admissible pairs are $(0, 0), (1, 0), (1, 1)$. A regression model for policy outcomes puts $\alpha Legal + \beta Submitted$ among the regressors, and the dependant variable would be a measure of the voter's utility. We can associate the presence of an initiative with either α or β .

- The effect of initiatives as a democratic institution as analysed above is the effect of α . It explains what a system with initiatives brings, on average, versus a system without initiatives. In terms of the model, it amounts to a comparison between the voter's expected values from the game, calculated as averages over all contestants' pairs. By Proposition 3, $\alpha = 0$ for a pooling equilibrium and $\alpha > 0$ for a signalling equilibrium.
- The effect of having (observing) an initiative relative to not having (not observing) an initiative, even if an initiative is permitted, is the pure effect of β . In our setup, this amounts to comparing payoffs associated with $(m, p) \in \mathcal{R}_1$ or $(m, p) \in \mathcal{R}_2$, relative to payoffs associated with $(m, p) \in \mathcal{R}_0$. This comparison of outcomes is made within a single signalling equilibrium, but across the subsets of contestants' types. In the absence of an initiative, the expected voter's disutility satisfies $\mathbb{E}[c(v, m)|f_0] \stackrel{\leq}{\geq} c(v, q)$, and in the presence of an initiative, the expected voter's disutility satisfies $c(v, q) \leq \mathbb{E}[c(v, m)|f_i]$, where $i = 1, 2$. Thus, it is indeterminate whether the voter is strictly better off by observing or not observing an initiative. We cannot state a clear hypothesis on the sign of β .

Finally, we look into how posterior beliefs change if an initiative is legally permitted. Proposition 4 shows, somewhat surprisingly, that the mayor's alternative H may become more attractive, even if the voters get a chance to outvote it.

Proposition 4 (Posterior beliefs) *Relative to the setting without initiatives, attractiveness of the mayor's policy may increase or decrease for any outcome (R_0, R_1 or R_2).*

This proposition may be instrumental in addressing the paradox of trust associated with direct democratic institutions (Benz and Stutzer, 2004; Kelleher and Wolak, 2007). A corollary to Proposition 4 is that if an initiative is absent (R_0), the voter's beliefs may change in the mayor's favour, and the mayor is weakly better off. Not only can the mayor still implement his or her policy m , but also the voter's perception of this policy improves. In this case, the rational voter interprets the lack of an initiative primarily by not seeing

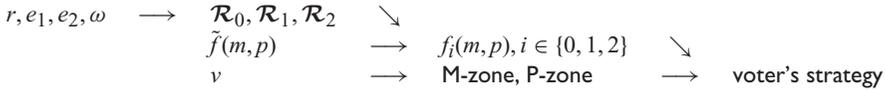


Figure 3. Directions of influence between the variables

the mayor as extreme as he or she looked initially. The non-intuitive separation effect may even be so strong that without initiatives ($Legal = 0$), prior beliefs would dictate to vote L , whereas with initiatives ($Legal = 1, Submitted = 0$), the voter would support the alternative H .

5. Determinants of initiatives

This section studies the effects of parametrical changes on the existence and properties of the signalling equilibrium.¹⁸ By Proposition 4.2, a necessary and sufficient condition for a signalling equilibrium is the voter’s LL strategy. We know that the voter’s LL strategy is effectively delivered when R1 and R2 zones yield such pairs $(m_i, \sigma_i), i \in \{1, 2\}$ that fit into the voter’s M-zone. The cost and uncertainty parameters affect the shape of the \mathcal{R}_1 and \mathcal{R}_2 zones. To understand how the parameters affect whether the voter adopts the LL strategy, Figure 3 summarizes relations between the parametric variables.

Analysis of determinants of initiatives amounts to investigating two things:

1. How do parameters affect the existence of the signalling equilibrium? We already know from Section 3.2 that the larger the voter’s optimal policy, the larger the M-zone, and the less likely an initiative is. Answering this question for the other parameters (costs, uncertainty and distribution of beliefs) is more complex. To reduce complexity, we focus on two properties that are instrumental in isolating some unambiguous effects: first, we ask how the cost and uncertainty parameters change the means in posterior beliefs; and, second, we look into how changes in the means and spreads in posteriors affect the existence of the voter’s LL strategy.
2. How do parameters affect the frequency of initiatives? This question assumes that a signalling equilibrium is preserved with a parametric change, and asks whether for some (m, p) , an initiative is more or less likely. In other words, it asks how parametrical changes shape the R1 and R2 zones.

5.1. Existence of signalling

How do the voter’s beliefs change with parametric changes? The comparative statics is best understood by looking at Figure 2(a) that shows the contours of prize levels. To derive how the zones change, we must recall from Equations (7) and (8) how the prize levels are affected by parametric changes and translate these changes into moving from one contour to another. Our task is to examine only the effect upon the first moments of the distributions of the beliefs, namely the mean beliefs.

Table 2 shows that only a handful of effects are unambiguous. The main reason is that the critical prizes associated with proposer (w_1^p, w_2^p) are functions of both m and p . A parametrical change that shifts a critical prize includes (or excludes) specific pairs (m, p) . The effect upon a mean mayor’s policy is then conditional also on the correlation between

Table 2. Effects of an increase in a single parameter on the voter's posterior beliefs (general setting)

Parameter/Mean belief	m_0	m_1	m_2
e_1	Ambiguous	Ambiguous	Neutral
e_2	Ambiguous	Neutral	Ambiguous
r	Ambiguous	Increases	Increases
ω	Ambiguous	Increases	Ambiguous

m and p , and this is not restricted by any assumption. For example, we may have cases when an exogenous change in parameters makes an initiative more likely, but we cannot say either whether the mayor who challenges the initiative is more or less extreme, or whether the mayor who acquiesces is more or less extreme.

Where is the source of ambiguity? First, each mayor is uniquely characterized by his or her type, defined by his or her position m . The type is interchangeable with prize w^m , since w^m is a monotonic function in m that is constant in p . The same is not true for the proposer. A proposer uniquely defined by p can actually have various prizes w^p . Once the voter observes the initiative, he or she infers the mayor's type from two sources: (i) mayor's prize, which gives unambiguous information on the mayor's type; (ii) proposer's prize, which gives ambiguous information on the proposer position, and correspondingly also ambiguous information on the mayors's position. This voter's inference is moreover blurred since correlation between the mayor's and proposer's type is arbitrary. Hence, for a clear prediction on the mayor's type, we need only parametrical changes that affect the mayor's participation while keeping the proposer's participation intact. Second, we can make clear predictions of a sign changes only in zones that are always convex (i.e. \mathcal{R}_1 or \mathcal{R}_2 , but not \mathcal{R}_0). To sum up, Table 2 shows that these two conditions are met and allow a clear prediction of a sign change only for m_1 or m_2 and only when the binding proposer's participation constraint is not affected.¹⁹

From Figure 3, we can see that the posterior beliefs change with (i) parametric changes that reshape the \mathcal{R}_1 and \mathcal{R}_2 zones (as analysed above) or with (ii) a change in the priors. Once we know how posteriors change, we can exploit the shape of the M-zone and P-zones and deduce whether submitting an initiative will be more or less likely. That is, whether it is more likely that (m_i, σ_i) falls into the M-zone. Two properties can be derived in general. (i) A mean-preserving increase in the spread σ_i makes initiative more likely. Simply, by second-order stochastic dominance, any risk-averse voter facing on average identical policies strictly prefers the less risky one. (ii) A spread-preserving increase in the distance $(v - m_i)^2$ makes initiative more likely. From Equations (3) or (4), we know that comparison of two alternatives involves only summing differences between squared deviations (variances) and the squared distances. Thus, if deviations are constant, the comparison depends exclusively upon whether the distance increases or decreases.

By looking at the shape of the M-zone, an interesting fact is that an escalating mayor may be seen by the voter more favourably than an non-escalating mayor. The main reason is that the distance, not extremeness matters. Recall that $m_1 < m_2$. Thus, for example, if $m_1 \ll v < m_2$ and spreads are similar, then the voter likes the escalating mayor

Table 3. Effects of an increase in a single parameter on the size of the zones (general setting)

Parameter/Zone	\mathcal{R}_0	\mathcal{R}_1	\mathcal{R}_2	$\mathcal{R}_1 \cup \mathcal{R}_2$
e_1	Enlarges	Shrinks	Neutral	Shrinks
e_2	Enlarges	Enlarges	Shrinks	Shrinks
r	Shrinks	Enlarges	Shrinks	Enlarges
ω	Shrinks	Enlarges	Ambiguous	Enlarges

more because he or she is closer on the average. Remember however that in a signalling equilibrium, the voter still votes against both escalating and non-escalating mayors.

5.2. Frequency of initiatives

To understand specifically the effects of costs and uncertainty, note that mapping from (m, p) to (w^m, w^p) is monotonic in each individual argument. Using subscripts for partial derivatives, we obtain for the mayor $w_m^m > 0$, $w_p^m = 0$, and for the proposer, $w_p^p < 0$, $w_m^p > 0$. Thus, when we study whether \mathcal{R}_0 , \mathcal{R}_1 and \mathcal{R}_2 zones tend to enlarge or shrink with a change in the parameters, we may only look upon the effects of parametric changes on the zones in (w^m, w^p) instead of (m, p) . This implies a check of the effects on the critical thresholds (w_2^m, w_1^p, w_2^p) that can be easily investigated by solving for the first derivatives from Equations (7) and (8). Table 3 uses the signs of the derivatives to show how the size of each zone is affected by an increase in a single parameter. The last column shows the effect upon referendums as a whole, which is opposite to the effect in the first column.

Quite intuitively, larger costs imposed upon the proposer, e_1 and e_2 , make an initiative less frequent. Another intuitive effect is that an increase in the mayor's reputation cost r facilitates an initiative. The mayor is more likely to be deterred from escalation and this invites those proposers who submit initiatives only if legal obstructions are expected not to be in place. A greater probability of a favourable court ruling ω (legal certainty for proposers) also predictably increases the frequency of initiatives. The effects upon individual types of referendums (contested versus uncontested) nevertheless may be opposite, since for some pairs (m, p) , one referendum substitutes for another referendum.

6. Extensions

We can think of a few extensions that help us to understand the robustness of the results in the first place and help to eliminate some ambiguities in the second place.

6.1. Perfectly independent contestant's types

This assumption restricts prior beliefs such that the priors on m are unconditional on p and vice versa. Posterior beliefs on m are however conditional on p , and the conditional beliefs are more restricted. For instance, think of the \mathcal{R}_1 zone. For low p , a conditional mean $m_1 | p$ is low. For high p , a conditional mean $m_1 | p$ is high. If w_1^p increases, then conditional mean $m_1 | p$ must increase for any p . As a result, unconditional beliefs

Table 4. Effects of increase in parameters on the voter’s posterior beliefs (independent types)

Parameter/Mean belief	m_0	m_1	m_2
e_1	Ambiguous	Increases	Neutral
e_2	Increases	Neutral	Increases
r	Ambiguous	Increases	Increases
ω	Ambiguous	Increases	Increases

$m_1 = \int(m_1 | p) \cdot \Pr(p) dp$ increase as well. This is because unconditional beliefs are given as a weighted sum of conditional beliefs, using priors over p as the fixed weights. This assumption of fixed weights did not hold in the general case with interdependent types.

Table 4 summarizes how parametric changes now affect the voter’s posterior beliefs. The independence assumption sharpens predictions in certain cases, which are highlighted in bold letters. Effectively, these are differences to general effects found in Table 2. As we can see, ambiguity with respect to m_0 largely persists even with independence assumption.

6.2. Perfectly correlated contestants’ types

The perfect correlation occurs for $p = \alpha m + \beta$, where some restrictions upon the parameters α and β apply. The first difference is that it is no longer possible to think of ceteris paribus changes in m or p . Thus, Proposition 2 cannot be stated in its current form. However, its logic remains. For instance, if $\alpha \rightarrow 0^+$, then $p \rightarrow \beta^+$, and the non-monotonicity in the mayor’s type with constant p can be trivially replicated.

As to the effects of parametric changes, the results are largely dependent on the nature of correlation. For negative correlation, $\alpha < 0$, given the partial derivatives $w_m^m > 0$, $w_p^m = 0$, $w_m^p > 0$ and $w_p^p < 0$, the situation is relatively clear cut. An increase in m is associated with a decrease in p ($dm > 0, dp < 0$), hence $dw^m = w_m^m dm + w_p^m dp = w_m^m dm > 0$ and $dw^p = w_m^p dm + w_p^p dp > 0$. Since critical thresholds w_2^m never moves in the opposite direction to any critical threshold $w_i^p, i = 1, 2$, any change in parameters that moves critical thresholds brings predictable effects upon the mean posterior beliefs. To sum up, the belief updates are more predictable with negative dependence between the mayor and proposer. Note that negative correlation is plausible once the existence of an extreme mayor motivates radicalization of the opponents who generate a group with a more extreme optimal policy.

For positive correlation, $\alpha > 0$, an increase in m associated with an increase in p has a dubious effect upon w^p . Therefore, it is generally ambiguous whether an increase in the critical prize w_1^p or w_2^p increases or decreases mean beliefs. A great deal of ambiguity remains.

6.3. Vote over implementation

We may eliminate the assumption that a referendum question is predetermined at q , and let the proposer set his or her optimal policy point p . Then, the voter is choosing between uncertain m and certain p . Part of the voter’s uncertainty diminishes, since the proposal

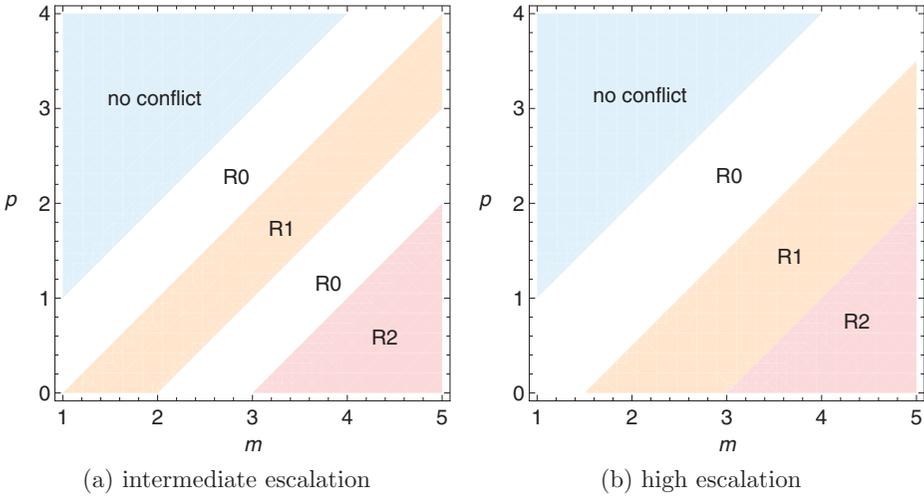


Figure 4. \mathcal{R}_0 , \mathcal{R}_1 and \mathcal{R}_2 -zones for various levels of mayor’s willingness to escalate

$p \in \Theta$ is revealed immediately once an initiative is submitted. Proposing an optimal policy p in an initiative restricts beliefs to a class of single-dimensional $\tilde{f}(m|p)$ functions that are identical in p for independent types and contingent on p for (im)perfectly correlated types.

The most important change is that the contestants’ prizes are then equivalent (symmetric), $w^m = (m - p)^2 = w^p$. All critical prizes become linear contours in (m, p) space that have the same slope. For any critical prize w , the contour is defined by $m = \sqrt{w} + p$. For prize symmetry, we can distinguish between three possibilities.

1. Mayor’s low willingness to escalate, $w_2^m \leq w_1^p < w_2^p$: The mayor escalates whenever the proposer enters, hence only the contested type of referendum may occur. Specifically, R2 is the equilibrium outcome if $w \geq w_2^p$ and R0 occurs if $w < w_2^p$. A specific feature of this configuration is that R1 occurs out of equilibrium, hence existence of a signalling equilibrium requires that out-of-equilibrium beliefs for R1 tell the voter to vote against the mayor.
2. Mayor’s intermediate willingness to escalate, $w_1^p < w_2^m \leq w_2^p$: This is a case with a non-convex \mathcal{R}_0 and non-monotonicity of referendums in the mayor’s type exactly as found in Proposition 2. With a growing prize w , we first have no initiative (R0), then an uncontested referendum (R1), then again no initiative (R0) and finally a contested referendum (R2). Figure 4(a) illustrates this possibility.
3. Mayor’s great willingness to escalate, $w_1^p < w_2^p < w_2^m$: We begin with no initiative (R0) if $w \leq w_1^p$. Uncontested referendum (R1) occurs for $w_1^p < w \leq w_2^m$. Escalated referendum (R2) occurs for $w_2^m < w$. Here, monotonicity preserves, as Figure 4(b) shows.

This extension shows that if the proposer can reveal his/her preference through submitting p for the ballot, the voter’s learning and the game becomes easier than our general setting. Non-monotonicity of the equilibrium outcome in the degree of conflict either

exists for all proposer types, or does not exist at all. Other comparative statics results are also preserved.

7. Conclusions

In this article, we analysed the informational inference of a representative voter who observes a civic initiative proposed by a third party and does not know much about the proposer's and mayor's preferences. We argue that the rational voter follows signals conveyed by costly actions of the contestants, and copes with the uncertainty by sharpening his or her beliefs. In the end, an initiative works not only because it grants the voter the right to challenge the mayor's policy, but because the actions that preceded the act of voting have improved the voter's information. This is even more pronounced in the case of legal uncertainty, where the mayor signals by entering or not entering a legal battle with the proposer. That mayors strategically exploit legal uncertainty has been illustrated in examples from Central European countries, although an abundance of examples could be taken from around the world in which partisan actors contest the legality or constitutionality of a referendum proposal or result.

More specifically, the mayor's option of obstructing the initiative proposal implies two types of referendum, an uncontested one (immediately approved) and a contested one (ordered by the court or an administrative authority). An uncontested referendum credibly signals that the mayor is weakly interested in the conflict with the proposer, whereas a contested or escalated referendum signals a strong interest of the mayor. Our model of the signalling effects of initiatives, where a referendum restrains the mayor's implementation power, confirmed that an initiative leading to any type of referendum improves the policy. This finding in favour of the policy responsiveness of initiatives provides further theoretical credence to recent empirical observations linking the presence of referendum legislation with an increased congruence between public opinion and policy choice (Matusaka, 2010). This unambiguously positive effect is mainly because initiatives do not interact with other features, such as the agency problem or the self-selection of abilities.

Technically, we avoided a multiplicity of equilibria by imposing a separating requirement whereby all proposers who may gain from a conflict actually do submit an initiative. Then, either of the two equilibria emerges. In a pooling equilibrium, initiatives are never submitted and therefore there is no change to the regime where initiatives cannot be submitted. In a signalling equilibrium, initiatives occur for some mayor and proposer types, and the voter learns both when an initiative is and is not observed.

We observe some other interesting non-intuitive effects. There is non-monotonicity in mapping from the mayor's type to the proposer's decision whether to submit an initiative or not, and this non-monotonicity plagues the informational inferences of the voter. A more conflictual relationship between the mayor and the proposer, manifested in larger prizes for winning the conflict, may lead to conflict escalation but also to conflict moderation. This is an obstacle for empirical inference of an external observer: *ceteris paribus*, the lower frequency of initiatives is not indicative of lower conflict between the mayor and the proposer, and consequently not even of lower conflict between the mayor and the voter.

In addition, our setup directly addresses the difference between the effects of an initiative upon responsiveness and trust (Benz and Stutzer, 2004; Kelleher and Wolak, 2007). Our setting cleanly isolates the two effects. Responsiveness improves because in an equilibrium, the voter who observes the costly submission of an initiative learns more about both the mayor and proposer's types. A correct expectation of the voter's decision by the proposer justifies the proposer's entry and possibly escalation costs. Trust in our framework rather relates to beliefs about how the policy would be implemented if the policy remains fully in the hands of the mayor. How these beliefs evolve throughout the game is generally unrelated to the equilibrium outcome.

We conducted comparative statics changes of the exogenous parameters. We studied how a sufficient and necessary condition for existence of signalling equilibrium, namely that the voter with posteriors actually supports the initiative, is preserved subject to parametric changes. Considering types, we find that the frequency of initiatives increases with the voter's type and decreases in the proposer's type, but is non-monotonic in the mayor's type. In a section with extensions, we demonstrate how model predictions sharpen once extra intuitive restrictions are imposed.

Appendix

Proof of Proposition 1. From the mayor's and proposer's best responses, we have derived that the voter's LL strategy is a necessary condition for any referendum to be played in an equilibrium. The voter's strategy is the best response for the relevant posterior beliefs. By full-separation assumption, the relevant beliefs are exactly $f_1(m, p)$ and $f_2(m, p)$, defined over \mathcal{R}_1 and \mathcal{R}_2 .

- If the voter's best response for the relevant beliefs $f_1(m, p)$ and $f_2(m, p)$ is the LL strategy, then the voter always supports the initiative. By full separation, all candidate referendums identified in Table 1 are equilibrium referendums. Thus, if $(m, p) \in \mathcal{R}_1$, then posterior beliefs are $f_1(m, p)$, and R1 is the outcome. If $(m, p) \in \mathcal{R}_2$, then posterior beliefs are $f_2(m, p)$, and R2 is the outcome.
- If the voter's best response for the relevant beliefs $f_1(m, p)$ and $f_2(m, p)$ is not the LL strategy, then we know from the mayor's and proposer's best responses that in equilibrium, the proposer does not enter for any (m, p) . Thus, there is no action in the game, no change in the policy, and the voter maintains prior beliefs $\tilde{f}(m, p)$. \square

Proof of Proposition 2. For the proposer's optimal policy, see that $\partial w^p / \partial p < 0$ and $\partial w^m / \partial p = 0$. Thus, an increase in p is equivalent to a decrease in w^p , and this implies a less likely referendum. For the mayor's optimal policy, see that an increase in the mayor's type increases the prizes for both the mayor and the proposer, $\partial w^p / \partial m > 0$ and $\partial w^m / \partial m > 0$. The changes in (w^m, w^p) give conflicting effects upon the occurrence of an initiative. Indeed, Figure 2 shows that a horizontal move associated with an increase in m may either change R0 into R1 or R2 (an initiative appears), or change R1 into R0 (an initiative disappears). \square

Proof of Proposition 3. Let ρ_i be the mass of contestants' pairs in \mathcal{R}_i , $i = 0, 1, 2$, such that $\rho_0 + \rho_1 + \rho_2 = 1$. For convenience, denote the expected voter's cost without initiatives \tilde{C} , and the expected costs attributed to mayors in a signalling equilibrium C_0, C_1 and C_2 .

For a pooling equilibrium, there is zero effect, and $\tilde{C} = \rho_0 C_0 + \rho_1 C_1 + \rho_2 C_2$. For a signalling equilibrium, the voter's expected disutility decreases or remains constant in R1 and R2, since $c(v, q) \leq C_1$ and $c(v, q) \leq C_2$, and remains constant for R0. In total, the expected voter's disutility across all realizations does not increase, $\rho_0 C_0 + (\rho_1 + \rho_2)c(v, q) \leq \rho_0 C_0 + \rho_1 C_1 + \rho_2 C_2 = \tilde{C}$, hence the expected voter's utility does not decrease. \square

Proof of Proposition 4. In a pooling equilibrium, beliefs do not change. In a signalling equilibrium, we use that by the voter's LL strategy, $c(v, q) \leq C_1$ and $c(v, q) \leq C_2$. Yet there is no prior restriction on $c(v, q) \begin{matrix} \leq \\ \geq \end{matrix} C_0$.

- At one extreme, suppose that weak proposers who do not submit an initiative occur only for those mayors who are ideal for the voter ($m = v$). Hence, the absence of an initiative is a signal that $m_0 = v$ and $C_0 = 0$. Then, we obtain $C_0 < \tilde{C} < C_1$ and $C_0 < \tilde{C} < C_2$ if ρ_0 is sufficiently large.
- At the other extreme, suppose that the $v \approx q, v > q$ and weak proposers who do not submit an initiative occur only for the most extreme mayors. Then, if variations σ_i are similar across the three outcomes, then $C_1 < C_2 < C_0$. We obtain $C_1 < \tilde{C} < C_0$ and $C_2 < \tilde{C} < C_0$ if ρ_0 is sufficiently large.

As a result, we cannot sign $C_i \begin{matrix} \leq \\ \geq \end{matrix} \tilde{C}$ for any $i = 0, 1, 2$. \square

Notes

1. In line with the literature, we use the term 'referendum' to refer to all procedures in which citizens vote directly on a proposed policy (Lupia and Matsusaka, 2004; Hug, 2011). This article focuses on a large class of referendums called civic initiatives, in which a referendum takes place only when first petitioned for by citizens, such as by collecting signatures and meeting various criteria that political authorities require before allowing citizens to vote on the proposed policy. Given the importance of institutional design, we do not examine other forms of referendum, such as legislative measures (or, in our setup, a mayor-initiated referendum), that do not require citizen petition.
2. We use the standard game-theoretical notion of signalling, not to be confused with signalling discussed by Matsusaka (2007). In the recent literature, the only paper that incorporates signalling in direct democracy is that by Hugh-Jones (2010b).
3. According to Smith (2007, 2011), while there are always differences in local referendum laws between countries, referendum legislation in Central European countries has a number of common institutional features. First, referendums are only valid if turnout quorums (sometimes as high as 50%) have been met. Second, local councils decide on the validity of referendum proposals. Third, evaluations by local councils (and third parties) of the appropriateness of referendum questions usually take place after signatures have been collected, rather than beforehand. Fourth, most referendums take place as stand-alone ballots rather than at the time of elections. Lastly, local governments are generally required to provide residents with only minimal information about upcoming referendums, and thus informational boycotts are commonplace.
4. Provincial Administrative Court in Warsaw, ruling II SA/Wa 2097/07 of 28 March 2008.

5. Provincial Administrative Court in Warsaw, ruling II SA/Wa 1591-1508 of 23 June 2009.
6. Drawing from local initiatives in Californian cities, Gordon (2009) presents empirical evidence supporting interest-group bargaining.
7. In local politics, a proposer is typically a single large non-governmental organization (NGO) or interest group, hence we may disregard the issue of multiple proposers and their cost-sharing mechanisms (cf. Hug and Tsebelies, 2002: 21). This would definitely become a relevant issue in national referendums.
8. We differ from Gerber and Lupia (1995) where the opponent must bear a campaign cost. In their model, the opponent of the proposer is conceived as another civic actor, such as an established or ad hoc interest group, with the caveat that the opponent cannot propose a counter-initiative (Gerber and Lupia, 1995: footnote 11). In their setup, they presume that opponents are not politicians or political parties, as they claim that partisan cues are typically absent from direct legislation campaigns. Our model, by contrast, entertains cases where the initiative campaign elicits actions from an elected official, which in our view, is not at all uncommon in the political world. Another key difference between the two models is that Gerber and Lupia (1995: footnote 11) suggest that opponents do not suffer reputational effects because they have 'no interest in future electoral involvement'. By contrast, in our analysis reputational or popularity costs stemming from the use of legal obstruction are a key consideration that the mayor (acting as an opponent) takes into account.
9. To work with a unique action even for indifferences, we assume that the voter selects a non-risky option rather than a risky option. For mayor and proposers, we shall assume that each contestant selects the action that makes the opponent strictly better off. Hence, the action gives a jointly efficient outcome. Nevertheless, opposite assumptions can be conveniently imposed without any substantive effect upon the results.
10. Without affecting results in the analysis, we could alternatively introduce the proposer's campaign costs. In the specific context of the Czech Republic, we find that this cost is typically very small, in comparison to the entry cost; there is also low-cost assistance by the Czech NGO Environmental Law Service that offers its services in referendum lawsuits. Other countries have similar public law associations.
11. We also observe an endogenous belief update that may change attractiveness of the mayor to the voter. This effect, normally but not necessarily with a negative sign, is separated from this popularity penalty.
12. Since the mayor has monopoly over executive implementation, the proposer's optimal policy p does not play any direct role. As we shall see, the proposer's optimal policy will only be instrumental in the proposer's equilibrium actions and consequently in the construction of the voter's posterior beliefs.
13. In the absence of the marginal cost of escalation, $e_1 = e_2$, an uncontested referendum may occur in equilibrium even for the voter's LH strategy. This would capture an extreme case where the willingness to contest brings a popularity cost but a policy gain in signalling associated with better alignment with the voter.
14. The subscript always points to the referendum type to which the threshold is related.
15. An involved coordination problem among voters emerges when multiple competing counter-proposals can be submitted (Hugh-Jones, 2010a).
16. The logic is that each threshold $w^m = w_2^m$ partitions $H \times \Theta$ space into two convex subspaces, whereas each positive threshold $w^p = w_1^p$ or $w^p = w_2^p$ partitions $H \times \Theta$ space into one convex and one non-convex subspace. Under these circumstances, \mathcal{R}_1 and \mathcal{R}_2 are convex.
17. In an incomplete information game, an equilibrium is of course not a single prediction, but a complete characterization of outcomes for any pair of types (m, p) .

18. The effects of changing (m, p) are only a different realization of the mayor's and proposer's policy positions across the prior probability density function $\tilde{f}(m, p)$, and have already been fully captured in Proposition 2.
19. The effects upon the other moments of the distributions of beliefs are of course even more ambiguous unless we know significantly more about the correlation between the mayor's and proposer's optimal policies.

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References

- Armington K, Bertozzi F and Bonoli G (2004) Swiss worlds of welfare. *West European Politics* 27(1): 20–44.
- Benz M and Stutzer A (2004) Are voters better informed when they have a larger say in politics? Evidence for the European Union and Switzerland. *Public Choice* 119: 31–59.
- Besley T and Coate S (2008) Issue unbundling via citizens' initiatives. *Quarterly Journal of Political Science* 3(4): 379–397.
- Blomberg S, Hess G and Weerapana A (2004) The impact of voter initiatives on economic activity. *European Journal of Political Economy* 20(1): 207–226.
- Blume L, Müller J and Voigt S (2009) The economic effects of direct democracy—a first global assessment. *Public Choice* 140: 431–461.
- Boehmke F (2002) The effect of direct democracy on the size and diversity of state interest group populations. *Journal of Politics* 64(3): 827–844.
- Broder D (2000) *Democracy Derailed: Initiative Campaigns and the Power of Money*. New York: Harcourt.
- Camobreco J (1998) Preferences, fiscal policies, and the initiative process. *Journal of Politics* 60(3): 819–829.
- Dyck J and Lascher E (2009) Direct democracy and political efficacy reconsidered. *Political Behavior* 31: 401–427.
- de Figueiredo J, Chang H and Kousser T (2011) Financing direct democracy: revisiting the research on campaign spending and citizen initiatives. *Journal of Law, Economics, and Organization* 27(3): 485–514.
- Funk P and Gathmann C (2011) Does direct democracy reduce the size of government? New evidence from historical data, 1890–2000. *Economic Journal* 121: 1252–1280.
- Gerber E (1999) *The Populist Paradox: Interest Group Influence and the Promise of Direct Legislation*. Princeton, NJ: Princeton University Press.
- Gerber E and Lupia A (1995) Campaign competition and policy responsiveness in direct legislation elections. *Political Behavior* 17(3): 287–306.
- Gordon T (2009) Bargaining in the shadow of the ballot box: causes and consequences of local voter initiatives. *Public Choice* 141: 31–48.

- Hug S (2004) Occurrence and policy consequences of referendums: a theoretical model and empirical evidence. *Journal of Theoretical Politics* 16(3): 321–356.
- Hug S (2011) Policy consequences of direct legislation theory, empirical models and evidence. *Quality and Quantity* 45: 559–578.
- Hug S and Tsebelis G (2002) Veto players and referendums around the world. *Journal of Theoretical politics* 14(4): 465–515.
- Hugh-Jones D (2010a) Sophisticated voting on competing ballot measures: spatial theory and evidence. *British Journal of Political Science* 40: 399–418.
- Hugh-Jones D (2010b) Explaining institutional change: why elected politicians implement direct democracy. CAGE Online Working Paper Series 25/2010, Warwick University.
- Kelleher C and Wolak J (2007) Explaining public confidence in the branches of state government. *Political Research Quarterly* 60: 707–721.
- Lacy D and Niou E (2000) A problem with referendums. *Journal of Theoretical Politics* 12(1): 5–31.
- Lascher E, Hagen M and Rochlin S (1996) Gun behind the door? Ballot initiatives, state policies and public opinion. *Journal of Politics* 58(3): 760–775.
- Lupia A and Matsusaka J (2004) Direct democracy: new approaches to old questions. *Annual Review of Political Science* 7: 463–482.
- Matsusaka J (2001) Problems with a methodology used to evaluate the voter initiative. *Journal of Politics* 63: 1250–1256.
- Matsusaka J (2005) Direct democracy works. *Journal of Economic Perspectives* 19: 185–206.
- Matsusaka J (2007) Disentangling the direct and indirect effects of the initiative process. Working Paper, USC Marshall School of Business.
- Matsusaka J (2009) Direct democracy and public employees. *American Economic Review* 99(5): 2227–2246.
- Matsusaka J (2010) Popular control of public policy: a quantitative approach. *Quarterly Journal of Political Science* 5: 133–167.
- Matsusaka J and McCarty N (2001) Political resource allocation: benefits and costs of voter initiatives. *Journal of Law, Economics and Organization* 17(2): 413–448.
- Pommerehne W (1978) Institutional approaches to public expenditure: empirical evidence from Swiss municipalities. *Journal of Public Economics* 9: 255–280.
- Primo D (2010) The effect of initiatives on local government spending. *Journal of Theoretical Politics* 22(1): 6–25.
- Romer T and Rosenthal H (1979) The elusive median voter. *Journal of Public Economics* 12: 143–170.
- Smith D (2001) Homeward bound? Micro-level legislative responsiveness to ballot initiatives. *State Politics and Policy Quarterly* 1(1): 50–61.
- Smith D and Tolbert C (2004) *Educated by Initiative: The Effects of Direct Democracy on Citizens and Political Organizations in the American States*. Ann Arbor, MI: University of Michigan Press.
- Smith M (2007) Making direct democracy work: Czech local referendums in regional comparison. In: Delwit P, Pilet J, Reynaert H and Steyvers K (eds), *Towards DIY-Politics? Participatory and Direct Democracy at the Local Level in Europe*. Brugge: Vanden Broele.
- Smith M (2011) The uneasy balance between participation and representation: local direct democracy in the Czech Republic. In: Schiller T (ed.), *Local Direct Democracy in Europe*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Torgler B (2005) Tax morale and direct democracy. *European Journal of Political Economy* 21: 525–531.
- Vatter A and Rueffli C (2003) Do political factors matter for health care expenditure? A comparative study of Swiss cantons. *Journal of Public Policy* 23(3): 325–347.