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## Abstract

We discuss the relationship between two forms of political activism and openness. We focus on direct democratic institutions and measure political activism by the number of direct democratic ballots and voter participation in those ballots. Openness is measured by the signature requirement that has to be met in order to qualify for a ballot. We show that in models where the status quo policy that elicits the political activity is invariant to changes in openness, more openness leads to more political activism results. However, looking at the empirical evidence on the frequency of ballots in Swiss Cantons, we find no relationship between openness and the number of ballots. This can be explained by allowing voters to have a limited attention span or that the status quo policy adapts to the more acute threat. We also find empirical evidence that more openness increases voter participation, which is due to the information externalities of signature collections.

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# Political activism when voters have a limited attention span

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## **Abstract**

We discuss the relationship between two forms of political activism and openness. We focus on direct democratic institutions and measure political activism by the number of direct democratic ballots and voter participation in those ballots. Openness is measured by the signature requirement that has to be met in order to qualify for a ballot. We show that in models where the status quo policy that elicits the political activity is invariant to changes in openness, more openness leads to more political activism results. However, looking at the empirical evidence on the frequency of ballots in Swiss Cantons, we find no relationship between openness and the number of ballots. This can be explained by allowing voters to have a limited attention span or that the status quo policy adapts to the more acute threat. We also find empirical evidence that more openness increases voter participation, which is due to the information externalities of signature collections.

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## 1 Introduction

There is now a large body of research, both in political science and economics, that addresses the question of political activism.<sup>1</sup> This activism can take the form of voter turnout, membership in political parties, participation in politically motivated strikes, or the use of direct democratic instruments. It is often claimed that voter participation - and by implication political activism - has declined over the last decades. A closer look at the empirical evidence reveals, however, a more detailed picture. Norris (2002) provides compelling evidence that although voter turnout has indeed declined in some countries since World War II, this trend is not generally true across all countries. More interestingly though, there has been a widespread increase in other forms of political activity in the shape of political protest groups and the use of referendums and citizens' initiatives.

In light of this evidence, this paper asks through which channels openness affects political activism by focusing on two types of questions: Does institutional openness affect political participation? If yes, can the empirical evidence tell us something about the underlying pattern of interaction between policy makers, groups, and voters? This is a key question since the responsiveness by citizens to institutional openness has policy implications, in particular if access to and usage of institutions is differential across voters or inhibits the use of political instruments. For instance, a legislator may target the losses of a policy intervention onto those voters who have the biggest difficulty in making their arguments heard whilst focusing the gains to those that have easier access to tools of intervention. Moreover, if political activism does not generate any new information, then its existence can generate inefficiencies in terms of policy bias<sup>2</sup>

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<sup>1</sup>See Norris (2000) on the political literature and Dhillon and Peralta (2002) for a review on theories of voter participation.

<sup>2</sup>See Grossman and Helpman (2002) for an overview of models.

or waste when costly activism is necessary to ensure representation of interests.

To get an insight into these questions, we analyze a specific type of political institution, citizens' initiatives, in which a group<sup>3</sup> of citizens can put forward a vote on a policy. Thus, with this institution policy is emanating from within the electorate. The process is very structured as, first, this group has to collect a constitutionally specified number of signatures among the electorate. If they are successful, then there will be a general ballot to which all voters are invited to cast a vote either in favor or against the policy proposed by the group. In this way, a policy originating from a group of voters can overturn the status quo policy.

There has been growing interest in this type of policy institution. For instance, in the debate relating to structure and terms under which new countries can join the EU, it has been discussed whether these changes should be approved by the electorate at large. Some countries like Ireland used a referendum whilst governments in other countries as, for instance, in Germany and the U.K., argued against the direct approval by voters. Furthermore in Italy just as in Germany, which experienced a vast extension of the direct democratic institutions at the local level, a debate occurred on whether a vote on numerous issues is practical as voters have too little time and scope to be properly informed about the issue at hand to form an opinion what their optimal choice should be. This generated basically two concerns. First, that ballot results will be random as voters are uninformed or because they are subject to influence by interest groups and the media inducing them to vote in a certain way. Second, that voters have a limited attention span and cannot commit time to listen to and understand each proposal for which groups try to get their support. The first

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<sup>3</sup>We use the term "group" very broadly, encompassing special interest groups like lobbies or groups that form spontaneously in response to a change in the economic or political environments like protest groups. The group formation process is taken as given and is not modeled.

question has been addressed by the literature of special interest politics (Grossman and Helpman, 2001). The second question has not, to my knowledge, been modeled directly and assessed empirically.

In this paper, two questions will be addressed to relate openness to two measures of political activism. First, how does the openness of the institution, measured by the number of signatures that have to be collected as a share of the electorate, affect the number of initiatives that will be successful. By successful initiatives, we mean the number of those initiatives that managed to obtain the required number of signatures.<sup>4</sup> Second, does the signature requirement affect voter participation.

We first provide a theoretical framework to illustrate how openness relates to political activism in the presence of congestion effects - the limited attention span - and coordination failures among different interest groups. We establish that models that take the status quo policy to be independent of openness predict that successful initiatives are (weakly) increasing in openness.<sup>5</sup> We introduce two critical assumptions to capture the forces at play. First, contrary to related work (Besley and Coate, 2002) we assume that although voters know the policy position of the interest group that approaches them for their support, the reverse is not true. Thereby what matters is the *expected* popularity a group expects to have with a proposal. Second, we assume that the more interest groups are present, the less attention they receive by any voter as they have a *limited attention span*. We introduce these properties to model in a simple way the congestion that can occur when more than one group is active. This allows us to tackle an important question concerning political activism and political

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<sup>4</sup>So we want to keep two notions separate. When the signature collection has been successful we say that the “initiative has been successful.” However, when we mean that the vote on that issue has been successful as it has been approved by a majority of voters we say that the “ballot is successful.”

<sup>5</sup>However, there are out of equilibria cases where *lower* signature requirements can lead to *less* successful initiatives collections when coordination failures between groups is severe.

openness: Does more openness invite more interest groups to enter, and will that lead to inefficiencies?

We then take the question to the data using a panel data of citizens's initiatives in the Swiss Cantons between 1973 and 1996. This data set has several advantages. First, these direct democratic institutions have been used very widely in Switzerland. Second, as their structure is very clearly defined, they are particularly well suited to the analysis of political activism. Third, the institutional framework varies across cantons and across time. The strong advantage of this is that we can control for unobserved heterogeneity specific to a canton of a time period. This is of particular importance in our framework where the structure of social capital and political and economic culture are crucial explanatory variables of political activism. The panel structure of our data set can thus circumvent omitted variable bias as these variables are rarely observed or possible to measure, thereby the credibility of estimated coefficients is greatly enhanced. Fourth, the data set contains all incidences of citizens' initiatives on the cantonal level together with other information on them.

The empirical findings extend results from Barankay *et al.* (2002) where it has been found that openness is not related to the number of citizens' initiatives but higher signature requirements are associated with higher voter turnout. The innovation of this paper is to take further tests based on the theoretical section to the data. First, we refine the result of the relationship between signature requirements and the frequency of ballots by showing that this is a function of the party in power. The cantonal legislatures are voted in by proportional representation. When a centralist party is in power, the signature requirements are not related to the number of ballots. However when more extremist parties - either from the left or the right - hold most seats in parliament, more openness is associated with less ballots. This result is in line with a model where



groups with similar platforms - that fail to coordinate their actions - reduce the probability of success by entering simultaneously. Given that it is more likely that groups put forward similar platforms when an extremist party is in power - being on the same side of the political spectrum with respect to the governing party - then when a centralist party is in power where groups from either side may enter. Second, the model predicts that when the signature requirement increases, groups have to increase the number of voters by more than that change for two reasons. As they do not know which member of the electorate will approve of them, they have to approach more voters in the signature collection process than the actual number of required signatures. Furthermore, entry of groups increases the competition for support, which reduces the probability of approval by a member of the electorate. In our empirical context we do not have data on the number of voters approached during the signature collection process. The idea of the proxy is that the signature collection process generates support or disapproval among voters like in a publicity campaign which then translates into votes. We find that an increase in the signature requirement leads to a significant increase in voter participation that is twice as large as the change in openness.

The paper contributes to several branches of the literature. The results speak directly to political activism, direct democracy, political economy and institutional framework, as well as public good provision.

There is broad literature that relates voter participation to the intensity of competition for votes and the activity of interest groups and parties. Shachar and Nalebuff (1999) present a model in which political activism by parties is a function of the closeness of the ballot and provide empirical evidence in support of it. In line with their approach, we argue that increasing the number of signatures forces the group that wants to submit a proposal to a popular

vote to mobilize more citizens. This generates more information among voters about the existence of the proposal, an effect of which is a higher turnout: when a group has to collect more signatures, then this should increase voter participation as more voters are made aware of the question at hand. We test this empirical prediction and find very robust support for it. Furthermore, we see that the increase in voter participation *exceeds* the change in the signature requirement: the change in voter participation is twice the change in the signature requirement. This can be explained by the fact that a change in the signature requirement changes the entry decision of groups which, in turn, changes the number of people a group has to approach to collect the required number of signatures due to the limited attention span of voters.

Thus, we propose two empirical tests to test for the existence of limited attention span. These two tests approach the phenomenon along different dimensions, and furthermore, we econometrically specify the null hypothesis first by the absence of congestion effects - when looking at the effect of openness on the number of successful ballots - and second by the presence of it - when assessing the effect on voter participation.

The remainder of this paper is structured as follows. Section 2 presents a model of entry of interest groups and the empirical predictions are tested in section 3. Section 4 then turns to the question of voter participation and institutional openness. Section 5 concludes.

## 2 A simple theoretical framework

We now set up a simple static model of entry by policy-motivated groups in a citizens' initiative game. In order to bring about a ballot, groups have to collect a required number of signatures for it to qualify for a general ballot. We describe how the change in this signature requirement affects entry decisions.

## 2.1 Voters and preferences

There are  $N$  voters. Each voter has quasi-linear preferences over a one-dimensional policy outcome  $p$  that has a public good nature financed by lump-sum taxation. Voters differ in their most preferred level of public good provision. Denote as  $\theta_i$  voter  $i$ 's most preferred policy outcome where  $\theta_i$  can take on one of  $k$  values,  $\theta_1 < \theta_2 < \dots < \theta_k$ , where  $k < N$  and there exist voters of each type. Each citizen of type  $\theta_i$  has a utility function  $u(p; \theta_i)$ , which is strictly concave in  $p$ , single-peaked and symmetric around  $\theta_i$ .

## 2.2 Interest Groups and Limited Attention Span

There are also two politically motivated groups  $g = \{1, 2\}$ . Each of them is endowed with a non-pliable policy platform  $p_g$  drawn from the same set of policy bliss points as those for the citizens.<sup>6</sup> Therefore, each of the two groups can be thought of to represent exactly one voter type. A critical assumption is that while the policy type of the group  $p_g$  is known to all voters the reverse is not true.<sup>7</sup> So when the group approaches a voter it does not know the voter's type. These two groups decide simultaneously and independently whether to enter or not. We denote  $e_g \in \{0, 1\}$  as the entry strategy of group  $g$ , so that for instance  $e_2 = 1$  when group 2 enters. Upon entry, the group has to collect a constitutionally specified number  $\bar{n} < N$  of signatures as part of a citizens' initiative. Collecting signatures is costly and groups face a cost  $c$  for each voter they approach for support. These signatures are constitutionally required so that when the collected number of signatures exceeds  $\bar{n}$ , a vote takes place over

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<sup>6</sup>This non-pliable platform is a reduced form result of a maximization problem for each group in which they maximize the expected number of signatures subject to ideological or moral concerns.

<sup>7</sup>This assumption is quite plausible for most interest groups that seek a public profile: We all have a very good idea which policies Greenpeace stands for but a Greenpeace campaigner approaching me in a shopping mall to gain my support does not know how close I am to the policy platform of Greenpeace.

the platform of the group. For now we assume that when the required signatures have been collected by a group, it receives a payoff  $\lambda > 0$  irrespective of the type and the outcome of the vote, and the other group gets nothing.<sup>8</sup> We relax this assumption in the next section. The groups however differ in the probability with which a voter is willing to sign the initiative. So when there is one active group only, then the unconditional probability that a voter signs the petition of group 1 is  $q_i < 1$ . Assume, without loss of generality that  $q_1 > q_2$  so that group 1 is a priori more popular than group 2 with respect to the policy platform they propose to the voters.

We model the *limited attention span* of the voter assuming that when both groups are active, i.e.  $e_1 = e_2 = 1$ , a voter picks one of the two groups by the flip of a fair coin and will sign the petition with the corresponding approval probability  $q_i$ . In this way we capture that in a static<sup>9</sup> game, a voter can only *listen* to one politically motivated group at a time, so that when both are present there is congestion which is resolved by random choice.<sup>10</sup> We assume that the cost  $c$  is paid irrespective of whether a group managed to talk to a voter it approached or not.

## 2.3 Analysis

The maximum number of expected signatures for a group that approaches *all* voters can be written as

$$\hat{n}_i = \frac{e_i}{1 + e_j} q_i N. \quad (1)$$

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<sup>8</sup>This can be interpreted to capture the fact that when an interest group has been successful it has raised its profile in public which results in an increased payoff  $\lambda$ .

<sup>9</sup>Extending the setting into a dynamic game would only change the argument in so far that these groups could sign binding agreements over sequential entry to avoid problems of congestion. For a related dynamic treatment of entry games see Bolton and Farrell (1990).

<sup>10</sup>Note that while it is critical for the analysis that when there is congestion, each group has a strictly positive probability of being selected by the voter, the assumption that this probability is the same for each group is of little consequence.

Note, however, that for a given institutional threshold the group will not need to approach all voters whenever  $\hat{n}_i > \bar{n}$ . First, take the case when the group is alone. Then, as the threshold is  $\bar{n}$ , a group will have to approach in expected terms  $\frac{\bar{n}}{q_i}$  voters to achieve the required number of signatures, which will cost the group  $c\frac{\bar{n}}{q_i}$ . Now when both groups are present, there will be some congestion when talking to some voters. Denote by  $r_1$  the share of the electorate group 1 will have to talk to given that group will talk to a share  $r_2$  of the electorate. Then from the perspective of group 1,  $r_2N$  voters will also be approached by group 2, and so for those voters the a priori success probability is reduced to  $\frac{1}{2}q_1$ . For  $(1 - r_2)N$  voters, there will not be a congestion problem, and the likelihood for one of those voters to sign remains at  $q_1$ . The symmetric argument applies for group 2. So these two groups solve the following simultaneous system of equations,

$$\text{group 1} \quad : \quad \bar{n} = r_1 \left( \frac{1}{2}q_1r_2N + q_1(1 - r_2)N \right) \quad (2)$$

$$\text{group 2} \quad : \quad \bar{n} = r_2 \left( \frac{1}{2}q_2r_1N + q_2(1 - r_1)N \right) \quad (3)$$

which has the solution<sup>11</sup>  $r_1^*$  and  $r_2^*$ . For ease of representation we stick to this notation although it is important to bear in mind that both  $r_1^*$  and  $r_2^*$  are a function of the signature requirement  $\bar{n}$ . Note that from the perspective of each group, when the other group does not enter, then  $\frac{\bar{n}}{q_i}$  voters will be approached and asked for signatures. Also, when the other group approaches all voters, then the number of voters that have to be approached is  $\frac{2\bar{n}}{q_i}$  as there will be congestion with *all* voters. So we can bound the number of voters that groups solicit signatures from to the following range

$$\frac{\bar{n}}{q_i} < r_i^*N < \frac{2\bar{n}}{q_i}. \quad (4)$$

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<sup>11</sup>The exact expressions are given in the appendix.

Remark that when either of these expressions exceeds the total population size  $N$ , the group will not be able to collect the required number of signatures. Denote by  $\tilde{n}(r_i = 1)$  the number of signatures a group  $i$  can collect when both groups are active and group  $i$  approaches all  $N$  voters. So this gives the maximum number of signatures a group could collect given its popularity and the fact that there will be congestion. Given these results we can now write down the matrix of expected signatures as

		enter	stay out
		$e_2 = 1$	$e_2 = 0$
enter	$e_1 = 1$	$\min\{\bar{n}, \tilde{n}(r_1^* = 1)\}, \min\{\bar{n}, \tilde{n}(r_2^* = 1)\}$	$\min\{\bar{n}, \tilde{n}(r_1^* = 1)\}, 0$
stay out	$e_1 = 0$	$0, \min\{\bar{n}, \tilde{n}(r_2^* = 1)\}$	$0, 0$

where group one is the row player and where  $\min\{\bar{n}, \tilde{n}(r_i^* = 1)\}$  reflects the situation where either the group manages to collect the required signatures or fails even though it asked all voters whether they supported its cause.

The payoff for each group now depends on the threshold  $\bar{n}$  and on whether the other group enters. To analyze how a change in the threshold affects the expected number of successful groups, we distinguish two cases.

First, when there is *no overlap* in terms of popularity. By this we mean that, given group 1 is more popular than group 2,  $q_1 > q_2$ , the number of voters that group 1 has to talk to when both enter,  $r_1^*N$  is still lower than group 2's expected number of voters when group 2 is alone,  $\frac{\bar{n}}{q_2}$ . This gives us the following order

$$\begin{aligned} & \text{no overlap} \\ & \frac{\bar{n}}{q_1} < r_1^*N < \frac{\bar{n}}{q_2} < r_2^*N \end{aligned} \quad (5)$$

So starting from the left is the number of voters group 1 has to approach when alone, then comes the number of voters group 1 talks to when both enter. The last two expressions are the corresponding expressions for group 2. The second case is simply when the popularity levels do *overlap* which then yields

$$\begin{aligned} & \text{with overlap} \\ \frac{\bar{n}}{q_1} < \frac{\bar{n}}{q_2} < r_1^* N < r_2^* N \end{aligned} \quad (6)$$

Now take the case of *no overlap*. Recall that a group receives  $\lambda$  when it managed to collect the necessary signatures. We now can present the payoff matrices for given levels of signature requirements. Let's start with high requirements. The first case is when so many signatures have to be collected that only group one will be successful and only when it is the only entrant:

$\tilde{n}(r_1^* = 1) < \bar{n} \leq q_1 N$	group 2 enters	stays out
group 1 enters	$-cN, -cN$	$\lambda - c\frac{\bar{n}}{q_1}, 0$
stays out	$0, -cN$	$0, 0$

In the top left quarter, the situation is depicted when both groups enter and although they spoke to all voters - as there is a corner solution of  $r_1^* = r_2^* = 1$  - they failed to collect the required signatures and thus did not receive the reward of  $\lambda$  but both suffered the cost of having to talk to all voters  $cN$ . In the top right quarter, only group 1 entered - the more popular of the two groups - and the signature requirement is low enough so that it will be successful and gets the reward  $\lambda$  but faces the cost of having to talk to  $\frac{\bar{n}}{q_1}$  voters to achieve that goal. Assuming that  $\lambda - c\frac{\bar{n}}{q_1} > 0$ , there is a unique Nash equilibrium in pure

strategies<sup>12</sup> where group 1 enters and group 2 stays out.<sup>13</sup> The second box represents the situation of a lower signature requirement.

$q_2N < \bar{n} \leq \tilde{n}(r_1^* = 1)$	group 2 enters	stays out
group 1 enters	$\lambda - cr_1^*N, -cN$	$\lambda - c\frac{\bar{n}}{q_1}, 0$
stays out	$0, -cN$	$0, 0$

Now group 1 will always be successful independently from the strategy of group 2 as the signature requirement is low enough for it to succeed even when there is congestion. In this situation the prediction of the game is unchanged as the unique equilibrium in pure strategies is still for group 1 to enter and for group 2 to stay out. The situation in the third matrix now shows what happens when even less signatures have to be collected.

$\tilde{n}(r_2^* = 1) < \bar{n} < q_2N$	group 2 enters	stays out
group 1 enters	$\lambda - cr_1^*N, -cN$	$\lambda - c\frac{\bar{n}}{q_1}, 0$
stays out	$0, \lambda - c\frac{\bar{n}}{q_2}$	$0, 0$

Now group 2 could be successful if group one stayed out. If we assume that  $\lambda - cr_1^*N > 0$  that strategy is, however, strictly dominated for group 1 and we still retain the same prediction as before. Therefore when  $\lambda - cr_1^*N > 0$  then for any  $\tilde{n}(r_2^* = 1) < \bar{n} \leq q_1N$  only one group will be active.

However when

$$\lambda - cr_1^*N < 0 \text{ and } \lambda - c\frac{\bar{n}}{q_2} > 0,$$

i.e. group one does not receive a positive payoff from entry when there is congestion, then we have two asymmetric equilibria in pure strategies in which

<sup>12</sup>Of course when  $\lambda - c\frac{\bar{n}}{q_1} < 0$  there is a unique Nash equilibrium in which both groups stay out.

<sup>13</sup>In principle, we could allow groups to randomize on their entry decision, but we follow Besley and Coate (2002) and restrict attention to pure strategies.



one group enters and the other stays out. Here a coordination problem arises. Yet, as argued in Bolton and Farrell (1990) and Crawford and Haller (1990), it is not clear how these two groups would agree on one of these asymmetric equilibria. For instance, in a dynamic setting one group will have to let the other group move first, and they may have no contractual instrument available to them that credibly allows the group that moved first not to enter again later. If they can contract, the appendix describes a bargaining framework how that could be accomplished. Following Bolton and Farrell (1990), when  $\bar{n}$  falls below  $q_2N$  then with positive probability there may be congestion such that the payoff turns negative when groups can not coordinate their actions so that out of equilibria play occurs. Now if groups are risk-averse or when they simply cannot run into debts (cash-constraint) that congestion can lead groups to decide to stay out *even though* the signature requirement declined, and therefore *less* groups are active.

Finally, there will be a level when both groups could be successful but under the additional condition that their payoffs are positive which will be the case for low enough values of  $\bar{n}$ . That situation is depicted in this last matrix.

$\bar{n} < \tilde{n}(r_2^* = 1)$	group 2 enters	stays out
group 1 enters	$\lambda - cr_1^*N, \lambda - cr_2^*N$	$\lambda - c\frac{\bar{n}}{q_1}, 0$
stays out	$0, \lambda - c\frac{\bar{n}}{q_2}$	$0, 0$

Very similar events will occur when there is *overlap* in the sense defined above although the sequence of the matrices is changed in that the third matrix comes before the second. Finally a remark on popularity: so far we assumed that one group is more popular with voters in the sense that  $q_1 > q_2$ . Note that when we allow these parameters to be the same, i.e.  $q_1 = q_2$ , we will only have two cases to consider: either both will enter because the signature requirement

is low enough and the payoff despite the increased cost through congestion is low enough; or there will be the asymmetric equilibria, similar to the one discussed above when one group enters and the other stays out.

The results of this section can be summarized as follows. There will be more entry when moving from very high to very degrees of openness. However, there is a range of openness parameters in between where no change in the number of entrants occurs. Furthermore, with additional conditions it can happen that lower signature requirements leads to *less* entry when the groups cannot coordinate their actions so that out of equilibrium play occurs.

To construct this result we made two plausible assumptions. First, that groups do not observe the willingness to sign before they approach voters and second, that voters have a limited attention span which leads to congestion when two groups approach a voter simultaneously.

## 2.4 Discussion

The groups' policy platforms and their popularity are to be interpreted as a reduced form representation of a citizen-candidate model (Osborne and Slivinsky, 1996, and Besley and Coate, 1997) in which the set of groups and their platforms are given. Each voter is endowed with a policy preference  $\theta_i$ , and a leader of each group decides to enter if she expects to win the citizens' initiative contest. In related work, Felli and Merlo (2003) model the process of endogenous lobbying more formally and show how they bias policy towards the center in a one-dimensional policy space. However the co-ordination problem does not arise in their full information model.

These coordination or "grab-the-dollar" games have been discussed in the game theoretic literature (Fudenberg and Tirole, 1996, p. 230) where they consider symmetric mixed strategies of the entry game. A paper that is very close

to the formulation in this model is Bolton and Farrell (1990) which discusses the uncoordinated entry of two natural monopoly firms into the market. Our model is more general than their set-up as we also allow for the possibility that one or both interest groups can be successful when both of them enter.

The fact that the payoff  $\lambda$  is obtained once the required signatures have been collected captures the fact that by achieving this limit the public profile of an interest group is raised as she will then be able to put forward a policy on which the whole electorate is invited to vote upon. We so far assumed, in a reduced form, the expectation to win the ballot by each group as given which implies that only those groups enter who will be successful at the ballot. As has been argued in Barankay (2004) but also in Gerber (1996) and Felli and Merlo (2003), in a complete information model legislators anticipate the choice of interest groups to become active which will bias the policy choice by the legislator towards the median. Then in equilibrium no initiative groups are active. However, when we allow for some informational restrictions Besley and Coate (2002) give an example where in a model with informed and uninformed voters (as in Baron, 1994) there will be initiatives in equilibrium. Our paper's idea of a limited attention span with informational frictions is very much in line with the latter approach. The fact that two separate groups can be active in equilibrium also needs motivation on the policy front. In reality most elections and votes do not go uncontested, and in fact seemingly similar groups compete against each other. For instance it has been argued that in Switzerland, the empirical context of the next section, during the eighties and the nineties of the last century, ecological lobbies hindered each other in their efforts to introduce new legislation via citizens' initiatives due to a lack of co-operation which lead to several groups to fail simultaneously both because they did not have the necessary funds to strengthen their signature collection and advertising activities

due to congestion. Both these phenomena have emerged as results in the model. See the also the book by Matzusaka (2004) for further evidence on the effect of direct democratic institutions.

## 2.5 Policy-dependent payoff

The result that for certain parameter values there is an invariance in the number of successful entries even after a change in the signature requirement has been derived by taking the payoff from the initiative process as given. In particular it has been assumed that the payoff from a successful campaign,  $\lambda$ , is the same across both groups. We now model the value of that parameter more explicitly to see if the results so far are robust. First we will allow the *status quo policy* to be exogenously given. By this we mean that when the required number of signatures changes, the policy in place that is challenged by the citizens' initiative does not vary. For an exogenously given policy level  $\bar{p}$ , the gain for each group from overturning that policy and impose the own bliss point is

$$\lambda_g(\bar{p}) = u(p_g; \theta_i) - u(\bar{p}; \theta_i) \quad (7)$$

There are then two cases to consider. First, when the more popular group one - as  $q_1 > q_2$  - has more to gain from imposing its own bliss point, i.e.  $\lambda_1(\bar{p}) > \lambda_2(\bar{p})$ . The second case is when group 2 has more to gain from overturning the status quo, i.e.  $\lambda_1(\bar{p}) < \lambda_2(\bar{p})$ . The innovation now is that from the point of view of a group, when the other group will be successful than the payoff changes.

In fact when the other group,  $-g$ , gets to impose its bliss point policy  $\theta_{-g}$  the change in payoff to group  $g$  with bliss point policy  $\theta_g$  with respect to the status quo policy  $\bar{p}$  is;

$$l_g(\bar{p}) = u(\theta_{-g}; \theta_g) - u(\bar{p}; \theta_g) \quad (8)$$

where  $l_i(\bar{p})$  is the value of gain for a given,  $\theta_g$ ,  $\theta_{-g}$  and  $\bar{p}$ . When  $l_g(\bar{p}) > 0$  there is a gain. This occurs when both groups are on the same side in the policy dimension with respect to the status quo policy. When  $l_g(\bar{p}) < 0$  then a group is made worse off from the implementation of the other groups most preferred policy which occurs when the bliss point of the other group is further away from the bliss point of group  $g$  than the status quo policy, i.e.  $\theta_g < \bar{p} < \theta_{-g}$  or  $\theta_g > \bar{p} > \theta_{-g}$ . Clearly  $l_g(\bar{p}) < \lambda_g(\bar{p})$ . As before, we focus on the situation when there is *no overlap*. Then the first payoff matrix is changed to

$\tilde{n}(r_1^* = 1) < \bar{n} \leq q_1 N$	group 2 enters	stays out
group 1 enters	$-cN, -cN$	$\lambda_1(\bar{p}) - c\frac{\bar{n}}{q_1}, l_2(\bar{p})$
stays out	$0, -cN$	$0, 0$

To make the discussion interesting, assume  $\lambda_1(\bar{p}) - c\frac{\bar{n}}{q_1} > 0$ .<sup>14</sup> Clearly the best outcome from the perspective of group 1 is to enter and the other group to stay out as  $\lambda_1(\bar{p}) - c\frac{\bar{n}}{q_1} > -cN$ .<sup>15</sup> To ensure existence of this pure strategy equilibrium, we require an additional condition that  $l_2(\bar{p}) > -cN$ ; that is, the loss to group 2 from staying out and the other group to succeed must not be worse than the loss from approaching all voters for support and to fail. If that requirement would not hold, than group 2 would also enter to spoil the success of group 1 and no pure Nash equilibrium in this game exists where a group enters. Indeed this spoiler threat of group 2 ensures that both groups could stay out.

Next, we look at the case at the second matrix with a lower signature requirement.

<sup>14</sup>That's it the necessary condition for the more popular group to enter when the signature requirement is high. Otherwise no group will enter.

<sup>15</sup>To limit on notation we represent the matrix in term of changes in utility,  $\lambda_g(\bar{p}) \setminus$  and  $l_g(\bar{p})$ , with respect to the status quo utility  $u(\bar{p}; \theta_g)$ .

$q_2N < \bar{n} \leq \tilde{n}(r_1^* = 1)$	group 2 enters	stays out
group 1 enters	$\lambda_1(\bar{p}) - cr_1^*N, l_2(\bar{p}) - cN$	$\lambda_1(\bar{p}) - c\frac{\bar{n}}{q_1}, l_2(\bar{p})$
stays out	$0, -cN$	$0, 0$

Now note that when group two enters, it will fail to collect the required signatures but is deriving the new utility level  $l_2(\bar{p})$  as group 1 will always be successful. Therefore group 1 enters and group stays out.

Next the third matrix is now

$\tilde{n}(r_2^* = 1) < \bar{n} < q_2N$	group 2 enters	stays out
group 1 enters	$\lambda_1(\bar{p}) - cr_1^*N, l_2(\bar{p}) - cN$	$\lambda_1(\bar{p}) - c\frac{\bar{n}}{q_1}, l_2(\bar{p})$
stays out	$l_1(\bar{p}), \lambda_2(\bar{p}) - c\frac{\bar{n}}{q_{21}}$	$0, 0$

Now two situations may arise. When  $l_1(\bar{p}) > \lambda_1(\bar{p}) - cr_1^*N$ , group 1 prefers to free ride on the effort of group 2 rather than to become active itself. Then we again find that there are two asymmetric equilibria, in which one group enters and the other stays out. The caveat with asymmetric Nash equilibria applies here again. If, however,  $l_1(\bar{p}) < \lambda_1(\bar{p}) - cr_1^*N$ , then we again find that group 1 enters and group 2 stays out.

Finally, the last matrix is now changed to

$\bar{n} < \tilde{n}(r_2^* = 1)$	group 2 enters	stays out
group 1 enters	$\lambda_1(\bar{p}) - cr_1^*N, \lambda_2(\bar{p}) - cr_2^*N$	$\lambda_1(\bar{p}) - c\frac{\bar{n}}{q_1}, l_2(\bar{p})$
stays out	$l_1(\bar{p}), \lambda_2(\bar{p}) - c\frac{\bar{n}}{q_{21}}$	$0, 0$

For some restrictions on the parameters, we find that both groups enter.

In summary, although the predictions are much less sharp than before, notably because we may find no equilibrium in pure strategies where groups enter,

the number of successful groups is weakly increasing in the degree of openness, but for most parameters, as before, the number of successful groups remains the same. The fact that a group enters to spoil the success of the other group is reminiscent of the work by Besley and Coate (1997) who show in their citizen-candidate model that equilibria can exist with two entrants with opposing policies and show that their need not be a central tendency for political outcomes. The argument that a group enters as a spoiler corresponds to the situation in the Besley-Coate model that candidates enter just to spoil the success of the other candidate, and this is a credible threat as the disutility derived from the other candidate being successful (and thus to influence policy) is large enough to warrant the incurrence of entry cost.

## 2.6 Business-stealing between groups

So far it has been assumed that the probability that a member of the electorate will support a group when approached,  $q_i$ , is independent from the entry decision of the other group. This can be realistic if groups supporting very different platforms are active. However, when groups with similar platforms are active, then the simultaneous presence are likely to affect the support probability due to a business-stealing affect. For instance, in the context of Switzerland, it has been argued that the activity of numerous groups with an ecological platform in the 1980s has significantly reduced the support - and hence the success - of any one group.

In terms of the model one could simply allow  $q_i$  to be a function of the type of the other group  $-i$  being active. We can then allow that the effect of its presence on the support probability to be a function of the similarity of their platforms. Assume that there exists a measure of similarity between groups - relating to ideology or policy - and its effect can be captured by a parameter

$\rho \in [0, 1]$ . Its effect on the probability of success can be thus captured by

$$q_i(1 - \rho e_{-i}). \quad (9)$$

Therefore when the other group is active but  $\rho = 0$ , its presence has no effect on the first group's success probability; when  $\rho > 0$ , the presence of the other group affects their probability directly. The analysis of the previous sections is affected in two ways. First, to entice entry the change in the signature requirement has to be relatively bigger when the groups that marginally stayed out are similar. This is so as these groups do not only have to overcome the congestion but also the business-stealing effect. Again, when the groups find it hard to coordinate their actions, the implication is that when both of them are active, when only one of them can be successful, the effect will be a reduction in the number of successful signature collections even though fewer supporters are needed. It is then immediate<sup>16</sup> that under coordination failure the effect of a reduction in successful interest groups is stronger when similar groups are active at the same time.

## 2.7 Empirical Predictions

From the theoretical discussion so far we can derive some empirically testable implications.

1. *An increase in openness leads to a (weak) increase in citizens' initiatives when groups are able to coordinate their actions such that they play asymmetric equilibria when they arise. However, when groups fail to coordinate, an increase in openness leads to a (weak) reduction in the number of citizens' initiatives.*

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<sup>16</sup>Proof is available on request from the author. The intuition is that under stronger business-stealing, there is a wider range of openness parameters under which asymmetric equilibria exist.



2. *With coordination failure, the reduction in citizens' initiatives is increasing in the extent of the business-stealing between groups.*
3. *The increase in the number of people approached for support is larger than the change in the signature requirement. The increase in the number of people approached is also increasing in the extent of the business-stealing effect.*

The first prediction sheds light empirically on how groups interact: if more openness leads to less successful signature collections, it is direct evidence for coordination failure. The identification of this effect can have important policy implications. For instance if coordination failure were acute, it could be of use to regulate the number of groups that can be active at any point in time.

The second prediction relates to the business-stealing effect. A direct test for its existence is to see groups who are most likely to compete on similar platforms have more to gain from a coordination of entry than those that run their campaigns on very different platforms. The former aim at similar policies and each of them thus strictly prefers the other group to be successful than that both of them fail. On the other hand, dissimilar groups strictly prefer the other group to fail and the status quo to continue.

The third prediction is split into two parts. The first part is an unambiguous prediction that the number of people approached changes by more in absolute terms than a change in signature requirements. This is driven by the informational asymmetry over preferences between the groups and the voters. The second part is a direct implication of the business-stealing effect. If it is strong, then more voters have to be approached after a change in openness to obtain the sufficient number of signatures.

## 3 Empirical Evidence

### 3.1 Data Context

To test the four empirical predictions we use a panel from 21 Swiss Cantons for the period 1973 to 1996.<sup>17</sup> We will focus our attention to citizens' initiatives that are of two types in Switzerland: the legislative initiative and the initiative for partial revision of the cantonal constitution. The Swiss Cantons are a very natural empirical context. First, there is an extensive experience with direct democratic institutions in Switzerland at all levels of government. Thus empirical results are not confounded by learning by the polity of how to use these institutions which is an issue when looking at countries that introduced these tools closer to the selected time period, e.g. in Italy or Germany, at the local level.

Second, Switzerland is a Confederation of Cantons. Each Canton is autonomous in its choice of Constitution and legislation. That is, each Canton can independently alter the openness of its institutions.

The panel structure of the data allows us to control for unobserved heterogeneity at the canton level and those that are specific to a period of time. These types of heterogeneity are particularly important in the analysis of political activism as these are also driven by political, social, or economic culture and habits that are hard to observe or to measure. The use of a panel data set is thus a distinct advantage over case studies which cannot control for unobserved covariates. The identification of the effect of a change in openness on activism is thus within a canton and period.

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<sup>17</sup>This data is based on the description of direct democratic institutions on the cantonal level carried out by Trechsel and Serdült (1999). The starting period is restricted to after 1971 to year when voting for women has been introduced in all cantonal ballots. As we only have two years before the introduction we preferred to exclude those years. None of the results are sensitive to the exclusion of those observations.

### 3.2 Usage of Initiatives

It is instructive to first have a look at the evolution of usage of citizens' initiatives at a descriptive level. Over the period of 1973 to 1996, there have been 365 Cantonal initiative ballots.<sup>18</sup> Our data also contains voter participation and the result of ballots relating to each ballot. What is striking is the very low level of successful ballots. Of the 365 initiatives only 106, that is 29%, were successful. To some extent this can be explained by the fact that the Cantonal Governments do accommodate the threat by promising to pass similar legislation *after* successful signature collection. But it must also be the case that initiatives are launched that the legislator knows that fail at the ballot which means that there is no need to accommodate to them. Finally, some issues are very contentious so that in the presence of direct legislation, governments may prefer that these *hot potatoes* are left to political interest groups to make legislative proposals. It is therefore not probable that 71% of initiatives fail because the legislators accommodated it between the moment when the signature collection has been completed and the actual date of the ballot.<sup>19,20</sup> This can be taken as evidence that the success of the signature collection and thus the induced ballot in itself are attractive goals to politically motivated groups possibly as they raise the public profile of these groups. It is therefore in line with the way the entry decision has been modeled in the first model of the previous section where the decision to enter was only dependent on a fixed prize  $\lambda$  independent of the probability of winning the ballot.

To get a feel for the historic propensity of voters to be politically active, we

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<sup>18</sup>Of those, 265 were legislative initiatives and 90 were initiatives for the partial revision of the constitution. These numbers refer to actual ballots that took place. Data is not available on the number of attempted signature collections that have been unsuccessful and those ballots that have been withdrawn after successful collections.

<sup>19</sup>Again, see Barankay (2005) for an analysis of those initiatives that put governments under pressure to accommodate.

<sup>20</sup>This number is however not out of line with the success of legislative initiatives *within* democratic parliaments.

can look at the number of votes cast per year and per member of electorate. For a given size of the electorate, we can construct the per voter activism parameter for a canton  $i$  and year  $t$ :

$$A_{it} = \frac{votes_{it}}{electorate_{it}} \quad (10)$$

The turn-out rate per voter in the sample is 0.73 votes cast per voter and year for cantonal citizen's initiatives alone. This is an underestimate of actual average voting activity since we did not take into account voting in elections and voting for ballots at the federal and local (county) levels. Thus although actual voter participation may be low for a given ballot the overall political activity is very high among Swiss voters.<sup>21</sup>

### 3.3 Openness and Entry

Since 1973, Switzerland has witnessed many changes within and across its cantons in the openness of citizens' initiatives.<sup>22</sup> The measure of openness used  $Q_{it}$  in this paper is

$$Q_{it} = \frac{S_{it}}{E_{it}}, \quad (11)$$

where  $S_{it}$  is the number of signatures that have to be collected and  $E_{it}$  is the size of the electorate in a period  $t$  and a canton  $i$ ; it is thus the share of the electorate among which signatures have to be collected so that a ballot takes place.

There are two sources of variation in openness across space and time. First, cantons regulate the number of signatures that have to be collected<sup>23</sup>, and be-

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<sup>21</sup>To contrast this, take a country in Europe without direct democratic institutions where usually in any four year period there is one election for central government and one for local government which even with 100% voter participation results in only 0.5 votes per voter and year.

<sup>22</sup>For a complete documentation of the period between 1970 and 1996 see Trechsel and Serdült (1999), Trechsel (2000), and Barankay *et al.* (2003).

<sup>23</sup>Thus, they not directly regulate the signatures as a share of the electorate nor do they specify them to be a certain percentage of voter participation at the last major election as in the U.S.A.

tween 1972 and 1996 several cantons changed the signature requirement. For example, in 1994 the Canton of Valais halved the number of signatures that are necessary for a constitutional initiative to be launched. In other words, from this moment on, gathering signatures from about 3.5% instead of the previous 7% percent of the electorate is sufficient for putting a constitutional issue on the ballot. Second, the size of the electorate changes yearly in all cantons. Thus, both the numerator and the denominator of our measure of openness changed over time and across cantons.

### 3.4 Estimation

To relate institutional openness and the number of ballots we estimate the following model;

$$B_{it} = \alpha_i + \lambda_t + \gamma Q_{it-4} + \beta X_{it-4} + \varepsilon_{it} \quad (12)$$

where  $B_{it}$  stands for the number of direct democratic ballots that took place in a canton  $i$  and a year  $t$ . The coefficient of interest is  $\gamma$  capturing the effect of a change in openness  $Q_{it-4}$ . The  $X_{it}$  stand for additional control variables that vary by year and a canton. The  $\alpha_i$  and  $\lambda_t$  are canton and year fixed effects, respectively.

Among the control variables  $X_{it}$ , we include the unemployment rate in each canton, real per capita income growth for each canton in 1990 Swiss Francs, the share of population with at least 12 years of education, total government expenditure per voter,<sup>24</sup> and the size of the electorate. These variables serve as proxies for the changing economic environment reflecting social and economic hardship measured by income and unemployment, the importance of the state

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<sup>24</sup>This is the sum of the local and the cantonal expenditures in a canton divided by the size of the electorate.

in the economy measured by expenditure levels, and the level of human capital proxied by the level of education.

{To allow for a dynamic structure in the error terms we ran regressions that allowed for a first-order serial correlation, AR(1), such that  $\varepsilon_{it} = \rho\varepsilon_{it} + \zeta_{it}$  where  $\rho$  stands for the correlation in the error term with  $\zeta_{it}$  assumed to be identically and independently distributed. We also allowed for panel-level (within group) heteroscedasticity,  $E(\varepsilon_{it}^2) = \sigma_i^2$ ; that is, each Canton was allowed to have a different variance. Lastly, in the case when the number of years of data is at least as large as the number of panels,  $T \geq I$ , we also allowed the error term to be contemporaneously correlated,  $E(\varepsilon_{it}\varepsilon_{jt}) = \sigma_{ij}$ ; that is, we allowed errors to be correlated across cantons.<sup>25</sup>}

Table 2.2 presents the results of a change in institutional openness on the number of direct democratic ballots. The specification allows for a two-way error term component to allow for cantonal and year fixed effects.

The number of observations reflects the number of canton-years each institution has been available and ranges between 350 and 536. On average it takes 3 years between the time the signature collection is finished and the actual date of the ballot (Barankay 2005). The signature collection itself including preparation takes a further year. We thus lag the right hand side variables by four years to estimate the coefficients relating for the period in which the signature collection took place. We limit the data to citizens' initiatives as it was the focus of the previous theoretical considerations.<sup>26</sup>

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<sup>25</sup>Even if efficiency arguments point to the use of Feasible Generalized Least Squares to model serial and contemporaneous correlation, the small sample bias of the specifications induce a large bias in standard errors. Therefore, we preferred to run panel corrected standard error (PCSE) estimates via OLS that perform rather well in the panels of this size. The specific error structure employed is described for all regressions in the tables. In all regressions

the joint significance of the year and the canton dummy has been tested and found to be significant.

<sup>26</sup>We thus abstract from referendums which are ballots on legislation authored by the cantonal government.

Starting with the impact of the number of signatures, our results are rather conflicting: Regression 1 of Table 2.2 gives the results for optional expenditure referendums where the coefficient on the fraction of the electorate among whom signatures have to be collected is not significant. This is also true for initiatives on partial constitutional revisions in regression 4. For the case of legislative referendums (regression 2), we find that having to collect more signatures reduces the number of votes that actually took place. This coefficient is significant at the 5% level. Finally, we can see in column 3 that in the case of legislative initiatives the signature requirement is positively related to the number of ballots but only with a 10% significance level: the higher the number of signatures, the higher the number of ballots.

This mixed picture also holds for our second measure of institutional openness, which is the time allowed to collect signatures. Here, we have to distinguish two cases. For the expenditure and the legislative referendum, we have enough variation within a canton across the period of study. Therefore, for these two institutions we include the actual time period during which citizens were allowed to collect signatures (column 1 and 2). Relaxing the time constraint has a very significant and positive effect on the number of expenditure referendums: the more time to collect signatures, the higher the number of referendums that were voted upon. By contrast, the relation is negative, but again only weakly significant, for the case of legislative referendums.

The other two institutions in column 3 and 4 did not witness enough changes in the time constraint.<sup>27</sup> Instead, four cantons changed the administrative rules from having no time constraint at all to introducing a time constraint. As this is a much more important source of variation, we generated a dummy variable that measures whether a time constraint existed. In column 3 the

<sup>27</sup>To be precise, only the Canton of Geneva changed the time constraint for these institutions in the period of study.

relationship is significant and negative, which means that introducing a time constraint reduces the number of legislative initiatives. For this institution we can thus state that the time constraint matters. However, the relationship is not statistically significant for partial constitutional revisions (column 4).

In sum, institutional openness appears to play a role in some cases but the effect is weak and varies strongly from one type of direct democratic institutions to the other. It is the richness of our data set that enables us to highlight the differences across direct democratic institutions. Moreover, the effects also depend on the indicator of institutional openness that we use. Thus, the number of signatures has the expected influence on the frequency of popular votes only in the case of the legislative referendum, and the time constraint only in the case of the legislative initiative. Overall, then, these inconsistent results tend to support the null-hypothesis. That is, they tend to contradict the view of Kriesi (1998) and Kriesi and Wisler (1996) that the use of direct democratic tools is higher where the institutional “entry cost” is lower.

Empirical evidence also tends to contradict the hypothesis on the link between concordance and the use of democratic instruments. While the coefficients have the expected sign, only in the case of legislative referendums does concordance have a significant impact on the number of ballots. This result confirms that of Trechsel (2000: 109 ff.), who used the same data set but a different methodological design (bivariate regressions of average data, instead of multivariate regressions of panel data).

Looking at the other control variables, we only find very limited and isolated effects on the frequency of referendums and initiatives. Thus, our results show that the higher the unemployment rate in a canton, the higher the number of optional expenditure referendums, but only at a 10% level of significance. This result is intriguing, although there is no obvious interpretation for it. A tenta-



tive explanation could be that higher unemployment results in more government expenditure, which, in turn, could influence the number of expenditure referendums, submitted to the electorate. Note that the year dummies capture seasonal changes that affected the whole of Switzerland, like the pronounced increase in unemployment in the 90's. Similarly, the frequency of expenditure referendums increases as a function of total government expenditure per voter. This result is not really surprising: the more money is spent, the higher the probability of a multiplication of parliamentary decisions containing expenditures that reach the threshold for submission to the referendum. Or in other words: the potential number of referendums increases, causing in turn an increase in the actual number of referendums.

Another variable that has a significant impact on the number of expenditure referendums is the linguistic region: the use of this direct democratic institution is less frequent in the French or Italian speaking cantons than in the German speaking cantons. This is interesting since the level of expenditure is controlled for and French and Italian speaking cantons have higher per capita expenditure.

Further control variables are a dummy if the majority in a canton declared themselves to be Protestant, which is not significant. Although cultural and historic differences across cantons are important, they seem to be better captured by the canton fixed effects. Also, we fail to find a significant effect of the size of the electorate on the frequency of direct democratic votes. The same is true for the strength of left-wing and green parties: there is no consistent and significant effect of this variable on the number of optional referendums and popular initiatives. One could argue that the stronger a left-wing and green opposition is in a given canton, the better these forces are integrated into the processes of representative democracy, and are therefore less tempted to use direct democratic instruments. Our data does not, however, permit us to measure

who made use of the referendum and the initiative. However, our results show that the use of direct democracy is independent from the electoral power of left and green parties on the cantonal level.

One important critique that could be raised against our estimations so far is the lack of a more explicit dynamic structure. In particular, political activities in a canton are subject to inertia and cycles. Periods of high activity can be followed by a calm stretch of time and vice versa. Such considerations call for an estimation of dynamic panels. These regressions take the form of:

$$B_{it} = \sum_{j=1}^p \phi_j B_{it-j} + \alpha_{it} + \beta_1 S_{it-1} + \beta_2 T_{it-1} + \beta_3 X1_{it-1} + \dots + \tau_i + \nu_i + \varepsilon_{it} \quad (13)$$

These estimations are produced via the Arellano-Bond (1991) dynamic panel data estimator derived from instrumental generalized methods of moments (GMM). Table 2.3 presents the same regression as in Table 2.2 but for the dynamic panel case. As the estimator assumes that there is no second-order autocorrelation in the first-differenced idiosyncratic errors, we present results of the tests from Arellano-Bond (1991) on this assumption. In all specifications it is satisfied.<sup>28</sup> Note that the regressions are based on first-differenced variables, that is the change between period  $t$  and period  $t - 1$  for each canton  $i$ . See Arellano-Bond (1991) for further properties of the estimator. Therefore, the dummy variable for the linguistic region had to be dropped, as no canton witnessed a change in the dominant language.

These additional regressions again confirm the weakness of the link between institutional openness and the frequency of referendums and initiatives. The estimations show that the signature requirements are never significant. Similarly,

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<sup>28</sup>Also the Sargan test suggests that the over-identifying restrictions are valid. These tests informed the model selection and determined whether one or two lagged dependent variables are included, that is when, after inclusion of one lagged dependent variable, that test was rejected, the dependent variable lagged by two years was introduced.

the coefficient on the signature-gathering period that was highly significant for the expenditure referendum (Table 2.2) is no longer so. Furthermore, the coefficient in the regression of the legislative optional referendums is again significant and negative, that is more time for signature collection is associated with fewer ballots. Turning to the introduction of time constraints as such, we still find a strong relation for the legislative initiative but none for constitutional ones. In other words, only the introduction of the time constraint for the legislative initiative had a robust negative effect on the frequency of ballots in a canton and a year. This is the only case where we find a consistent empirical support for our first hypothesis. Therefore, it seems safe to conclude that institutional openness has hardly any impact on the use of direct democratic institutions.

## 4 Institutional Openness and Voter Participation

### 4.1 Theoretical Considerations

We now turn to one further investigation into the effect of institutional change. The question we ask is whether a change in the signature requirement and the time to collect them changes voter participation at the ballot. This is an interesting question for at least two reasons. First, the low level of voter participation is a talking point in the democratic world all over. Low participation, it is argued, can mean a weak legitimacy for members of the legislature. Second, and more crucial, a change in an institution that affects voter turnout needs in no way to imply that voter participation increases among all groups of voters. A famous example are the Jim Crow laws in the US that in fact were put in place to lower the voter participation of Black voters.<sup>29</sup> The same concern, if not so dramatic, applies to the institutions of direct democracy. Suppose a change in

<sup>29</sup>See Husted and Kenny (1997) and Filer et al. (1991) for empirical evidence.

the signature requirement increases voter turnout. Does that make approval by voters of initiatives incoherent with government policies more or less likely? Will it rather increase voter participation of left- or right-wing voters? Clearly these are burning questions in a modern and mature democracy, and to answer all of them is beyond the scope of this article. What we will try to assess is if a change in voter participation occurred, and we will attempt to give an explanation as to why there may be a link with the “openness” of direct democratic institutions.

Popular initiatives and referendums are mostly launched to change policy. When a group of voters contemplates such a step, it clearly assesses the probability to win the ballot. To do so, it needs to mobilize enough supporters to receive a majority of votes. It is recognized among party strategists that it is a very inferior strategy to hope that the idea of an initiative in itself is bright enough to get people to vote for it in any case. Rather, it is important to talk to as many voters as necessary to convince them of the proposition at hand. Thus, it is a leader that needs to decide how many potential followers he needs to mobilize in order to win an election. This approach has been modeled and brought to the data by Shachar and Nalebuff (1999). In their work they showed convincingly that political leaders expand effort according to their chance of being pivotal: the closer the race the higher the effort and thus the higher political participation. In that article data was used on the number of visits by party campaigners to potential voters to proxy for party effort.

This has an intuitive appeal for direct democracy, too. In a closely related way, contacting potential voters during the signature collection process is not an end in itself but is already an important step to mobilize voters to turn out to vote. Suppose that signature collection is the only way campaigners can have a contact with voters. Increasing the signature requirement should then have a

clear positive effect on voter participation: once a voter has heard of it and liked the idea, she is more likely to vote when someone talked to her in person.<sup>30</sup> Now relax the assumption that the contact between campaigners and voters can only be made during the collection period. In many cases the real effort to mobilize voters is fostered after this period has been successfully completed. In this case the signature requirements should not play a role, as that constraint is slack. Thus, we introduce variables described in the next section to control for those cases where the effort increases substantially beyond the threshold required by the institutional framework.

In summary, we can stipulate a further hypothesis that the *lower* the institutional openness, the *higher* is voter participation.

By institutional openness, we more specifically mean the signature requirements. Time constraints are not expected to influence voter turnout, as a shorter or longer time constraint does affect the signals sent to the voters and should, therefore, not translate into higher or lower mobilization.

## 4.2 Empirical Estimation

As a first variable to control for the additional effort we also include a measure of closeness of the vote, which has been reported to play an important role in political participation.<sup>31</sup> Shachar and Nalebuff (1999) run structural estimations of an equilibrium model to take account of the simultaneity in the determination of closeness and participation.<sup>32</sup>

The proximate measure of closeness is the extent to which the negative of the winner's vote exceeds 50 percent. This means that a vote with 55 percent

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<sup>30</sup>The same of course is true if that very person rejects the idea completely as she then will remember to vote against it when the day of the ballot draws nearer.

<sup>31</sup>Various specifications of partial equilibrium models have been estimated: Rosenthal and Sen (1973), Kau and Rubin (1976), Crain and Deaton (1977), Foster (1984), Darvish and Rosenberg (1988), and Matsusaka (1993).

<sup>32</sup>For a survey on theoretical topics in voter participation, see Dhillon and Peralta (2002) and the references therein.

of Yes-votes is as close as a vote with 55 percent of Nays but twice as close as a vote with 60 percent of favorable votes. A major problem in using the actual closeness as an explanatory variable is that it is the predicted or anticipated closeness that has an effect on voter participation: if a vote appears to be a close call, voters who would not have cared to vote start to get interested in the issue. This, however, is not a plausible determinant for an individual to decide to vote as the probability that a single person's vote can swing the ballot in a canton is in most cases indistinguishably different from zero (in the same vein see also Joye & Papadopoulos 1994: 268 f.).<sup>33</sup> A more plausible approach is a model in which a political leader increases his effort to foster the participation among those who are in favor of the proposed law when the vote is close: a major reason for campaigning is not only to reward those that are already decided to vote, but also to get the undecided voters to turn out. Political strategists have long recognized that it is much less costly to turn an indifferent person into a partisan than to convince a voter to change her mind on their political inclination.

The second variable that has an influence on participation is the presence of simultaneous votes on different issues on the same day. Especially in cantons with numerous referendums and initiatives it is common to bundle ballots. For instance, in the canton of Zug, there were three ballots on December 1st 1985. There are two main arguments for bundling. First, cost considerations of the administration call to have several votes especially in those cantons that have a high use of direct democratic institutions. Second, if one takes models of individual cost-benefit analysis of voter participation seriously, a way to increase turnout on marginal issues is to have several of them on a day.<sup>34</sup> Lastly, it is also

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<sup>33</sup>See Shachar and Nalebuff (1999) for a discussion of different approaches how the probability of a pivotal vote can be calculated.

<sup>34</sup>This argument can, however, be turned around in that some ballots are "buried" among others on the same day: voter's with a short span of attention to complex issues may tend to reject new laws, which is also called the status quo bias (see also for the Swiss context Christin

important to control for the case when federal ballots were voted upon on the same day with the cantonal votes. The former receive much larger and national media coverage than the latter, and voter turnout is expected to increase.<sup>35</sup> There remain other interesting variables that can influence turnout, like the openness and use of local direct democratic rules. Unfortunately, there is no comprehensive data set that captures the institutional framework in the 3000 local jurisdictions. Also, the question of how to aggregate these characteristics to construct a cantonal metric of local direct democracy is not a trivial task. We leave these challenges to future research.

In Table 2.4 we present results of regressions on voter participation. To maximize the number of observations, we take all ballots on initiatives and optional referendums and control for the different types of institutions by a set of dummy variables.<sup>36</sup> We thus have data on 699 ballots.<sup>37</sup> As can be seen, and across all specifications, the number of signatures has a very robust impact: if the signature requirement has been increased by one percent, i.e. by 0.01, the voter participation increases by two percent.

The coefficients on the other main controlling variables also merit discussion. First, the closer the outcome of the vote the higher the participation. Due to the simultaneity of this variable, we drop this highly significant variable to see if it affects the other coefficients of interest because of the endogeneity of this variable. It does not; that is, the problem of bias due to endogeneity does not affect

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et al. 2002, Kriesi 2002b). Even more forcefully if there is an issue that, due to its salience attracted a lot of media attention and therefore mobilises a lot of voters, say, on the right, bundling it with an initiative from the left that has received only few newspaper columns reduces the hope of success for the latter drastically. Bundling then can be an effective way to make an initiative fail at the ballot. To test between these arguments is a formidable challenge both econometrically and on the data requirements (see e.g. Riker and Ordeshook 1968).

<sup>35</sup>Note, that the problems of simultaneity in the closeness and the bundling variable do not affect the signature variable, as the signature requirements can plausibly be assumed to be determined independently from the turnout level for each vote.

<sup>36</sup>Running separate regressions for each institution estimates the effect too inefficiently due to decrease in the number of observations.

<sup>37</sup>Although some cantons experience more ballots than others no bias in the estimates is generated by this as the canton dummies control for this effect. See Baltagi (1995).

the coefficient on the signature requirement,<sup>38</sup> and we are therefore confident that it controls for other factors without affecting the inference on openness, which are the parameters that are the focus of this article. Second, the presence of a federal vote increases turnout by 12% at the mean. Third, bundling of cantonal votes is associated with lower turnout only once the variables controlling for the presence of the federal vote has been omitted. Care should, however, be taken in the interpretation of this parameter, as it is determined simultaneously with the participation variable. Thus, we cannot tell the difference between ballots whose participation rate is low because they are bundled with others on the same day or if popular initiatives are bundled because they are on such topics that attract few voters only.<sup>39</sup> Therefore, we also dropped this variable in the last column to see if there is any bias introduced due to endogeneity. We can reject that as the coefficient on the signature variable is unaltered after the bundling variable is omitted. Fourth, among the four categories of direct democratic instruments, the initiative for a partial revision of the Constitution - the base category - displays a significantly lower participation rate compared to either of the other three institutions (legislative referendum, legislative initiative or expenditure referendum). Further discussion on the effect across institutions is given below. Lastly, it is interesting to note that the unemployment rate stands in a strong relationship with turnout:<sup>40</sup> the higher the unemployment

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<sup>38</sup>To be precise, dropping those variables does not affect the significance of the coefficients and their value is not statistically different across the four specifications thus there is no issue of omitted variable bias either.

<sup>39</sup>To make a powerful test on the bundling we would need to have data on comparable initiatives that occur independently in different cantons and are once bundled and once voted upon individually. This can be an avenue for future empirical work.

<sup>40</sup>Several arguments on the link between voter turnout and unemployment have been put forward. Thus, unemployed people can have a high incentive to vote when the current government is not tailoring redistribute measures to their needs. This would, however, depend on each individual ballot and we would not have a general prediction. Second, the unemployed seek help to overcome their situation. If they seek it via a change in policy, the decision to participate or not really depends on the faith they have in what the political system can do for them. But again, the empirical prediction depends jointly on the faith of the unemployed in the political system and the specific choices presented at the ballot. Thirdly, it has been argued that unemployed are harder to reach by party strategists, which leads to lower turnout



rate in a canton, the stronger its electorate mobilizes at the polls and that voter participation in the French and Italian speaking cantons is around 13% lower.

Results from further sensitivity analyses are given in Table 2.5. Here we include a further set of variables to see if the significance of the coefficients is driven by a specific direct democratic institution.

To approach this question, the openness measures are interacted with the set of dummies for the different direct democratic institutions. That is, we include the signature requirement and the time constraint, then we control for the fact that a specific ballot has been either an expenditure referendum, a legislative referendum or a legislative initiative. Again, the constitutional initiative is the base category. Additionally, we now also include interaction terms between the openness measures and the set of institutional dummies. This gives us the following specification:

$$Part_{kit} = \alpha + \beta_1 \bar{S}_{it} + \beta_2 \bar{T}_{it-1} + \sum_k \gamma_k DI_{bk} + \sum_k \delta_k DI_{bk} \bar{S}_{it} + \sum_k \phi_k DI_{bk} \bar{T}_{it} + \dots + \tau_t + \nu_i + \varepsilon_{it}$$

$Part_{kit}$  stands for the voter participation rate in a ballot of type  $k$  in canton  $i$  in year  $t$ ,  $\bar{S}_{it}$  is the mean signature rate across all four institutions,  $\bar{T}_{it}$  is the mean time constraint to collect signatures,<sup>41</sup>  $DI_{bk}$  is a dummy variable that is equal to one if the ballot  $b$  is of institution  $k$  - e.g. when the ballot is a legislative initiative the dummy value for that institution is one but zero otherwise - and finally  $(DI_{bk} \cdot \bar{S}_{it})$  and  $(DI_{bk} \cdot \bar{T}_{it})$  are the interaction terms. Additionally the same control variables as before have been included. This equation allows us to uncover which openness measure is important for which type of institution. Two regressions are presented. In the first regressions all additional control variables

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among unemployed than among active people (Fauvelle-Aymar et al. 2000).

<sup>41</sup>That is  $\bar{S}_{it} = \text{mean}(S \text{ of expenditure ref., } S \text{ of legislative ref., } S \text{ of legislative initiative, } S \text{ of constitutional initiative})$  in canton  $i$  in year  $t$ . A similar definition applies to the mean time constraint.

are included. In the second column we deleted insignificant variables with a general-to-specific methodology to check for robustness.<sup>42</sup> At the bottom of the table we present two F-tests, first on the joint significance of the coefficients on the signature requirements - testing that  $\beta_1 = 0$  and all  $\sum_k \delta_k = 0$  - and second the joint significance of the time constraint - testing that  $\beta_2 = 0$  and all  $\sum_k \phi_k = 0$ .

The following results emerge. We can see, as before, that for all institutions together the signature requirement is very significant, with an F-test statistic of 8.59\*\*\* or 17.1\*\*\*. However, across all institutions the time constraint is not significant as supported by F-statistics of 1.21 and 1.16.

As the signature requirement is jointly significant, we can now look at a more disaggregate level to see how large the effect is on voter turnout by institution. We can then calculate the marginal effect of changes in the signature requirement for each of the four institutions based on the coefficients of the second, more parsimonious specification of regression (2) in Table 2.5. The first column gives the effect for the case of the expenditure referendum. Increasing the signature requirement by 0.01, that is an increase of the fraction of the population among which signatures have to be collected by 1 percent, increases voter turnout by 0.99 percent. As the mean of the voter participation is 39 percent with a standard deviation 12 (see Table 2.1), this is a sizeable effect. In the case of the legislative referendum the effect of a 1 percent rise leads to an increase of 1.42 percent in turnout and for the legislative initiative the effect is an increase of 1.20. The largest effect by far is for the constitutional initiative for partial revision where increasing the requirement by 1 percent leads to an increase in turnout of 3.01 percent.

In sum, we can state that the data supports the prediction that higher signa-

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<sup>42</sup>In that approach the most insignificant variables are removed first. Note that the coefficient on the share of left wing parties in parliament is not significant in the full specification but become significant once the other variables were removed.

ture requirements increase voter turnout. The identification of the - unintended - fostering effect of a high signature requirement on political participation is, to our knowledge, an new result. It suggests that an intense signature gathering process acts as a sort of “functional equivalent” of an intense referendum campaign with regard to the mobilization of citizens to turn out.

### 4.3 Relation to Previous Studies

The link between the change in the institutional context and the variation in the number of ballots has been subjected to a simple empirical test in Matsusaka (1995). Based on data from the US states between 1950 and 1980, he estimated the relationship between the number of initiatives in a US state over the whole data period and the inverse of the mean signatures to be collected in that state and found a positive and statistically significant relationship. As a comparative exercise we rerun the regression model for the case of the Swiss Cantons. Looking at all citizens’ initiatives on the cantonal level between 1970 and 1996, we obtain the following relation of

$$B_I = -0.082 + 0.459 \frac{1}{S}, \quad R^2 = 0.37, \quad 21 \text{ Observations} \quad (14)$$

where  $B_I$  stands for the number of initiatives. The t-statistic on the inverse of the signature variable is 3.56, which confirms the significant relation found in Matsusaka (1995). However, collapsing the data on cantonal levels over the period running over 1970-96 provides an equation with only 21 observations.<sup>43</sup> Yet more critically it assumes that unobservable factors specific to a canton are unimportant. Collapsing data over time effectively eliminates unobservable

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<sup>43</sup>These are 26 cantons minus the 5 cantons that used the so called “Landsgemeinde” during our period of analysis. Cantons with Landsgemeinde-procedures have a very different legislative and direct democratic process to pass laws based on a general assembly of all voters in those cantons.

shocks common across cantons and specific to a year (e.g. economic shocks) but it still omits canton-specific heterogeneity. This is by no means an innocuous assumption. This motivated the panel approach in Barankay *et al.* (2003). In that paper looking across all direct democratic institutions in Swiss Cantons (referendums and citizens' initiatives) no robust relationship between openness and the number of ballots has been found. However, referendums and citizen's initiatives are two very distinct types of direct democratic institutions: referendums are ballots on legislation authored by parliament whereas initiatives are generated from within the electorate. The contribution of this paper is to focus on and specifically model citizens' initiatives.

## 5 Conclusion

A natural extension is now to allow the legislator to respond strategically to a change in the threshold level such that the payoff from launching the initiative is changed in such a way that the initiative groups will not derive a positive benefit from becoming active. Taking the situation in the last matrix as an example, the condition for the legislator is to change policy from  $\bar{p}$  to  $\tilde{p}$  such that

$$u(p_g; \theta_i) - u(\tilde{p}; \theta_i) - c \frac{\bar{n}}{q_g} < 0 \quad (15)$$

for both groups. That is, both groups will have no incentive to become active. The legislator will have an incentive to do so as long as she has single-peaked preferences over public good provision: in the absence of a citizens' initiatives, she chooses her own bliss point as the level of public good provision; it is a dominant strategy for her to accommodate as she does not incur the cost of signature collection, which means that the accommodated policy  $\tilde{p}$  will not have to go as far as the bliss point of the group. So, a change in the signature

requirement will have no effect on the number of entrants. See Barankay (2004) for a model where the response of the legislator to a change in openness of a citizens' initiative is discussed in a one-dimensional policy space. In terms of this paper, however, the focus is on issues that are not as salient to matter for (re-)election probabilities so that legislators need not have an incentive to respond to them.

This chapter tried to shed new light on the relationship between institutional openness and the type of political activism it generates. We approached this question by endowing voters with a limited attention span. This can generate congestion when several interest groups try to convince a voter to support their cause. But it also helps to understand why voters respond to more intense campaigning. After a few theoretical considerations we approached panel data of Swiss Cantons over the period of 1970-1996 to investigate a specific type of political institution - direct democracy - to investigate the determinants of political activism. More specifically, we were interested in the impact of institutional openness (or "entry cost" ), as measured by the number of signatures required to force a vote and the available time to collect them, on the number of referendums and popular initiatives.

As compared to earlier studies in the field, the added value contribution stems from both theoretical and methodological refinements. At the theoretical level, we depart from a unilateral and simplistic view of the link between cost and use, and show that this link is subtler than it is usually assumed. In addition, we rely on a broader definition of the "use" of direct democratic institutions, one that includes not only the frequency of popular votes, but also voter turnout at the ballot. At the methodological level, unlike earlier studies, we ran panel regressions that enabled us to control for unobserved cantonal and

time heterogeneity.

Our analysis of the frequency of initiatives and referendums fails to confirm earlier studies in Switzerland (Kriesi 1998; Kriesi and Wisler 1996) or abroad (Banducci 1998; Matsusaka 1995) that reported a strong impact of institutional openness on the number of ballots. In line with other studies (Trechsel 2000; Vatter 2000), our results provide support however the prediction that a change in the entry cost need not have a significant influence on the number of popular votes. Due to the detailed structure of our data we could nevertheless highlight differences in the determinants with respect to four types of direct democratic institutions. When looking at institutions one by one we find that the introduction of a time constraint to collect signatures leads to a significant reduction in the frequency of legislative initiatives. Moreover, this result holds up well to an additional test based on dynamic panels. However, it is only an exception to the general rule that institutional openness does not influence the use of direct democratic devices.

While not belonging to the core of our article, the “concordance hypothesis” is a major argument in the political science literature on direct democracy. Here again, we clearly fail to find a significant relationship between a higher level of concordance, as measured by the share of parliamentary seats held by the governing coalition, and a lower number of referendums or initiatives. The relationship is significant only in the case of the legislative referendum, but this relationship is not robust to a dynamic specification.

Our results are more conclusive with respect to our second measure of political activism on the link between the signature requirement and voter participation. This relationship is significant and robust throughout all the estimations: the lower the institutional openness in terms of signatures, the higher the voter turnout at the ballot. While it puts a higher burden on the group that wants to

call for a referendum or for a legislative initiative, an increase in the signature requirement makes the proposals more visible to the public which in turn, fosters political participation. In a way the higher entry cost generated a positive externality on voter participation.

More generally, there is still a lot of scope for improving our understanding of the use of direct democracy. For instance, it would be interesting to learn what the effect of specific voting procedures, like the introduction of postal voting, or the type of information sent to the electorate, as for example the one contained in the ballot pamphlet sent to the electors, has on voter behavior. The role of information and the ability to process it by the electorate needs further understanding to inform the institutional design in those countries that contemplate the introduction or the extension of direct democratic institutions. Events like the California gubernatorial recall election of 2003 show clearly that poor design in this institution must be identified to avoid ad hoc changes in the policy outcome.

Last, but not least, we believe that our study shows to what great extent comparative politics in general and the analysis of democratic processes in particular may profit from the federal structure of Switzerland. In the literature, one of the main advantages of federalism is believed to be its scope for experimentation with public policies, political institutions and processes. Such experimentation on the sub-national level is clearly valuable in the design of policy on the national level by giving answers to questions about institutional changes of signature requirements for referendums and initiatives or the introduction of new democratic instruments. Moreover, the strong heterogeneity induced by the federal structure allows for novel scientific investigations, ultimately providing well-funded answers to academic hypotheses. In this sense, federal states, such as Switzerland, may serve as laboratories not only for policy makers and other

political actors, but for social scientists in general.



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## A Appendix

### A.1 The equilibrium Number of Approached Voters

The solutions to the simultaneous equation system of the share of voters a group has to approach when both groups are active are the solutions to quadratic functions. So for group 1 we have

$$\begin{aligned} r_1^{*+} &= \frac{2q_1q_2N - q_1n + nq_2 + \sqrt{4q_1^2N^2q_2^2 - 4q_1^2Nq_2n - 4q_1Nq_2^2n + q_1^2n^2 - 2q_1n^2q_2 + n^2q_2^2}}{2q_1q_2N}, \\ r_1^{*-} &= \frac{2q_1q_2N - q_1n + nq_2 - \sqrt{4q_1^2N^2q_2^2 - 4q_1^2Nq_2n - 4q_1Nq_2^2n + q_1^2n^2 - 2q_1n^2q_2 + n^2q_2^2}}{2q_1q_2N} \end{aligned}$$

and for group 2 these expressions are

$$\begin{aligned} r_2^{*+} &= \frac{2q_1q_2N - q_2n + nq_1 + \sqrt{4q_2^2N^2q_1^2 - 4q_2^2Nq_1n - 4q_2Nq_1^2n + q_2^2n^2 - 2q_1n^2q_2 + n^2q_1^2}}{2q_1q_2N}, \\ r_2^{*-} &= \frac{2q_1q_2N - q_2n + nq_1 - \sqrt{4q_2^2N^2q_1^2 - 4q_2^2Nq_1n - 4q_2Nq_1^2n + q_2^2n^2 - 2q_1n^2q_2 + n^2q_1^2}}{2q_1q_2N}. \end{aligned}$$

As explained in the main text, the fact that for each group the expressions are bounded leads to these two expressions as the solutions to the problem.

### A.1.1 Political Institutions as Coordination Device

In our model the number of signatures is treated like a threshold level with the intent to limiting entry. Another argument, however, is that political institutions are better understood as coordination devices (Besley and Coate, 1997). Our model allows to encompass this view. Suppose there are  $k$  groups each, as before, with a popularity parameter  $q_i$ . Note that now the expected number of signatures a group will obtain is

$$n_i = \frac{e_i}{1 + \sum_{j \neq i}^k e_j} q_i N \quad (16)$$

But now we also endow each group with a one-dimensional policy parameter  $p_i \in (p_L, p_H)$  such that when policy chosen is of level  $p^*$  then group  $i$  suffers a cost  $r(|p_i - p^*|)$ , which is increasing in the distance from the group's bliss point. Assume now that there are two groups  $i$  and  $j$  such that when both enter, each of them fails the threshold, but when only one of them does, then they succeed. Now note that when two groups of similar policy bliss points exist they have an incentive to merge into a big joint group  $G_{ij}$  where they propose a joint platform that has been chosen through bargaining. As the success of a group is a function of its popularity parameter  $q_i$ , it is natural to assume that in the bargaining stage this parameter influences the bargaining power. Then the joint platform of the big group  $P_{ij}$  is then

$$P_{ij}^* = \arg \max_{P_{ij}} \frac{q_i}{q_i + q_j} r(|p_i - P_{ij}|) + (1 - \frac{q_i}{q_i + q_j}) r(|p_j - P_{ij}|) \quad (17)$$

subject to  $r(|p_i - P_{ij}|) > r(|p_i - \bar{p}|)$  and  $r(|p_j - P_{ij}|) > r(|p_j - \bar{p}|)$  where  $\bar{p}$  is the outside option of the policy level  $\bar{p}$  should both groups enter and fail. If both groups manage to agree to enter in this pre-game then they may both benefit. However, the question of such a pregame to occur is not an obvious especially as here the individual entry strategies are strategic substitutes (see Van Huyck et al. (1990) and Crawford and Haller (1990) for reviews). On the other hand there is a related literature in matching markets for jobs that studies a related problem when there is congestion in which entry is delayed. That literature analyzes the matching of firms and workers in the market. When the cost of a mismatch between firms and workers is high compared to the cost of entering too early into the market, then contracts are inefficiently written early (Roth, 1984, 1991).<sup>44</sup> This results can also be reproduced in controlled experiments

<sup>44</sup>In Roth (1984) the market of for medial interns and residents before 1945 where the market was locked into a Prisoner's Dilemma problem where hospitals compete for scarce interns and thus race to sign contracts with them at ever earlier stages in their career. See



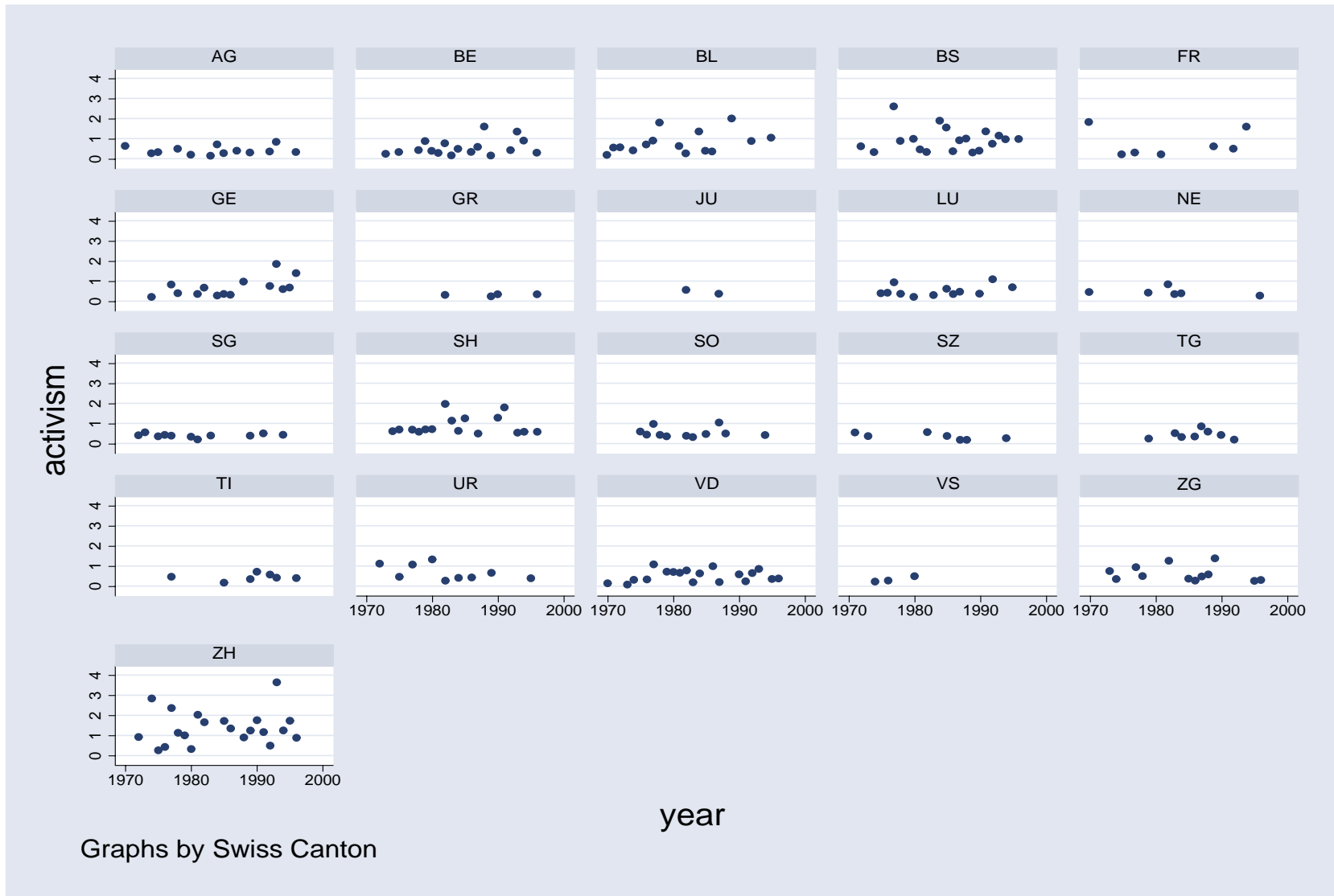
as shown in Kagel and Roth (2000). In terms of our model when the potential gain from a successful campaign is high, i.e. a high  $\lambda$ , then we may expect to see more interest groups merge rather than to enter separately and then both fail.

However, even allowing for mergers does not alter the empirical prediction of such models in which  $\lambda$  is fixed. As when the threshold level goes down more and more, the interest groups will be less willing to coordinate their entry or merge into a single group and thus we still expect to see more entrants when the threshold reduces.

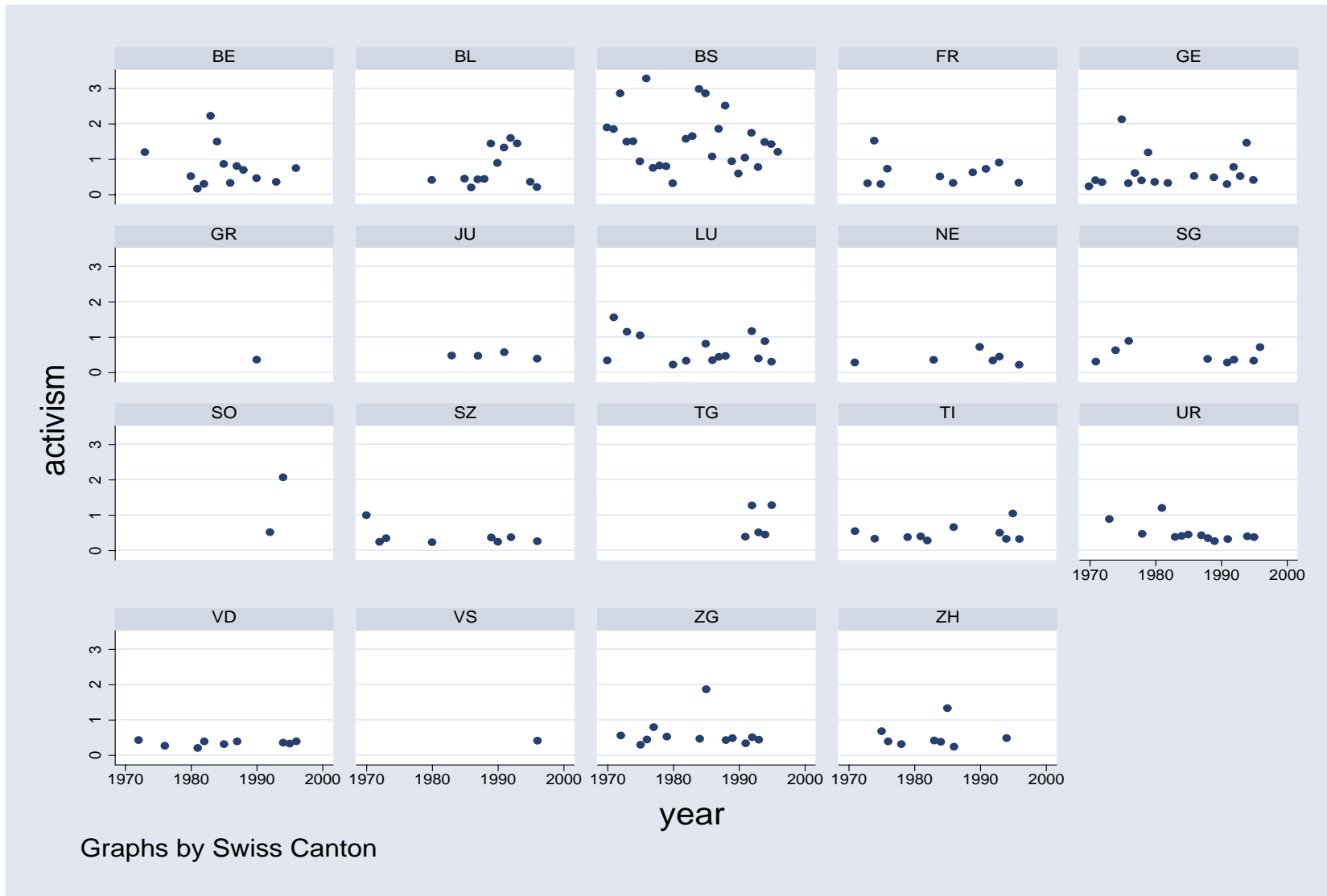
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Kagel and Roth (2000) for further reviews of the empirical evidence and a comparison of centralized and decentralized market institutions.

**Figure 2.1:** The number of times a member of the electorate on average turned out per year to vote in a citizens' initiative.



**Figure 2.2:** The number of times a member of the electorate on average turned out per year to vote in a facultative referendum.



**Table 2.1: Summary Statistics**

Variables	Data Source	Mean	Standard deviation	Minimum	Maximum
Number of signatures required as a share of the electorate:					
- optional expenditure referendum	TS	0.0197	0.0148	0.0065	0.1174
- optional legislative referendum	TS	0.0248	0.0172	0.0067	0.1174
- legislative initiative	TS	0.0291	0.01745	0.0073	0.1417
- initiative for partial constitutional revision	TS	0.0321	0.0199	0.0073	0.2126
- mean across all institutions	TS	0.0272	0.0180	0.0073	0.1772
Time constraint to collect signatures in months:					
- optional expenditure referendum	TS	2.043	1.848	1	24
- optional legislative referendum	TS	1.884	0.7558	1	3
- legislative initiative	TS	14.352	9.266	2	24
- initiative for partial constitutional revision	TS	14.454	9.157	2	24
- mean across institutions	TS	9.505	6.342	1.5	24
Dummy variables for the presence of direct democratic institutions:					
- legislative referendum	TS	0.2613	0.4397	0	1
- legislative initiative	TS	0.1604	0.3672	0	1
- const. Initiative partial revision	TS	0.1294	0.3358	0	1
- expenditure referendum	TS	0.1604	0.3672	0	1
Voter participation (cantonal optional referendums & initiatives)	TS	38.80	11.978	8.35	79.8
Bundling of several ballots on the same day	TS	0.5252	0.4997	0	1
Federal vote on the same day	BFS	0.6365	0.4813	0	1
Closeness of vote = -   (share of yes votes) - 0.5	TS	-12.598	8.8519	-46.67	-0.04
Concordance level: share of votes in parliamentary (legislative) elections to parties represented in cantonal executive (government). (%)	TS	86.22	10.14	56	100
Share of seats held by left wing parties (SPS, POCH, VERTS)	TS	24.078	10.715	4.17	47.83
Size of electorate (thousands)	BFS	229.15	209.77	9.54	764.87
Unemployment rate in percent	BFS	1.2749	1.7138	0	7.6097
Real per capita income for each canton in 1990 CHF	BFS	40084	9439	22501	79129
share of population with at least 12 years of education	BFS	0.1707	0.0432	0.0814	0.3203
Total government expenditure per voter	BFS	13.453	5.895	4.536	35.012

**Data sources: TS= Trechsel and Serdült (1999), BFS= Schweiz. Bundesamt für Statistik**

**Table 2.2:** The effect of institutional factors on the frequency of initiatives and optional referendums

	Expenditure referendum	Legislative referendum	Legislative initiative	Initiative for partial constitutional revision
	(1)	(2)	(3)	(4)
<i>lagged by one year</i>				
Signature requirement	<b>8.1019</b> (7.1918)	<b>-17.44**</b> (7.437)	<b>8.192*</b> (4.749)	<b>-0.0252</b> (2.067)
Time to collect signatures	<b>0.4447**</b> (0.2256)	<b>-3.768*</b> (1.959)		
Dummy if time constraint to collect signatures in place			-0.4373** (0.2011)	-0.0398 (0.0982)
Unemployment rate	0.1246* (0.0755)	0.0619 (0.0947)	0.0517 (0.0537)	-0.0029 (0.0486)
Real per capita income	0.00000433 (0.0000233)	0.00000869 (0.0000198)	0.00000403 (0.0000165)	-0.0000136 (0.0000136)
12+ years of education	-3.754 (3.89)	2.962 (5.923)	-0.0446 (3.559)	-1.535 (2.421)
Total government expenditure per voter	-0.0615*** (0.0198)	0.0276 (0.0385)	0.0157 (0.0219)	0.0276 (0.0184)
Size of electorate	-0.0003 (0.0013)	-0.0045 (0.0029)	0.0025 (0.0018)	0.001 (0.0009)
Concordance level	-0.0066 (0.0056)	-0.0225*** (0.0081)	-0.0092 (0.0064)	-0.002 (0.0037)
Protestant majority in canton	0.0803 (0.3129)	0.21 (0.2592)	0.0194 (0.2016)	0.07 (0.1125)
% Left parties in parliament	-0.0376* (0.0195)	0.0311 (0.0205)	0.0177 (0.0154)	0.0083 (0.0087)
Error structure	(a)	(a)	(b)	(b)
Canton and year fixed effects	Yes	Yes	Yes	Yes
number of observations	402	350	536	536

Notes: Source is authors' calculations based on Swiss cantonal voting data for 1970-1996. Results of fixed effects OLS regressions with two-way error component model including dummies for each canton and each year. Prais-Winsten regressions with (correlated) panel corrected standard errors (PCSEs). \* significant at 10%, \*\* at 5% level, and \*\*\* at 1% level. All right hand side variables lagged by one year. See Table 1 for data definitions. (a) Disturbances are allowed to be panel-level (within group) heteroskedastic and to follow a first order auto-regressive, AR(1), structure common to all panels. (b) Disturbances are allowed to be panel-level (within group) heteroskedastic, to follow a first order auto-regressive, AR(1), structure common to all panels, and to be contemporaneously correlated across panels.

**Table 2.3:** The effect of institutional factors on the frequency of initiatives and optional referendums: dynamic panel regressions.

	Expenditure referendum	Legislative referendum	Legislative initiative	Initiative for partial constitutional revision
	(1)	(2)	(3)	(4)
Number of direct democratic ballots (lagged by one year)	0.0681 (0.0473)	-0.1548*** (0.031)	-0.1576*** (0.04)	-0.0917* (0.0535)
Number of direct democratic ballots (lagged by two years)			-0.2059*** (0.0642)	
<i>Lagged by one year</i>				
Signature requirement	<b>12.054*</b> <b>(7.131)</b>	<b>-12.44</b> <b>(11.3)</b>	<b>4.701</b> <b>(8.813)</b>	<b>-2.057</b> <b>(2.616)</b>
Time to collect signatures	<b>0.9323</b> <b>(0.8251)</b>	<b>-4.466***</b> <b>(1.04)</b>		
Dummy if time constraint to collect signatures in place			-0.6922*** (0.1898)	-0.1186 (0.089)
Unemployment rate	0.1633 (0.1158)	0.0396 (0.0791)	0.0902 (0.0808)	0.029 (0.0491)
Real per capita income	0.00000313 (0.0000288)	1.04E-07 (0.0000159)	0.0000285 (0.0000279)	2.3e-05* (0.0000122)
12+ years of education	-0.6648 (5.986)	14.31 (12.77)	-0.4138 (9.463)	-3.452 (3.614)
Total government expenditure per voter	-0.1177** (0.0552)	0.0559 (0.0421)	-0.0037 (0.0484)	0.0288** (0.0123)
Size of electorate	-0.0026*** (0.0009)	-0.0064 (0.0084)	0.0017 (0.0016)	0.0002 (0.0009)
Concordance level	-0.0106 (0.0072)	-0.019 (0.012)	-0.0051 (0.0093)	-0.00075 (0.0081)
Protestant majority in canton	-0.0321 (0.1264)	0.1536 (0.2019)	0.1521 (0.3246)	0.0177 (0.0775)
% Left parties in parliament	-0.0460*** (0.012)	0.0463 (0.0204)	0.0328 (0.0292)	0.0123 (0.0077)
Sargan test <sup>(1)</sup>	0.8178	0.9998	0.1526	0.2378
Arellano-Bond 2 <sup>nd</sup> order autocorr. <sup>(2)</sup>	0.9825	0.5718	0.6483	0.8412
Year fixed effects	yes	yes	yes	yes
number of observations	380	332	494	514

Notes: Source is authors' calculations based on Swiss cantonal voting data for 1970-1996. Results based on Arellano-Bond (1991) GMM dynamic panel data estimators including dummies for each year and grouped by canton. Robust standard errors in brackets. \* significant at 10%, \*\* at 5% level, and \*\*\* at 1% level. All right hand side variables lagged by one year. (1) Sargan test of over-identifying restrictions based on regression without robust standard errors. (Asymptotic distribution for robust estimation is unknown.) The number given is the test statistic. (2) Arellano-Bond (1991) test for absence of second order auto-correlation in the differenced residu-als. Estimates are inconsistent when test rejects the null hypotheses. The number given is the test statistic.

**Table 2.4: The effect of institutional openness on voter participation**

Dependent variable: Voter participation as per cent of cantonal voting population, in ballots on cantonal optional referendums and initiatives.

	(1)	(2)	(3)	(4)
Bundling	-0.0971 (0.7055)		-2.0349** (0.8294)	
Closeness	0.0890** (0.0355)	0.0887** (0.0353)		
Federal vote	12.169*** (0.736)	12.188*** (0.723)		
Mean signature requirement across institutions	<b>194.35***</b> <b>(73.01)</b>	<b>194.103***</b> <b>(72.812)</b>	<b>279.23***</b> <b>(89.84)</b>	<b>276.43***</b> <b>(88.0585)</b>
Mean time to collect signatures	0.1185 (0.2325)	0.1211 (0.2297)	-0.3118 (0.2641)	-0.2695 (0.2656)
Expenditure referendum	1.2354 (1.2275)	1.233 (1.224)	2.159 (1.471)	2.1164 (1.461)
Legislative referendum	1.9560* (1.0995)	1.957* (1.098)	2.031 (1.348)	2.0534 (1.3387)
Legislative initiative	0.874 (0.9866)	0.8767 (0.9864)	0.6685 (1.1788)	0.7303 (1.1793)
Size of electorate	-0.0082 (0.0326)	-0.0085 (0.0324)	0.0096 (0.0398)	0.0056 (0.0394)
12+ years of education	-22.297 (76.469)	-21.89 (75.89)	-54.792 (72.802)	-46.74 (71.33)
Unemployment rate	1.335** (0.604)	1.327** (0.6)	2.1254*** (0.6556)	1.9581*** (0.6461)
% Left parties in parliament	-0.1724 (0.1317)	-0.1717 (0.1309)	-0.016 (0.1569)	0.002 (0.1557)
Canton and year fixed effects	Yes	Yes	Yes	Yes
number of observations	699	699	699	699

Notes: Source is authors' calculations based on Swiss cantonal voting data for 1970-1996. Results of fixed effects OLS regressions with two-way error component model including dummies for each canton and each year. Robust standard errors in brackets. \* significant at 10%, \*\* at 5% level, and \*\*\* at 1% level. Unit of observation is a cantonal ballot.

**Table 2.5: The effect of institutional openness on voter participation by type of institution**

Dependent variable: Voter participation as per cent of cantonal voting population, in ballots on cantonal optional referendums and initiatives.

	(1)	(2)
Bundling	-0.3163 (0.6995)	
Closeness	0.0826** (0.0354)	0.0825** (0.0355)
Federal vote	12.0135*** (0.7294)	12.0589*** (0.7131)
Mean signature requirement across institutions	262.3197*** (59.9702)	300.5285*** (40.5313)
Interaction term: Signature requir. * expend.	-218.4928*** (81.1263)	-201.5785** (80.4027)
Interaction term: Signature requir. * legisl.	-166.3419** (66.1255)	-158.0750** (65.477)
Interaction term: Signature requir. * legislative	-190.2056*** (60.7483)	-180.7399*** (63.5229)
Mean time to collect signatures	0.3617 (0.2532)	0.3756 (0.2417)
Interaction term: Time * expenditure referendum	-0.2463 (0.2181)	-0.2214 (0.2124)
Interaction term: Time * legislative referendum	-0.2809 (0.2052)	-0.2597 (0.1986)
Interaction term: Time * legislative initiative	-0.3014** (0.1496)	-0.2912* (0.1516)
Expenditure referendum	8.8571*** (2.937)	8.2764*** (2.8513)
Legislative referendum	8.9222*** (3.0835)	8.5332*** (2.9658)
Legislative initiative	8.5062*** (2.1821)	8.1554*** (2.2577)
Size of electorate	-0.0165 (0.0343)	
12+ years of education	-31.2713 (78.8809)	
Unemployment rate	1.2652** (0.603)	1.4947*** (0.5348)
% Left parties in parliament	-0.1446 (0.138)	-0.1710* (0.0983)
Joint significance of signature requirement	$F(4, 633)=8.59^{***}$	$F(4, 633)=17.1^{***}$
Joint significance of time constraint	$F(4, 633)=1.21$	$F(4, 633)=1.16$
Canton and year fixed effects	yes	yes
number of observations	699	699

Notes: Source is authors' calculations based on Swiss cantonal voting data for 1970-1996. Results of fixed effects OLS regressions with two-way error component model including dummies for each canton and each year. Robust standard errors in brackets. \* significant at 10%, \*\* at 5% level, and \*\*\* at 1% level. Unit of observation is a cantonal ballot.