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## BUDGET REFERENDUMS AND GOVERNMENT SPENDING: EVIDENCE FROM SWISS CANTONS

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### Abstract

New government spending must be approved by a referendum of citizens in many Swiss cantons. This decisionmaking procedure seems like a simple way to address citizen-legislator agency problems, but little systematic evidence is available concerning its effect on spending outcomes. We estimate spending regressions for Swiss cantons using panel data from 1986 to 1997. After controlling for demographics and other determinants of spending, mandatory referendums on new spending are found to reduce the size of the budget by 17% for the median canton.

Keywords: Budget referendums, initiatives, government spending

JEL Classification: H72, H73, D72, D78

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## I. Introduction

A fundamental question in political economy is whether government spending corresponds to voter demands. In a pure median voter world, the answer is yes, at least for the median voter. Yet a substantial literature identifies frictions in political markets that can cause governments to systematically overspend.<sup>1</sup> The suspicion that elected officials may not implement their constituents' desires has motivated scholars and policymakers to search for institutions—decision rules—that constrain the ability of legislatures to make decisions.

Formal tax and expenditure limitations (TEs) such as California's Proposition 13 are among the more popular of these institutions in the United States. However, TEs have turned out to be less effective than expected, and it has proven surprisingly difficult to find significant fiscal differences in the data between governments with and without TEs.<sup>2</sup> The lack of a measurable effect may be statistical or it may be real. If real, it suggests that legislators can use legal loopholes to evade these constraints, or more fundamentally, that the median voter model is generally applicable and there is no overspending problem to solve.

An entirely different approach to the perceived problem of overspending by elected officials is to require direct citizen approval of spending decisions via

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<sup>1</sup> For example, on the theory side, Niskanen (1971) suggests that bureaucracies use their monopsony power to extract rents, and Tullock (1959) argues that the tax base is a fiscal commons exploited to fund pork barrel projects. The most compelling evidence that voters dislike government spending at the margin is Peltzman's (1992) study of election returns over the 1950-1988 period, which shows that voters punish incumbents who increase spending when they stand for re-election. Matsusaka (1995) provides corroborating evidence for 1960-1990: spending was lower in states with voter initiatives than states where representatives had a monopoly on legislation.

<sup>2</sup> The literature is voluminous. For evidence on state limits, see Adams and Dougan (1986), Cox and Lowery (1990), Bails (1990), Rueben (1995), and the references therein. For local limits, see Dye and McGuire (1997) and the references therein.

referendums.<sup>3</sup> Mandatory referendums on spending are rare in the United States except in local school districts, where voters are sometimes asked to approve annual budgets or new buildings. However, in Switzerland, mandatory referendums on a variety of fiscal policies are common at both the canton (roughly equivalent to U.S. states) and local level. In contrast to TELs, little research is available regarding the effect of mandatory referendums on government spending.

The purpose of this paper is to investigate the effect of mandatory referendums on spending decisions in Swiss cantons. Given the widespread interest in government growth and legal institutions a careful empirical study of this institution seems relevant from a policy perspective. We believe the evidence may also shed light on two fundamental issues in political economy. The first is the applicability of the median voter model. The median voter theorem is perhaps the best known formal result in political economy, and is the foundation of a huge empirical and theoretical literature. In a pure median voter world, elected officials would adopt the position of the median voter, and their spending decisions would always be approved in referendums. If the median voter model is a good explanation for spending decisions in Swiss cantons, then mandatory referendums will have no effect on spending.

A second issue is whether institutions matter at all, or are merely veils that government officials can evade. Swiss legislators certainly have a big legal loophole available if they wish to avoid a referendum. The loophole is that referendums are required only when expenditure on a new project exceeds a predetermined amount that we refer to as the *spending threshold*. To evade a referendum on an unpopular project, legislators can simply split it into several smaller nominal projects, all of which fall beneath the spending threshold. For example, if the threshold is \$1 million, then a road project costing \$1.5 million could be divided into two separate connecting roads costing \$.75 million each. If institutions are merely veils that clever politicians can evade, then we should not observe an effect of mandatory referendums on spending policy.

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<sup>3</sup> We follow the modern literature (and the *Oxford English Dictionary*) and use *referendums* rather than *referenda* as the plural of referendum. Butler and Ranney (1994, footnote 1) explain why this is not a grammatical mistake.

Our main finding, based on panel data from all 26 cantons from 1986 to 1997, is that cantons with mandatory referendums spend significantly less than other cantons. We estimate that the presence of a mandatory referendum with a spending threshold of 3 million Swiss francs (the sample median) is associated with 17% less expenditure per capita, holding constant other determinants of spending such as income. The magnitude of this effect is remarkably large, and suggests that the spending choices of Swiss legislators are far from the preferred policy of the median voter. It also seems clear that this particular institution is more than a veil—government officials apparently find it too costly to routinely subdivide projects and evade referendums.

We also document an interaction between the mandatory referendum and voter initiative: as it becomes easier for citizens to initiate referendums on new laws, the impact of the mandatory referendum declines. This suggests that the voter initiative is a substitute way to restrain government spending, and is consistent with evidence in Matsusaka (1995) that American states with the initiative spend less than those without it.<sup>4</sup>

Our paper contributes to the growing literature on fiscal consequences of decisionmaking institutions.<sup>5</sup> A number of studies in this literature have investigated “direct democracy” institutions, but the question of how a mandatory expenditure referendum affects the level of spending has not been addressed.<sup>6</sup> Romer and Rosenthal developed a theoretical framework in an influential series of papers.<sup>7</sup> They used the theory to study local school district budgets, documenting the importance of reversion points for spending proposals. However, they did not compare the spending behavior of districts with and without mandatory referendums. The only study we know that

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<sup>4</sup> The evidence in Matsusaka (1995) is from 1960-1990, which partially overlaps the present study.

<sup>5</sup> For example, see Poterba and von Hagen (1999).

<sup>6</sup> Several recent papers have studied mandatory referendums on *borrowing*. For example, Feld and Kirchgassner (1999) report that debt referendums reduce borrowing and spending in Swiss municipalities, and Bohn and Inman (1996) and Kiewiet and Szakaly (1996) find they restrict borrowing in U.S. states. See also McEachern (1978).

<sup>7</sup> The seminal paper is Romer and Rosenthal (1979). See Romer, Rosenthal, and Munley (1992) for references.

attempted such a comparison was Megdal's (1983) investigation of 177 New Jersey school districts. Unfortunately, the particular referendum she studied was rather toothless—if the voters rejected the school board's budget proposal, then the decision simply passed to the city council—and she could not find an effect on spending. We would like to know about referendums that actually allow the voters to close down a project.

Our paper also contributes to the substantial empirical literature on direct democracy in Switzerland pioneered by Pommerehne and other Switzerland-based economists.<sup>8</sup> The message from this literature is that direct democracy matters, but as far we can tell, no study investigates whether direct democracy (broadly defined) or mandatory referendums (specifically) reduce spending.<sup>9</sup> Moreover, a common approach has been to combine several institutional features into an index of direct democracy. This makes it easy to answer general questions about the consequences of direct democracy, but limits the policy relevance of the results since policymakers need to know precisely what institutional features are important. We add to the literature by documenting that direct democracy does in fact reduce spending, by tracing the cause to the mandatory referendum and the voter initiative, and by quantifying the impact of both institutions.

The paper is organized as follows. Section II describes the institutional structure of canton decisions Section III analyzes a simple model to motivate the empirical work. Section IV specifies the empirical model and data sources. The main results appear in Section V. Section VI discusses alternative interpretations of the evidence and concludes.

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<sup>8</sup> Pommerehne (1990) and Frey (1994) contain surveys.

<sup>9</sup> The important study by Pommerehne (1978) is sometimes cited as showing that direct democracy results in lower spending, but that is neither the focus of the paper, nor can such a conclusion be drawn from the reported results. Pommerehne and Schneider (1983) perform a simulation that suggests slower spending growth in cities with high index values of direct democracy, but do not test for statistical significance.

## II. Description of Institutions

Switzerland has a federal structure analogous to the United States. Total spending in the 26 cantons exceeds spending by the federal government or local governments. Canton spending is concentrated on education (about a quarter of all expenditure), health, social security, and roads. All cantons have a parliamentary legislature elected in a proportional representation system, except for five cantons that used a town-meeting form of government for at least part of the sample period.

Decisions to initiate a new spending program in the cantons are made in the shadow of a web of institutions that facilitate popular participation. Table 1 and Figure 1 summarize some of the key institutions. We have not attempted to be exhaustive here, but instead to capture the most important features for our purposes. The data are drawn from the detailed study of Swiss institutions by Trechsel and Serduelt (1999).

### A. *Mandatory Referendums*

The first institution is the mandatory referendum, available in 17 cantons in 1996 (and 71 percent of the observations in the full sample). A new spending project is initially approved by parliament (or proposed by elected officials in the town meeting cantons). If the cost of the project exceeds a predetermined amount—the spending threshold—then the project must be approved by majority vote in a referendum of all voters. Spending thresholds are usually specified in nominal dollars, but in a few cases as a percentage of the canton’s previous budget.<sup>10</sup> The nominal spending thresholds ranged from 150,000 Swiss francs to 25 million Swiss francs in 1996. The thresholds tend to be adjusted upward periodically over time to account for inflation.

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<sup>10</sup> Most cantons also set a threshold in terms of the implied repeating yearly expense of the project. This annual expenditure threshold is usually one-tenth of the regular spending threshold.

## *B. Optional Referendums*

The second institution is the optional referendum, available in 20 cantons in 1996. In cantons with an optional referendum, voters can call for a referendum on a new spending proposal by collecting signatures from a predetermined number of citizens. As with mandatory referendums, the optional referendum becomes available when a spending proposal exceeds some minimum level. Twelve cantons provided for both optional and mandatory referendums in 1996, with the optional referendum available for spending levels below the threshold of the mandatory referendums.

## *C. Voter Initiatives*

The third institution is the voter initiative, available in all cantons. The voter initiative allows citizens to propose an entirely new law that goes into effect if approved by a vote of the electorate at large. The key difference between the initiative and the two referendums is that the initiative allows *new* laws to be proposed while the referendums only permit negation of existing laws. The initiative provides a way for citizens to cancel spending programs that fall short of the referendum spending thresholds—they can simply pass a law that eliminates the program. An initiative goes to the voters for consideration when sponsors collect a predetermined number of signatures. The more signatures are required, the harder it is to propose an initiative. As Matsusaka (1995, 2000) has shown for the United States, the signature requirement is an important determinant of the effectiveness of the initiative. The signature requirement in 1996 ranged from a low of 1 in some of the town meeting cantons to a high of 15,000 in Bern.<sup>11</sup> In the estimates below, we express the signature requirement as a percentage of the population, in order to proxy the cost of using the initiative.

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<sup>11</sup> The signature requirement can differ for initiatives that propose new statutes and those that amend the constitution. Either type of initiative can cancel a spending program, so we use the signature requirement for statutory initiatives, which is always lower (or the same). The “signature requirement” for the town meeting cantons is set to 1 when a single person at the meeting (or before) can call for a vote on a measure.



### III. A Theoretical Framework

To frame the empirical analysis, we develop a simple agenda setting model adapted from Romer and Rosenthal (1979). The purpose is to identify the theoretical effect of the institutions we consider under the assumption that government officials want to spend more than the median voter does. We omit the case where officials want to spend less than the median voter since it is an obvious extension and inconsistent with our evidence.

A canton must choose an amount  $x \geq 0$  to spend on a new project (Figure 2). The median voter's optimal spending level is  $V$ , and his utility is  $U(x) = -|V - x|$ , indicated as the heavy "tent" in the figure. In a median voter world, the government would propose  $x = V$ , and the mandatory referendum would be superfluous. We suppose instead that the government (parliament, bureaucracy, etc.) has a preferred spending level of  $G > V$ , with utility decreasing as spending differs from this amount. Here  $G$  should be interpreted as the government's preference factoring in the possibility of losing re-election and other political costs.

To begin, note that with no referendums or initiatives, the government chooses  $x_G = G$  and that becomes the amount actually spent. What happens if a referendum is required? The voter will reject any spending proposal that yields less utility than  $U(0)$  since  $x = 0$  is the reversion point. Therefore, the maximum spending proposal that the voter will approve is  $x_M = 2V$ . If  $x_M < x_G$  as drawn in Figure 2, then the mandatory referendum matters: the government proposes  $x_M$  or the spending threshold, whichever is greater, and that becomes the policy. Otherwise, the government proposes  $x_G$ . The conclusion is that a mandatory referendum tends to reduce spending, and the size of the reduction is larger when the spending threshold is smaller. As an aside, it is useful in interpreting the empirical results to keep in mind that the observed spending level with a mandatory referendum is not equal to the voter's ideal point unless  $V = 0$ , so the difference between  $x_G$  and  $x_M$  understates the amount of "overspending."

When it comes to the data, it is difficult for us to compare  $x_G$  and  $x_M$  since so few cantons have pure representative governments. Instead, we will be comparing mandatory

referendum cantons to a benchmark group that includes cantons with optional referendums as well as those with no referendums as all. Therefore, we need to understand the theoretical implications of an optional referendum. With an optional referendum, the government's spending proposal can be put to a vote only if the voter pays a cost in terms of collecting signatures. If the utility cost of collecting signatures is  $C$ , then the government must make the voter indifferent between its proposal and  $U(0) - C$ . The maximum spending proposal that achieves this is  $x_o = 2V + C$ . When the constraints are binding,  $x_G > x_o > x_M$ . The important point here is that a mandatory referendum cuts spending relative to an optional referendum if there is an overspending problem. In addition, the difference between  $x_M$  and  $x_o$  is an understatement of  $x_G - x_M$ .

Finally, suppose that the initiative is available. Now the voter can achieve his optimal spending level ( $x = V$ ) if he pays the cost of collecting signatures to make a proposal. The voter will use the initiative if it promises to increase his utility by more than the cost of collecting signatures,  $K$ . Therefore, the government can propose to spend at most  $x_I = V + K$  without triggering an initiative. Since all cantons permit initiatives, our key empirical variable will be  $K$ , measured as the signature requirement. Observe that  $x_I$  is increasing in  $K$ , and can lie anywhere to the right of  $V$ . If  $x_I < G$  then the initiative reduces spending. If  $x_I < x_M$ , then the mandatory referendum has no effect. Two implications follow: (1) all else equal, spending is lower as  $K$  falls, and (2) mandatory referendums cut spending more as  $K$  rises.

#### IV. Empirical Model and Data

The empirical model is:

$$E_{it} = a \cdot M_{it} + b \cdot I_{it} + c \cdot M_{it} \cdot I_{it} + d \cdot X_{it} + e_{it},$$

where  $E$  is expenditure per capita,  $M$  is a vector of variables describing the mandatory referendum,  $I$  is the initiative signature requirement,  $X$  is a vector of demographic and political variables that control for non-institutional determinants of spending,  $e$  is an error term, and  $a$ ,  $b$ ,  $c$ , and  $d$  are the (vector-valued) coefficients to be estimated. The subscript  $i = 1, \dots, 26$  indexes cantons and  $t = 1986, \dots, 1997$  indexes years. We report White standard errors throughout to account for heteroskedasticity. The interaction term between the mandatory referendum and the voter initiative is motivated by the preceding theoretical discussion.

Summary statistics for expenditure and the demographic and political controls are reported in Table 2.<sup>12</sup> Expenditure, income, and federal aid are expressed in 1997 Swiss francs (SF) per capita.<sup>13</sup> Our list of controls is fairly standard for the literature. Income and federal aid are the main sources of funds, and are positively related to expenditure in most studies. Large and dense populations may create economies of scale in spending. The age distribution of the population captures one source of variation in demand for government services. The unemployment rate is a proxy for the business cycle.

The nonstandard control is a language dummy. Switzerland has four official national languages. We include a dummy variable equal to 1 for the 19 German-speaking cantons (including Grisons, where some speak Romansch) and 0 for the seven “Latin” (French and Italian speaking) cantons to capture variations in preferences that might

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<sup>12</sup> Basle City is the highest spending canton. This is partly a statistical artifact since the canton budget integrates both state and some local expenditure. We estimated all our regressions without this canton to check for robustness, and nothing of significance changes.

<sup>13</sup> For comparison, in December 1997 one U.S. dollar traded for 1.44 Swiss francs. So to convert the numbers in this paper to 1997 dollars, multiply by 0.7.

escape our other controls. This division into two language groups is standard in the literature.

An important issue in a study like ours is the endogeneity of institutions. Cantons can change their institutions over time. Indeed, two cantons eliminated their mandatory referendums near the end of our sample period (Valais in 1994 and Bern 1995). The concern is that an omitted variable may drive both the spending decision and the choice of institutions. In principle, this problem could bias the coefficients in either direction: for example, upwards, if anti-spending cantons are more likely to adopt the mandatory referendum, and downwards, if cantons adopt referendums in response to excessive spending. The omitted variable of most concern is voter ideology. We follow the literature and include a variable in the regression that should be correlated with voter ideology—the fraction of seats held in the parliament by left wing parties—to try to control for this possibility.<sup>14</sup> Since the cantons allocate seats using a proportional representation system, our variable should give a good indication of the strength of left wing interests. The downside of including this variable is its own endogeneity, which biases the standard errors of the other coefficients. As it turns out, the results are substantially the same whether or not this variable is included.

The data were collected from several sources. Expenditure and federal aid came from publications of the Federal Finance Administration. The Federal Statistical Office provided the demographic and income numbers. The unemployment rate numbers were supplied by the State Secretariat for Economic Affairs. The partisan makeup of the parliament was collected from various issues of *Annee Politique Suisse/Schweizerische Politik* by Hirter et al. (various years). And, as noted above, the information on institutions came from Trechsel and Serduelt (1999).

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<sup>14</sup> The left wing parties are defined to be the Social Democratic Party, the Labor Party, and the Green Party.

## V. Results

### A. Mandatory Referendums

We begin by studying the effect of mandatory referendums alone, and turn to initiatives in the next section. Table 3 presents the first set of results. Each column reports estimates from a regression. White standard errors appear in parentheses beneath the coefficient estimates.

The regression in column (1) simply adds a dummy for cantons with mandatory referendums to the list of explanatory variables.<sup>15</sup> The point estimate indicates that cantons with mandatory referendums spent 387.42 SF per capita less than cantons without mandatory referendums. This is about a 5 percent reduction compared to the mean expenditure level of 7,409.06 per capita. The coefficient is different from zero at the 5 percent level of significance. It is worth keeping in mind that the omitted cantons include those with optional referendums as well as those with no referendums at all so the point estimate probably understates the effect of a mandatory referendum compared to having no referendum at all.

The regression in column (2) adds an interaction term equal to the spending threshold for those cantons with mandatory referendums. If the finding in column (1) is not spurious, we should see a positive coefficient on the interaction—as the threshold rises, so should canton spending. That is indeed the observed pattern. Here both the mandatory referendum dummy and the interaction term are statistically significant at better than the 1 percent level.

The numbers in column (2) are hard to interpret in isolation because the full effect of a mandatory referendum is equal to the referendum dummy plus the threshold-weighted interaction term. In Table 4, we report the full effect of a mandatory referendum for several spending thresholds. For reference, the median spending threshold in the sample is 3 million SF, the 25th percentile is 600,000 SF and the 75th percentile is a little less

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<sup>15</sup> Note that cantons with mandatory and optional referendums are included in the mandatory referendum category.

than 16 million SF. It can be seen that the mandatory referendum has a measurable and statistically significant negative effect on spending for all thresholds in the table. The effect is zero when the spending threshold reaches 25.8 million SF.

The magnitudes of the effects are surprisingly large. A canton with the median 3 million SF spending threshold spent 917 SF per capita less than a canton without a mandatory referendum according to the point estimate. This translates into a 12 percent reduction. Again, recall that this is probably an understatement of the difference between cantons with mandatory referendums and those with no referendums at all.

Table 5 presents alternative spending regressions in order to assess the robustness of the results. Panel A reports the mandatory referendum coefficients, and panel B gives the full effect conditional on spending threshold. In column (1) we estimate the regression after deleting the town meeting cantons.<sup>16</sup> These cantons could be fundamentally different than the others because they lack meaningful parliaments. It can be seen that nothing of substance changes. We also tried splitting the sample into the first six and last six years, and running the regressions on each subsample. The (unreported) results were essentially the same.

The regression in column (2) attempts to address the endogeneity problem by including the variable equal to the share of left-wing parties in the parliament. The hope is that this will capture omitted voter ideology with regard to spending. The coefficient is negative and statistically significant at about the 5 percent level, but has little effect on the mandatory referendum coefficients.

Column (3) addresses endogeneity with instrumental variables. Our instruments for the two mandatory referendum variables are the canton's institutions 10 years earlier (that is, the mandatory referendum dummy and the interaction term lagged 10 years), adjusted for current prices. We have in mind that today's institutions are affected by two factors that are unlikely to be correlated with the current error term. The first is institutions 10 years ago, presumably because institutions are not easy to change. The second is inflation—increases in the price level cause the real value of the spending threshold to

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<sup>16</sup> The canton of Nidwalden eliminated the town meeting in 1997, but the others retained their form of government throughout the sample period.

decline. The instrumental variables estimates have larger standard errors, but the coefficients are virtually the same, and the substantive conclusions are unchanged.

We also estimated the regressions with canton fixed effects (26 canton dummies). On a priori grounds, we view this as an unsatisfactory specification: since the institutional provisions show little change over time in many cantons, the canton fixed effects are likely to absorb a good part of the institutional effect we want to measure. Still, it is useful to see how the results stand up to this high hurdle. We do not present the full estimates because they are somewhat unstable and to focus on a particular specification would be somewhat misleading. Instead, we summarize the results for various specifications. If the regression in column (2) is estimated with canton fixed effects using all observations, the signs of the key coefficients are unchanged and remain statistically significant. The estimated effect of the mandatory referendum associated with the median 3 million SF threshold falls to  $-153$ , however. One canton, Neuchatel, exerts a disproportionate influence on these results because it increased its spending threshold from about 3 million SF to 30 million SF during the sample period. When the regression is estimated without this canton, the estimated effect of the mandatory referendum for a median threshold is  $-340$  SF. When the town meeting cantons are also deleted, the estimated effect is  $-989$ . The fixed effects model, therefore, seems somewhat unreliable here, but the main message goes through for the most part: cantons with mandatory referendums tended to spend less.

These robustness tests (and numerous other specifications that we estimated but do not report) tell the same story. The relation between the mandatory referendum and lower spending is not fragile, and there is little reason to believe that the pattern is a spurious consequence of institutional endogeneity.

### *B. Initiative*

All cantons provide for initiatives. Recall that an initiative allows voters to propose laws and constitutional amendments that are decided by popular vote. The initiative differs from the mandatory referendum in that it allows voters to proposal entirely new

laws, while the mandatory referendum only permits vetoes of projects approved by the legislature above a certain size. With the initiative, the voters could propose a new spending program or cancel one approved by the government. In principle, then, the initiative can be used to challenge projects that fall short of the thresholds for mandatory referendums, either because they are inherently small or because the legislature nominally breaks a large project into smaller projects. The theoretical discussion above suggests that the effect of the initiative is conditional on the cost of using it, and on the strength of the canton's mandatory referendum (if it has one). Our measure of the cost of an initiative is the signature requirement required to qualify a proposal for a referendum, expressed as a percentage of the population. The signature requirement has been shown to influence the fiscal effect of the initiative (Matusaka, 1995, 2000) and the number of initiatives (Matusaka and McCarty, 1999) in the United States.

Table 6 reports the coefficient estimates. The regression in column (1) adds the initiative signature requirement to the regression with the mandatory referendum variables. This is not the correct specification according to theory since it does not allow for interactions, but it indicates the unconditional effect of the initiative. Consistent with the theory and the previous results, the signature requirement coefficient is positive and significant at the 5 percent level. The point estimate implies that each 1 percent fall in the signature requirement is associated with 299.98 SF per capita less spending. Inclusion of the signature variable does not reduce the estimated effect of the mandatory referendum.

The regression in column (2) includes the interaction terms between the signature requirement variable and the two mandatory referendum variables called for by the theory. One thing to observe is that the signature requirement coefficient remains positive and is now significant at better than the 1 percent level. This coefficient indicates the effect of the signature requirement in cantons without mandatory referendums (since all the other variables are zero if mandatory referendums are not present.) The implied effect is huge. This fits with theory: in cantons without mandatory referendums, the initiative is the only vehicle to address objectionable spending projects, and should be potent at the margin.



The other coefficients are difficult to interpret on their own because the full effect of a mandatory referendum now depends on both the spending threshold and the signature requirement. In particular, the implied full effect of a mandatory referendum is

$$Full\ effect = 733.18 - 27.64 \times T - 1,512.87 \times S + 45.20 \times T \times S,$$

where  $T$  is the spending threshold (in millions SF) and  $S$  is the signature requirement (as a percent). Table 7 reports the estimated full effect for several spending thresholds and signature requirements. For signature requirements, we use 0.6 percent (the 25th percentile of the distribution), 1.4 percent (the median), and 2.1 percent (the 75th percentile). We also report the chi-squared statistics for the hypothesis that the full effect is zero. The main entries indicate how spending in a canton with a given threshold and signature requirement compares to a canton with the same initiative signature requirement but without a mandatory referendum. That is, the table reports the full effect of a *mandatory referendum* holding constant other canton characteristics *including the initiative signature requirement*. For example, the value of  $-175$  in the first cell means that a canton with a 0.5 million SF spending threshold and a 0.6 percent signature requirement spent 175 SF per capita less than an otherwise identical canton (with a 0.6 percent signature requirement) that did not have a mandatory referendum.

There are several interesting patterns. First, as above, the effect of a mandatory referendum is negative for the threshold/signature requirement pairs we calculate. Looking down the columns we see that the effect diminishes as the spending threshold rises (except for the first column, where the effect is roughly independent of the threshold.) This is consistent with the previous regressions and with theory.

Looking across the rows, we see that the effect of a mandatory referendum rises as the initiative signature requirement rises. That is, as the initiative becomes more costly to use, cantons with mandatory referendums spend increasingly less than cantons without mandatory referendums. This is the pattern predicted by theory. It suggests that when the cost of using an initiative is sufficiently low, there is little need for mandatory referendums. Indeed, none of the full effects can be differentiated statistically from zero when the signature requirement is at the 25th percentile. When signature requirements are

at the median or higher, the mandatory referendum has a huge effect on spending, and the estimated full effects are significant at conventional levels for all spending thresholds in the table. To put the estimates in perspective, note that when signature requirements are 2.1 percent, a mandatory referendum with a 1 million SF threshold is associated with 2,410 SF per capita less spending, a 33 percent reduction compared to the mean. For a canton with the median threshold and signature requirement, the estimates imply a 17 percent reduction in spending from the mandatory referendum. It is interesting that even a mandatory referendum with a 15 million SF threshold cuts spending when initiative signature requirements are at the median or higher.

The last column of Table 7 reports the marginal effect on spending of an increase in signature requirement for a given spending threshold. We see that when spending thresholds are small (below 5 million SF), changes in signature requirements have little effect on spending. When spending thresholds are high, a reduction in signature requirements leads to quantitatively and statistically large reductions in spending. This is just another way of documenting that mandatory referendums and initiatives do in fact seem to serve as partial substitutes for each other. Similarly, the bottom row shows that the marginal effect of a change in the spending threshold is greatest when the initiative is costly to use.

## VI. Discussion and Conclusion

This paper presents evidence that government spending is lower in Swiss cantons with mandatory referendums. Moreover, the effect of these referendums on spending is larger as the spending thresholds fall and as initiatives become more costly for voters to use. The magnitudes of the effects are remarkably large, implying 17 percent lower spending for a mandatory referendum with the median spending threshold of 3 million SF and median 1.4 percent initiative signature requirement.<sup>17</sup> To the best of our knowledge, this is the first systematic study of what happens to spending when voters are given the right to reject individual projects.

It seems clear that these decisionmaking institutions have teeth—legislatures cannot simply evade them, say, by splitting big projects into smaller projects that fall below spending thresholds. In this respect, mandatory referendums appear to be different from tax and expenditure limitations that are popular in U.S., but for which there is inconclusive evidence that they control spending. One should be careful about generalizing from the case of Switzerland, but our evidence suggests that other jurisdictions seeking to control spending may wish to consider mandatory referendums.

On a more theoretical level, our findings appear to be inconsistent with the median voter model. In a pure median voter world, representatives implement the preferred spending levels of the median voter, and a mandatory referendum or voter initiative would have no effect. The fact that spending levels in cantons with mandatory referendums can be so different from cantons without mandatory referendums, suggests that legislatures (in this country and time period) tend to spend much more than the median voter wants. In this respect, our results reinforce Peltzman's (1992) finding that (U.S.) voters tend to be more fiscally conservative than their representatives.

The open question is why do some legislatures tend to spend more than voters want? Here we offer a few conjectures that should be taken as speculative and primarily food for thought for future research. One benign view is that legislatures are able to logroll multidimensional projects that would be rejected individually, and thereby

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<sup>17</sup> And it should be kept in mind, that this is probably an understatement of the full effect.

maximize gains from trade. Such logrolls cannot be supported in project-by-project referendum elections. In this view, referendums work against the voters' interests, and result in spending levels that are inefficiently low.

There are several reasons to doubt this explanation. First, there is some evidence that Swiss cantons with direct democracy use their government monies more efficiently. Pommerehne (1983) shows that trash collection is conducted more efficiently and at a lower cost in cantons with direct democracy. Less direct evidence comes from Feld and Savioz (1997). They estimate a neoclassical production function for Swiss cantons, and document greater production for a given amount of inputs in cantons with more direct democracy. While the source of the efficiency is unclear, one possibility is better roads, schools, etc. Less traditional evidence appears in Frey and Stutzer (forthcoming). They make use of survey data on self-reported well-being ("happiness") and document that citizens are happier (in the specific sense indicated) in cantons with more direct democracy, after controlling for other determinants of happiness. None of this is conclusive, but it gives little reason to be enthusiastic about the view that mandatory referendums are cutting spending that voters really want.

A more plausible way to view the evidence, it seems to us, is in terms of a theory in which government officials tend to spend more than the electorate wants, and that spending is wasteful at the margin. This could happen because of budget-maximizing bureaucracies (Niskanen, 1971) or logrolls that treat the tax base as a common pool (Tullock, 1959), to name just two of the more popular theories. We should perhaps be a bit circumspect about adopting this view since it begs the question why some cantons do not have mandatory referendums, but it seems like a natural starting point for further inquiry.<sup>18</sup>

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<sup>18</sup> We suspect that in order to explain the distribution of mandatory referendums, we will ultimately need a theory that has both benefits and costs. The literature is remarkably short of theories in which institutions have both benefits and costs, however. Matsusaka and McCarty's (1999) study of the voter initiative is a step in this direction.

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**Figure 1. Provisions for Budget Referendums in Swiss Cantons, 1996**

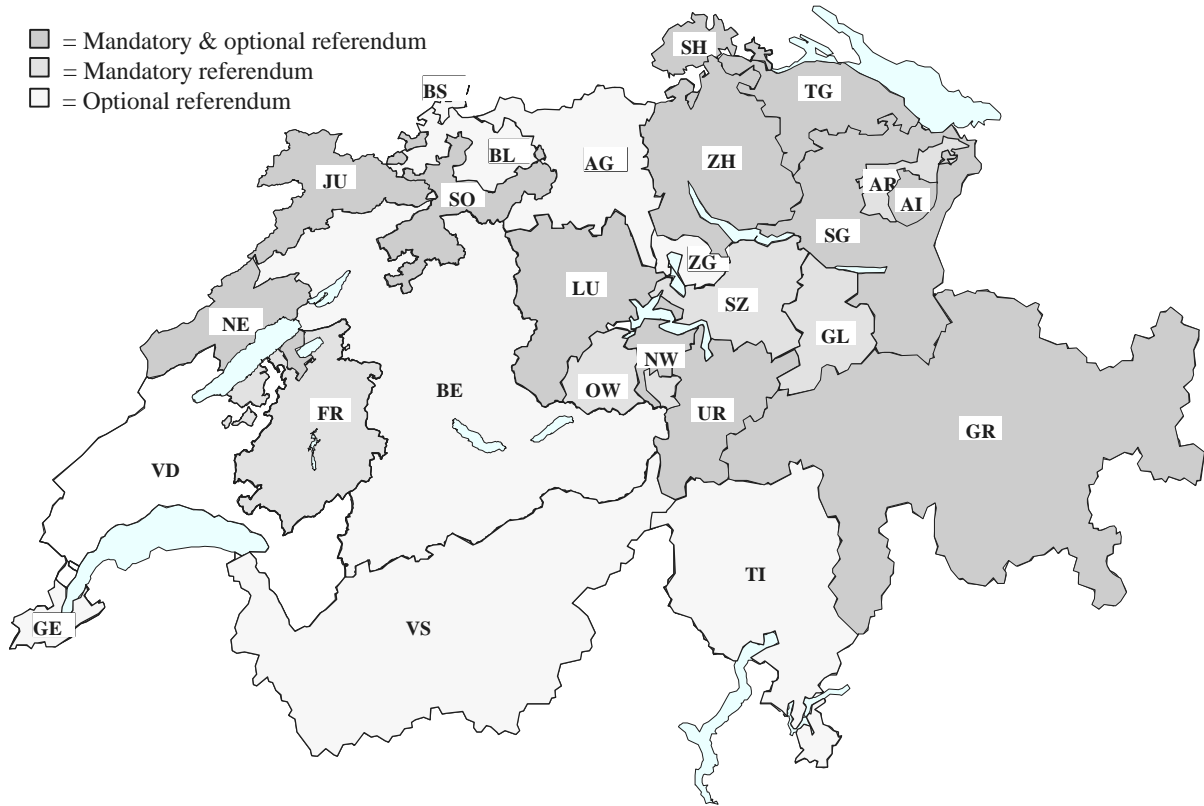
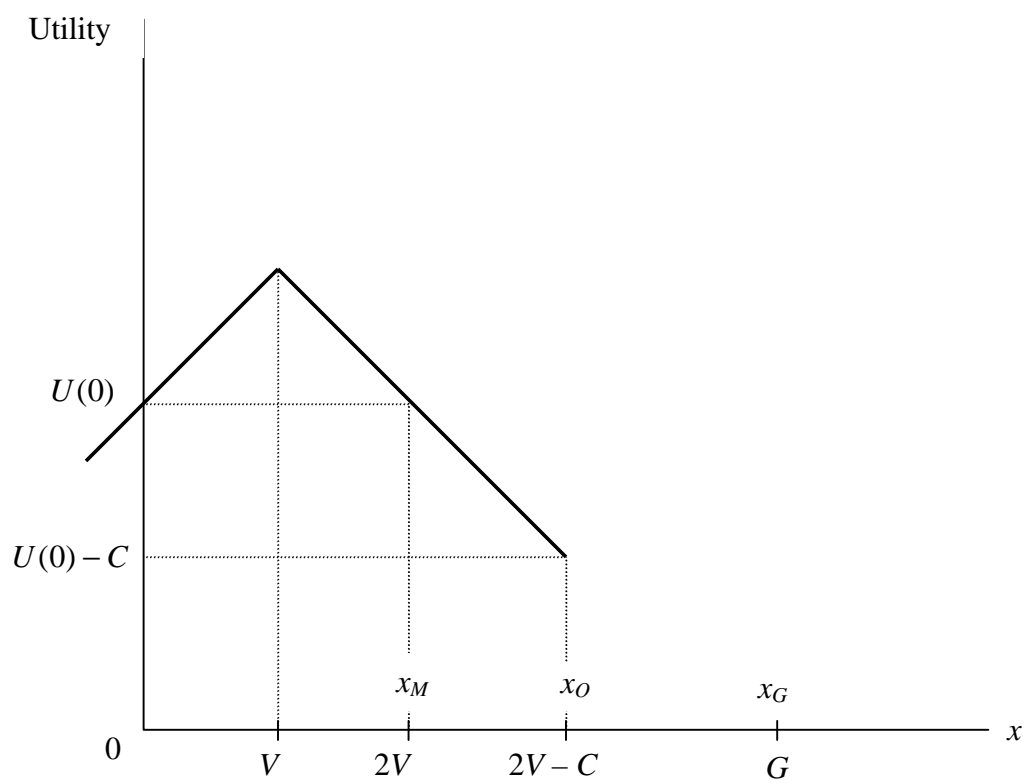


Figure 2



**Table 1. Provisions for Budget Referendums in Swiss Cantons, 1996**

Canton	Referendums on new projects	Spending threshold for mandatory referendum	Spending threshold for optional referendum	Signature requirement for initiative	Population in 1,000s	Town meeting?
Zurich (ZH)	M,O	20,000,000	2,000,000	10,000	1,179	No
Bern (BE)	O	...	2,000,000	15,000	941	No
Lucerne (LU)	M,O	25,000,000	3,000,000	4,000	342	No
Uri (UR)	M,O	1,000,000	500,000	300	36	No
Schwyz (SZ)	M	250,000	...	2,000	124	No
Obwalden (OW)	M	1,000,000	...	1	31	Yes
Nidwalden (NW)	M,O	250,000	125,000	1	37	Yes
Glarus (GL)	M	500,000	...	1	39	Yes
Zug (ZG)	O	...	500,000	2,000	94	No
Fribourg (FR)	M	1% of budget	...	6,000	228	No
Solothurn (SO)	M,O	2,000,000	1,000,000	3,000	241	No
Basle City (BS)	O	...	1,000,000	4,000	195	No
Basle County (BL)	O	...	500,000	1,500	254	No
Schaffhausen (SH)	M,O	1,000,000	300,000	1,000	74	No
Appenzell ER (AR)	M	5% of budget	...	1	54	Yes
Appenzell IR (AI)	M,O	500,000	250,000	1	15	Yes
St. Gallen (SG)	M,O	10,000,000	3,000,000	4,000	444	No
Grisons (GR)	M,O	5,000,000	1,000,000	3,000	186	No
Aargau (AG)	O	...	3,000,000	3,000	532	No
Thurgau (TG)	M,O	3,000,000	1,000,000	4,000	225	No
Ticino (TI)	O	...	200,000	7,000	305	No
Vaud (VD)	...	...	...	12,000	606	No
Valais (VS)	O	...	.75% of budget	4,000	272	No
Neuchatel (NE)	M,O	1.5% of budget	.3% of budget	6,000	165	No
Geneva (GE)	O	...	125,000	10,000	395	No
Jura (JU)	M,O	5% of budget	.5% of budget	2,000	69	No

*Note.* “M” means mandatory referendum is available, and “O” means optional referendum is available. Financial numbers are in Swiss francs. Signature requirements apply to the “legislative” initiative. For town meetings, an initiative is defined as a vote of all people at the meeting on a proposal. The data source for this table is Trechsel and Serdult (1999).

**Table 2. Summary Statistics**

Variable	Mean	S.D.	Minimum	Maximum
Expenditure per capita	7,409.06	2,805.43	3,939.41 SZ '87	18,268.44 BS '97
Income per capita	42,825.59	9,177.72	27,731.86 JU '94	82,941.66 ZG '89
Federal grants per capita	473.72	166.40	253.15 TG '89	1,235.83 ZG '86
Population	263,183	273,830	13,100 AI '86, '87	1,181,614 ZH '97
Population/km <sup>2</sup>	27.61	11.34	13.46 JU '87	75.34 BS '93
Population older than 65, % of total	19.41	2.35	14.48 ZG '86	27.07 BS '89
Population younger than 20, % of total	26.21	3.04	17.33 BS '89	33.63 AI '86
Unemployment rate as %	2.26	2.07	0 AI '88-'90, UR '90	7.80 TI '97, GE '97
Fraction of parliament seats held by left-wing parties	0.17	0.09	0 32 cases	0.39 NE '92

*Note.* All statistics are computed for 312 observations (26 cantons from 1986 to 1997). Financial numbers are expressed in 1997 Swiss francs. Data sources are reported in the text.

**Table 3. Regressions of Canton Expenditure on Mandatory Referendum and Control Variables, 1986-1997**

	(1)	(2)
Dummy = 1 for mandatory referendum (MR)	-387.42 (170.55)	-1,037.04 (239.08)
MR dummy $\times$ Spending threshold (in millions of Swiss francs)	...	40.17 (12.09)
Income	396.49 (106.60)	465.03 (108.17)
Income <sup>2</sup>	-4.10 (1.11)	-4.74 (1.14)
Federal aid	4.20 (1.07)	3.70 (1.11)
Population, % older than 65	329.05 (58.51)	340.47 (57.47)
Population, % younger than 20	51.02 (77.01)	61.17 (74.74)
Ln(Population)	-299.36 (83.08)	-490.73 (101.97)
Population/km <sup>2</sup>	156.48 (14.35)	152.86 (14.49)
Unemployment rate	-120.88 (141.60)	-166.94 (140.67)
Dummy = 1 for German-speaking	-2,750.55 (396.26)	-2,636.52 (401.46)
$R^2$	0.704	0.712
Adjusted $R^2$	0.683	0.691
Observations	312	312

*Note.* Each column reports estimates from a panel regression using 26 cantons from 1986 to 1997. The dependent variable is expenditure per capita. The main entries are the coefficient estimates, and heteroskedastic-consistent (White) standard errors are in parentheses beneath. The regressions included 12 year dummies whose coefficients are not reported. Financial numbers are expressed in 1997 Swiss francs per capita. Income is in 1000s.

**Table 4. Effect of Mandatory Referendum on Canton Expenditure, Conditional on a Spending Threshold**

Threshold in millions SF		Effect	S.E.
0.5	(25th percentile)	-1,017	235
1		-997	230
2		-957	222
3	(Median)	-917	214
5		-836	199
10		-635	170
15	(75th percentile)	-434	161

*Note.* The table reports the effect on canton expenditure of a mandatory referendum with the indicated spending threshold compared to an otherwise identical canton without a mandatory referendum. Expenditure is expressed in Swiss francs (SF) per capita. Estimates are based on the regression in column (2) of Table 3.

**Table 5. Expenditure Regressions: Robustness**Panel A. Regression coefficients and specification

	(1)	(2)	(3)
Dummy = 1 for mandatory referendum (MR)	-1,432.72 (286.45)	-911.68 (229.39)	-1,197.47 (282.80)
MR dummy × Spending threshold (in millions SF)	42.14 (11.91)	36.32 (12.66)	53.24 (13.74)
All controls from Table 3?	Yes	Yes	Yes
Town meeting cantons deleted?	Yes	...	...
Includes fraction of parliament seats held by left parties?	...	Yes	Yes
Coefficient on parliament seats held by left parties	...	-36.23 (14.23)	-34.34 (14.29)
Instrumental variables?	...	...	Yes
Includes canton fixed effects?	...	...	...
$R^2$	0.765	0.719	0.717
Adjusted $R^2$	0.742	0.696	0.695
Observations	253	312	312

Panel B. Effect on spending conditional on spending threshold

Threshold (millions SFr)			
0.5	-1,411 <sup>***</sup>	-894 <sup>***</sup>	-1,171 <sup>***</sup>
1	-1,391 <sup>***</sup>	-875 <sup>***</sup>	-1,144 <sup>***</sup>
2	-1,348 <sup>***</sup>	-839 <sup>***</sup>	-1,091 <sup>***</sup>
3	-1,306 <sup>***</sup>	-803 <sup>***</sup>	-1,038 <sup>***</sup>
5	-1,222 <sup>***</sup>	-730 <sup>***</sup>	-931 <sup>***</sup>
10	-1,011 <sup>***</sup>	-548 <sup>***</sup>	-665 <sup>***</sup>
15	-801 <sup>***</sup>	-367 <sup>**</sup>	-399 <sup>*</sup>

*Note.* Each column reports estimates based on a panel regression over the year 1986-1997. The dependent variable is expenditure per capita. Panel A reports the key coefficient estimates and White standard errors. Panel B indicates the difference in spending between otherwise identical cantons with and without a mandatory referendum. Significance levels are indicated as follows: \* is 10%, \*\* is 5%, and \*\*\* is 1%.

**Table 6. Regressions of Expenditure on Mandatory Referendum, Initiative, and Control Variables**

	(1)	(2)
Dummy = 1 for mandatory referendum	-1,308.31 (258.48)	733.18 (416.89)
MR dummy $\times$ Spending threshold (in millions SF)	43.17 (12.22)	-27.64 (24.20)
Initiative signature requirement (% of population)	299.97 (155.18)	1,461.81 (336.70)
MR dummy $\times$ Initiative signature requirement	...	-1,512.87 (294.75)
MR dummy $\times$ Spending threshold $\times$ Initiative signature requirement	...	45.20 (12.05)
Income	497.39 (116.30)	470.92 (127.47)
Income <sup>2</sup>	-5.03 (1.22)	-4.83 (1.36)
Federal aid	3.25 (1.08)	2.60 (1.07)
Population, % older than 65	350.54 (56.75)	284.86 (60.12)
Population, % younger than 20	98.32 (74.76)	82.23 (74.29)
Ln(Population)	-579.43 (105.43)	-377.24 (122.28)
Population/km <sup>2</sup>	149.63 (14.81)	140.16 (14.49)
Unemployment rate	-178.03 (138.11)	-216.69 (127.29)
Dummy = 1 for German-speaking	-2,165.88 (518.42)	-1,226.64 (501.28)
$R^2$	0.716	0.734
Adjusted $R^2$	0.693	0.711
Observations	312	312

*Note.* Each column reports estimates from a panel regression using 26 cantons from 1986 to 1997. The dependent variable is expenditure per capita. The main entries are the coefficient estimates, and heteroskedastic-consistent (White) standard errors are in parentheses beneath. The regressions included 12 year dummies whose coefficients are not reported. Financial numbers are expressed in 1997 Swiss francs (SF) per capita. Income is in thousands.



**Table 7. Effect of Mandatory Referendum and Initiative on Canton Expenditure, Conditional on Spending Threshold and Signature Requirement**

Threshold (millions SF)	<i>Initiative Signature Requirement, % of Population</i>			$\frac{d(\text{Expenditure})}{d(\text{Signature req.})}$
	0.6 (25th %)	1.4 (Median)	2.1 (75th %)	
0.5	-175 [0.3]	-1,367 [23.9]	-2,410 [36.5]	-28 [0.0]
1	-175 [0.4]	-1,349 [24.1]	-2,378 [36.1]	-6 [0.0]
2	-176 [0.4]	-1,314 [24.5]	-2,309 [35.2]	39 [0.0]
3	-176 [0.5]	-1,278 [24.8]	-2,242 [34.3]	8.5 [0.2]
5	-177 [0.6]	-1,207 [25.5]	-2,107 [33.3]	175 [1.1]
10	-180 [0.9]	-1,028 [26.3]	-1,771 [26.2]	401 [6.5]
15	-182 [1.0]	-850 [8.6]	-1,434 [19.1]	627 [13.1]
$\frac{d(\text{Expenditure})}{d(\text{Threshold})}$	-1 [0.0]	36 [9.3]	67 [36.2]	

*Note.* This table reports the effect on canton expenditure of a mandatory referendum with the indicated spending threshold compared to an otherwise identical canton, given an initiative signature requirement. Expenditure is expressed in Swiss francs (SF) per capita. The last row reports the marginal effect on expenditure associated with a 1 million SF increase in the threshold. The last column reports the marginal effect associated with a 1% increase in signature requirements. In square brackets is the associated  $\chi^2$  statistic for the hypothesis that the effect is equal to zero. All estimates are based on the regression in column (2) of Table 6.