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Institutional Openness and the use of Referendums and Popular Initiatives: Evidence from Swiss Cantons

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Abstract

Despite the growing interest in direct democratic institutions – like referendums and popular initiatives – the empirical evidence on the relationship between institutional openness and use is still sparse. We use a novel data set on the institutional openness and test its link to actual voting behaviour for ballots in the Swiss cantons for the period 1970-1996. We find no robust relationship between the number of cantonal ballots and openness, measured by the number of signatures necessary to force a ballot and the time limit within which they have to be gathered. We observe, however, that openness is negatively related with voter participation. Having to gather more signatures apparently increases the awareness in the population at large, creates more information about the issues at hand, and thus induces more voters to turn out.

Keywords: *Direct democracy, referendums, initiatives, voter participation, institutional openness*

Introduction

The role of direct democratic institutions has received a growing attention in recent years, not only in Switzerland, but also in most regions of the world. The interest is reflected in the ever-denser literature in political economy, political science, and social choice. But it is also manifest in the active discussions and practices of many democratic countries contemplating the broader use of such institutions. Despite this interest, until recently comprehensive studies on how variations in the design of direct democratic institu-

tions influence the way these institutions are used were rare. This article provides a contribution to this debate, by looking at the impact of the "institutional openness" on the practice of direct democracy in Swiss cantons. By practice, we mean both the use of direct democratic institutions and voter turnout at the ballot. By institutional openness we mean, first, the number of signatures that have to be collected to force a vote and, second, the period during which these signatures have to be gathered.

The intention of this article can be illustrated by the following example. In 1975 the canton of Basle-City doubled the number of signatures that have to be gathered to launch an initiative for the partial revision of the cantonal Constitution from 2000 to 4000, or in terms of the size of the electorate from 1.4 to 2.8 percent of voters. We ask two questions here. First, does this increase in the amount of required signatures subsequently reduce the number of popular initiatives? Second, does the rise in signature thresholds have any effect on voter participation? These questions are interesting for both political and scientific reasons. Firstly, changes in the type of direct democratic institutions and how they are administered are regularly on the agenda of policy makers and are vividly discussed by lobbyists and newspaper editors. We as academics ought to enrich these discussions with rigorous theoretical reflections and sound empirical analysis.[1] Secondly, the impact of institutional constraints on the use of direct democratic institutions is a matter of controversy in the Swiss political science literature. While some authors argue that the frequency of popular votes is higher in cantons and cities in which these constraints are lower (Kriesi 1998; Kriesi and Wisler 1996), others find no significant link between the number of signatures or the time to collect them and the use of direct democratic tools (Trechsel 2000; Vatter 2000 and 2002). This contradicting view is partly the result of methodological shortcomings, and it is partly the result of a simplistic conception of the relationship between the entry cost and the practice of direct democracy. These are weaknesses that we wish to overcome in this article.

Our theoretical expectations regarding the link between institutional openness and the use of direct democratic institutions are mixed. On the one hand, a reduction in the entry cost, i.e. a decrease of the signature requirement or an extension of the time to collect, makes it easier for a group of citizens to call for a popular vote. This should result in a negative relation-

[1] See Besley and Case (2002), for a discussion on the role of policy advice in the light of changing political institutions. As these authors argue, once we understand how this change affects the workings of policy choice we may want to adapt the political advice we give. If the political equilibrium is changed because of administrative reforms, a different set of policies can become preferable that had been second-best before.

ship between cost and use: the higher the cost, the lower the use. But there are additional factors that may affect or even reverse the causality, such as the "fixed costs" of collecting signatures or the way the parliamentary elite adapts to the new institutional context. Our second hypothesis is more straightforward, and it is innovative. Other things being equal, we predict that an increase of the signature requirement results in higher voter turnout. 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 makes the proposal more visible and should, therefore, translate into higher turnout. In other words, an intense signature gathering process, like an intense referendum campaign, is supposed to foster voter participation.

To test these hypotheses, we use cross-time series based on aggregate data covering 21 Swiss cantons and 27 years (1970 to 1996). This data is based on the description of direct democratic institutions on the cantonal level carried out by Trechsel and Serdült (1999). We will focus on four types of direct democratic institutions: the expenditure referendum, the legislative referendum, the legislative initiative and the initiative for partial revision of the Constitution. The choice of using a data set on Swiss cantons has a number of advantages and one major disadvantage. Regarding first the advantages, Switzerland has used direct democratic tools more than any country in the world. We can thus draw on a wealth of experience and observations both in terms of quantity and in variety. The analysis of changes in the institutional setup, the introduction or the discontinuation of referendums and initiatives is very informative not only on a descriptive level, but even more when linked to outcome variables of interest.[2] Furthermore the federal structure of Switzerland can be used at great advantage in the empirical exercise: As such any empirical investigation depends on the faith one has in having successfully controlled for all factors that can interfere into the relation between two variables of interest. When we look at Swiss cantons over time we can control for all unobserved heterogeneity that is specific and time-invariant for cantons and those factors that are common to all cantons but specific to a year. Thus the argument that differences in observed relationships across cantons are due to cultural variation is taken into consideration and substantially increases our confidence in inference. We can also control for differences in the historical background, political and social culture but also for exogenous shocks that occurred in a given year affecting Switzerland as a whole.

The crucial disadvantage when we look at Switzerland is that all cantons have direct democratic institutions over the period under study. Therefore

[2] See, for instance, Matsusaka 1993 and 1995;Feld and Kirchgässner 2001; Freitag and Vatter 2000; or Frey and Stutzer 2000.

very interesting questions about the effect of an introduction of referendums are not available as we do not have a "control group" that did not use any form of direct democracy at any point in time in our sample.[3] More generally it is important to note that the availability and the design of these institutions is not the result of a random natural experiment or conducted within the control and the limitations of a laboratory but are determined endogenously as a consequence of changes in the constitutional design that, to a large extent, stem from democratic deliberation, economic pressure, political considerations etc. Thus, we need to be careful when we interpret the impact of changes in institutions, as these changes need not be exogenous or random.

The article is structured as follows. Section two presents some theoretical background and empirical evidence on how changes in the institutional openness affect the use of direct democratic institutions. Section three then focuses on the effects of these changes on voter turnout. Section four concludes.

2 Linking institutional settings to referendum frequency

2.1 Theoretical considerations

Since 1970, Switzerland has witnessed numerous changes within and across its cantons in the way the electorate can directly participate in the legislative process.[4] These include the types of proposals that can be put forward and their subsequent treatment in parliament but also the number of signatures that need to be collected to force a popular vote and the time that is allowed to collect them. Over the period under consideration the changes have been numerous and at times non-trivial. Between 1970 and 1996 all cantons changed at some point the number of signatures that had to be collected. 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 3.5 percent instead of the previous 7.0 percent of the electorate is sufficient for putting a constitutional

[3] In contrast these tests can be done for the case of the U.S.A. where 23 States use a form of the popular initiative (Auer 1989: 36, 54-5). See Besley and Case (2002) for an overview of the evidence.

[4] For a complete documentation of the period between 1970 and 1996 see Trechsel and Serdült (1999) and Trechsel (2000).

issue on the ballot.[5] Concerning the time constraints, changes have been far less frequent. Only five cantons changed the signature gathering period and each of them only once, e.g. the canton Geneva extended this period – for initiatives asking for a partial revision of the Constitution – from three to four months in 1977. In the other cases, time constraints were either introduced or removed as follows: three cantons (Solothurn, Thurgau, and Aargau) introduced a time constraint, and one canton (Schaffhausen) removed it. All other cantons left the time constraint completely unchanged. It is important to underline that we therefore have institutional variance not only among, but also within (at least some of the) cantons. Note, however, that the identification of any effect hinges upon changes within each canton.

The first general question we address in this contribution is "do institutional settings explain the frequency of popular initiatives and referendums?" To start let us ask the question as to why initiatives and optional referendums are launched in the first place. In most cases a group of voters, usually organized by a political party, social movement, interest association etc. decides to become active in order to influence policy.[6] For a given cost of launching an initiative, as determined by the signature requirement and the time constraint, the organization contemplates to either address an issue via a popular initiative or to challenge legislation currently passed in parliament with the use of an optional referendum.[7] Now consider a reduction in the cost of launching a popular initiative or a referendum, be it through a decrease of the number of signatures required or through an extension of the signature-gathering period. Such changes make it less difficult for an interest group to force a popular vote on an issue it is concerned about. As a result, one should witness more popular initiatives and referendums to be voted upon.

Based on this line of reasoning, we can formulate the following hypothesis:

> (H1) "The higher the institutional openness (or the lower the entry cost), the higher the use of initiatives and optional referendums."

[5] In fact since the size of the electorate changes over time the cost of collecting signatures changes even if the absolute number remains unaltered.

[6] Of course there are other important reasons like to satisfy the ego of a campaign leader without any hope to change policy.

[7] A referendum is optional in the sense that the vote is not compulsory but, again, signatures have to be collected first before a vote will take place. This contrasts with compulsory referendums where no signature stage is required and the vote takes place automatically. See Trechsel and Serduelt (1999).

As sound as this hypothesis looks, as sound is, however, the null-hypothesis. The "no-effect" hypothesis could prove to be valid for various reasons: First, launching a popular initiative or a referendum is also associated with large fixed costs (getting enough volunteers, printing and distribution of documentation, etc.) These costs can be much higher than the variable costs when a group decides whether to become politically active via direct democratic institutions. Second, when the entry cost decreases, then not only those groups who are already active will try to make use of it more often, but also new actors may enter the arena that could not afford to use direct democratic tools before. If we then assume that the span of attention by voters or those willing to give their signatures is limited we have a case that a reduction in cost can lead to a crowding out of groups by new entrants. This, in turn, will hamper the effect of a change in cost on the change in frequency. Third, it is not always appropriate to analyze the change in cost in isolation. Instead, Members of the Legislature themselves anticipate when the threat of an initiative or a referendum becomes more acute.[8] This implies that a change in cost may not lead to a change in frequency, but to a change in the responsiveness of the legislators.[9] Forth, legislation is about issues that are salient to voters. The importance and urgency perceived by the voters of an issue can prove much more crucial for the success of an initiative than cost considerations. We can therefore not hope to explain all variation in the data with some commonly observed variables as each initiative is of an individual character, covering a large array of issues.

In sum, there are plausible arguments to expect a relationship between cost and frequency. But there are also strong reasons to assume that the relationship is dominated by other factors and, therefore, that it might not prove to be significant.

While primarily trying to measure the hypothetical linkage between institutional openness and frequency of popular initiatives and referendums, we would like to control for a set of indicators that have recently received attention in the literature. In addition to various economic, political or cultural control variables,[10] we include a measure of party congruence between

[8] See Sciarini and Trechsel (1996) and Trechsel and Sciarini (1998) for a theoretical argument regarding the anticipation of the referendum threat in parliament, and for an empirical test of the link between parliamentary consensus and the acceptability of legislative acts in the plebiscitary arena. For an application of this test on the cantonal level, see Trechsel (2000).

[9] See Barankay (2002) for an application of this approach on the quality of public goods.

[10] See the appendix for descriptive statistics of all the independent and dependent variables included in our estimations.

cantonal Parliaments and Governments, i.e. a measurement of what the Swiss literature refers to as "*concordance*".[11] The idea behind this control stems from Neidhart's (1970) works on the use of direct democracy and the composition of the federal government. The general idea is that the presence of direct democratic institutions imposes a threat on the legislature and the government to be overruled by a direct democratic vote. This then leads to the creation of oversized governmental coalitions including all major political parties that could otherwise, i.e. if excluded from executive responsibilities, constantly challenge the government and parliamentary majority. If these parties are given executive power, then – so the argument goes – they will refrain from using the referendum and initiative device to block the political system.[12]

In line with this argument, one would expect a negative relationship between the level of concordance and the use of direct democratic tools (Vatter 1998, 2000 and 2002): The higher the level of concordance, the lower the number of popular initiatives and optional referendums.[13] However, the null-hypothesis could again prove true, and this for various reasons. First, the electoral process does not need to map all political preferences among the electorate into seats in Parliament or Government. Second, it is a strong assumption to take the set of political actors, in this case political parties, as given. Apart form being present due to the political and social structure in a canton, such actors, using direct democratic instruments, also emerge as a response to social, economic, political and historic changes. Indeed it is the need for a change in policy or the existence of policies that are contested by a lobby that triggers referendums and citizens' initiatives. Third, it is still an open question in the literature on representative government whether strong concordance leads to more responsive government and more reliable poli-

[11] This is also referred to as 'divided' and 'unified' government. See Alesina and Rosenthal (1995), Alt and Lowry (1994) and (2000).

[12] This argument was first elaborated with respect to the composition of the federal government, which is elected by the Federal Assembly. But it also applies to the cantonal level, where governments are elected by the people: in most cantons one finds oversized coalitions, due to the "power sharing" strategy of political parties ("freiwilliger Proporz", see e.g. Linder 1997 and 1999), namely the fact that political parties refrain from presenting as many candidates as their electoral strength would permit. Like on the federal level, this "power sharing" strategy is a response to the referendum and initiative threat.

[13] An empirical measure of the level of concordance in a canton is the congruence between the parties represented in government and in parliament. When exactly the same parties are represented in government as in parliament, congruence is perfect; it diminishes when parties are represented in parliament but not in government. See the appendix for a precise definition of concordance.

cies (e.g. Armingeon 1996; Crepaz 1996; Schmidt 1996). On the one hand, high concordance reduces the competition over priorities in legislation and the care that is thus taken in the design of policy. On the other hand, fundamental social and economic reforms are less likely to succeed in the absence of strong majorities.

2.2 Empirical estimation

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

$$NI = -0.082 + 0.459\frac{1}{S}, R^2 = 0.37, 21\,Observations.$$

NI 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, when looking at the use of optional referendums, the model fails to produce a significant relationship. The estimated equation is:

$$NOR = 10.287 + 0.152\frac{1}{S}, R^2 = 0.02, 21\,Observations.$$

NOR stands for the number of optional referendums. Here the *t*-value on the gradient is only 0.68 and we cannot reject the null hypothesis that the coefficient is equal to zero. Do these results suggest that our hypothesis is true in the case of initiatives but wrong in the case of referendums? We cannot answer this question very easily at this point. Indeed, the estimated equation is likely to be mis-specified and is also of a very poor explanatory power. Collapsing the data on cantonal levels over the period running over 1970-96 provides an equation with only 21 observations.[14] Yet more critically it as-

[14] These are 26 cantons minus the 5 cantons that used the so called "Landsgemeinde" during our period of analysis. Cantons with Landsgemeinde-

sumes that unobservable factors specific to a canton are unimportant. In the parlance of econometrics it assumes that fixed effects play no role. These can be thought of as the political culture or social habits, the degree of urbanization or the topography in a canton. Collapsing data over time effectively eliminates unobservable 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 and has been found to play an important role. As compared to the simplistic equation presented above and to earlier studies (e.g. Trechsel 2000; Vatter 2000), the advantage of regressions we present below is that they are based on a time-series of cross-section data (21 cantons over the period 1970 to 1996). This allows us to control for fixed effects, i.e. for unobserved cantonal and year specific heterogeneity.[15]

We also control for other time variant factors by including a set of variables which are the unemployment rate in each canton, real per capita income for each canton in 1990 Swiss Francs, the share of population with at least 12 years of education, total government expenditure per voter[16], the size of the electorate, a measure of cantonal concordance, and the share of seats held by left wing parties. See appendix for details on the various variables. These variables serve as proxies for the changing economic environment reflecting social and economic hardship – measured by income and unemployment – and the weight of the state in the economy – measured by expenditure levels – the level of human capital – proxied by the level of education – and the political environment – measured by concordance and the strength of left wing parties. All these variables are measured on the cantonal level so the unit of observation is a canton in a specific year.

Table 1 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.[17] Thus the regressions take the following form:

$$NDI_{it} = \alpha_{it} + \beta_1 \cdot S_{it-1} + \beta_2 \cdot T_{it-1} + \beta_2 \cdot X1_{it-1} + \beta_2 \cdot X2_{it-1} + \cdots + \tau_t + \nu_i + \varepsilon_{it}$$

procedures have a very different legislative and direct democratic process to pass laws based on a general assembly of all voters in those cantons.

[15] The period of study is restricted to those years for which the institutional measures are available.

[16] This is the sum of the local and the cantonal expenditures in a canton divided by the size of the electorate.

[17] See Baltagi (1995) for a description of the fixed-effects estimator and panel data analysis in general.

NDI stands for the number of direct democratic votes that took place in a canton and a year. The subscript *i* stands for canton and *t* stands for year, *S* is the variable reflecting the number of signatures that need to be collected and *T* the time allowed to collect them. The *X1, X2,…* stand for additional control variables. The τ_t stands for the time and the v_i for the canton dummies. 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 $\varepsilon_{it}=\rho\varepsilon_{it}+\xi_{it}$ where ρ stands for the correlation in the error term with ξ 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.[18]

Note that the primary objective of this contribution is to provide evidence on the relationship between institutional openness and use of direct democracy and not to give a complete characterization of the frequency of ballots across cantons and time. This is the advantage of using panel data, which allows us to use a parsimonious specification to control for omitted heterogeneity.

The number of observations is determined by the availability of the direct democratic institution in a canton and a year and ranges between 350 and 536.[19] Right hand side variables are lagged by one year to proxy for the time of observation when the popular initiative or the referendum process has been actually launched, i.e. when the gathering of the signatures commenced. We limit the empirical investigations to initiatives and optional referendums. Compulsory referendums are excluded as these votes take place automatically, without the need for a prior signature gathering process. We also focus on four types of institutions that are most widely available in the period of study. These four institutions reflect 699 out of 773

[18] 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.[18] The specific error structure employed is described for all regressions in the Tables. In all regression the joint significance of the year and the canton dummy has been tested and found to be significant. Results are available on request.

[19] That means the number of observations reflects the number of canton-years each institution has been available.

actual ballots on popular initiatives and optional referendums that took place during the period from 1970-96.[20]

Starting with the impact of the number of signatures, our results are rather conflicting: Regression 1 of Table 1 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.

[20] In total there were 124 expenditure referendums, 202 legislative referendums, 273 legislative initiatives, and 100 initiatives for partial revision of the Constitution.

***Table 1**: 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)
lagged by one year				
Signature requirement	8.1019 (7.1918)	-17.44** (7.437)	8.192* (4.749)	-0.0252 (2.067)
Time to collect signatures	0.4447** (0.2256)	-3.768* (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	4.33e-06 (2.33e-05)	8.69e-06 (1.98e-05)	4.03e-06 (1.65e-05)	-1.36e-05 (1.36e-05)
12+ years of education	-3.754 (3.890)	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)
French or Italian speaking majority in canton	-10.089** (4.689)	-8.7737 (3.600)	0.2468 (0.4700)	-0.1769 (0.2821)
Size of electorate	-0.0003 (0.0013)	-0.0045 (0.0029)	0.0025 (0.0018)	0.0010 (0.0009)
Concordance level	-0.0066 (0.0056)	-0.0225*** (0.0081)	-0.0092 (0.0064)	-0.0020 (0.0037)
Protestant majority in canton	0.0803 (0.3129)	0.2100 (0.2592)	0.0194 (0.2016)	0.0700 (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
N	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.

The other two institutions in column 3 and 4 did not witness enough changes in the time constraint.[21] 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 variation we generated a dummy variable that measures whether a time constraint existed. In column 3 the 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 tentative 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

[21] To be precise, only the canton of Geneva changed the time constraint for these institutions in the period of study.

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 were 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, however, not 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

$$NDI_{it} = \sum_{j=1}^{p} \phi_j NDI_{it-j} + \alpha_{it} + \beta_1 \cdot S_{it-1} + \beta_2 \cdot T_{it-1} + \beta_2 \cdot X1_{it-1} + \beta_2 \cdot X2_{it-1} + \cdots + \tau_t + \nu_i + \varepsilon$$

***Table 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)
Number of direct democratic ballots (lagged by one year)	0.0681 (0.0473)	-0.1548*** (0.0310)	-0.1576*** (0.0400)	-0.0917* (0.0535)
Number of direct democratic ballots (lagged by two years)			-0.2059*** (0.0642)	
Lagged by one year				
Signature requirement	12.054* (7.131)	-12.44 (11.30)	4.701 (8.813)	-2.057 (2.616)
Time to collect signatures	0.9323 (0.8251)	-4.466*** (1.040)		
Dummy if time constraint to collect signatures in place			-0.6922*** (0.1898)	-0.1186 (0.0890)
Unemployment rate	0.1633 (0.1158)	0.0396 (0.0791)	0.0902 (0.0808)	0.0290 (0.0491)
Real per capita income	3.13e-06 (2.88e-05)	1.04e-07 (1.59e-05)	2.85e-05 (2.79e-05)	2.3e-05* (1.22e-05)
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)
French or Italian speaking majority in canton	(dropped -see notes)	(dropped -see notes)	(dropped -see notes)	(dropped -see notes)
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)	-0.0190 (0.0120)	-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*** (0.0120)	0.0463 (0.0204)	0.0328 (0.0292)	0.0123 (0.0077)
Sargan test [(1)]	0.8178	0.9998	0.1526	0.2378
Arellano-Bond 2nd order auto-corr.[(2)]	0.9825	0.5718	0.6483	0.8412
Year fixed effects	yes	yes	yes	yes
N	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. See Table 1 for data definitions.*

[(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 residuals. Estimates are inconsistent when test rejects the null hypotheses. The number given is the test statistic.

Dummy for French and Italian speaking dropped as values are time invariant.

These estimations are produced via the Arellano-Bond (1991) dynamic panel data estimator derived from instrumental generalized methods of moments (GMM). Table 2 presents the same regression as in Table 1 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.[22] 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, the coefficient on the signature-gathering period that was highly significant for the expenditure referendum (Table 1) 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.

3 Linking institutional settings to turnout

3.1 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

[22] 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.

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.[23] The same concern, if not so dramatic, applies to the institutions of direct democracy. Suppose a change in 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 of right wing voters? Clearly these are burning question 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 possible 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.[24] Now relax the assumption that the contact

[23] See Husted and Kenny (1997) and Filer et al. (1991) for empirical evidence.

[24] 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.

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 increase substantially beyond the threshold required by the institutional framework.

The second hypothesis we address in this article can therefore be formulated as follows:

(H2) "The lower the institutional openness, the higher voter turnout."

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.

3.2 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.[25] Shachar and Nalebuff (1999) run structural estimations of an equilibrium model to take account of the simultaneity in the determination of closeness and participation.[26]

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 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 favourable 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

[25] 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).

[26] For a recent survey on theoretical paradoxes of voter participation see Dhillon and Peralta (2002) and the references therein.

form zero (in the same vein see also Joye & Papadopoulos 1994: 268 f.).[27] 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 recognised 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 where 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.[28] Lastly, it is also 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.[29] There remain other interesting variables that can influence turnout, like the openness and use of local direct democratic rules.[30] Unfortunately there is no comprehensive data set that captures the institutional framework in the 3000 local jurisdictions. Also,

[27] See Shachar and Nalebuff (1999) for a discussion of different approaches how the probability of a pivotal vote can be calculated.

[28] This argument can, however, be turned around in that some votes 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 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).

[29] 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.

[30] We would like to thank a referee for calling attention to this fact.

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.

***Table 3**: The effect of institutional openness on voter participation*[1)]

	(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	194.35*** (73.01)	194.103*** (72.812)	279.23*** (89.84)	276.43*** (88.0585)
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 (1.4610)
Legislative referendum	1.9560* (1.0995)	1.957* (1.098)	2.031 (1.348)	2.0534 (1.3387)
Legislative initiative	0.8740 (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** (0.600)	2.1254*** (0.6556)	1.9581*** (0.6461)
French or Italian speaking majority in canton	-12.636** (5.735)	-12.647** (5.726)	-17.431** (7.801)	-17.82** (7.818)
Protestant majority in canton	-0.2021 (1.3314)	-0.2066 (1.3331)	0.6598 (1.5862)	0.5826 (1.5867)
% Left parties in parliament	-0.1724 (0.1317)	-0.1717 (0.1309)	-0.0160 (0.1569)	0.0020 (0.1557)
Canton and year fixed effects	Yes	Yes	Yes	Yes
N	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.*

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

In Table 3 we present results of regressions on voter participation. To maximise 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.[31] We thus have data on 699 ballots.[32] 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 per cent.

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 effects 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 the coefficient on the signature requirement[33], 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.[34] 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,

[31] Running separate regressions for each institutions estimates the effect too inefficiently due to decrease in the number of observations.

[32] 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).

[33] 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.

[34] 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.

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:[35] The higher the unemployment rate in a canton, the stronger its electorate mobilises at the polls and that voter participation in the French and Italian speaking cantons is around 13% lower.

Further sensitivity analyses are given in Table 4. 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 am 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:

$$Part_{kit} = \alpha + \beta_1 mS_{it} + \beta_2 mT_{it-1} + \quad {}_k \gamma_k DI_{bk} + \quad {}_k \delta_k DI_{bk} mS + \quad {}_k \phi_k DI_{bk} mT + \cdots + \tau_t + \nu_i + \varepsilon$$

[35] 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 among unemployed than among active people (Fauvelle-Aymar et al. 2000). However, this explanation, like the previous ones, should be looked at very carefully in the context of our analysis, due to the risk of ecological fallacy.

***Table 4**: The effect of institutional openness on voter participation by type of institution*[1)]

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. referendum	-218.4928*** (81.1263)	-201.5785** (80.4027)
Interaction term: Signature requir. * legisl. referendum	-166.3419** (66.1255)	-158.0750** (65.4770)
Interaction term: Signature requir. * legislative initiative	-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*** (2.9370)	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** (0.6030)	1.4947*** (0.5348)
French or Italian speaking majority in canton	-11.7387** (5.5743)	-7.4709 (6.0844)
Protestant majority in canton	-0.6465 (1.3432)	
% Left parties in parliament	-0.1446 (0.1380)	-0.1710* (0.0983)
Joint significance of signature requ.[2)]	*F(4, 633)=8.59****	*F(4, 633)=17.1****
Joint significance of time constraint[2)]	*F(4, 633)=1.21*	*F(4, 633)=1.16*
Canton and year fixed effects	yes	yes
N	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.*

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

Where *Part* stands for the voter participation rate in a ballot of type k in canton i in year t, mS_{it} is the mean signature rate across all four institutions,[36] mT_{it} is the mean time constraint to collect signatures (see footnote), 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 ($DI_{bk} \cdot mS_{it}$) and ($DI_{bk} \cdot mT_{it}$) 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 are included. In the second column we deleted insignificant variables with a general-to-specific methodology to check for robustness.[37] 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 $\Sigma_\kappa \delta_\kappa = 0$ - and second the joint significance of the time constraint – testing that $\beta_2 = 0$ and all $\Sigma_\kappa \phi_\kappa = 0$.

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-test* 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. The following Table 5 calculates 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 in Table 4. 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 per cent, increases voter turnout by 0.99 per cent. As the mean of the voter participation is 39 per cent with a standard error 12 (see Appendix) this is a sizeable effect. In the case of the legislative referendum the effect of a 1 per cent rise leads to an increase of 1.42 per cent 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 per cent leads to an increase in turnout of 3.01 per cent.

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[36] That is mS_{it} = *mean(S of expenditure ref., S of legislative ref., S of legislative initiative, S of constitutional initiative)* in canton i in year t. A similar definition applies to the *mean time constraint.*

[37] 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.

Table 5: *Marginal effect of signature requirement on voter turnout by institution institution*[1)]

	Expenditure referendum.	Legislative referendum	Legislative initiative	Constitutional initiative
Signature requirement	98.95***	142.45***	119.79***	300.5285***

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Concerning the other variables we can see that the unemployment rate is still positive yet the coefficient on the dummy variable for French and Italian speaking cantons does not survive this sensitivity analysis. Lastly, the share of left wing parties does turn up significantly but only at a 10% level and with a very small coefficient.

In sum, we can state that the data supports our second hypothesis that higher signature requirements increase voter turnout. The identification of the – unintended – fostering effect of a high signature requirement on political participation is, to our knowledge, an innovative 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 mobilisation of citizens.

Conclusion

In this contribution we approached data over the period of 1970-1996 to investigate the determinants of the use of direct democratic institutions in the Swiss cantons. 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 of our 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 polls. 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 recent studies (Trechsel 2000; Vatter 2000), our results provide support for the null hypothesis that the entry cost has not 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 Swiss literature on direct democracy. Here again, our results provide a clear support for the null hypothesis: A higher level of concordance, as measured by the share of parliamentary seats held by the governing coalition, does not translate into a lower number of referendums or initiatives. The relationship is significant only in the case of the legislative referendum, and this relationship disappears in the dynamic model.

Our results are more conclusive with respect to our second hypothesis regarding the link between the signature requirement and voter participation. This relationship is significant and robust throughout all the estimations: the lower the institutional openness (or the higher the entry cost) 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. This, in turn, fosters political participation.

Secondly, this result has systemic implications, as it highlights the (unintended) side effect of an institutional change on the process of opinion formation. While recent studies have started to analyze the process of opinion formation during a referendum campaign (e.g. Kriesi 2002a), our results tend to suggest that the signature gathering process is also likely to send important signals to the voters, and this well before the start of a referendum campaign. In that sense, our innovative analysis of the link between the signature requirement and voter turnout opens a promising avenue for future research.

More generally, there is still a lot of scope for improving our understanding of the use of direct democracy. For instance, we have neither investigated the effect of specific voting procedures employed, like the introduction of postal voting, nor taken into account the type of information sent to the electorate, as for example the one contained in the ballot pamphlet

sent to the electors. 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.

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 (Aubert 1983). 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 as well.

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Appendix

Table: *Summary Statistics*
Sources: TS= Trechsel and Serdült (1999), BFS= Schweiz. Bundesamt für Statistik

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
Dummy for Protestant majority in canton	BFS	0.2661	0.4423	0	1
Dummy for French or Italian speaking majority	BFS	0.2329	0.4229	0	1

Measure of concordance:

Let P_G be the set of parties represented in Government and P_{NG} the set of parties not represented in government but present in parliament. Let $s(P_i)$ be the seat share of a party in parliament. Congruence then is defined as:

$$\frac{\sum_{i \in G} s(P_i)}{\sum_{i \in G,NG} s(P_i)}$$

Institutionelle Öffnung und der Gebrauch von Referenden und Volksinitiativen: Ergebnisse aus den Schweizer Kantonen

Trotz des zunehmenden Interesses für direktdemokratische Institutionen, wie Referenden und Volksinitiativen, gibt es kaum empirische Ergebnisse für den Zusammenhang zwischen institutioneller Öffnung und dem Gebrauch direktdemokratischer Mittel. Dank neuer Daten gelingt es uns, den Zusammenhang zwischen institutioneller Offenheit und dem tatsächlichen Stimmverhalten bei Abstimmungen in den Schweizer Kantonen im Zeitraum von 1970 bis1996 zu prüfen. Dabei finden wir keinen robusten Zusammenhang zwischen der Anzahl kantonaler Abstimmungen und der institutionellen Öffnung, gemessen an der für eine Abstimmung erforderlichen Anzahl von Unterschriften und ihrer jeweiligen Sammelfristen. Hingegen zeigen unsere Analysen, dass die institutionelle Öffnung im umgekehrten Verhältnis zur Stimmbeteiligung steht: Mehr Unterschriften sammeln zu müssen erhöht offensichtlich das (Wahl-)Bewusstsein der Bevölkerung, bringt mehr Information über den Abstimmungsgegenstand in Umlauf und bewegt damit mehr Stimmberechtigte zur Teilnahme an der Abstimmung.

Ouverture institutionnelle et utilisation du référendum et de l'initiative populaire: étude des cantons suisses

En dépit de l'intérêt croissant suscité par les institutions de démocratie directe – tel que le référendum facultatif et l'initiative populaire – il existe encore peu d'analyses empiriques sur le lien entre ouverture institutionnelle et recours à ces institutions. A l'appui d'une banque de

données originale, nous testons le lien existant entre l'ouverture institutionnelle et l'utilisation effective des instruments de démocratie directe dans les cantons suisses au cours de la période 1970-1996. Nous n'observons aucune relation solide entre l'ouverture institutionnelle, mesurée au travers du nombre de signatures nécessaires à la tenue d'une votation populaire et du délai à disposition pour récolter ces signatures, et le nombre de scrutins cantonaux. En revanche, nous observons un lien négatif entre ouverture institutionnelle et taux de participation au vote. Ce résultat suggère que l'augmentation du nombre de signatures contribue à rendre plus visible un objet donné, augmente l'information y relative et, de ce fait, incite davantage de citoyens et cityoennes à prendre part au scrutin.

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