

Preferences for Government Debts and Expenditures: A
Comparative Analysis of the Voting Behavior of Citizens and
their Representatives[#]

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Abstract

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1 Introduction

The politico-economic literature often explains debt accumulation by the strategic interaction of competing interest groups and political parties (Alesina and Drazen, 1991 and Drazen and Grilli, 1993). Clearly, interest groups lobby for higher subsidies or lower taxes and as political representatives may react to their wishes debts may increase. However, a political representative's primary principle is usually assumed to be his/her constituency which matters for reelection. Constituents may themselves have preferences for higher or lower public debts. Thus, observing increasing debt accumulation is not necessarily a sign of intensive lobbying but may reflect the representation of citizens' preferences.

Political representation is usually regarded as the activity of making citizens' voices present in the political process (see Pitkin 1967). Thus, it is important that representatives respond to constituents' interests. In the literature, large deviations of parliamentary decisions from citizens' preferences have been reported (see Gerber and Lewis 2004). While it seems obvious that they systematically depend on factors such as election rules and personal interests of politicians, the respective literature is still sparse. Therefore, we aim at analyzing the determinants of the deviation of politicians from citizens' preferences in general as well as specifically with respect to fiscal and budgetary policy.

Switzerland offers a unique quasi-experimental setting for such a comparative analysis of preferences. Like other democratic countries, members of the Swiss parliament vote on amendments of laws and the constitution. But in contrast to other countries, all law amendments are subject to 'facultative referenda', i.e. a relatively small number of Swiss citizens (50'000 from a total of almost 8 million inhabitants) can demand a popular vote on the respective amendments before they are enacted. Moreover, all constitutional amendments are subject to a 'mandatory referendum', i.e. they must pass a popular vote. In addition, a group of citizens (100'000) can also start an initiative and demand a specific constitutional amendment. Members of parliament also express their opinion on amendments proposed by initiatives before the population votes on them.

Citizens reveal their preferences for policy outcomes in referenda by ranking law proposals against the status quo (see Schneider, Pommerehne and Frey 1981, Frey 1994, Besley and Coate 2008, Portmann, Stadelmann and Eichenberger 2011). We match referenda data with voting data from members of parliament in the Swiss National Council (lower house) and the Swiss Senate (upper house) on exactly the same political issues with the identical wording in 26 cases. Thus, we can directly observe whether members of parliament

of both chambers have voted in the same way as the majority of their constituents in budgetary and non-budgetary decisions, which makes Switzerland an ideal field to study the responsiveness of representatives to citizens' preferences in general and with respect to budgetary policy in particular.

It is plausible that politicians deviate more clearly from the preferences of their constituents when their self-interest is affected. Thus, it could be hypothesized that the gap between politicians and citizens is larger than normal when public finance issues are concerned. While increasing tax rates and government income usually increases the financial leeway of politicians and, thus, their utility, increasing expenditures may have a more ambiguous effect. It provides politicians on the one hand with new resources to target specific interest but on the other hand with opportunity cost when satisfying other demands. Thus, it could be hypothesized that the gap between politicians and citizens is larger when deciding on changes in taxation than on changes in spending. Moreover, there could exist a certain asymmetry between increases and decreases in taxation. When taxation is increased the budget constraint of politicians is becoming less tight. But often it may not be obvious who is benefitting most from the new resources. In contrast, when taxation is decreased the budget constraint is becoming tighter which usually is very inconvenient for most politicians who are often supposed to be interested in larger budgets and more leeway.

In order to evaluate the gap between politicians and citizens with respect to fiscal and budgetary policy, it is necessary to measure for all referenda whether and to what extent they affect the fiscal balance and the leeway of the politicians. This has proved to be more difficult than expected because almost any political decision entails certain fiscal consequences or facilitates the introduction of new laws which then in turn have fiscal consequences. As it is even more demanding to identify whether a referendum is budgeted increasing or budgeted decreasing, we in this paper focus on two unique referenda which have relatively clear-cut consequences. One is a decision on a proposal to reduce the fiscal burden for companies operating in Switzerland (the "Corporate tax reform act II"). The other is a decision on a proposal to increase the value-added tax VAT to finance the disability insurance (the "Disability insurance act").

As an important advantage, our research focuses on differences within a single country. Thus, it avoids problems common to cross-country research: When analyzing political decisions and preferences across countries, specific norms, rules, political patterns, history, culture and institutional contexts should be taken into account. In our case the sub-national

electoral districts provide a broad empirical field within a common framework of identical basic characteristics

The remainder of this paper is structured as follows: Section 2 reviews the literature on representation of voter preferences and referenda. Section 3 presents a short overview of the Swiss political system, highlights the role of referenda and details how we match representatives' behavior in parliament with citizens' opinions in referenda. We also describe the two specific fiscal referenda analyzed in greater detail. Empirical results for all members of parliament from both chambers are presented in Section 4. Section 5 offers some concluding remarks.

2 Literature

(Work in progress. How could we focus this more on the topic? Suggestions welcome.)

Political representation concerns the relationship between citizens' preferences and the behavior of legislators. Starting with Duverger (1954) large parts of the literature has focused on the electoral systems' influence on the number of parties rather than on political representation in particular. Downs (1957), following Hotelling (1929), first described the positional strategies of candidates when electoral competition works along a single policy dimension. The well-known Downsian result of spatial competition is that the median voters' position is represented by legislators.

The prediction of Downsian convergence is theoretically appealing. However, starting with Kau and Rubin (1978, 1979), literature on legislative shirking showed that systematic deviations from voters' interests exist and that theoretical requirements for Downsian convergence are rarely met. Grofman (2004) offers a critical assessment of spatial voting models and discusses potential alternatives and complements. Lott and Davis (1992), Stratmann (1995), Bender and Lott (1996), Gerber and Lewis (2004), and Stadelmann, Eichenberger and Portmann (2011a, 2011b) provide additional results and overviews of the literature.

Theoretical and empirical contributions also investigated the possibility that legislators may react to stimuli other than the majority's preferences. Amongst legislators' competing principals are interest groups such as campaign contributors (see, e.g., Denzau and Munger 1986; Stratmann 1992), political parties (see, e.g., Alesina and Rosenthal 1989; Ansolabehere et al. 2001; Carey 2007), voter margins (Lee et al. 2004), district magnitude (see, e.g., Portmann et al. 2011), diverse subsets of the constituents (see, e.g., Jung et al. 1994; Levitt

1996; Golder and Stramski 2010), as well as the national electorate (see, e.g., Weissberg 1978). Moreover, legislators may only partially respond to constituents' demands because of ideological differences (see, e.g., Levitt 1996), difficulties when predicting constituents' preference (see, e.g., Erikson et al. 1975), unreliable information concerning voters (see, e.g., McCrone and Kuklinsk 1979; Matsusaka 1992), or district heterogeneity (see, e.g., Gerber and Lewis 2004).

Decisions of members of parliament directly affect individual utility and welfare. The influence of parliamentarians on policy outcomes has just recently started to attract the interest of political economists (see Milesi-Ferretti et al. 2002 or Grossman and Helpman 2005). When focusing on individual or group welfare, researchers predominantly captured policy outcomes by financial measures. Persson and Tabellini (1999, 2002) as well as Milesi-Ferretti et al. (2002) argue that spending on transfers is larger under proportional electoral systems due to different incentives for redistribution. These authors are mainly concerned with incentives for pork barrels under alternative electoral systems. Milligan and Smart (2005) find evidence from Canada that the governing parties target swing districts.

Stratmann (1995), Bender and Lott (1996), Gerber and Lewis (2004) and Golder and Stramski (2010) among others argue that a major problem of empirical studies is to determine voters' positions with respect to law proposals and to match them with decisions or positions of members of parliament. The detailed measurement of voters' preferences and their match with legislators' behavior is central to the literature on political representation. Due to the lack of a direct measure, congruence of interests of members of parliament and voters is often measured by "ideology scores" such as the ADA scores in the United States (see, e.g., Kenny and Lotfinia 2005; López and Ramírez 2008). To obtain proxies for district majority preferences, legislators' scores are usually regressed on districts' characteristics. The fitted ADA scores are considered to represent the district's interests, whereas the residuals exhibit the politician's divergence from his/her constituency. Such measures based on constituency characteristics have been criticized as inappropriate measures of legislative preferences by Krehbiel (1993, p. 21), among others. Levitt (1996) uses a slightly different approach. He measures district's median voters preferences by means of state's House delegation in the US and estimates the relative weights that senators assign to their party, ideology, district voters in general, and their supporting constituency. His results suggest that ideology is the primary determinant for senators' voting behavior while party line and voter preferences play minor roles.

Another branch of literature draws on election survey data such as the Comparative Study of Electoral Systems (CSES) project, Eurobarometer and the World Values Survey (see Blais and Bodet 2006 for a review of the literature). Golder and Stramski (2010) describe different ways of measuring congruence between legislators and voters with surveys.

Our approach overcomes problems of measures for legislators' and voters' positions constructed from ideology scores and surveys. We directly compare representatives' roll call votes and citizens' preferences revealed in referenda. Many authors discuss the effects of referenda on the political process, citizens' representation and citizens' well-being (see, e.g., Frey 1994; Matsusaka 1995; Gerber 1996; Feld and Matsusaka 2003). However, only very few scholars consider roll call votes or referenda outcomes as measures for constituents' representation: Hersch and McDougall (1988) analyzed three referenda on "sin" issues held in Kansas to measure congruence between legislators and voters. Garret (1999) examines legislative shirking in a single referendum in 1994 on allowing the state of West Virginia to operate a lottery. Both contributions find significant divergence between citizens and representatives. More recently, Gerber and Lewis (2004) draw on a dataset of individual vote returns from California and compare legislators' positions on a unidimensional NOMINATE scale with estimated districts' median voter preferences from referenda. They find limited explanatory power of the median voter hypothesis and remark that voters' and politicians' positions are not measured on the same scale such that only predictions about monotonicity can be made. Bafumi and Herron (2011) try to solve the problems induced by different measurement scales by relying on surveys where voters are asked to give their view on final votes by politicians. Our empirical approach is related to the sparse literature which uses referenda results to evaluate political representation and contributes to solving the comparability issue by matching referenda with roll call votes on the same issues.

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3 Measuring preferences and legislators' behavior

3.1 Parliament and Referenda

Switzerland's federal constitution dating back to 1848 established a bicameral parliament called Federal Assembly. The parliament is made up of two houses, the National Council or "Nationalrat" and the Council of States/Senate or "Ständerat". Both members of the National Council and senators serve four-year terms.

The Swiss National Council has 200 seats. The 26 Swiss cantons (sub-national jurisdictions) form the national parliament's electoral districts. The number of seats for each canton is proportional to the cantons' population sizes. Population size and, thus, the number of seats differ between cantons. The six cantons Appenzell a.R., Appenzell i.R., Glarus, Nidwalden, Obwalden, and Uri have only one representative in parliament and exhibit pure plurality systems. 13 electoral districts have between one and five members of parliament while the remaining cantons have more than five members of parliament.

The Swiss Senate ("Ständerat" in German) has 46 members. Again, the 26 Swiss cantons form the Senate's electoral districts. For historical reasons, there are 20 "full cantons" and 6 "Half cantons" making a total of 23 so called "Stände". There is no important difference between full and half cantons except that the latter have only one member in the Senate.¹ The six half cantons are Basel-Stadt and Basel-Land, Obwalden and Nidwalden, Appenzell a.R. and Appenzell i.R. Senators are usually elected by majority rule. Exception are the Canton of Jura and the Canton Neuchâtel where the two senators are elected by proportional voting.

Different parliamentary committees are concerned with elaborating policy proposals in different areas such as foreign affairs, social security, health, etc. These committees formulate the proposals for laws and law changes. A proposal is adopted as new law or as a constitutional amendment if the majorities of both, the National Council and the Senate, approve it.

However, proposals adopted by parliament do not necessarily turn into law. Switzerland features as system of direct democracy where referenda may be held. Theoretically, the Sovereign of Switzerland is not the parliament or the government but the entire Swiss population of voting age.

Citizen may challenge a law that has been passed the parliament. They may demand a referendum on the proposed legislation by collecting at least 50000 signatures within 100 days ("facultative referendum"). Out of approximately 4.9 million registered voters 50000 signatures represent less than 1 % of the population which is required to demand a referendum. The proposed law or law change is rejected if 50 % of the voters decide against it in a referendum.

¹ The reason for Half Cantons to exist is purely historical: When a Canton separated into two parts, be it because of religious or socio-economic tensions, the new parts were counted only as Half Cantons, i.e. the new parts did not get more seats in the Senate than the old unit, which provides the citizens of each canton with incentives for not being to eager to separate. An exception from this rule was made in 1979 when the old Canton of Berne separated into the full Canton of Jura and the smaller new full Canton of Berne, which remained to be the second largest Canton.

If a legislative proposal by parliament aims to change the constitution a referendum is always mandatory. The constitutional change has to be confirmed by the majority of voters. Moreover, a double majority is required. This means that not only the national voters have to agree to the constitutional change but also the majority of the “Stände”, i.e. the majorities of voters in eleven and a half-canton which is called the requirement of the “Ständemehr” (in German).

Finally, citizens may also demand a constitutional amendment by referendum called “initiative” by collecting at least 100000 signatures. The signatures have to be collected within 18 months. An initiative formulates the precise wording of the new amendment as it is to be added to the constitution. Members of parliament are required to vote on the text of an initiative but cannot change its wording. Their vote serves only as a parliamentary recommendation to the voters. Parliament and the government cannot refuse an initiative unless it violates formal rules. However, they can work out a counter-proposal to the initiative which is presented to the voters at the same time as the initiative in a referendum. Usually, a counter-proposal is designed to be a compromise between the current status quo and the demands in the initiative.

We analyze a sample of 26 referenda from 2008 to 2011.² Table 1 presents some descriptive statistics regarding the type of referenda analyzed.

< **Table 1 here** >

Facultative referenda make up 23.1% and mandatory referenda 15.4% of the sample. There are 13 initiatives and four counter-proposals in the sample.³ Out of the total of 26 referenda 50% have been expected. The average cantonal “Yes vote” share is 42.6%.

3.2 Matching Legislators’ behavior with citizens preferences

Since the establishment of the Constitution in 1848, referenda have been held on important laws and constitutional amendments. Swiss citizens regularly cast their votes on law and constitutional proposals which have passed parliament with the exact same wording.

² Our total database includes 126 referenda from 1996 to 2011. However, we only have individual voting records from the Senate since its winter session in 2006. As we want to analyze differences between Senators, which are usually elected by majority rule, and members of the National Council, which are elected according to a proportional rule, we have to focus on the smaller sample.

³ In our analysis we include a dummy for initiatives to distinguish them clearly from mandatory and facultative referenda.

Referenda results determine policy outcomes and are at the same time revealed preferences of citizens for these outcomes. More precisely, referenda permit the majority to rank policy outcomes induced by the proposed laws against the status quo without these law changes. Therefore, the majority reveals its preferences for policy outcomes by ranking law proposals against the status quo, as already argued in by Schneider, Pommerehne and Frey (1981). Decisions in referenda are capable of capturing much broader issues than financial streams and it is not necessary to rely on expert's judgment or surveys concerning the utility implications for the majority.

Not all parliamentary decisions are necessarily presented to voters in a referendum. This may result in a potential selection bias which is a common problem of studies focusing on referenda. In the Swiss case the incidence of such a potential selection bias is likely to be low. Firstly, for constitutional amendments a referendum is always mandatory. Moreover, for law changes, the low signature requirement for referenda (less than 1 % of the population may require a referendum on a parliamentary decision) assures that even weakly controversial decisions may be subject to voter's approval, in particular if they can win the majority's support in a referendum. Finally, by including initiatives which are initiated directly by citizens, we mitigate selection and agenda setting problems in parliament. Initiatives allow citizens to introduce issues which legislators neglected and, consequently, lead to a better coverage of all policy dimensions relevant for constituents.

Referenda data can be matched with voting data from members of the National Council and the Senate on exactly the same political issues with the same wording. This fact makes Switzerland an ideal field to study the relationship between constituents and politicians. According to Krehbiel (1993), roll call votes are most proximate to the adoption of governmental policies. Swiss parliamentary decisions are automatically implemented after 90 days if no referendum has been demanded by the citizens. Thus, the vote in parliament is binding and policy relevant which starkly contrasts with electoral platforms of political parties and individual candidates. The same applies to referendum decisions which are implemented right after the popular vote. Thus, referenda have a much more direct influence on policy than voter surveys.

All roll calls of the members of the National Council are available through an electronic voting system which registers every vote. The parliamentary services provide this data. In contrast, there is no electronic voting system in the Senate. However, a camera records the Senate's sessions since winter 2006. We have analyzed the video streams and identified the individual voting behavior of senators. In a small number of cases the camera position does

not allow identification. Our analysis includes all roll call votes on final votes since footage from the cameras in the Senate's meeting room is available.⁴

Our matched data of Swiss referenda have at least five major advantages: (1) Swiss voters cast their votes on exactly the same legislative proposal with the identical wording as the legislators voted on in parliament. Hence, voters' preferences are measured on precisely the same dimensions reflected by the issue itself as politician's voted on in parliament. (2) Decisions in referenda mirror directly the utility of voters while financial streams and expert's judgment may not reflect utility implications for the majority. (3) Information embodied in referenda is much richer than ideology measures because preferences are not constructed but observed. (4) The voting decision of citizens in referenda are real decisions with policy consequences and thus much less superficial than answers in surveys. In Switzerland, the popular votes are also preceded by an intensive public discourse which usually takes four to six weeks. Therefore it is fair to say that citizens are much better informed on the respective issues when voting than when answering survey questions. (5) Even if the ideological positions of voters and citizens were close, there may exist large differences with respect to how they interpret the wording of a proposal and its implications for policy outcomes. Thus, comparing the roll call votes of legislators with preferences of the majority of constituents yields new and interesting insights.

We analyze the quality of political representation of the majority of constituents. Democratic decisions are generally majority decisions and representation of the majority (the median voter) is a natural benchmark case for single and multi-member districts. As we analyze individual referenda which may each reflect different policy dimensions, the issue of politicians dispersing over a certain policy space is less relevant because in multi-member districts politicians may also cover more policy dimensions. The sub-national units, i.e. the electoral districts, provide a broad empirical field within a common framework of identical basic dimensions. Consequently, we can identify factors such as district heterogeneity, party affiliation, differences in the electoral system and district size, etc. which may moderate the influence of the preferences of the majority of constituents on legislators' behaviors.

Our data allows us to identify empirically whether members of parliament from both chambers diverge from voter's preferences for budgetary and non-budgetary decisions. By comparing citizens' preferences from referenda with politicians' votes on the same decision,

⁴ Note that members of parliament may be absent or abstain from voting due to sickness, voyage, political duties, professional bias, or other responsibilities

we get politicians' positions relative to the preferences of the majority of the population in their district. We use an indicator variable which is equal to 1 when a member of parliament as voted in the same way as the majority of the voters in his/her canton level.

3.3 Referenda with budgetary implications

For our analysis we consider the sample of 26 referenda but focus specifically on two highly important referenda with clear budgetary implications. The first referendum, the "Corporate tax reform act II", reduces the fiscal burden for companies working in Switzerland while the second referendum, "Disability insurance act", increases the VAT tax to finance the disability insurance. We briefly present the main elements of both referenda here. For the presentation we base ourselves on the official booklet handed out to Swiss voters before the referendum. Descriptive statistics for each referendum are presented in Table 2.

< **Table 2 here** >

Description of Referendum "Federal law on the improvement of the tax framework for entrepreneurial and investment activity (Corporate tax reform act II)" on February 24, 2008

In 1997 corporate taxation at the Federal level was reformed ("Corporate tax reform act I") in order to enhance the country's competitiveness. It abolished the capital tax at the federal level and substituted a new linear profit tax for the old progressive one. The act exhibited positive effects on the economy according to the ministry of finance and most professionals and academics. It was decided to proceed with the reform agenda and focus efforts to particular aspects in which Switzerland performed comparatively adversely in the past. While effective marginal taxes on profits were low, the country's competitive edge was less pronounced if both, marginal burden for investors and companies were taken into account. The new federal law summarized as the corporate tax reform act II aimed to achieve three major improvements of the current situation: First, the double taxation of profits such as dividends should be reduced. Second, burden on capital held by capital companies should be reduced. Third, tax constraints for personal companies facing reorganization should be cut back.

The new law stipulated a reduced tax rate on distributed profits at the federal level for natural persons who own at least 10 % of a company's capital stock. It also granted the cantons the possibility to reduce double taxation of profits induced by cantonal taxes.

According to the position of the parliament communicated in the official booklet to Swiss voters some existing taxes before the reform act II were considered to be particularly detrimental to entrepreneurship. The property tax for companies was seen as problematic and it was argued that it violated the principle of "taxation according to performance". Therefore, the new reform act would grant the cantons the right to apply a deduction of profit taxes from capital taxes for companies. Moreover, companies could profit from the abolishment of the stamp duty on certain newly issued securities.

The reform act would reduce taxes for natural persons who are shareholders and members of cooperatives as they had no longer to pay taxes on refunded agios and extra payments. Finally, reform act II would, according to the official booklet also introduce reliefs concerning changes to ownership structure and operating conditions of unincorporated companies. Profits generated from the transfer of real property form business assets to private assets would no longer be taxed at the moment of transfer but at the moment when a profit is realized by sale. Thereby the reform would help to reduce the fiscal burden for unincorporated companies

The federal government estimated that its revenues would decrease due to the new reform by 81 million Swiss Francs in the short-term. The decrease in revenues for cantons was estimated to be approximately 850 million Swiss Francs. The Federal Council explicitly mentioned positive long-run effects for fiscal revenues if cantons adapt their legislation and enhance incentives for investment activities and vitalize their economies.

The reform act was challenged by a referendum and the opponents provided four reasons why Swiss voters should reject the reform. Firstly, they considered the reduction of the double taxation as an unjustified discrimination against labor income. Secondly, they argued that entrepreneurs holding the shares of their own company would shift salary-income towards dividends. Thirdly, as distribution of profits would become less costly, companies would reduce their reserves which was argued to be a potential danger for future employment. Finally, the opponents criticized that the reform act is unbalanced and focuses on incorporated companies (double taxation) while most small and medium sized companies are unincorporated companies. According to the reform's opponents the total costs in form of a loss of social contributions was about 2 billion Swiss Francs.

Swiss voters accepted the reform in a referendum with a majority of 50.5 % (see additional details in Table 2). In parliament a total of 33 senators and 120 members of the National Council accepted the proposal.

Description of Referendum “Federal enactment on a temporary additional financing of the disability insurance by an increase in the value added rates” on September 27, 2009

The disability insurance was before the enactment under constant financial distress and its financial condition steadily deteriorated. At the end of 2004 its debts amounted approximately 6 billion Swiss Francs. The suggested temporary increase in the value added tax to finance the disability insurance is part of the 5th revision of the insurance’s act dating back to 1959. The presented reform also included austerity measures to stabilize the annual deficit at approximately 1.4 billion Swiss Francs. The Federal Council and parliament intended to elaborate a 6th revision of the disability insurance act revision during the seven years in which the temporary additional financing is operative.

The booklet on the referendum informs voters that the disability insurance faces an increasing number of benefit recipients and additional expenditure while the revenues are not increasing quickly enough. The deficit incurred by the disability insurance was usually covered by funds from the old age and survivors insurance. The disability insurance’s deficits drained the reserves of the old age and survivors insurance which might struggle to fulfill its pension obligations in the future.

The act which has to be approved by a referendum aimed at a temporary increase in the value added tax-rates of seven years starting on January, 1 2011 and lasting until December 31, 2017. If accepted by a majority of citizens and a majority of the Stände, the standard tax rate would be raised from 7.6 % to 8 %, the reduced rate would increase from 2.4 % to 2.5 % and the special rate for the hotel industry would be raised from 3.6 % to 3.8 %.

In addition, the booklet states that the act intended to endow the disability insurance with independent financial means. The endowment of 5 billion Swiss Francs would be taken from the assets of the old age and survivors insurance and would serve as a capital base. During the seven years with increased VAT-rates the federal government would pay the interests on debts. Together with the other measures adopted, the additional financing is projected to generate an annual surplus of about 465 Million Swiss Francs which should help to eliminate the disability insurance’s debts of 11 billion Swiss Francs by the year 2024. According to the

information provided to voters the VAT-rate increase itself was expected to generate average annual revenues of CHF 2.5 Billion.

During the parliamentary process a minority of parliamentarians expressed their preference for a financing by means of higher social contributions on labor income instead of a VAT-rate increase. The minority abandoned their position in the course of the deliberation. Another parliamentary minority refused additional financing altogether. They argued that the disability insurance's expenditures and benefits should be substantially reduced instead. The majority opposed that such measures are socially unacceptable.

Swiss voters accepted the reform in a referendum with a majority of 54.6 % (see additional details in Table 2). In parliament a total of 39 senators and 126 members of the National Council accepted the proposal.

4 Empirical analysis

4.1 Matching representatives and constituents

In a first step to evaluate the responsiveness of representatives to constituents, we analyze the match of representatives' decisions and constituents' decisions, i.e. we compare whether representatives decided on a legislative proposals in the same way as their constituents. We therefore compared the match between members of parliaments' and their constituents for all referenda and the referendum on the "Corporate tax reform act II" as well as the referendum the "Disability insurance act" in particular. Constituents reveal their preferences only after legislators have voted. Thus, legislators are required to accurately forecast the decisions of their constituents to vote in conjunction with their constituency's preferences which results in a unique measure for divergence as argued by Garret (1999).⁵

Each match of roll call vote and referendum result is analyzed as a single event of either "match/congruence" or "non-match/divergence". For instance, a legislator from the Canton of Zurich who votes "yes" on the "Corporate tax reform act II" matches his constituency's majority opinion and, thus, the preferences of the majority of voters if at least 50 percent of voters from the Canton of Zurich vote "yes" in the referendum, too.

⁵ Legislators usually predict constituents' preferences based on surveys, elections, previous referenda, etc. The time lag between the legislative vote and the referendum allows citizens to make well informed decisions. Moreover, initiatives in our data allow legislators to deduce certain positions of voters in advance. Naturally, legislators have to decide first as only then divergence to voters can be measured reasonably. Similarly, in other countries without referenda, surveys on specific laws can only be conducted after laws have been enacted. Otherwise surveys would be of a purely hypothetical nature.

In a second step, we estimate a logistic model with district clustering to explain the yes-vote of legislators by whether voters in his/her electoral district voted “yes” or “no” in a referendum. This allows us to analyze the quality of parliamentary representation of constituents’ preferences. Instead of focusing on divergence between voters and legislators, we quantify directly how responsive legislators are with respect to constituents’ preferences. We estimate the effect of the predicted majority’s yes-vote in a referendum on the probability that the legislator will agree on the same issue in parliament.

Table 3 presents the congruence between legislators and their constituents. The first column reports the results for the senators by the second column reports results for members of the National Council.

< Table 3 here >

In 69.0% of all the analyzed legislative and popular decisions, senators vote in line with constituents’ preferences as shown in column (1). If legislative choices of politicians were purely random, i.e. not influenced by constituents’ preferences or other factors, we should observe that a politician agrees in half of the cases with the population of his/her electoral district. Put differently, senators tossing a coin would agree in 50 percent of the cases with the majority of their respective districts even if there is no relationship between politician and constituency (see Krehbiel 1993 for a similar argument).⁶ The p-value in parenthesis indicates that the mean of all matched referenda and legislative decisions is significantly higher than 50 percent except the Senate’s match concerning the “Disability insurance act”. Thus, observed congruence between legislators and the constituents’ preferences is by approximately 19.0 percentage points higher than the purely random choice assumption where senators toss a coin.

The comparable match is slightly lower for members of the National Council. In 60.5% of all legislative of popular decisions, they vote in line with their constituents preferences as shown in column (2). Consequently, the observed congruence for members of the National Council is approximately 10.5 percentage points higher than with the random voting assumption.

⁶ Theoretically, it is possible that a legislator agrees in less than 50 percent with the majority of constituents as other factors may drive divergence.

Turning to the match between legislators and their constituents for the “Corporate tax reform act II” we observe that congruence between senators and constituents is with 83.3% particularly high according to line (b), column (1). For members of the National Council the match with the majority of their constituents is with 59.4% by approximately 1 percentage point lower than for all referenda as shown in line (b), column (2).

For the “Disability insurance act” which increases temporarily the value added tax, we observe that senators match less often with constituents than members of the National Council. On average senators vote in line with their constituents in 58.5% of the cases but the match for members of the National Council with their constituents is 62.5%.

While one has to be extremely careful when interpreting the results of only two referenda, the results are at not fully compatible with the view that politicians try to increase their immediate budgetary leeway. It seems that in particular for the case of the budgetary referenda aiming to increase taxes, we observe comparatively low matches for senators while for referenda aiming to decrease taxes we observe very high matches. For members of the National Council the match with their constituents is always close to 60%. While politicians may still be driven by their own interests when deciding on laws and constitutional changes, the cautious interpretation of these first results seem to indicate that increasing their budgetary leeway is not necessarily their primary objective. Instead, they may be expected to follow more subtle self-interests, i.e. a comparatively large number of politicians may benefit themselves directly or indirectly by lower corporate taxes.

4.2 Influence of a Constituency’s Preferences on Legislators

Our second strategy to evaluate how politicians represent their constituents with regard to legislative proposals with budgetary implications is to analyze whether politicians are more likely to accept law and constitutional proposals when their constituents agree on the same proposals in a referendum. We explain the yes-vote of an individual legislator using a logistic model. Our explanatory variable is the share of “yes votes” in the canton of the representative which is centered on a tie decision to facilitate interpretation, i.e. $\text{CantonYesCentered} = \text{CantonYes} - 50\%$. We take account of the type of referendum and introduce separate dummies for the two budgetary referenda. Moreover, we account for different voting behavior between the two chambers by employing a dummy variable indicating whether a legislator is a member of the National Council or the Senate.

Estimates

We estimate the change in the likelihood that a legislator agrees to a proposal given that district voters agree too. Results of the logistic model are presented in Table 4. We use referenda level clustering to correct standard errors which are given in parenthesis.⁷

< Table 4 here >

Specification (1) shows that the probability that a legislator (senators or members of the National Council) agrees to a law proposal increases when the share of yes votes by district voters increases. This is reflected by the positive coefficient for the variable *CantonYesCentered* which indicates that the share of yes votes above 50 % has an effect on the probability that the politician votes “yes”. We observe that the two dummies which identify the type of referendum are not significant, i.e. politicians do not tend to vote on average “yes” more often in the case of the “Corporate tax reform act II” or in the case of the “Disability insurance act”.

Specification (2) tests if politicians place different importance on the “yes vote” of their constituents in the case of the two budgetary referenda analyzed. Therefore, we interact the dummies of the two referenda with the variable *CantonYesCentered*. The base effect of the influence of constituents on senators’ and members’ of national Council opinions remains comparable to specification (1). However, we observe that politicians seem to place a great importance on their constituents in the case of budgetary decisions, i.e. the interaction terms are positive and significant. We also see that the importance politicians place on constituents in the case of tax decreasing referenda is higher than in the case of tax increasing referenda.

We have already seen that the match between senators and their constituents is usually higher than the match between members of the National Council and their constituents. This is also confirmed in specification (3). When we interact the variable *CantonYesCentered* with an identifier whether a politician is a member of the National Council, we observe a negative and significant interaction effect. This indicates that members of the National Council place a relatively less importance on the cantonal yes share and thus on constituents than senators do.

⁷ We calculate also discrete changes of all variables (not reported). As we are also interested in the significance of the discrete effects we calculate robust standard errors for the changes in the probability using the Delta method. The delta method is a numerical method to achieve the approximate probability distribution of an estimator based on a generalized central limit theorem. Especially for interaction effects of logistic models Ai and Norton (2003) suggest the delta method to calculate standard errors of discrete effects for correct estimation.

In specification (4) we combine the insights of specification (2) and (3) and analyze whether the results remain stable. This is indeed the case. In general, politicians place more importance on constituents' opinions in the case of the two budgetary decisions. Moreover, members of the Senate seem to react stronger to changes in their constituents yes vote share than members of the National Council.

Finally, we try to estimate a full interaction model. (*Work in progress*)

Interpreting the effects

We interpret the importance an average politician places on his/her constituency by predicting the probability that a politician accepts a referendum (voted "yes" in parliament) as a function of the share of constitutions accepting the referendum. For the base of the prediction we use the coefficients of Table 4, column 2. Results are presented in Figure 1. We present constituents' influence by varying their support from 35% to 65%. Note that this variation reflects well the actually observed variation in citizens' approval between cantons, i.e. we do not predict out of the sample.

< Figure 1 here >

The thick solid black curve represents the effect of a change in the share of constituents accepting the referendum minus 50 % (centered at 50 %) on the probability that an MP accepts the referendum for an average facultative/mandatory referendum. Thus, the curve represents the base effect of the variable *CantonYesCentered* which is equal to zero when exactly 50% of constituents agree to the referendum. We observe that on average politicians place an importance on the share of their constituents voting "yes" in a referendum. If 35 % of constituents agree, i.e. point -0.15 on the x-axis, an average politician agrees with approximately 65.38 % in a mandatory or facultative referendum. If 65 % of constituents agree, i.e. 0.15 on the x-axis, the probability that a politician agreed to the legislative proposal is 75.11%.

The importance politicians place on their constituents in the case of the two budgetary referenda of interest is in general higher than for average mandatory or facultative referenda as already indicated by the interaction terms in Table 4, column 3. The dotted red line shows the influence of *CantonYesCentered* for the referendum on the "Corporate tax reform act II"

and the solid blue line shows the influence of CantonYesCentered for the “Disability insurance act”.

We observe that the influence of constituents on politicians is stronger for budget decreasing referenda than for budget increasing referenda. Politicians seem to react more to constituents’ preferences when legislative proposals aim to decrease the budget. Raising the number of constituents who agree to a budget increasing referenda (Disability insurance act) from 35 to 65 % increases the probability that politicians agree from 55.62 to 79.94 %. In the case of the corporate tax reform act II we observe a far stronger reaction. When 35% of constituents agree the probability that a politician agrees is only 26.22 % while the probability that representatives agree to legislative proposals is approximately 88.95 % when 65 % of constituents agree.

5 Conclusions

(More will follow after discussion at conference. Work in progress...)

These results suggest that the simple theory that politicians try to increase their budgets and prefer a larger budgetary leeway is not necessarily well supported by our data. Indeed, politicians do not correspond less to the constituents’ preferences in the case of budget increasing referenda. Instead, we observe that representatives seem to place a greater importance on their constituents in the case of a tax/budget decreasing referendum than in the case of a tax/budget increasing referendum. Note that this is not at odds with the view that politicians try to maximize their own utility function: Many representatives in our sample are entrepreneurs and almost all representatives have interest affiliations with private companies. Thus, our results only indicate that politicians are not necessarily interested in simply increasing their budgetary leeway. Instead, they may tend to have more specific and more individual goals than the simple theory of budget-maximizing would predict.

We aim to conduct further analyses to test these hypotheses. We have already collected information on representatives’ interest affiliations and also know their professions. These data should permit us to estimate the joint influence of a legislators personal combined with the influence his/her task of representing constituents’ preferences in real legislative decisions.

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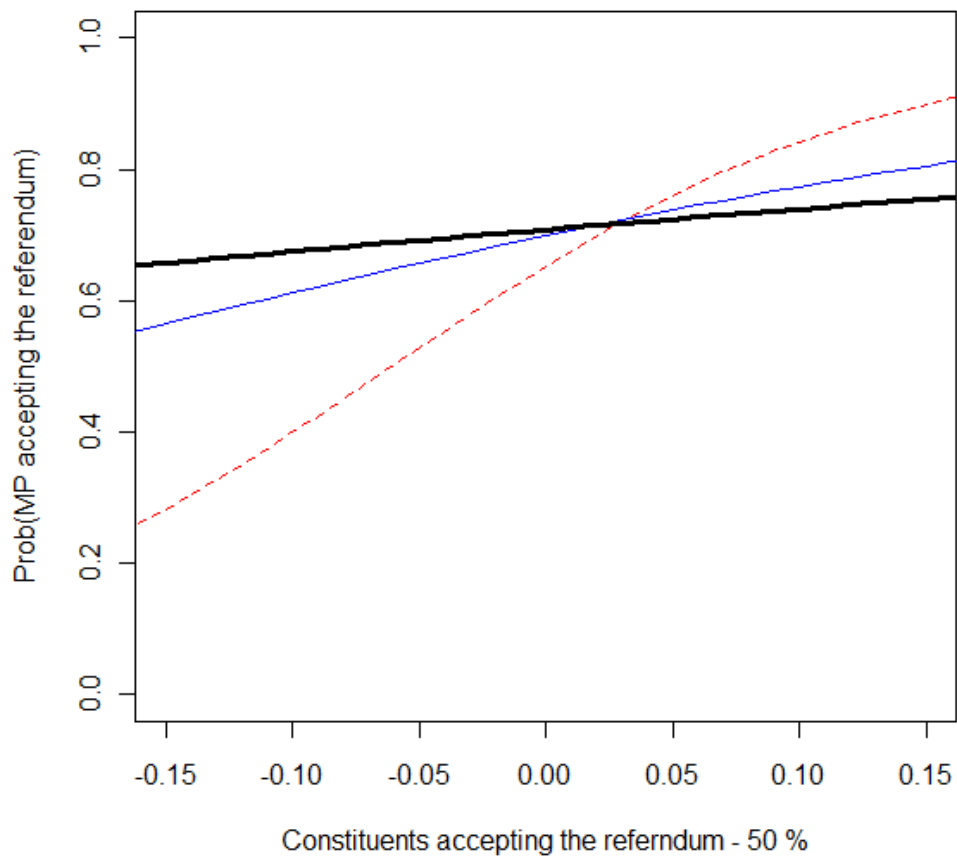
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Figure 1: Probability of representatives to vote as district population



Notes: The figure shows the probability that an MP accepts the referendum (voted YES) as a function of his/her share of constituents voting YES. The predictions for the probability are constructed from the results of Table 4, Column (2). The thick solid black line represents the effect of a change in the share of constituents accepting the referendum – 50 % (centered at 50 %) on the probability that an MP accepts the referendum for an average referendum (base effect of CantonYesCentered). The dotted red line shows the influence of CantonYesCentered for the referendum on the “Corporate tax reform act II” and the solid blue line shows the influence of CantonYesCentered for the “Disability insurance act”.

Table 1: Types of referenda in sample from 2008 to 2011

	all referenda
Facultative referenda	23.1%
Mandatory referenda	15.4%
Initiatives	50.0%
Counter-proposals	11.5%
Share of accepted referenda	50.0%
Cantons voting "Yes" on average	42.6%

Notes: The shares refer to the sample of 26 referenda from 2008 to 2011 for which data on the individual voting behavior in the Council of States is available.

Table 2: Summary statistics for two budgetary referenda

	Corporate tax reform act II	Disability insurance act
Title of referendum (German)	Bundesgesetz über die Verbesserung der steuerlichen Rahmenbedingungen für unternehmerische Tätigkeiten und Investitionen	Bundesbeschluss über eine befristete Zusatzfinanzierung der Invalidenversicherung durch Anhebung der Mehrwertsteuersätze
Title of referendum (English translation)	Federal law on the improvement of the tax framework for entrepreneurial and investment activity	Federal enactment on a temporary additional financing of the disability insurance by an increase in the value added rates
<i>Popular vote</i>		
Date of referendum	24.02.2008	27.09.2009
Type referendum	facultative referendum	mandatory referendum
Turnout	38.6%	41.0%
Swiss voter yes share	50.5%	54.6%
# of Cantons accepting	18	13
# of "Stände" accepting	16	12
"Ständemehr" required	no	yes
Adopted	yes	no
<i>Final decision in the Council of States/Senate</i>		
Date of final vote	23.03.2007	13.06.2008
# of Senators not captured by video footage	5	0
# of absent Senators	2	4
# of abstaining Senators	2	0
# of Senators accepting	33	39
# of Senators refusing	8	2
# of observations to compute match	36	41
<i>Final decision in the National Council</i>		
Date of final vote	23.03.2007	13.06.2008
# of absent Member of the National Council	6	11
# of abstaining Member of the National Council	1	4
# of Member of the National Council accepting	120	126
# of Member of the National Council refusing	72	58
# of observations to compute match	192	184

Table 3: Match between politicians and their constituents

	(1)	(2)
	Match between Senators' votes and the majority of their constituents	Match between Members of the National Council's votes and the majority of their constituents
(a) All referenda	69.0 % (0.000)	60.5% (0.000)
(b) Corporate tax reform act II	83.3 % (0.000)	59.4% (0.009)
(c) Disability insurance act	58.5 % (0.280)	62.5% (0.001)

Notes: Values in brackets are p-values of the t-test testing the average match of the corresponding parliamentarians in the sample against the baseline match of 50 %.

Table 4: Explaining legislators' "Yes votes"

	(1)	(2)	(3)	(4)	(5)
NationalCouncil	-0.1724 (0.2185)	-0.1689 (0.2190)	-0.3535 (0.2622)	-0.3530 (0.2635)	-0.2548 (0.2680)
CantonYesCentered	1.6400** (0.6605)	1.5622** (0.6614)	5.5658*** (1.6953)	5.4603*** (1.6845)	5.2666*** (1.6713)
Corporate tax reform act II	-0.2452 (0.1729)	-0.2558 (0.1721)	-0.2685 (0.1706)	-0.2728 (0.1706)	1.4233*** (0.2501)
Disability insurance act	0.0350 (0.1772)	-0.0433 (0.1695)	0.0326 (0.1780)	-0.0404 (0.1707)	1.8736*** (0.2501)
CantonYesCentered * Corporate tax reform act II		8.8408*** (0.6707)		8.5583*** (0.7045)	33.4464*** (1.6713)
CantonYesCentered * Disability insurance act		2.2935*** (0.6774)		2.1711*** (0.6899)	4.5573*** (1.6713)
NationalCouncil * CantonYesCentered			-4.5941*** (1.5578)	-4.5587*** (1.5525)	-4.3391*** (1.5624)
NationalCouncil * Corporate tax reform act II					-1.8038*** (0.2680)
NationalCouncil * Disability insurance act					-2.1744*** (0.2680)
NationalCouncil * CantonYesCentered * Corporate tax reform act II					-26.5654*** (1.5624)
NationalCouncil * CantonYesCentered * Disability insurance act					-0.6637 (1.5624)
RefInitiative	-1.5456*** (0.2357)	-1.5559*** (0.2346)	-1.5656*** (0.2343)	-1.5753*** (0.2334)	-1.5722*** (0.2330)
Intercept	1.0548*** (0.2210)	1.0547*** (0.2215)	1.2249*** (0.2531)	1.2271*** (0.2533)	1.1400*** (0.2501)
N	5686	5686	5686	5686	5686
Pseudo-R2	0.2287	0.231	0.2413	0.2433	0.2471
Brier	0.205	0.205	0.204	0.203	0.203
Log-Likelihood	1069.863	1081.223	1134.664	1145.022	1165.138

Notes: *** indicates a significance level of below 1 %; ** indicates a significance level between 1 and 5 %; * indicates significance level between 5 and 10 %. Robust standard errors for logistic models using clustering for referenda are given in parenthesis below the coefficient.

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