Preferences Matter! Voter Preferences, Direct Democracy and Government Spending

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Abstract

Previous studies on direct democracy seem to suggest that direct democratic instruments are associated with less government spending. If institutions reflect the preferences of the electorate, however, the observed negative correlation could be explained by differences in institutions, differences in voter preferences, or a combination of both. Based on data from 331 federal propositions in Switzerland, we document that the demand for government is systematically lower in states with stronger direct democracy. We further show that voter preferences have a stable and sizable effect on government spending even conditional on other observable characteristics. Once we adequately control for preferences, the effect of direct democracy on government spending declines by up to 30 percent. The results in this article provide empirical support for models, in which both voter preferences and direct democratic institutions are important determinants of the size of government.

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1 Introduction

Direct democracy has become increasingly popular in recent decades as a complement for purely representative forms of government. In the United States, for instance, more than two-thirds of the population live in a state or city with popular initiative or referendum (Matsusaka, 2004). Direct democracy is also popular in Europe, especially in Switzerland, and more recently in Eastern Europe. Lately, several European countries have held referendums on the new European constitution.

One important motivation for direct democratic participation is to increase the electorate's influence over policy decisions. Its proponents argue that direct voter control not only improves the quality of policy-making but could also slow down the rapid growth in government spending observed over the past decades. The theoretical argument is that direct democracy brings policies closer to the preferences of voters (Gerber 1996; Besley and Coate, 2008). To the extent that voters prefer less spending than legislators (see Peltzman, 1992), access to direct democracy may lead to lower spending. Some empirical studies document indeed a large negative correlation between direct democracy and government spending (Feld and Matsusaka, 2003; Matsusaka, 2004) while other studies find no relationship (Zax 1989; Farnham 1990; Besley and Case, 2003).

The relationship between public spending and any institution aimed to constrain representative governments depends however crucially on voter preferences over public spending. Knight (2000), for example, has convincingly argued that unobserved attitudes towards taxation may drive the adoption of supermajority requirements and tax policy, and failing to account for them leads to biased estimates. The purpose of this study is to investigate whether and how much voter preferences, which are typically unobservable to the researcher, matter for the relationship between public spending and direct democracy.

Our approach uses unique voting data on federal ballot propositions in Switzerland to

estimate voter preferences in each canton directly. Our setting has a number of attractive features. Switzerland is the world leader in the use of direct democracy. At the federal level alone, 331 votes have been held between 1950 and 2000. The federal ballots cover a wide variety of policy proposals from taxes, environmental policy, immigration to membership in international organizations, salaries for representatives or subsidies for agriculture. The voting choices in the federal ballots therefore provide a rich data source to characterize voter preferences as expressed at the ballot box over a long time horizon.

Even more importantly, estimated preferences are comparable across cantons as all citizens vote on the same federal ballot. We can therefore analyze for the first time how preferences vary across states with alternative institutional regimes, e.g. different direct democratic institutions.[1] Our results show that voter preferences differ substantially across cantons. Cantons with strong direct democratic institutions seem to be more conservative, less in favor of redistribution and government spending more generally. We further find that our measures of voter preferences better capture voter heterogeneity than observable state characteristics, for example, the strength of left-wing parties or the age structure alone.

That preferences vary by institution appears to be a more general phenomenon visible also for alternative measures of preferences, other political institutions and countries other than Switzerland. Several channels could account for this correlation between institutions and voter preferences. Most plausibly, direct democracy has been adopted by fiscally conservative voters in the past. If political preferences are transmitted across generations (see Dohmen et al., 2006 for evidence), citizens will be more fiscally conservative in cantons with stronger direct democracy even today. Selective migration of citizens with preferences for low government spending to cantons with stronger direct democracy would be a second explanation for preference heterogeneity across cantons. Finally, preferences of the electorate

[1]Previous studies have typically estimated preferences for a single state (Gerber and Lewis, 2004; Lewis, 2001; Snyder, 1996) or relied on opinion polls to study preferences in several states (Camobreco, 1998; Gerber, 1996; Lascher et al, 1996).

might be strengthened by institutions through a positive feedback loop, for instance. Our results suggest that voter preferences are important determinants of institutional change as shifts in preferences precede institutional reform. We find, in contrast, little evidence that institutional reforms have an immediate effect on voter preferences in the years following reforms. Because voters' political preferences have a direct influence (via the electoral process) on public spending as well, we would overstate the effect of direct democratic institutions on government spending - if we do not control for preference heterogeneity.

To illustrate the importance of voter preferences for the study of political institutions, we reconsider the relationship between direct democracy and fiscal policy in Switzerland. We hereby focus on the mandatory budget referendum, which gives citizens direct control over canton spending. If a canton has a mandatory budget referendum in place, voters need to approve individual projects that exceed a monetary threshold. In other cantons, citizens cannot decide on expensive projects or need to collect signatures to call an optional referendum. Budget referendums in Switzerland are similar to tax and expenditure limitations in the United States which require the electorate in some states to approve tax increases or expenditure growth above a certain threshold. They are also similar to budget approvals for local school districts in the United States and other countries.

Our voter preference measures are important determinants of total government spending: stronger preferences for government in a canton are associated with substantially higher canton spending and revenues per capita. Many previous studies, in contrast, find little or no discernible effect of voter preferences on spending - likely because the proxies typically used are not sufficient to capture voter preferences adequately.[2] Finally, we show that accounting for voter preferences reduces the coefficient on the mandatory budget referendum on spending

[2]In the United States, NOMINATE scores or the median on a Liberal/Conservative score are used as measures for voter ideology (see e.g. Matsusaka, 2004). In Switzerland, canton characteristics and the share of left wing parties in parliament are often used to approximate voter ideology (see e.g. Feld and Matsusaka, 2003).

by as much as 30 percent. Our results suggest that a mandatory budget referendum is associated with 11.3 percentage points lower public spending.

Our study thus contributes to the existing literature in three ways: first, we use a new data source to estimate multi-dimensional voter preferences over government activity. Second, we demonstrate for the first time that voter preferences vary systematically across institutional regimes like direct democracy. Not surprisingly, voters that are fiscally more conservative are more likely to live in a canton where citizens have more control over the budget. Third, our study proposes an approach to account for the correlation between preferences and institutions in settings when institutions are highly persistent or preferences might not be stable over time and therefore cannot be fully captured by fixed effects.

The article thus contributes to a small empirical literature on the effectiveness of political institutions that addresses similar concerns. Tyrefors and Pettersson-Lidbom (2010) use a regression-discontinuity design to compare spending in small communities with town meetings to those with purely representative forms of government. Olken (2008) uses an experimental design to study popular decision-making over public goods in Indonesia. Knight (2000) and Rueben (1997) use instrumental variable techniques to estimate the effect of taxation rules on taxation levels. Brühlhart and Jametti (2008) use a theoretical model to establish a link between direct democracy on local spending through its interaction with fiscal externalities. Funk and Gathmann (2011) combine historical panel data with instrumental variable estimation to estimate a causal effect of direct democracy on the size of government. The results of these study complement the above-mentioned studies in that we for the first time uncover a strong link between voter preferences and direct democratic institutions. This lends support for the view that institutions are endogenous, with voter preferences being a major determinant.

The structure of this article is as follows. The next section provides background information on the structure of direct democracy and fiscal policy in Switzerland. The data are

described in section 3. Estimates of voter preferences are reported in section 4, while section 5 shows how institutional rules and voter preferences affect fiscal policy. Finally, section 6 concludes.

2 Institutional Background

Switzerland has a strong federalism where all political responsibilities remain with the canton unless they were granted to the federal government in a national referendum. In 1998, 34 percent of all government spending was undertaken by cantons, 39 percent by the federal and 27 percent by local governments. Cantons have a lot of autonomy in the provision of public goods and the redistribution of wealth. They spend 50 percent of all education, 60 percent of health and around 27 percent of social welfare expenditures. These three categories account for about 60 percent of the canton budget. The distribution of revenues across government levels is equally decentralized. Cantons have the authority to tax labor and capital income, which account for roughly 50 percent of canton and local revenues. As a consequence, there is substantial variation in the tax burden across cantons.[3]

Direct democracy has always played a dominant role in Swiss politics over the past centuries. Citizens can propose new laws or changes to the constitution through the voter initiative. In addition, some cantons require that expensive projects or new laws are approved by the electorate in a referendum. The mandatory referendum and voter initiative to change the constitution have been in place since the Confederation was founded in 1848. Direct democracy in the cantons is even older. By 1831, the initiative to propose new laws was in place in *Thurgau*, *Aargau* and *Schaffhouse* and the referendum on new laws in *St. Gallen*. In cantons like *Uri* or *Schwyz*, direct participation in town meetings goes back even further to the 13th and 14th century. The long tradition and persistence of direct democracy in

[3]For example, the tax burden in 2000 varied from 126.7 in *Neuchatel* to 58.2 in *Zug* with the average normalized to 100 (see Vatter, 2002).

the cantons over time reduces concerns that the mandatory budget referendum responds to current socio-economic conditions or contemporary political conflicts.

In the empirical analysis below, we will focus on the budget referendum because it represents the most direct influence on public spending.[4]

In 23 of the 26 cantons, voters have some influence over the realization of expensive projects, for example, whether a new hospital is built or not. In 2000, fourteen cantons had a mandatory budget referendum in place, which requires citizens to approve all projects that exceed a certain monetary value. Twelve cantons in turn only allow for an optional budget referendum. Here, citizens need to collect between 100 and 10,000 signatures to initiate a vote on projects above some monetary threshold.[5] The canton of *Vaud* in turn allows no budget referendum at all while budget referendums in *Valais* and *Fribourg* are restricted to extraordinary (rather than recurrent) expenditures alone.

In principle, control over the budget is stronger with a mandatory budget referendum since voter approval is required by law. However, optional budget referendums might have an effect on spending as well if monetary thresholds and the barriers to call an optional referendum are low. In our baseline specification, we will use a simple indicator whether the canton has a mandatory budget referendum in place; the indicator is zero if only an optional or no budget referendum is allowed. Later, we will separate the effect of the mandatory and optional budget referendum and investigate the role of monetary thresholds for public spending.

[4]While budget referendums in Switzerland can be about expenditures, government bonds, taxes, enterprise holdings and real estate, we focus on public expenditures. First, they are by far the most common; and second, a canton always has a referendum on expenditures if a canton also has other types of referendums. Between 1980 and 1999, citizens in the 26 cantons voted on 461 budget referendums and approved 86 percent of the projects (Trechsel and Serdült, 1999).

[5]Budget referendums apply to single projects only, not the canton budget as a whole. It applies to both recurring and non-recurring expenditures with the thresholds for recurring expenditures being around one-tenth of those for non-recurring expenditures. Thresholds for non-recurring expenditures range between 25 Million Swiss Francs (SFr) in *Lucerne* and 250000 SFr in *Schwyz* (1999). This implies that a project of on average 6.8 million SFr or just less than one percent of average expenditures mandates a referendum. For recurring expenditures, thresholds are between 50000 (*Appenzell-Innerrhode*, *Basel-County*, *Nidwalden*, *Ticino* and *Uri*) and 400000 SFr (*Berne*).

Table 1 provides an overview which cantons allow for a mandatory or optional budget referendum. The table shows that provisions for the budget referendum do not change much over time. During our sample period from 1950 to 2000, we only observe nine changes in the mandatory budget referendum: six cantons abolished the mandatory budget referendum while three canton adopted it. In addition, thirteen cantons adopt the optional budget referendum over time.

Cantons with a mandatory budget referendum (i.e. strong direct democracy) differ from cantons without it along a number of other dimensions as well. For example, direct democracy is typically stronger in German-speaking parts of Switzerland, which includes large urban centers like Basle, Zurich or Berne (see Figure 1 for the geographic distribution of the mandatory budget referendum in the 26 Swiss cantons). Cantons with predominantly French- or Italian-speaking populations rely more on representative forms of government. Cultural or socio-economic differences across cantons with strong and weak direct democracy are likely to translate into heterogeneity of voter preferences for public services, redistribution and government spending. It is this heterogeneity in voter preferences we want to capture and control for in our analysis below.

3 Data

3.1 Data on Federal Ballots

To characterize voter preferences and the demand for government, we use data on voting choices in federal propositions. In Switzerland, citizens can initiate a partial or total revision of the federal constitution, which allows for a wide variety of policy proposals. Any changes to the federal constitution and international treaties need to be approved by voters in a mandatory referendum. In addition, all federal laws and executive orders are subject to an

optional referendum if 50,000 signatures are collected within 100 days of the publication of the document.

We collected data from all 331 federal ballots between 1950 and 2000. On average, the Swiss electorate decides on 6 to 10 issues per year. The number of propositions has increased over time from a mere 42 in the 1950s to 116 in the 1990s. Our data contains the date, title and type of ballot, whether the canton approved the propositions as well as the percentage of voters supporting the ballot in each canton.[6]

The ballot data have several advantages: first, we can characterize political preferences from actual votes cast in propositions that have real political consequences. Second, the federal ballots cover a broad range of topics from the introduction of fuel taxes, government finances, environmental protection, membership in international organizations, price controls, subsidies for education, the financing of health insurance or the provisions of disability insurance. Finally, our estimated preferences are easily comparable across cantons as citizens in all cantons vote on the same proposition.

A few comments of our preference data are in order at this point. First, we measure voter preferences only as revealed at the ballot box. We will not capture preferences that are never subject to an initiative or referendum. In our view, this restriction is less severe than it first appears. One reason is that the data contain both propositions that are approved and those that fail. Hence, our data is not restricted to propositions that are successful, i.e. supported by the majority of the electorate. Further, barriers to call a referendum or initiative are very low in Switzerland: a federal referendum requires only 50,000 signatures (or 0.6 percent of the population) and an initiative 100,000 signatures (or 1.2 percent of the population). Therefore, it comes as no surprise that 62 percent of all federal votes (109 optional referendums and 102 initiatives) are initiated by the electorate. Finally, the list of propositions shows that the electorate decides on a broad range of policies, which increases

[6]The data are available online at http://www.admin.ch/ch/d/pore/va/liste.html.

the odds that the propositions span the relevant dimensions of the policy space.

Second, it is important to note that voters in Switzerland have long experience with direct democratic participation at the ballot box. Interest groups like unions or churches regularly publish their recommendations for the votes in newspapers and online. Also, all voters receive extensive information material by the government (containing both the parliamentary debates and the arguments of lobby groups) prior to each vote. Therefore, it comes at no surprise that most voters (ca. 80 %) report that they are well informed about the proposition before making a choice.

Finally, our approach to estimate preferences is based on federal propositions, which assumes that voter preferences are independent of the level of government. Note that our approach here is standard in the many studies that use roll call votes of national legislators in the United States to proxy state-level ideology. Such an approach would be violated if, for example, voters dislike spending at the federal level but support spending at the canton level.

To shed light on this, we use data on 3,064 canton-level propositions from the 21 cantons that do not hold town meetings to study the congruence of voter preferences in canton propositions to preferences expressed in our federal ballots. Between 1976 and 1996, we found five sets of propositions which were similar at the federal and canton level. Table A1 shows that voter support for subsidies to public transport, cultural activities and education in a canton is very consistent irrespective of whether the ballot is at the canton and federal level. The only persistent difference is that voters are much more supportive of a wealth tax at the national level. However, this pattern is observed both in cantons with (*Aargau*) and cantons without (*Basle City*) a mandatory budget referendum. Therefore, the comparison of the support for public spending in cantons with mandatory budget referendum relative to those without mandatory budget referendum should not be affected.[7]

[7]This discrepancy in the support for redistributive measures is consistent with economic theory if ge-

Hence, the available evidence suggests that policy preferences at the canton level are largely consistent with voting behavior in federal propositions. One reason for this congruence is that federal and cantonal governments share many responsibilities like raising taxes, subsidies, regulating agriculture and civil and criminal law. In several other policy areas like social security, roads, environmental policy and industrial and labor regulation, the federal government provides the legal basis, while cantons are responsible for its execution.

In sum, federal ballot data provide an unusually rich and underexploited source of information. Given the above discussion and evidence, the federal ballot propositions are well suited to capture voter preferences for public policies in a canton. We further document below that our preference measures are more informative than other proxies for voter ideology - uncovering important differences among cantons.

3.2 Canton-Level Panel Data

To relate voter preferences to observable canton characteristics, we complement our ballot data with comprehensive information on socio-economic characteristics, political institutions and government spending in each canton from 1950 to 2000.[8] Table 2 shows summary statistics separately for cantons with a mandatory budget referendum and those with only an optional or no budget referendum.

The data show that cantons with a mandatory budget referendum have very different socio-economic characteristics compared to cantons without one. Cantons with strong direct voter control have a much higher fraction of rural population and lower population density.

ographic mobility impedes redistribution at the sub-national level. Differential turnout could also explain this pattern if voters with a preference for redistribution participate in the federal ballot but not the canton proposition. In the data, turnout for the wealth tax is higher at the federal level in *Aargau* but lower in *Basle City*; the reversed turnout pattern suggests that differential participation bias cannot really explain the discrepancy. A final explanation could be measurement error since the wording of the propositions are not exactly the same and voters might have interpreted them differently.

[8]For our analysis, we drop the canton *Jura*, which was only founded in 1977. See Appendix A for a more detailed description of the data sources and variables.

Their residents are less likely to be Catholic or divorced. Unemployment rates, the share of university graduates and income are lower in cantons with mandatory budget referendum. Since canton income is available since 1965 only, we also use two proxy variables, car ownership and the number of physicians per 1000 people, in our empirical analysis. These two variables alone explain almost 50 percent of the variation in income. Once we add our other control variables and year dummies, we capture almost 90 percent of the variation in income. Therefore, the absence of an income measure over the whole period is not a major limitation of this study. Finally, note that the French- or Italian-speaking population as well as linguistic fragmentation (calculated as one minus the Herfindahl index of three language groups) is much lower in cantons with a mandatory budget referendum.

The socio-economic heterogeneity documented in Table 2 suggests that voter preferences might vary systematically across cantons with stronger or weaker forms of voter control over the budget. Table 2 shows that the cantons differ in other aspects of their political system as well: cantons with a mandatory budget referendum have weaker left-party representation in canton parliament. They also have easier access to other instruments of direct democratic participation like the law referendum and a lower signature requirement for the voter initiative.

Finally, government spending and revenues are lower in cantons with a mandatory budget referendum. The question then arises whether these spending differences are driven by direct democratic institutions or heterogeneity in preferences for government. To answer this question, we next estimate aggregate voter preferences and explore how they differ across direct democratic institutions.

4 Voter Preferences Differ by Institutional Regime

4.1 Votes with Fiscal Consequences

A first look at voting patterns supports the conjecture that voters in cantons with stronger direct democratic institutions are generally less supportive of government spending than voters in cantons with weaker forms of direct democracy. For example, voter support for a pay raise among federal politicians in 1992 was 30.9 percent in cantons without mandatory budget referendum, but only 23 percent in cantons with a mandatory budget referendum (t-statistic: 2.68). Similarly, a ballot in 1998 to invest in public transport was approved by 66.9 percent of the voters in cantons without but only 56.8 percent of voters in cantons with a mandatory budget referendum (t-statistic: 2.83).

To investigate these patterns more systematically, we used the official documents prepared by the federal government, which are distributed to each citizen before the vote. The documents contain the arguments for and against a proposition, an overview of the parliamentary debate (if any) and outside opinions by interest groups. Most importantly for our purposes, it also outlines the fiscal consequences for expenditures, taxes or subsidies if the ballot gets approved.[9]

Overall, we could identify 50 ballots between 1950 and 2000 which would have unambiguously increased government spending if approved (see Table A2 for a list of these propositions). We find an additional 45 ballots that would have increased taxes or subsidies and hence, the size of government. Based on the ballot data, we calculate two measures of preferences: preferences for government activity generally or more narrowly for government spending. The first measure includes ballots that would increase spending, taxes or subsidies, while the second one only includes spending. Each measure is calculated as a canton's support for a ballot (in percent) in the specified category.

[9]The documents are available at http://www.ads.bar.admin.ch/ADS/showHome.do.

To adjust for differences in approval rates across ballots, we calculate each canton's support relative to the Swiss average for that proposition. For example, if support for a ballot raising expenditures in a canton was 40 percent but the average approval rate was 55 percent, our measure of the canton's (relative) support for government spending is minus 15 percentage points. This standardization focuses attention on the relative support of a canton for government spending, not its absolute level. If more than one vote in a category occurred in a given year, we take the average over all ballots in each category in a year. Our measure has missing values for years in which there was no vote with fiscal consequences.

The top panel of Table 3 compares voter preferences between cantons with a mandatory budget referendum to those without. A clear pattern emerges: voters in cantons with a mandatory budget referendum are fiscally more conservative than voters in cantons with weaker forms of direct democracy. They are less supportive of more government spending and less in favor of more government and redistributive measures. All differences are statistically highly significant.

4.2 Voter Preferences Estimated from Factor Analysis

One issue with the above preference measures is that they are available only for a subset of years (i.e. 27 out of 50 years). In addition, ballot support for spending by the federal government is quite volatile, presumably because ballot support is a noisy measure of the underlying voter preferences. Finally, by focusing on spending with direct fiscal consequences, we might miss other heterogeneity in voter preferences across cantons that is potentially informative.

As an alternative approach, we use factor analysis to reduce the dimensionality and noise contained in voting behavior on federal propositions (see e.g. Snyder, 1996; Heckman and Snyder, 1997; Ansolabehere et al., 2008, for a similar approach). Factor analysis uses the

correlation between the aggregate voting outcomes in each canton to isolate the unobserved factors that best explain the common components of ballot votes. The loading on each factor identifies each canton's valuation of the latent policy attribute in the neighborhood of the median voter. One advantage of factor analysis is that it is straightforward to estimate if voter preferences are multi-dimensional.[10]

Altogether, we have 331 federal propositions spanning the period from 1950 to 2000. Our input variable is a simple binary indicator whether the majority of voters in a canton approved or disapproved of each ballot. We find similar results when we use the actual percentage of voters supporting each ballot instead. To allow aggregate canton preferences to shift over our 50 years period, we run the factor analysis separately for each decade.[11] Allowing for changes in preferences over time raises the question how we can compare the factors estimated from a different set of ballots over time. We follow the literature and use voting recommendations of interest groups (in our case the Evangelical Party) to make the factors comparable across decades (see Gerber and Lewis, 2004 for a similar approach).[12]

Table A3 reports the estimates of the factor analysis. The first three (unrotated) factors have eigenvalues above one and account for more than 80 percent of the overall variance. The variance explained by additional factors is small. Our results suggest that voter preferences are multi-dimensional which is not too surprising given that voters decide on a large range of policy issues over half a century.

A well-known difficulty of factor analysis is how to interpret the estimated factors. For

[10]The factor-analytic approach comes at the cost of strong assumptions on the error structure. One alternative approach would be to use the estimation approach by Poole and Rosenthal (1985). However, the estimates are much more difficult to compute, especially in a multidimensional setting like ours, and not consistent in small samples (see Heckman and Snyder, 1997).

[11]When choosing an appropriate time window, we face a tradeoff between a long time period which could mask important changes in preferences and a short time period which yields jumpy estimates (just like in nonparametric estimation). We choose a decade to ensure that our factors are estimated on at least 50 ballots.

[12]The basic assumption is that interest groups have stable preferences largely determined by their own political ideology. The Evangelical Party is a small political party, which had more voting recommendations than any other lobby group. Using the voting recommendations of labor unions yields very similar results.

the purpose of this study, i.e. evaluating the importance of preferences and direct democracy for public spending, we do not really require an interpretation of the factors. All we need is that our ballot propositions adequately reflect the preferences of voters, i.e. the set of citizens that participate in the political process and matter for the political choices by elected representatives.

Despite this well-known ambiguity of factor interpretations, we now outline our strategy to investigate the nature of preference heterogeneity across cantons. As a first piece of evidence, we plot the factor loadings against the strength of left-wing parties in canton parliaments, which typically support more redistribution and government spending (Tavares, 2004). Figure 2 reveals that factor 2 has a strong positive correlation with left-wing representation in canton parliaments. The share of left-wing parties alone can explain 42 percent of the variation in the second factor across cantons and time. In addition, left-wing parties are negatively correlated with factor 1 and 3 though the relationship is much weaker. The pattern suggests that the second factor may be associated with a preference for more spending or more redistribution.

Another way to look at the factors is to look at the voting recommendations of major parties that are published before the vote, i.e. whether the conservative party supports or opposes a certain ballot. We can use these voting recommendations as 'hypothetical' voting records to estimate factor loadings for the major parties jointly with the cantons. For example, we expect the conservative party to represent conservative values and possibly even fiscal prudence; we find a high loading on the first factor and a low loading on the second factor. We also used the voting recommendations of the major left-wing party ('Sozialdemokratische Partei der Schweiz'), which showed the opposite pattern: a high loading for factor 2 and low loading for factor 1.

Finally, one can study the factor scores to interpret the factors (not reported). Though not consistently estimated, they signal how important the factors are for each ballot (see

Heckman and Snyder, 1997). The first factor has high scores on ballots about home construction, trade of weapons, extension of the franchise, a new federal constitution and regulatory issues like speed limits on highways or cultural activities. Many ballots with high scores for factor 1 cover policy issues which do not explicitly imply government spending. Factor scores for the second dimension are high for rent protection, for the protection of the family and mothers, and for financial support for agriculture and technical universities. Finally, propositions with high scores on the third dimension cover many regulatory issues in various areas such as education, public transport or the military.

Together, these patterns suggest that the second factor may represent support for redistribution (or government spending more generally). Further, the first factor could represent a general conservative ideology. The third factor might capture some sort of preferences for state intervention. We would like to stress that these labels are just one possible interpretation. Even more importantly, our estimation strategy is not dependent of the particular interpretation of the factors.

We next provide evidence that our factors are more informative about voter preferences than other observables often used to control for voter ideology. Table 4 shows regression results of the factor loadings on a large set of canton socio-demographic characteristics and political structure. Observations are pooled across decades and standard errors are corrected for clustering at the canton level. In line with our interpretation, the results show that cantons with stronger left-wing parties and lower income have higher loadings for factor 2 (columns (3) and (4)); the opposite pattern is observed for factor 1 (columns (1) and (2)). In contrast, observable canton characteristics are not much related to factor 3 (columns (5) and (6)). The low R^2 in the last row reveals that there is substantial variation left in all three factors even after controlling for a large set of canton characteristics (see Gerber and Lewis (2004) for a similar result in California). In sum, the evidence in Table 4 supports our view that our preference measures contain richer information on voter preferences for

government than previous studies.

Just like our measure based on spending ballots above, voters in cantons with strong direct democracy have systematically different preferences than voters in cantons with weaker direct democracy. The bottom panel of Table 3 shows that cantons with a mandatory budget referendum are more conservative (higher loadings of factor 1) and are less in favor of redistribution (lower loadings on factor 2). Differences in preferences along both dimensions are statistically highly significant. In contrast, there is no heterogeneity in the preference for regulation (factor 3).[13]

To track preferences over time, Figure 3 plots the factor loadings and confidence intervals for each decade separately for cantons with and without strong direct democracy. The figure shows that differences in preferences are quite persistent over time. For example, cantons with a mandatory budget referendum are less supportive of redistribution than cantons without a mandatory budget referendum. Cantons without a mandatory budget referendum seem to have become more supportive of redistribution (factor 2) over time which is also reflected in an increasing vote share of left-wing parties in their canton parliaments (rising from 20 percent in the 1950s to over 28 percent in the 1990s). The evidence in Figure 3 suggests two conclusions: first, our preference estimates show persistent differences in voter preferences across institutional regimes. Second, preferences are not time-invariant and hence, canton fixed effects might not be enough to capture the heterogeneity of preference across cantons across time.

[13]That there are strong and persistent differences in preferences is not a feature specific to our ballot data. Table A4 shows that we find similar strong differences in Swiss survey data for 1980 to 2000. These differences are also not specific to the Swiss context. Comparing political attitudes of citizens in countries with a proportional or majoritarian electoral system in the European Values Survey, we again find strong differences across institutional regimes in other countries as well.

4.3 Clarifying the Relationship between Preferences and Direct Democracy

How should we interpret the correlation between preferences and direct democracy documented above? Do preferences shape institutions or do institutions influence voter preferences? This question is important because it affects our interpretation of the correlation between direct democracy and spending. Suppose that both preferences and direct democracy affect public spending. Suppose further that we estimate a regression of spending on direct democracy and control variables - but do not control for preferences. Now, if institutions shape preferences (but preferences have no effect on institutional choice), the coefficient on direct democracy represents the direct effect on spending. If, in contrast, preferences affect the choice of institutions (but direct democracy has no direct effect on spending), the coefficient on direct democracy captures the effect of voter preferences on spending (because preferences are themselves omitted from the regression). In this latter case, it is crucial to control for voter preferences in order to uncover the actual relationship between institutions and policy outcomes.

Since both preferences and institutions are highly persistent over time, it is difficult to disentangle whether institutions cause preferences or vice versa. Here, we provide some suggestive evidence. Table A5 in the appendix uses the timing of institutional changes to show that preferences mainly have an effect on direct democratic institutions (but not vice versa). We first regress a dummy for the mandatory budget referendum on lagged preferences (relative to the year of reform) as well as year and canton dummies.[14] There is clear evidence that past preferences matter for institutional reform. As expected, a more conservative attitude increases the likelihood of adopting the mandatory budget referendum. The second

[14]Here, we use data over a longer period from 1890 to 2000 where we observe a larger number of institutional changes. The drawback of this longer time period is that there are fewer votes in the earlier years, and hence more imprecise estimates of voter preferences.

specification shows that institutional reforms in turn have little effect on our preference measures even twenty years after a reform. Only for factor 3, we see some small effects with borderline significance. In sum, our context suggests that preferences are important for institutional choice (but not vice versa).

5 Preferences, Direct Democracy and Fiscal Policy

5.1 Empirical Model

Our results thus far show that voters in cantons with a mandatory budget referendum are more fiscally conservative than voters without such a referendum. We would expect that these differences will have a direct influence on fiscal policy, for example, because voters will elect more fiscally prudent representatives, or, because electoral competition forces politicians to spend less. For that reason, it is important to control for voter preferences when estimating the relationship between direct democracy and government spending. Otherwise, we would systematically overstate the effect of a mandatory budget referendum on public spending.

For our analysis, we match the estimated preference parameters to the panel of fiscal policy outcomes, political institutions and canton characteristics. All variables except for the estimated factor loadings are measured at an annual frequency. To analyze how direct democracy and voter preferences shape fiscal policy, we estimate the following specification

$$\log Y_{ct}^{P} = \alpha + \beta DD_{ct} + \gamma \widehat{\lambda_{ct}} + \delta Z_{ct} + \varepsilon_{ct} \tag{1}$$

where $\log Y_{ct}$ is our fiscal policy outcome like expenditures or revenues in canton c and year t, $\widehat{\lambda_{ct}}$ denotes estimated voter preferences and DD_{ct} is one if canton c has a mandatory budget referendum in place in year t and zero otherwise. Z_{ct} contains year dummies and other observable variables that affect the demand or supply of government activity. We cluster our

standard errors at the canton level to get consistent standard errors.[15] Since the number of clusters is relatively small in our case ($N = 25$), we also implement nonparametric and wild bootstrap estimators to make valid inference in small samples (Miller et al., 2008).

5.2 Voter Support for Federal Spending

We estimate equation (1), where the dependent variables are the log per capita canton expenditures (top panel) and log canton revenues (bottom panel).[16]

Table 5 shows results using the support for votes implying more government spending as our measure of canton preferences. Recall that lower values of the measure imply that a canton is more fiscally conservative. We find that voter preferences have a significant and sizable effect on government spending and revenues: a one percentage point higher approval rate for more federal expenditures translates into 1.3 percentage point higher expenditures at the canton level.[17] Our second result is that the association between strong direct democracy and spending becomes substantially weaker once we control for preferences. This conclusion holds without canton controls (column (2) where $\delta = 0$) and also with a large number of canton controls (column (4)).[18]

[15] We need to cluster by canton for two reasons. First, public spending and our institutions and preferences exhibit strong serial correlation. Hence, shocks to spending will affect both current and future spending. Second, clustering adjusts standard errors for other canton-level shocks (e.g. shock to voter preferences).

[16] There are several reasons why we choose the log specification: first, cantonal expenditures are log normally distributed. Also, spending 1000 SFr weighs more if the overall budget is smaller. Finally, the log specification allows a simple interpretation of the coefficient on the institutional variable. The results with expenditure levels as the left-hand side variable were qualitatively very similar and are available upon request.

[17] One might worry about reverse causation, i.e. that voter preferences respond to spending shocks. We think this is not a major concern. First, our preference measures are recovered from ballots at the federal level. Hence, citizens are not able to punish *canton* politicians for overspending by strategically manipulating their *federal* vote. Second, voter preferences, especially the estimates from factor analysis, are remarkably stable over time (see figure 3). Spending, in contrast, is much more volatile; it is hence unlikely that preferences respond to temporary spending shocks. Finally, using an instrumental variable approach (with culture measured by language and religion as instruments), we find that preferences still exert a statistically significant effect on spending, and the estimated coefficient is of a similar magnitude. Though we pass the overidentification test, the instrument might be invalid if culture has a direct effect on spending.

[18] The results are not affected if we use wild bootstrap to account for the small number of clusters: p=0.06 for the institutional variable and p=0.037 for the preference variable.

Thus far, we have assumed that preferences and institutions have each an independent effect on public spending; but one could also imagine that the relationship between preferences and spending differs by direct democratic institution. Given that preferences and spending are not measured in the same unit, we cannot test whether preferences are 'better' or 'worse' represented in a direct democracy than a more representative form of government. However, we can add an interaction effect to see if there is a difference in how preferences are related to spending. Column (5) shows that this is not the case: the interaction effect is not statistically significant (and if we nevertheless calculate the net effect at mean voter support, we get the same -13.6 percentage point reduction in spending we have found with the linear specification in column (4)).

Overall, our estimates imply that cantons with a mandatory budget referendum have around 17.3 percentage points or 860 SFr lower expenditures per capita than those without, a result roughly similar to previous findings on Swiss data (see Feld and Matsusaka, 2003). Conditional on voter preferences, stronger direct democratic institutions are associated with 13.6 percentage points or 680 Swiss Francs per capita lower spending (column (4)). Thus, the coefficient on direct democracy declines by 21 percent once we control for voter heterogeneity. This suggests that absent quasi-random variation or good instruments for institutions, it is important to control for heterogeneity in voter preferences (see e.g. Schelker and Eichenberger, 2010).[19]

A similar picture emerges on the revenue side shown in the bottom panel. Including voter preferences reduces the estimated coefficient on the mandatory budget referendum from about 15 to 11 percentage points (columns (3) and (4)) - a decline of 25 percent.

The coefficients on the other control variables have largely the expected sign. Federal subsidies (measured per capita) and population density are associated with higher expenditures.

[19]The only setting in which we would not expect a correlation is when there is random or quasi-random variation of direct democratic institutions at hand (Olken, 2008; Tyrefors and Pettersson-Lidbom, 2010).

In contrast, neither the share of older people in the population, nor the highly educated, nor the unemployment rate have a statistically significant effect on public spending.

5.3 Voter Preferences from Factor Analysis

Table 6 reports the same specification as above where we now use the factor loadings as our measure of voter preferences $\widehat{\lambda_{ct}}$. Recall that we need three factors to characterize the voting decisions in the 331 federal propositions (though not all three factors might be important determinants of public spending in a canton).

We find a very similar pattern than in the last section. Preferences have a strong influence on spending behavior, in particular factor 2, which seems to capture tastes for redistribution, and factor 3, which seems to represent preferences for regulation or state intervention. Raising preferences for redistribution, for example, by one standard deviation is associated with 1.3 percentage points higher spending.

What about the role of direct democracy? The raw correlation (only conditional on year dummies) in column (1) suggests that the mandatory budget referendum is associated with a 25 percentage point lower spending per capita. Once we include a large number of canton characteristics (column (3)), the coefficient on the direct democracy instrument declines to 16.8 percentage points (which is similar to estimates reported in other cross-sectional studies). This decline is to be expected if the controls pick up some variation in preferences for government across cantons. Column (2) however, shows that our preference measures can better control for voter preferences than observable socio-economic characteristics. Just controlling for voter preferences reduces the coefficient on direct democracy to 13.1 percentage points.

The specification in column (4) adds both voter preferences and canton characteristics. The full specification reduces the coefficient on the mandatory budget referendum to 11.3

percentage points or about 600 SFr lower expenditures per capita. Hence, the fact that cantons with strong direct democracy also prefer less government reduces the relationship between direct democratic institutions and fiscal policy by about 30 percent.[20]

Just like in the previous section, allowing for an interaction effect between the mandatory budget referendum and the three factors has little effect on our basic results. The interaction effect is statistically significant for just one factor; when we evaluate the net effect at mean factor levels, we find that the mandatory budget referendum is associated with 11 percentage point lower spending, very close to the 11.3 percentage points reported for the linear specification (see column (4)).

The results for log canton revenues are consistent with the findings on expenditures: without including preferences, a mandatory budget referendum decreases revenues by 14.8 percentage points (column (3)). Including voter preferences, reduces the coefficient on the budget referendum down by 36 percent (to 9.4 percentage points) and the coefficient is no longer statistically significant.

Our results hence suggest that previous studies relying on cross-sectional variation overestimate the relationship between direct democratic instruments and fiscal policy. Since differences in political institutions are strongly correlated with preferences for government, the coefficient on the institutional variable picks up a combination of heterogeneity on the demand side and institutional constraints on the supply side. Even after accounting for differences in the demand for government, we find that direct democracy is associated with lower spending.

[20]These conclusions remain valid when we further adjust the standard errors for the small number of clusters using the wild bootstrap: factor 2 and factor 3 continue to have a statistically significant effect on spending (p=0.000 and p=0.032 respectively). The standard error for the budget referendum increases such that it is just below standard significance levels (p=0.112).

5.4 Further Robustness Tests

Natural concerns with this paper's empirical strategy include the possibility of omitted socio-demographic characteristics or other political institutions correlated with both spending and the budget referendum; in addition, our dummy variable might not capture all relevant institutional variation in the budget referendum across and within cantons. This section presents a range of tests that investigate, but generally fail to corroborate such concerns.

The tests reported in Table 7 first show the augmented specification without preference measures (odd columns) and then add our preference measures (even columns). For all specifications, the dependent variable is log expenditures per capita and preferences are measured using the three factors. All specifications include year dummies, the same controls as before, i.e. population density, federal aid, unemployment, age structure and education.

First, differences in canton wealth and income might bias our estimates. Unfortunately, we only have information canton income available since 1965. Columns (1) and (2) reestimate the baseline for the subset of years with valid income data; columns (3)-(4) then add average canton income (in logs). Income has little effect on our estimates though the coefficient on the mandatory budget referendum loses statistical significance in the shorter time period. To avoid this problem, we add in all subsequent specifications two proxies for income differences: the percentage of the population owning a car and the number of physicians per 1,000 people. As we explained in the data section, the two variables capture a large fraction of the variance in income. Columns (5)-(6) confirm that income does not affect the basic pattern in the coefficients. Second, direct democracy might play a more important role in cantons with more linguistic and religious heterogeneity. Hence, columns (7)-(8) add the percent of the French- and Italian-speaking population as well as the share of Catholics. Again, this does not affect our results.

Third, our simple binary measure for the mandatory budget referendum might be too

simplistic to capture all relevant variation in the budget referendum. To address this issue, we first test whether the mandatory and the optional budget referendum have independent effects on spending. Since the monetary thresholds to call an optional referendum are lower than for the mandatory budget referendum, the optional referendum might constrain spending more than a mandatory budget referendum. Columns (9)-(10) shows that this is not the case: the optional budget referendum has no significant effect on spending while the coefficients exhibit a similar pattern than before. One issue we face is that simple binary indicators for the two referendums are not independent. In columns (11)-(12), we therefore use the number of signatures to call an optional referendum instead. We find again that the results are the same and that low signature requirements (i.e. low barriers to launch a referendum), if anything, increase spending.

An alternative way to operationalize the mandatory budget referendum is to exploit the more continuous monetary thresholds. Columns (1)-(2) at the bottom panel confirm that higher thresholds, which make fewer costly projects subject to voter approval, raise public spending as expected.[21]

Fourth, other political institutions might be correlated with both spending and the mandatory budget referendum. For example, cantons with a mandatory budget referendum are more likely to have a mandatory law referendum or low signature requirements for the voter initiative in place. Columns (3)-(4) shows that controlling for these institutions does not affect our conclusions. Columns (5)-(6) instead control for a number of other political institutions that might affect spending: whether the canton has a constitutional constraint on deficit spending or requires a balanced budget, whether the president of the executive is directly elected, whether the canton parliament is elected under proportional

[21] We also tested whether our results change if we use an institutional index variable combining the various provisions of the budget referendum: monetary thresholds for the mandatory and optional referendum, the days to collect and number of signatures required for an optional referendum. The results are very similar to the ones reported here and available upon request.

representation as well as the size of the legislative and executive. Again, our results remain unchanged.

Fifth, changes in the size of the electorate over time could affect our results. Over our sample period, the most important reform in voting rights was female suffrage. Since women's suffrage was adopted in different years at the federal and canton level, our measures of voter preferences might include women voters though women did not yet have the right to vote in the canton. The opposite is true if the canton adopted suffrage prior to the federal level. In columns (7) and (8), we added a binary indicator whether women had the right to vote in a given year. The results are similar to the ones reported in Tables 5 and 6. In addition, we reestimate our specification for cantons that adopted female suffrage in 1971, the same year it was adopted at the federal level (columns (9) and (10)). As before, the results remain unchanged.

Finally, the last two columns include the most comprehensive set of institutional controls for direct democracy, constitutional constraint, proportional representation, women's suffrage and the structure of the executive and legislative - the results are again very similar. In sum, the evidence presented here shows that our estimates are robust to the inclusion of additional socio-demographic and institutional controls as well as alternative specifications of the direct democratic institution. Across all specifications, a comparison of odd and even columns shows that voter preferences still exert a significant effect on spending in all our specifications. And including our preference measures reduce the estimated effect of the mandatory budget referendum by between 20 and 30 percent.

6 Conclusion

This article outlines an empirical strategy to analyze the effect of direct democracy on policy outcomes that accounts for heterogeneity in voter preferences for government. Using data

on all federal referendums held in Switzerland between 1950 and 2000, we recover aggregate policy preferences in each canton from data on federal ballot propositions. Our evidence suggests that citizens in cantons with strong direct democracy have very different preferences for government than citizens in cantons with weaker direct democracy. In particular, cantons with stronger direct democratic institutions are more conservative, prefer less spending and less redistribution than voters in cantons with weaker voter control over the budget.

Given that tastes for government are correlated with direct democratic institutions, previous studies overestimate the constraining effect of direct democracy on government spending. Controlling for the heterogeneity in preferences, we find that the influence of direct democratic institutions on government spending declines by up to 30 percent. These results are found to be very robust to alternative definitions of the institutional variable, other measures of preferences, additional controls for socio-demographic characteristics or other political institutions that could restrain public spending. We also show that variables commonly used in the literature to control for demand side heterogeneity do not eliminate the bias from omitted voter preferences.

The heterogeneity of preferences across alternative institutional regimes seems to be a general phenomenon that is present in other democracies and political institutions other than direct democracy as well. The results of this article then suggests that comparative studies of institutions need to account for voter preferences as an important mediator between institutions and policy outcomes.

Even after controlling for voter preferences, however, direct democracy decreases canton spending by 11 percent. Hence, direct democracy has real consequences for the policy-making process: either directly by preventing the realization of expensive projects or by changing political decision-making in the parliaments. Overall, the results in this article provide empirical support for the notion that both voter preferences and direct democratic institutions have independent effects on fiscal policy and the size of government.

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A Canton-Level Panel Data

The canton level data on expenditures and revenues are taken from the annual collections on public finances in Switzerland (Federal Department of Finance, various years). Expenditures for cantons and communities are reported together in 1967 and 1968. Federal subsidies are available for all years except 1950-52, 1968-77 and 1990-93. All values for missing years were obtained by linear interpolation. Both expenditure and revenue categories are expressed per capita and deflated to 2000 Swiss Francs using the annual consumer price index.

The data on direct democracy are taken from Trechsel and Serdült (1999), who collected information for cantons without a town-meeting from 1970 to 1996. For canton with town meetings and years not covered in Trechsel and Serdült, we gathered data from the cantonal Public Record Offices and supplemented missing information from old canton laws and constitutions. Our most important measure is a binary indicator equal to one if the canton had a mandatory budget referendum in place in that year and zero if the budget referendum was optional or the canton does not have one at all. The cantons *Vaud*, *Valais*, and *Fribourg* before 1978 only allows a referendum on extraordinary expenditures not specified in the budget. Since this type of referendum is much weaker than one that covers all types of expenditures, these cantons are classified as having no mandatory budget referendum. We also extracted information on the monetary threshold when a budget referendum becomes mandatory in a canton. In a few places, the threshold is reported in percent of the budget. We converted all thresholds into real Swiss Francs per capita using the consumer price index, current population and current budget (where needed). We also coded information on the optional budget referendum from the same sources. In 2000, 23 out of the 25 cantons allow

for an optional budget referendum and furhter have information on the monetary threshold when an optional referendum can be called, the number of signatures required to call it and the days permitted to collect those signatures.

In addition, we constructed two variables measuring the strength of other direct democratic instruments in a canton: whether the canton had a law referendum in place in a given year and the signature requirement for the voter initiative as a share of the population age 20 or older. All cantons except *Vaud* allow for the voter initiative at the canton level.

The variables on the percentage of left-wing parties and the number of seats in the canton parliament were provided by Professor Ladner at the University of Berne. The size of the executive, whether the president of the executive is directly elected, the year of adopting female suffrage or proportional representation are taken from the canton constitutions and the respective canton laws. If in doubt, we contacted the canton archives to confirm our coding.

For the canton characteristics, most variables are from the decennial population census with intermediate values interpolated. Data for the urban population is calculated in percent of the population living in cities above 10,000 people. The education variable is measured as the percentage of people with a university degree in percentage of the population above 19. Data on average canton income is available since 1965. In order to avoid losing these observations, we also use two proxies for canton income in our robustness analysis: the percentage of the population owning a car and the number of physicians per 1,000 people. These two variables alone explain 47 percent of the variation in income since 1965. Once we add our other control variables and year fixed effects, we capture 90 percent of the variation in income. The unemployment rate was calculated as the number of registered unemployed relative to the active population from the State Secretariat for Economic Affairs after 1975 and as the number of unemployed in percentage of employed persons from the population census before 1975. Population density is measured as the log of the number of people

(in 1,000) per square kilometer. We also collected information on the age structure of the canton, the share of divorced people in the age group above 20, the population share of the major language groups (German, French and Italian) and the share of Catholics (relative to Protestants and Jews). Finally, we calculated linguistic and religious fragmentation as one minus Herfindahl indices for three groups respectively. The indices vary from 0 to 1 where larger values represent more fragmentation.

Table 1: The Budget Referendum in Swiss Cantons in 2000

	Mandatory Budget Referendum	Change in Budget Referendum?	Optional Budget Referendum?
Aargau	No	Abolish (1982)	Yes (Adopt 1982)
Appenzell Ausserrhoden	Yes	No	No
Appenzell Innerrhoden	Yes	Adopt (1979)	Yes (Adopt 1966)
Basle County	No	No	Yes
Basle City	No	No	Yes
Berne	No	Abolish (1995)	Yes (Adopt 1970)
Fribourg	No	No	Yes
Geneva	No	No	Yes
Glarus	Yes	No	No
Graisons	Yes	No	Yes (Adopt 1965)
Jura	Yes	No	Yes
Lucerne	Yes	Adopt (1969)	Yes
Neuchatel	No	Abolish (2000)	Yes (Adopt 1992)
Nidwalden	Yes	No	Yes (Adopt 1965)
Obwalden	No	Abolish (1998)	Yes (Adopt 1968)
Schaffhausen	Yes	No	Yes (Adopt 1989)
Schwyz	Yes	No	No
Solothum	Yes	No	Yes (Adopt 1989)
St. Gallen	Yes	No	Yes
Ticino	No	No	Yes
Thurgau	Yes	No	Yes (Adopt 1965)
Uri	Yes	No	Yes (Adopt 1972)
Vaud	Yes	Adopt (1998)	Yes
Valais	No	Abolish (1994)	Yes (Adopt 1994)
Zurich	No	Abolish (1999)	Yes (Adopt 1951)
Zug	No	No	Yes

Notes: The table shows whether cantons have a mandatory or optional budget referendum in 2000; and whether and when cantons changed their provisions for the budget referendum between 1950 and 2000. Two cantons, *Appenzell-Innerrhode* and *Glarus* still held town meetings in 2000 where most political decisions are made directly by citizens. *Appenzell-Outerrhode* and *Obwalden* abolished town meetings in 1997, *Nidwalden* in 1995.

Table 2: Summary Statistics by Institutional Regime

	Mandatory Ref.		No Mandatory Ref.		T Statistic
	Mean	Std. Dev	Mean	Std. Dev	Difference
Canton Demographics					
Population Density (Log)	4.85	0.86	5.55	1.41	11.0
Unemployment Rate	0.65	1.10	1.21	1.74	7.0
Population above 65 (%)	12.59	2.71	12.21	3.00	-2.4
High Skilled (% University Degree)	1.01	0.33	1.38	0.67	10.6
Physicians (per 1,000 people)	7.90	4.39	11.30	7.07	13.4
Car Ownership (%)	25.11	15.46	27.32	16.98	2.4
Annual Income	7.93	1.35	8.62	1.15	7.8
Canton French- or Italian-speaking	0.06	0.25	0.52	0.50	21.9
Catholics (%)	54.87	25.55	63.31	24.95	5.8
Divorced Population (%)	3.07	1.82	3.72	2.39	5.5
Urban Population (%)	25.42	20.60	42.39	28.05	12.4
Age 0 to 19 (%)	30.19	4.80	28.07	6.01	-6.9
Age 20 to 39 (%)	28.98	2.22	30.17	2.47	8.9
Age 40 to 64 (%)	28.24	2.02	29.56	2.88	9.6
Age 65 to 79 (%)	10.09	1.74	9.81	1.98	-2.6
80 and Older (%)	2.50	1.11	2.40	1.17	-1.6
Linguistic Fragmentation	0.23	0.24	0.33	0.15	8.6
Religious Fragmentation	0.4	0.2	0.4	0.2	-0.4
Political System					
Monetary Threshold Mandatory Referendum	19.55	30.50	487.01	72.89	158.9
Optional Budget Referendum?	0.48	0.50	0.88	0.33	15.6
Signature Requirement Optional Referendum	127.32	133.93	33.28	86.27	-13.8
Left-Wing Parties (%)	19.41	12.49	24.54	11.76	7.0
Mandatory Law Referendum?	0.76	0.43	0.29	0.46	-18.2
Signature Requirement Initiative	2.20	2.00	3.72	2.79	11.3
Proportional Representation?	0.71	0.46	0.94	0.24	10.4
Executive Leader Directly Elected?	0.34	0.47	0.06	0.24	-12.2
Size of Executive	6.55	1.37	6.41	1.14	-1.9
Size of Legislative	113.73	52.38	118.93	44.89	1.8
Female Suffrage Adopted?	0.57	0.50	0.63	0.48	1.9
Constitutional Constraint: Deficit	0.03	0.16	0.01	0.12	-1.6
Constitutional Constraint: Balanced Budget	0.07	0.26	0.09	0.28	1.0
Fiscal Policy per capita					
Canton Expenditures (Log)	1.30	0.69	1.52	0.74	5.4
Cantonal Revenues (Log)	1.27	0.70	1.47	0.76	4.9
Federal Subsidies (Log)	-0.64	0.92	-0.78	0.89	-2.5

Notes: The table reports summary statistics over the whole sample period (1950-2000) separately for cantons with mandatory budget referendum and those without. The last column reports the T-value for differences in means between the two groups of cantons. Mean annual household income at the cantonal level is reported since 1965. Log Population density is the log of people per square kilometer and divorced is the percentage of divorced people above 20. Urban population is measured as the share living in cities above 10,000 people. Fragmentation is measured as a Herfindahl index (0=no fragmentation, 1=maximum fragmentation) between three linguistic and religious groups respectively. The monetary threshold for the mandatory budget referendum is measured in real Swiss Francs per capita. The signature requirement for the optional budget referendum and voter initiative is calculated as fraction of the population over 20. Left-party seats are measured in percent of the seats in the canton parliament. Expenditures, revenues and federal subsidies are measured in real Frances per capita and reported in logs.

Table 3: Variation of Voter Preferences by Institutional Regime

	Mandatory Referendum		No Mandatory Referendum		T Statistic	Observations
	Mean	Std. Dev	Mean	Std. Dev	Difference	(# years)
% Support for More Government	-1.44	7.45	1.87	9.21	6.1	975 (40)
% Support for Higher Spending	-3.67	8.14	3.70	9.83	10.4	675 (27)
Factor 1 ("Conservative Values")	0.84	0.10	0.76	0.15	-11.3	
Factor 2 ("Redistribution")	-0.08	0.27	0.19	0.36	15.2	
Factor 3 ("Regulation")	-0.01	0.19	-0.01	0.24	0.6	

Notes: The table reports the weighted mean and standard deviation of voter preferences. The summary statistics are shown separately for cantons with and without a mandatory budget referendum and weighted by the size of a canton's electorate. The top panel shows voter support for more government (higher spending, taxes or subsidies) and higher public spending. Voter support in federal propositions is calculated as the support (in percent) in each canton's electorate for a proposition with higher implied spending or taxes and as deviation from the Swiss average. Hence, cantons with negative numbers show less than average support for the proposition while positive numbers indicate a higher voter support than the average canton. The last column reports the number of observations and number of years (in brackets) for which the data is available. In the bottom panel, the measures for voter preferences are the factor loadings derived from factor analysis.

Table 4: Regression of Factor Loadings on Canton Characteristics

	Factor 1		Factor 2		Factor 3	
	(1)	(2)	(3)	(4)	(5)	(6)
Left Party Seats in Canton Parliament (%)	-0.003	-0.003	0.009**	0.010***	-0.003	-0.005*
	[0.002]	[0.002]	[0.004]	[0.003]	[0.003]	[0.003]
Unemployment Rate	0.008*	-0.005	0.014	0.0297**	-0.016	-0.027**
	[0.005]	[0.005]	[0.010]	[0.013]	[0.010]	[0.012]
Canton French- or Italian-Speaking	-0.091**	-0.132***	0.192**	0.226***	-0.148**	-0.115*
	[0.035]	[0.039]	[0.072]	[0.069]	[0.059]	[0.061]
Catholics (%)	-0.002	-0.001	0.001	0.001	-0.001	-0.002
	[0.001]	[0.001]	[0.002]	[0.001]	[0.002]	[0.002]
Divorced Population (%)	-0.017	-0.010	-0.043	-0.031	-0.016	-0.061**
	[0.014]	[0.015]	[0.032]	[0.033]	[0.030]	[0.027]
% High Skilled (University Degree)	-0.006***	0.000	0.010*	0.008	0.007	0.010
	[0.002]	[0.002]	[0.005]	[0.007]	[0.005]	[0.007]
Population Density	0.042**	0.029	-0.049	-0.049	-0.066*	-0.017
	[0.018]	[0.019]	[0.041]	[0.039]	[0.036]	[0.029]
Urban Population (%)	-0.001	-0.001	0.001	0.003*	0.003***	0.003**
	[0.0005]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Age 20 to 39 (%)	-0.020***	-0.023***	0.071***	0.069***	0.007	-0.002
	[0.005]	[0.005]	[0.015]	[0.016]	[0.011]	[0.013]
Age 40 to 64 (%)	-0.004	-0.009	0.048***	0.039**	0.018	0.036***
	[0.005]	[0.006]	[0.012]	[0.014]	[0.013]	[0.013]
Age 65 to 79 (%)	-0.044***	-0.037***	0.077***	0.067***	-0.022	-0.017
	[0.009]	[0.008]	[0.024]	[0.023]	[0.018]	[0.025]
Age 80 and Older (%)	0.064***	0.045**	-0.083*	-0.087**	0.106*	0.115*
	[0.021]	[0.016]	[0.045]	[0.039]	[0.061]	[0.059]
Log Canton Income		0.029**		-0.062*		0.027
		[0.013]		[0.032]		[0.018]
Decade Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	115	92	115	92	115	92
R Squared	0.6	0.66	0.73	0.71	0.18	0.27

Notes: The table reports least-squares estimates where the dependent variable are the factor loadings for each canton and decade from 1950 to 2000. The independent variables are the decennial canton means. The omitted age group is 0-19 years. The income variable is measured in logs and missing for first decade. All specifications contain decade dummies. Standard errors are clustered at the canton level. * p<0.1, **p<0.05 and ***p<0.01.

Table 5: Support for Public Spending, Direct Democracy and Fiscal Policy

Log Canton Expenditures	(1)	(2)	(3)	(4)	(5)
Mandatory Budget Referendum	-0.243*	-0.154	-0.173**	-0.136**	-0.140**
	[0.124]	[0.098]	[0.064]	[0.056]	[0.053]
Support for Higher Spending (%)		0.013***		0.009***	0.012***
		[0.003]		[0.003]	[0.004]
Support Spending x Referendum					-0.005
					[0.005]
Population Density (Log)			0.155**	0.146**	0.144**
			[0.062]	[0.063]	[0.063]
Federal Subsidies (Log)			0.284***	0.281***	0.278***
			[0.083]	[0.082]	[0.083]
Unemployment Rate			0.019	-0.011	-0.009
			[0.032]	[0.022]	[0.022]
Population 65 and Older			0.017	0.013	0.012
			[0.028]	[0.026]	[0.026]
% High Skilled (University Degree)			0.001	-0.001	-0.001
			[0.009]	[0.008]	[0.008]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	672	672	672	672	672
R-squared	0.80	0.84	0.87	0.88	0.88

Log Canton Revenues	(1)	(2)	(3)	(4)	(5)
Mandatory Budget Referendum	-0.228*	-0.140	-0.149**	-0.112*	-0.115*
	[0.127]	[0.102]	[0.069]	[0.063]	[0.059]
Support for Higher Spending (%)		0.013***		0.010***	0.012***
		[0.003]		[0.003]	[0.004]
Support Spending x Referendum					-0.005
					[0.005]
Population Density (Log)			0.172**	0.163**	0.161**
			[0.068]	[0.070]	[0.070]
Federal Subsidies (Log)			0.282***	0.279***	0.277***
			[0.091]	[0.090]	[0.091]
Unemployment Rate			0.009	-0.023	-0.02
			[0.0323]	[0.0230]	[0.023]
Population 65 and Older			0.008	0.004	0.003
			[0.032]	[0.029]	[0.029]
% High Skilled (University Degree)			0.001	-0.001	-0.001
			[0.009]	[0.007]	[0.007]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	672	672	672	672	672
R-squared	0.75	0.77	0.80	0.81	0.81

Notes: The table reports least squares estimates of cantonal preferences, whether the canton has a mandatory budget referendum in place and controls on canton expenditures per capita (top panel) and canton revenues per capita (bottom panel). Estimation is pooled across year and canton and all regressions include year dummies (not reported). Voter preferences are measured as the percentage of voters supporting higher spending in federal ballots. Bootstrapped standard errors are clustered at the canton level. * p<0.1, ** p<0.05 and *** p<0.01.

Table 6: Voter Preferences and the Size of Government

Log Canton Expenditures	(1)	(2)	(3)	(4)	(5)
Mandatory Budget Referendum	-0.246*	-0.131	-0.168**	-0.113*	-0.441
	[0.120]	[0.089]	[0.064]	[0.051]	[0.261]
Factor 1 ("Conservative Values")		-0.151		0.0532	-0.016
		[0.326]		[0.244]	[0.242]
Factor 2 ("Redistribution")		0.418***		0.427***	0.623***
		[0.130]		[0.099]	[0.147]
Factor 3 ("Regulation")		0.246*		0.217**	0.249**
		[0.121]		[0.087]	[0.117]
Factor 1 x Referendum					0.411
					[0.322]
Factor 2 x Referendum					-0.340**
					[0.158]
Factor 3 x Referendum					-0.027
					[0.194]
Population Density (Log)			0.164**	0.125*	0.105*
			[0.059]	[0.061]	[0.059]
Federal Subsidies (Log)			0.293***	0.292***	0.269***
			[0.076]	[0.076]	[0.074]
Unemployment Rate			0.038	-0.007	-0.005
			[0.032]	[0.0251]	[0.024]
Population 65 and Older			0.009	-0.002	-0.003
			[0.029]	[0.025]	[0.025]
% High Skilled (University Degree)			-0.003	-0.002	-0.001
			[0.008]	[0.007]	[0.006]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	1272	1272	1272	1272	1272
R-squared	0.82	0.86	0.87	0.89	0.90

Log Canton Revenues	(1)	(2)	(3)	(4)	(5)
Mandatory Budget Referendum	-0.228*	-0.113*	-0.148**	-0.094	-0.463
	[0.123]	[0.061]	[0.065]	[0.065]	[0.283]
Factor 1 ("Conservative Values")		-0.100		0.088	-0.002
		[0.331]		[0.256]	[0.273]
Factor 2 ("Redistribution")		0.433***		0.444***	0.637***
		[0.134]		[0.109]	[0.168]
Factor 3 ("Regulation")		0.234*		0.203**	0.246*
		[0.118]		[0.087]	[0.126]
Factor 1 x Referendum					0.463
					[0.352]
Factor 2 x Referendum					-0.334*
					[0.179]
Factor 3 x Referendum					-0.049
					[0.198]
Population Density (Log)			0.171**	0.131*	0.110*
			[0.063]	[0.065]	[0.064]
Federal Subsidies (Log)			0.292***	0.292***	0.269***
			[0.081]	[0.082]	[0.080]
Unemployment Rate			0.025	-0.022	-0.021
			[0.032]	[0.026]	[0.025]
Population 65 and Older			0.006	-0.006	-0.006
			[0.030]	[0.026]	[0.026]
% High Skilled (University Degree)			-0.002	-0.001	0.000
			[0.008]	[0.007]	[0.006]
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	1275	1275	1272	1272	1272
R-squared	0.79	0.82	0.83	0.85	0.86

Notes: The table reports least squares estimates of cantonal preferences, whether the canton has a mandatory budget referendum in place and controls on canton expenditures per capita (top panel) and canton revenues per capita (bottom panel). Estimation is pooled across year and canton and all regressions include year dummies (not reported). Voter

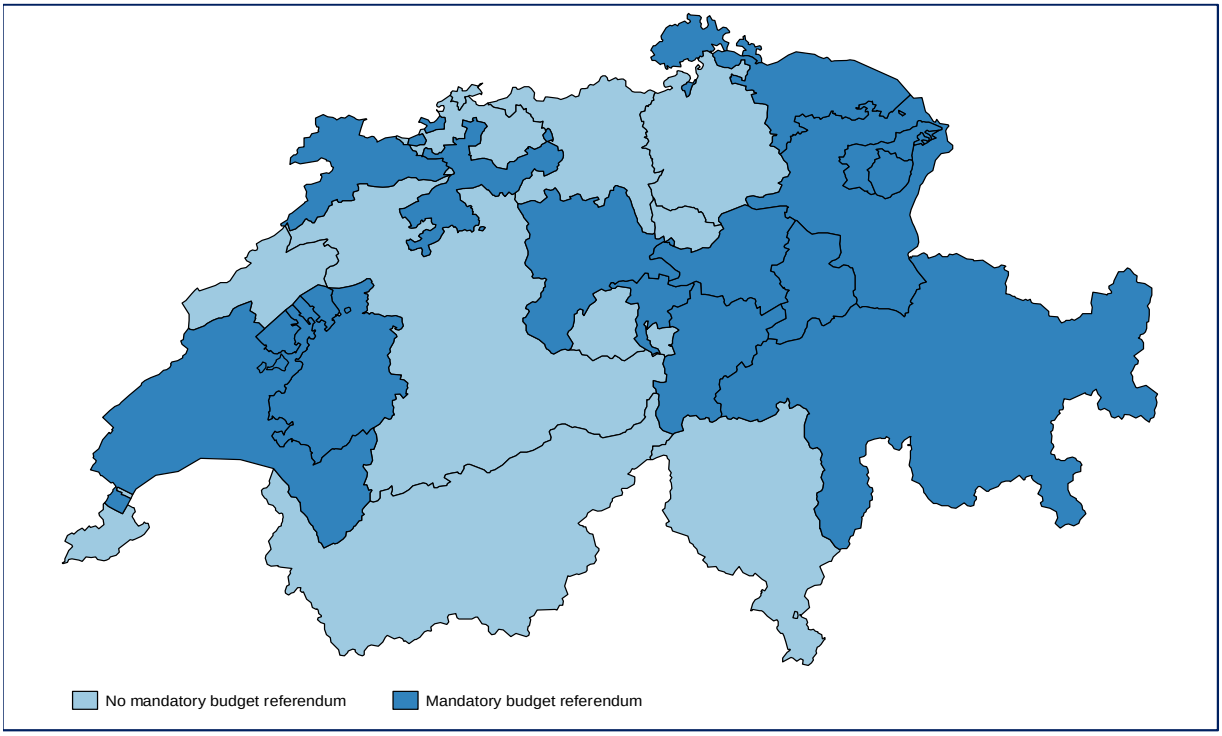
Table 7: Additional Specification Tests

	Baseline Valid Income, then Add Income				Add Income Proxies		Add Language, Religion		Mandatory vs. Optional Ref			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mandatory Budget Referendum	-0.105	-0.056	-0.106	-0.060	-0.097*	-0.086*	-0.153*	-0.133*	-0.067	-0.052	-0.095*	-0.065
	[0.0755]	[0.091]	[0.075]	[0.093]	[0.0513]	[0.050]	[0.078]	[0.072]	[0.055]	[0.056]	[0.047]	[0.068]
Optional Budget Referendum									0.079	0.087		
									[0.071]	[0.066]		
Signature Required Optional Ref.											-0.0007*	-0.0005*
											[0.0003]	[0.0002]
Factor 1 ("Conservative Values")		0.004		0.021		-0.098		-0.053		-0.118		0.093
		[0.240]		[0.247]		[0.254]		[0.251]		[0.238]		[0.235]
Factor 2 ("Redistribution")		0.323**		0.377***		0.334***		0.492***		0.336***		0.411***
		[0.119]		[0.134]		[0.110]		[0.130]		[0.103]		[0.087]
Factor 3 ("Regulation")		0.253**		0.295**		0.087		0.205**		0.066		0.185**
		[0.107]		[0.127]		[0.079]		[0.094]		[0.079]		[0.081]
Canton Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	875	875	875	875	1272	1272	1272	1272	1272	1272	1272	1272
R Squared	0.66	0.70	0.66	0.71	0.90	0.91	0.87	0.89	0.90	0.91	0.88	0.90

	Monetary Threshold		Add Direct Democracy		Add Other Institutions		Female Suffrage at Canton Level				Add All Institutions	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Mandatory Budget Referendum	0.0004**	0.0003**	-0.124**	-0.113**	-0.110**	-0.098**	-0.098*	-0.084*	-0.0934*	-0.072	-0.113**	-0.099**
	[0.0001]	[0.0001]	[0.0525]	[0.0454]	[0.0456]	[0.043]	[0.051]	[0.049]	[0.0536]	[0.048]	[0.0449]	[0.044]
Factor 1 ("Conservative Values")		0.056		-0.148		-0.114		-0.135		-0.198		0.022
		[0.241]		[0.231]		[0.236]		[0.247]		[0.275]		[0.223]
Factor 2 ("Redistribution")		0.432***		0.327***		0.339***		0.339***		0.365***		0.378***
		[0.097]		[0.103]		[0.104]		[0.108]		[0.108]		[0.106]
Factor 3 ("Regulation")		0.209**		0.0771		0.120		0.099		0.106		0.152*
		[0.086]		[0.0843]		[0.0790]		[0.081]		[0.094]		[0.078]
Canton Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1271	1271	1272	1272	1272	1272	1272	1272	1203	1203	1272	1272
R Squared	0.87	0.89	0.90	0.91	0.91	0.92	0.90	0.91	0.90	0.91	0.92	0.93

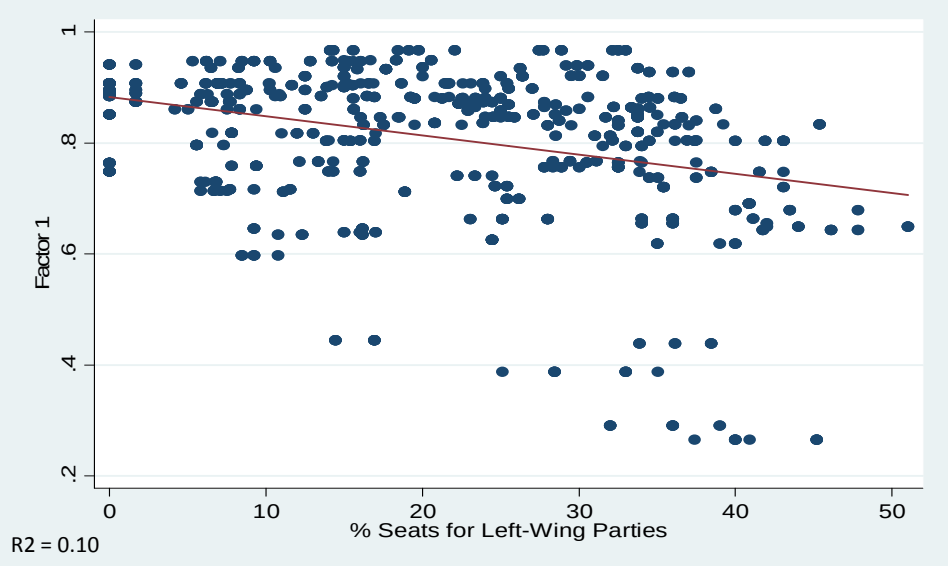
Notes: The table reports least-squares estimates where the dependent variable is log canton expenditures. All specifications contain year fixed effects, the same controls as before and our income proxies (car ownership, doctors per capita). Odd columns only include the indicator for mandatory budget referendum, even columns add voter preferences. In the top panel, column (1)-(2) reurn the baseline for the subset of years with valid information on income (1965-2000); columns (3)-(4) add annual canton income. Columns (5)-(6) use alternative proxies for canton income instead, namely the % of car ownership and the number of physicians per 1,000 people. Columns (7)-(8) add the % French- and Italian-speaking and the % Catholics in a canton. Column (9)-(10) include separate indicators for the mandatory and optional budget referendum, while (11)-(12) use the signature requirement for the optional referendum. In the bottom panel, columns (1)-(2)use the monetary threshold for the mandatory budget referendum as alternative institutional measure. Columns (3)-(4) adds whether the canton has a mandatory law referendum and the signature requirement for the voter initiative in percentage of the eligible population. Columns (5)-(6) include controls for proportional representation, constitutional constraints, the size of the executive and legislative and whether the leader of the executive is directly elected. Column (7)-(8) reestimate the baseline specification for the set of cantons that adopted women suffrage at the canton and federal level simulatenously. Column (9)-(10) include a binary indicator whether women suffrage was introduced at the canton level, while columns (11)-(12) include all institutions simulateneously. Standard errors are bootstrapped and allow for clustering at the canton level. * p<0.1, ** p<0.05 and *** p<0.01. See also notes to previous tables.

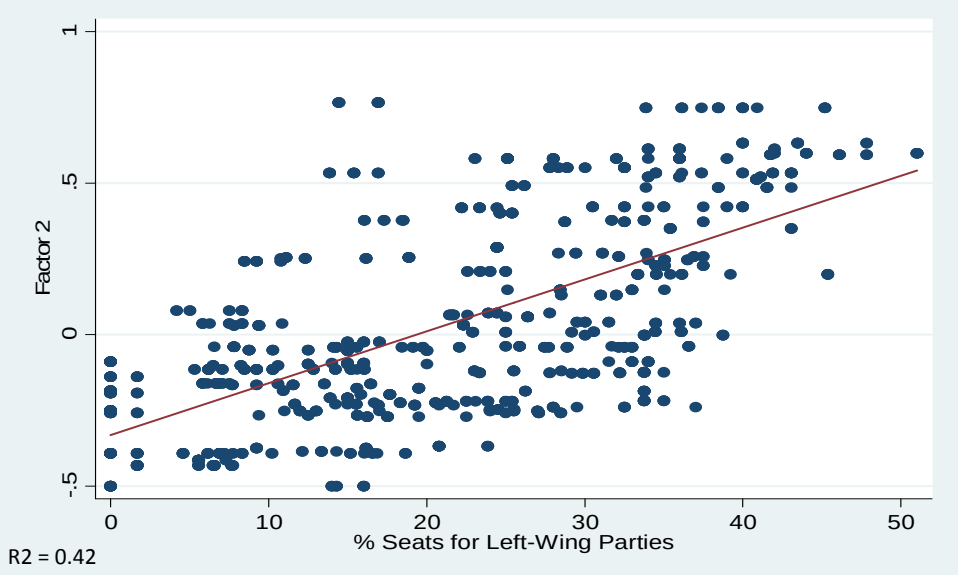
Figure 1: Mandatory Budget Referendum in the Swiss Cantons (2000)

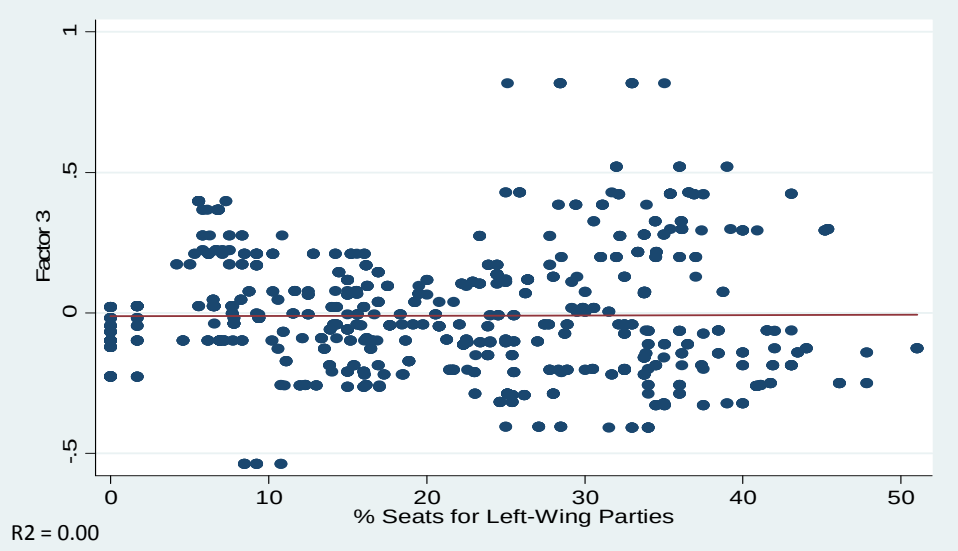


Source: Swiss Federal Statistical Office; authors' own calculation.

Figure 2: Correlation of Factors Loadings with Left-Party Seats







Notes: The figures report bivariate correlations between factor loadings (y-axis) and the percentage of seats for left parties in canton parliaments (x-axis).

Figure 3: Evolution of Voter Preferences by Direct Democratic Regime

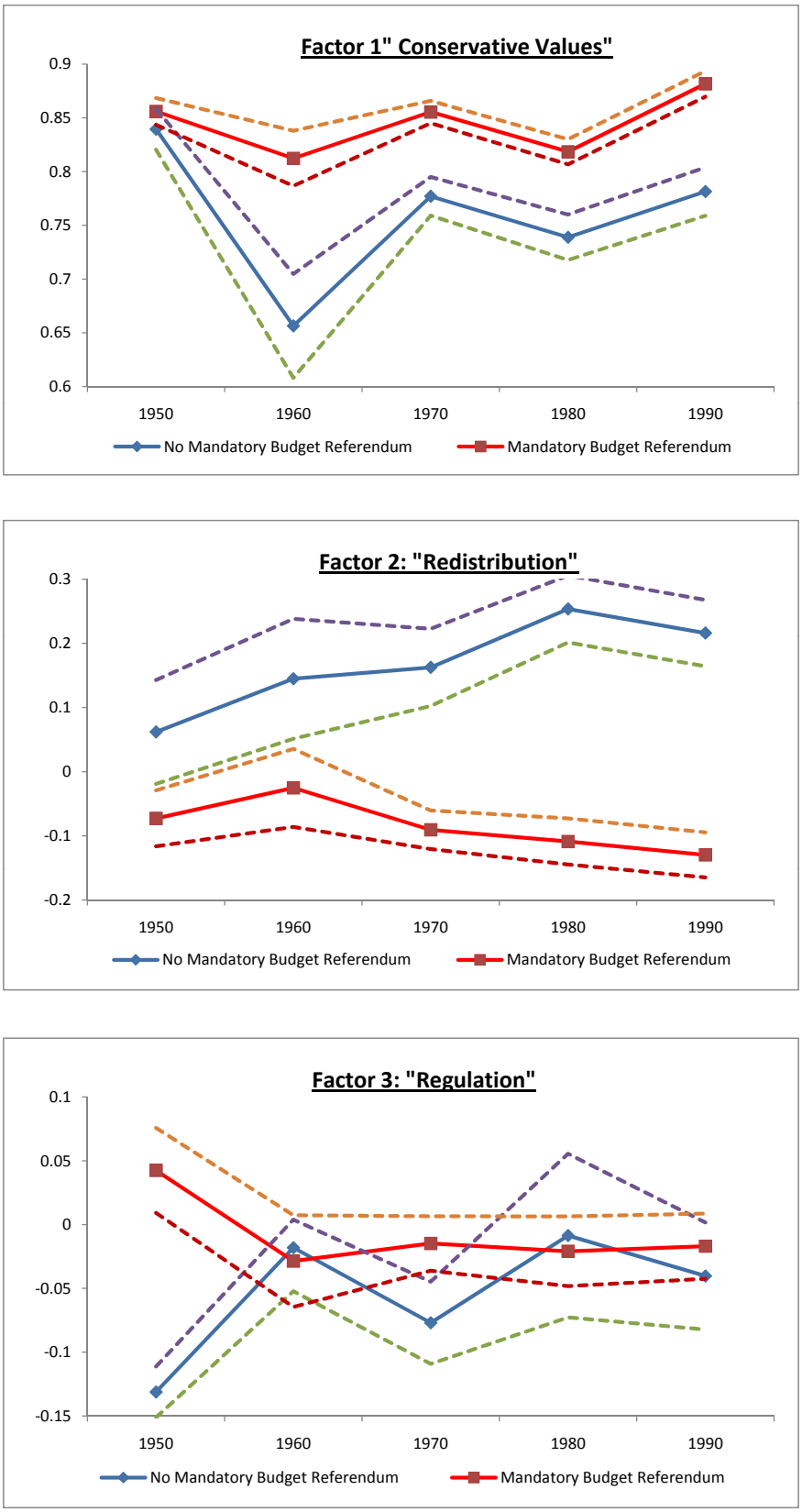


Table A1: Federal and Cantonal Votes on Fiscal Policy Propositions

	Level		Characteristics		Voter	Percentage
	Federal	Cantonal	Year	Type	Turnout	Yes Votes
Subsidizing Public Transport						
Canton Aargau	X		1998	Referendum	40%	53%
(Abolished Mandatory Budget Referendum in 1982)	X		1991	Initiative	25%	34%
		X	1975	Referendum	32%	61%
		X	1996	Referendum	25%	64%
Subsidy for Education and Vocational Training						
Canton Aargau	X		1985	Referendum	39%	47%
(Abolished Mandatory Budget Referendum in 1982)		X	1978	Referendum	46%	46%
Tax on Wealthy Households						
Canton Aargau	X		1977	Initiative	36%	41%
(Abolished Mandatory Budget Referendum in 1982)		X	1974	Referendum	27%	11%
Tax on Wealthy Households						
Canton Basle City	X		1977	Initiative	35%	50%
(Optional Budget Referendum Only)		X	1977	Initiative	44%	37%
Subsidizing Cultural Activities						
Canton Neuchatel	X		1994	Referendum	37%	58%
(Adopted Mandatory Budget Referendum in 1949)		X	1991	Referendum	13%	56%

Source: Online Database of Voting Outcomes in Federal Propositions; Database on Cantonal Ballots at the University of Berne.

Notes: The table compares the voting behavior in cantonal and federal referendums on similar propositions. Column (1) shows the title and canton where the proposition was held. Columns (2) and (3) report, whether the vote was at the federal or cantonal level. The next two columns show the year of vote and type of proposition. The last two columns report the turnout and the percentage supporting the proposition. Turnout is calculcated as the percentage of voters for federal propositions or as the number of valid votes as percentage of the eligible population for cantonal propositions. Over the period 1970 to 1996, citizens in Aargau voted on 133 cantonal propositions, in Basle City on 202 and on in Neuchatel on 115 propositions.

Table A2: Federal Propositions that imply More Federal Spending, 1950-2000

Number	Title of Proposition	Year	Percentage	Outcome
150	Subsidies for Housing Construction	1950	46%	No
159	Subsidies for Agriculture	1952	64%	Yes
171	Subsidies for Swiss War Veterans Living Abroad	1954	44%	No
187	Improving the Road Infrastructure	1958	85%	Yes
194	Subsidies for Milk Producers	1960	56%	Yes
201	Salaries of Representatives and Government Members	1962	32%	No
205	Scholarships and Other Training Subsidies	1963	79%	Yes
207	Vocational Training	1964	67%	Yes
219	Subsidies for Domestic Sugar Industry	1970	54%	Yes
222	Housing Guarantee and Protection of Families	1970	49%	No
232	Changes in Old Age and Disability Insurance	1972	16%	No
235	Subsidies for Scientific Research	1973	65%	Yes
245	Socially Acceptable Health Insurance	1974	27%	No
258	Loan to International Development Agency	1976	44%	No
281	Decrease Retirement Age	1978	21%	No
286	Subsidies for Universities/Technical Colleges	1978	43%	No
289	Milk Production	1978	69%	Yes
291	Federal Responsibility for Security	1978	44%	No
294	Subsidize Hiking Trails	1979	76%	Yes
305	For a new Immigration Policy	1981	16%	No
313	Energy Article	1983	49%	No
323	Protection Motherhood	1984	15%	No
339	Culture Initiative	1986	43%	No
340	Secure Vocational Training and Retraining	1986	17%	No
342	Protection of Renters	1986	63%	Yes
348	Railway 2000	1987	56%	Yes
349	Protection Moor	1987	57%	Yes
350	Reform Health Insurance	1987	28%	No
352	Decrease Retirement Age	1988	35%	No
363	Vine Cultivation	1990	46%	No
367	Energy Article	1990	71%	Yes
368	Traffic Law	1990	52%	Yes
370	Promoting Public Transport	1991	37%	No
373	Financing of Health Insurance	1992	39%	No
377	Protection of Waters	1992	66%	Yes
381	Saving the Waters	1992	37%	No
382	Building Railway through the Alps	1992	63%	Yes
386	Raise Salary of Parliamentary Members	1992	27%	No
387	Improve Infrastructure for Parliamentary Members	1992	30%	No
410	Promote Culture	1994	50%	No
415	Health Insurance	1994	51%	Yes
416	For a new Health Insurance	1994	23%	No
423	Securing Invalidity/Age Insurance	1995	27%	No
430	For an Environmentally Oriented Agriculture	1996	77%	Yes
431	Re-Organisation Administration	1996	39%	No
444	Reform of Age Insurance	1998	41%	No
445	Infrastructure for Public Transportation	1998	63%	Yes
458	Law on Insurance of Motherhood	1999	38%	No
469	For a flexible Age Insurance	2000	39%	No
470	For a flexible Retirement Age	2000	46%	No

Notes: The table lists the federal propositions, which would have increased government spending. The financial consequences of a proposition were assessed using the official documents by the federal government (available at http://www.ads.bar.admin.ch/ADS/showHome.do), which are distributed to each citizen before the vote. The first column shows the official number of the vote. Column (4) contains the percentage of voters supporting the proposition, while the last column reports the final outcome.

Table A3: Estimation Results of Factor Analysis

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Eigenvalue					
1950-59	18.308	3.096	1.380	0.747	0.625
1960-69	16.795	3.163	1.419	1.251	0.946
1970-79	17.664	1.806	0.926	0.743	0.584
1980-89	15.522	2.149	1.476	0.868	0.657
1990-99	18.039	2.210	0.993	0.503	0.318
Fraction of Variance Explained					
1950-59	0.725	0.123	0.055	0.030	0.025
1960-69	0.653	0.123	0.055	0.049	0.037
1970-79	0.748	0.076	0.039	0.032	0.025
1980-89	0.661	0.092	0.063	0.037	0.028
1990-99	0.780	0.096	0.043	0.022	0.014
Cumulative Variance Explained					
1950-59	0.725	0.848	0.903	0.932	0.957
1960-69	0.653	0.776	0.831	0.880	0.917
1970-79	0.748	0.824	0.863	0.895	0.919
1980-89	0.661	0.753	0.816	0.853	0.881
1990-99	0.780	0.876	0.919	0.941	0.954
Mean Factor Loading					
1950-59	0.831	0.023	0.010	0.015	0.000
1960-69	0.789	0.048	0.015	0.000	0.001
1970-79	0.816	0.021	0.006	0.008	0.001
1980-89	0.766	0.023	0.002	0.007	0.004
1990-99	0.824	0.032	0.006	0.005	0.002

Notes: The table contains the eigenvalues, variance explained by the first five factors and unrotated factor loadings, which consistently estimate cantonal preference parameters for each decade. The estimation method was principal factor, but iterated principal factor or principal components yielded very similar results and are available upon request. Estimation is based on 20 propositions in the 1950s, 22 in the 1960s, 78 in the 1970s, 63 in the 1980s and 105 in the 1990s. To ensure comparability over time, the voting recommendations of the Evangelical Party are included.

Table A4: Do Preferences Vary by Direct Demcratic Institutions in Survey Data?

	No Mandatory Budget Referendum	Mandatory Budget Referendum	T Statistic
Left-Right Position	4.91	4.89	1.87
(0=Left, 10=Right)	(1.81)	(1.76)	
Support for Government Intervention	0.28	0.23	16.03
into Economy (1= yes, 0 = no)	(0.45)	(0.42)	
Full Employment Important Goal	5.55	5.44	8.54
(1=not imp., 7 = very important)	(1.80)	(1.83)	
Direct Political Power for Citizens	0.88	0.91	-13.35
(0= no, 1 = yes)	(0.32)	(0.28)	

Notes: The table reports mean political attitudes of Swiss eligible citizens in cantons with and without a mandatory budget referendum. The last column shows the t-statistic for mean differences in political attitudes. The data come from a representative survey that is undertaken after each federal ballot and covers all cantons and ballots between 1980 and 2000.

Source: Vox Surveys (1980-2000)

Table A5: Evidence that Preferences affect Institutional Choice (but not vice versa)

	Mandatory Budget Referendum in Place (1)	Preferences (Factor 1) (2)	Preferences (Factor 2) (3)	Preferences (Factor 3) (4)
Factor 1:				
5 Years before	0.330***			
	[0.105]			
10 Years before	0.349***			
	[0.117]			
20 Years before	0.336**			
	[0.139]			
Factor 2:				
5 Years before	-0.107			
	[0.0782]			
10 Years before	-0.107			
	[0.0738]			
20 Years before	-0.117			
	[0.0687]			
Factor 3:				
5 Years before	0.0449			
	[0.0734]			
10 Years before	0.0400			
	[0.0737]			
20 Years before	0.0512			
	[0.0737]			
Years after Institutional Change:				
5 Years after		0.0372	-0.122	0.0822*
		[0.0251]	[0.143]	[0.0470]
10 Years after		0.0218	-0.0948	0.0730*
		[0.0259]	[0.147]	[0.0396]
20 Years after		-0.0156	-0.104	0.119*
		[0.0243]	[0.138]	[0.0670]
Time Period	1890-2000	1890-2000	1890-2000	1890-2000
Year Fixed Effects	Yes	Yes	Yes	Yes
Canton Fixed Effects	Yes	Yes	Yes	Yes

Notes: The table reports coefficients relative to the year of institutional reform (abolishing or adopting the mandatory budget referendum in a canton). Column (1) regresses whether the canton has a budget referendum in place on prior preferences as measured by the three factors. Columns (2)-(4) regress the factor loadings on years since an institutional reform. All results are based on data from 1890 to 2000 and contain year and canton dummies. Standard errors are clustered at the canton level.