How Accurate Are Surveyed Preferences for Public Policies? Evidence from a Unique Institutional Setup

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Accepted: *Review of Economics and Statistics*

Abstract

Opinion polls and other surveys are used to capture public sentiments on a variety of issues. If citizens are unwilling to reveal certain policy preferences to others, surveys may fail to characterize population preferences accurately. The innovation of this paper is to use unique data that allows one to measure biases in surveyed preferences for a broad range of public policies. I combine data on 184 referenda held in Switzerland between 1987 and 2007, with post-ballot surveys that ask how the citizens voted for each proposal. The difference between stated preferences in the survey and revealed preferences at the ballot box provides a direct measure of survey bias. I find that these biases vary by policy areas, with the largest occurring in policies on immigration, international integration, and votes involving liberal/conservative attitudes. Also, citizens show a tendency to respond in accordance with the majority.

JEL-Codes: D03, Z
Keywords: Survey Accuracy, Opinion Polls, Preference Falsification, Direct Democracy

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I would like to thank the editor and one very helpful anonymous referee for excellent comments. Further thank goes to Larbi Alaoui, Antonio Ciccone, Rajeev Dehejia, Gabrielle Fack, Claudio Ferraz, Stephan Litschig, Torsten Persson, Alessandro Tarozzi, Joachim Voth, conference participants at the EEA meeting 2011, and seminar participants at Universitat Pompeu Fabra, University of Zuerich, University of Oslo, BI Norwegian Business School, DIW Berlin, VATT Helsinki and University of Basel for useful comments and discussions. I also thank Lukas Golder from the Gfs for his cooperation. Financial support from the Barcelona GSE Research Network and the Swiss National Science Foundation (Sinergia grant 130648) is gratefully acknowledged.

1 Introduction

Researchers interested in eliciting citizens' values, attitudes or policy preferences often rely on surveys. Likewise, opinion polls are the main vehicle for extracting information on voters' preferences in representative democracies (Besley and Coate, 2008). But how accurate are surveyed preferences for public policies? Unfortunately, the only information available is that expressed in the surveys (privately held opinions are unobservable), which makes it impossible to assess the truthfulness of its content. This lack of knowledge has led researchers in economics particularly to be wary about the use of subjective survey data (Bertrand and Mullainathan, 2001; Olken 2009). Nevertheless, there are important questions on attitudes and preferences for specific policies that can only be answered with the help of survey data (e.g. Alesina and Fuchs-Schuendeln, 2007; Alesina, Giuliano and Nunn, 2013). In this light, it seems particularly useful if we could somehow characterize the accuracy of surveyed preferences.

The innovation of this paper is to use unique data that allow measuring the accuracy of opinion polls for various types of public policies. The data come from Switzerland, the world leader in the use of direct democracy. In Switzerland, citizens vote on all major policies through referenda. The results of these ballots provide a measure of revealed preferences for policies with which survey responses can be compared. Starting in 1987, telephone surveys have been conducted after each federal vote, covering samples of roughly 1,000 eligible voters (these surveys are called VOX-survey).[1] The survey is conducted 2-3 weeks after the vote and aims to gather information about the respondents' voting behavior, with questions ranging from whether and how the respondent voted, information on political views, knowledge about the ballot, the perceived importance of the ballot and various

[1]The samples are selected by random sampling based on the telephone book. Response rates to the survey fluctuate between 28 and 48 percent, and are slightly higher than the average response rate of similarly conducted telephone surveys by major news media in the US. Holbrook, Krosnick and Pfent (2007) analyze 114 telephone studies that were conducted by major American news media (ABC News, New York Times, Gallup, Washington Post etc.) between 1996 and 2005 and find an average response rate of 30 percent.

socio-demographic characteristics.

The key idea of the paper is to compare, for each vote, the approval stated in the survey (="share yes" of all respondents who indicate they voted and reveal their result) with true approval as given by the voting result (real "share yes" per ballot).[2] This difference between stated and revealed voter preferences provides a direct measure of survey bias for a broad range of policy issues. Since Swiss citizens are asked how they voted shortly *after* the vote, it gives rise to a clean experiment: in contrast to pre-polls, there is no incentive for the respondents to answer strategically (unless the goal is to hide their true policy preferences), nor does the question allow for changing preferences over time.[3] Therefore, any difference in approval between the vote and the post-vote survey must be caused by either differences in the population of voters and survey respondents who declare they have voted, or citizens misreporting their preferences in surveys.

Information on revealed preferences for public policies is absent in representative democracies, because citizens don't vote on public policies directly. Even in representative democracies with direct democratic elements at the sub-federal level (e.g. California in the US), the number of votes held is typically low, covering a small set of policies. Furthermore, exit-poll data are not publicly available on a large scale, which makes a more refined analysis impossible. In Switzerland, all individual-level post-vote survey data are publicly available. This will allow me to shed some light on the determinants of the survey bias.

The main interest of the paper lies in quantifying the extent of the survey bias, and in relating it to the policy area of the vote. In Switzerland, ballots are regularly held covering all policy areas

[2]The survey gives the options "Yes", "No", "No Answer", and "Don't Know" for the voting result. The "Share Yes" is calculated as the sum of "Yes" votes over the sum of "Yes" and "No" votes, to match the definition of the ballot results.

[3]The survey asks clearly: how did you vote in the ballot on topic X? Therefore, even if preferences change, it will not affect the answer. In contrast, a difference between the official voting result and answers in *pre-polls* can arise because citizens strategically mis-represent their preferences, in order to make other citizens changing their votes; or, citizens, after learning the polling results, may change their minds on how to vote.

relevant in a mature democracy. To name a few examples, Swiss citizens voted on issues such as immigration, environmental protection, health, unemployment benefits, agriculture, the military, or various regulatory measures. I hypothesize that survey accuracy depends on the topic, as citizens may be unwilling to reveal politically incorrect views (Morris, 2001; Loury, 2004). Especially on socially sensitive issues (e.g. immigration), citizens with politically incorrect views (e.g. anti-immigration) may choose not to respond to surveys, or to respond but then lie in their responses. Both channels lead to a gap between stated and revealed voter preferences. Testing for potential differences in survey accuracy with respect to the policy area will be the main contribution of this paper.

The Swiss data allows measurement of survey accuracy for 184 federal votes. The survey bias (defined as the vote-specific difference between the reported and effective share yes) is 4.7 percentage points on average. For roughly one third of the votes, this survey bias is statistically significant at conventional levels. For the rest of the votes, there is no statistically significant survey bias at all. The amount of survey bias varies quite substantially across the votes. For instance, the vote with the biggest difference between stated and true preferences concerned a proposed law change to improve the conditions for working mothers. Here, 72 percent of survey respondents reported voting in favor, whereas the approval at the ballot was only 55 percent. More generally, precisely the policy areas which have been subject to political correctness debate (issues on gender, race and gay rights; see Loury, 1994) show the largest distortions in the surveys. Other policy areas (health, retirement age, direct democracy) display no significant differences between stated and revealed preferences and the surveys describe the underlying preferences well.

Historically, politically correct views had a clear left-wing connotation (pro gender equality, against racism, pro gay rights, pro environment etc.). I explicitly test the hypothesis that votes supported by the left-wing party have a higher expressed share yes in the survey (relative to the ballot result) compared to the votes where the left-wing party recommended a "no". The data strongly support the

existence of a "liberal bias".[4] Votes supported by the left-wing party had too high a share of "yes"-votes in the survey, whereas votes where the left-wing party recommended a "no" displayed too high a share of "no"-votes in the survey. The difference in survey bias (= stated approval in the survey minus real approval at the ballot) between votes that were and were not supported by the left-wing party is 5 percentage points and statistically significant. This liberal bias persists when the individual survey data are re-weighted to correct for over-sampling of observable individual characteristics (including self-reported party affiliation). Therefore, selection on observables is unlikely to be the driver behind this bias. Either citizens choose to respond to the survey based on unobservables such as their privately held policy preferences, or respondents falsify their preferences in the survey.[5] From a policy perspective, disentangling these two channels is not that essential, since in either case there is not much the researcher can do to eliminate the bias in polls. Nevertheless, the data provide evidence that a portion of the people falsify their preferences in surveys. I compare votes held on the same day (leaving the respondent pool fixed)[6], which were perceived to be of either high or low importance for the Swiss nation as a whole. I hypothesize that for votes of low importance, there is little pressure to lie. If so, the liberal bias should be larger in votes that were salient and regarded as being of high importance. In line with this intuition, the data show that in fact the liberal bias is *only* present for votes of high importance. This again re-confirms the view that surveys are sometimes, but not always, biased.

Next to a desire to be politically correct, citizens may want to conform with others (Bernheim, 1994; Kuran, 1995). Since the voting result is known at the time of the survey, a natural guess is that some of the respondents answer in line with the majority view. In fact, comparing how the same

[4] I call this left-wing bias "liberal bias" and refer to various societal attitudes rather than preferences for economic liberalization.

[5] Note that the data rule out lying on turnout as the driver behind the liberal bias. If non-voters were more liberal than voters and said they had voted in the survey, then a higher share of non-voters in the survey should lead to a larger liberal bias. However, the interaction term between the (measurable and ballot-specific) share of over-representation of voters in the survey times the dummy "Recommendation Left" is statistically insignificant.

[6] The respondent sample is constant in this case because the survey asks the respondent how he voted on *all* votes that were held on a given day (see Section 2).

individual reports having voted on various (simultaneously held) votes for which his/her favored party recommended a "no", the answer is more likely to be a "yes" when the proposal was accepted (this result holds for proposals accepted/rejected by a narrow margin as well as a restricted set of proposals where parties' (ex ante) support resembles voters' support at the ballot). This suggests that some of the survey-respondents misreport their preferences, either due to conformity, or a desire to be on the winning side.

Clearly, I expect these behavioral biases (a desire to appear politically correct or to be on the winning side) to hold true outside the Swiss context. When it comes to responding to surveys or opinion polls, the first type of bias is most relevant. The following complementary evidence for the US is at least consistent with the existence of a political correctness bias in other settings: pre-polls on gay rights have been particularly inaccurate in predicting later voting outcomes (with support in the pre-polls being too high; Egan, 2010 and Powell, 2013), and support for black candidates has also been overstated in surveys in the past (Hopkins, 2009).

The data at hand also allow me to investigate whether the accuracy of surveys differs according to culture, religion, or economic development of a geographic unit. Switzerland is a very diverse country, with differences in languages (German-, Italian-, and French-speaking areas), religions (nearly equal share of Protestants and Catholics), and economic opportunities. It turns out that culture (measured by a cantons' language) and population size matter the most for cross-sectional differences in survey accuracy: cantons of German language display significantly higher survey biases than the other cantons (French-/Italian-speaking), and larger cantons have smaller biases than smaller cantons. Religion and income, on the other hand, do not matter once language is accounted for.

The paper relates to various strands of the literature. First, it is relevant for a growing economic literature based on survey data. Even though economists have traditionally been skeptical with regard to surveys on attitudes and preferences (Bertrand and Mullainathan, 2001), there has been a recent surge of influential papers explaining certain types of attitudes and preferences (Fong, 2001; Guiso,

Sapienza and Zingales, 2003; Alesina and Fuchs-Schuendeln, 2007). This paper shows that skepticism toward surveyed preferences is justified in certain policy areas (e.g. racial attitudes, attitudes on gender equality), but less so in others (preferences for direct democracy, health, or federal finances). Furthermore, the data allow one to assess how innocent it is to compare survey-responses across cultures and religions. Second, the paper relates to a growing literature investigating the consequences of social pressure and image concerns (Benabou and Tirole, 2006; Tadelis, 2011). So far, various studies have established that image concerns matter for voter participation (Gerber, 2008; Funk, 2010), contributions to charity (DellaVigna, List, and Malmendier, 2012), or worker effort (Mas and Moretti, 2009). This paper documents that opinion polls are particularly biased on topics with a predominant politically correct view, which is consistent with citizens caring about their image. Third, the paper complements a strand of papers (mostly in political science) which analyze the accuracy of polls in elections (e.g. Baretto, Guerra, Marks, Nuno and Woods, 2006; Stromberg, 2008; Hopkins, 2009). The key addition to these papers is to add knowledge on the accuracy of polls on *issues*. The setting of a direct democracy gives rise to a measure of true preferences (as revealed at the ballot box) with which survey responses can be compared. Fourth, a related literature in political science explores the role of item non-response in the survey quality of a *given* respondent sample (Berinsky, 1999; 2004). The data at hand allow me to go one step further by contrasting survey responses to the true underlying preferences of the voting population. In line with Berinsky (1999; 2004), I find poor survey quality on issues involving race. Last, the paper relates to a strand of laboratory experiments that investigate the nature of lying (Gneezy, 2005; Lundquist, Ellingsen, and Johannesson, 2009; Erat and Gneezy, 2011). This paper suggests that for some policy areas, citizens prefer to hide their true opinion, even if it is merely a survey conducted by telephone.

The rest of this article is structured as follows. Section 2 describes the data. Section 3 characterizes the major survey biases and Section 4 sheds light on possible channels. Section 5 analyzes cantonal differences in survey accuracy and Section 6 concludes.

2 Data

2.1 Official Voting Results

For Swiss citizens, having a say in politics is almost daily business. Switzerland has a long tradition of direct democracy; at the federal level alone, citizens have voted on more than 300 ballots in the last 50 years. Citizens can propose an initiative for a partial or total revision of the federal constitution. In addition, they can request a referendum on all laws issued by the federal government if 50,000 signatures are collected. Moreover, a voter referendum is mandatory for any changes to the constitution and all international treaties. As a consequence, citizens vote on federal ballots several times each year. In Switzerland, every citizen over 18 is allowed to vote (before March 1991, the minimum age was 21). Eligible voters receive balloting documents by mail at home. These documents include all relevant information on the ballots (there are usually several ballots bundled for a given voting day), such as the precise questions, the arguments for and against the propositions, a printed version of the parliamentary debates (if any) and often outside opinions from interest groups.[7] Hence, Swiss citizens have easy access to information about the ballots both through the distributed documentation and discussions in the media. Returning the ballot is also relatively convenient. In contrast to the US, no registration to vote is necessary at all. Since 1995, voters have additionally been granted the option of voting by mail, in addition to at the voting booth. Voter turnout in the last 20 years is 42 percent on average, with some variation depending on the topic. On the webpage of the federal authorities ($http://www.admin.ch$), all federal votes ever held are listed. Information on the votes include: the title, the date, the number of eligible voters, the number of effective voters, the number of valid votes, the number of blank votes, the number of yes votes and the number of no votes. The "Share Yes"-Votes is calculated as the number of yes votes as a proportion of the total number of valid non-blank votes, and the "Share No"-Votes is calculated as the number of no votes in proportion of the total

[7] These documents can be accessed online at http://www.ads.bar.admin.ch/ADS/showHome.do.

number of valid (non-blank) votes. The "Share Yes" and "Share No" add up to 100 percent. The main variable of interest is the approval percentage for each vote measured as the "Share Yes", which will be compared with the stated approval percentage in the VOX-Survey.

2.2 The Post-Election Surveys ("VOX-Surveys")

Since 1981 "Vox" surveys have been conducted after each federal vote. These surveys are conducted with samples of roughly 1,000 eligible voters (700 voters until 1987) and take place during the two or three weeks following the vote. As described in the technical documentation on the VOX surveys, the basis for selecting households is the Swiss telephone book. A random sample stratified by language area (German-speaking, French-speaking, Italian-speaking) is applied and households are contacted until roughly 1,000 respondents have been gained. Response rates fluctuate between 25 and 48 percent for the surveys conducted between 1998 and 2007.[8] The main objective of these post-election surveys is to understand the motives underlying the individual voting decision, and possible connections with individuals' knowledge of the issues. Most relevantly for this study, the VOX survey asks about participation in the last federal vote, and participants' voting decisions. The exact procedure of the survey is the following. The interviewer starts by introducing himself and asks whether there is an eligible voter in the household. The exact wording is the following: "Hello, I am an employee of the "GFS Research Institute, Bern". We are conducting a survey on the last federal votes. The survey is anonymous. May I ask whether there is at least one household member older than 18? In the case of several persons, which one has his or her birthday the earliest in the year? May I conduct an interview with that person?" If a survey respondent is recruited, the survey asks about voter participation (1) and voter decisions (2) in the following way: For (1): Was it possible for you to participate in the federal vote on the date [DD.MM.YYYY]?" Responses are: Yes, No, Don't know, No answer. As for (2), the precise question is: "How did you vote on the federal ballot [title X]"? Possible answers

[8] Technical reports are not officially available for the earlier votes.

are: Yes, No, Blank, Don't know, No Answer. For (2), all votes that were bundled on a given voting day are included. Hence, a respondent gives answers for all these votes. Apart from these questions directly related to the vote, the survey also asks for various aspects relating to the voting decision such as knowledgeability on the topic, types of media consulted prior to the decision or the perceived importance of the vote. An extensive set of questions aimed at gathering individual characteristics (age, education, marital status, profession, etc.) completes the questionnaire.

2.3 Definition Survey Bias

To compare approval in the survey for a certain vote with that revealed at the ballot box, I first define the "Share Yes" in the survey in an equivalent manner to the "Share Yes" of the voting result. This means taking the number of yes votes (from citizens who indicate they voted) divided by the sum of yes and no votes. The key variable of interest is the difference between the "Share Yes" in the survey and the "Share Yes" from the official voting outcome, which I define as "Survey Bias". A positive survey bias indicates that the approval stated in the survey is larger than the official one, and a negative survey bias indicates the opposite. I start comparing official voting outcomes with stated voting outcomes for *all votes* (initiatives and referenda) held in 1987 or later, where the VOX-survey had a sample size of roughly 1,000 citizens. The latest available data were VOX-surveys conducted in 2007, which gives a sample of 187 votes in total, spanning all relevant policy areas over the 20 years. Since three votes (Nr. 462, 463, 464) have an identical reported share yes, I drop these votes due to high likelihood of error. That leaves a sample of 184 valid votes.

3 The Survey Biases

3.1 Descriptive Evidence

To get a sense of the magnitude of the survey biases for the 184 votes, Figure 1 displays the kernel density. As can be seen, the reported share-yes is slightly bigger than the actual share yes, with a wide variation across different votes (the maximum difference between reported and real share yes is nearly 20 percentage points).

— insert Figure 1 about here —

What are the possible sources for these biases? First, the sample of survey respondents may differ from the population sample (in terms of observables and unobservables). Second, for a given respondent sample, a certain share of respondents may not be willing to reveal their vote (in the survey, such an individual would answer "blank, "don't know" or "no answer", even though he voted "yes" or "no"). Third, survey respondents who answer "yes" or "no" as their voting outcome either falsify their policy preferences, or their voting decision (i.e. non-voters declare they have voted). Let me discuss each of these sources of bias. The first possible explanation for survey bias is having a selected respondent sample. To investigate this possibility, I compare the respondents' characteristics in terms of age, gender, religion, language and education with a representative sample of the Swiss population. Note that here, the right comparison is between *all* survey respondents (voters and non-voters) and the Swiss population. Information on the latter can be gained by using existing data on a random sample of 5 percent of the Swiss citizenry (called "Public Use Sample"), compiled by the Swiss Federal Office of Statistics for various years. To ensure anonymity, the PUS uses age classes of the respondents.[9] Subsequently, I focus on individuals of 20 years of age or more, in both the VOX surveys and the PUS data.

[9]The PUS age classes are 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80 years and older.

— insert Table 1 about here —

As shown in Table 1, VOX respondents are quite similar to the random PUS-sample of Swiss citizens. In the year 1990, the share of Protestants and the share of highly educated in the survey are slightly higher than in the population counterpart, and in the year 2000, the share of elderly people is additionally over-represented at the cost of the younger people. Overall, however, the differences in average characteristics between survey respondents and the population sample are small. To assess the role of sample selection in generating the observed survey biases, I re-weight all the survey samples to match the population precisely on religion, age above 60, and higher education (where the highest deviations were found).[10] Note that re-weighting on a few observables is the standard procedure to correct for sample selection in opinion polls and surveys. As a rule of thumb, the recommendation is to re-weight if the difference between a specific survey characteristic (e.g. share of elderly) and population characteristic is more than 5 percentage points (DeBell and Krosnick, 2009). As can be seen from Figure 2, the survey bias becomes reduced somewhat, if re-weighted samples are used, but there is still considerable variance.

— insert Figure 2 about here —

Taking as a starting point the survey bias left after re-weighting the surveys, I can investigate whether there is a significant relationship between survey bias and survey response rate, as could be expected if there was selection on unobservables. The first column of Table 2 however shows that

[10] I have to re-weight the complete survey (including voters and non-voters) since I have information on the characteristics of the whole population, but not the voters alone. Lack of this information is no major drawback, however, since re-weighting the whole survey sample is sufficient to eliminate selection on observables. Assume, as an example, that the population consists of 50% young and 50% old, but since elderly people are more likely to respond to surveys, the share of elderly in the surveys is 80% (one can easily allow this share to vary by survey). Re-weighting the whole survey ensures that the survey sample corresponds to the population in age, i.e. 50% are old, and 50% are young. If on one ballot, mostly young people voted (e.g. the share of elderly voters is 20%), this share will be accurately depicted when analyzing approval of declared *voters* in the re-weighted survey sample.

there is no such relationship. One could imagine that people with certain views (e.g. politically incorrect views) respond less frequently to surveys. On the other hand, the opposite may be the case for people with a politically correct view and offset the effect on response rates. Next, for a given respondent sample, a bias may be created by respondents hiding their vote with a "no answer", "blank, or "don't know". If so, the higher the share of voters who reveal their voting decisions, the lower the bias should be. The second column of Table 2 shows that this is indeed the case, although the variation in vote reveal rates cannot explain a large part of the variation in survey bias (the R-Squared including the explanatory power of the fixed effects is 0.22, and the R-Squared "within" is a mere 0.058). Last, misrepresentation of voter participation may create survey bias. Non-voters may claim to have voted and create a survey bias if their preferences are different from genuine voters.[11] On the other hand, if voters are more likely to respond to surveys (but there is no lying on turnout and policy preferences), there should be no relationship between over-representation of voters in the surveys and the magnitude of the survey bias (since the survey bias is calculated for survey respondents who declare they voted).[12] Since over-representation of voters in a given survey is directly measurable (= share of survey respondents who declare they voted minus real turnout, per ballot), I can easily investigate whether there is a significant effect of over-representation of voters on survey bias. The answer is no (see column 4). This preliminary evidence suggests that neither variation in the survey composition of observable individual characteristics, nor differences in over-representation of voters, item non-response or overall response rates to the surveys can explain a significant part of the variation in survey biases. I suspect that the topic of the vote matters, and will investigate this in the next

[11] León (2013), however, provides evidence that voters and non-voters have comparable preferences on average.

[12] From research on elections, it is known that there are usually more voters in the survey-samples than in the share of voters in the population (Karp and Brockington, 2005; Holbrook and Krosnick, 2010). The same pattern is found for current surveys, where the share of voters in the survey is on average 15 percentage points higher than official voter turnout. However, as can be seen from the summary statistics in Appendix Table 1, there is substantial variation in the difference between reported and real turnout across surveys.

section.

— insert Table 2 about here —

3.2 Survey Bias and Topic of the Vote

This Section tests the main hypothesis of the paper, according to which survey biases should be larger in votes with a predominant politically correct view (e.g. race, gender).

To illustrate the votes with particularly large survey biases, Appendix Table 2 reports the 184 valid votes, sorted by amount of survey bias. The Table also indicates the year of the vote, the VOX number, the title of the proposition and the number of survey respondents who declared they voted and reveal their voting decision (# Obs.) Next to displaying the amount of survey bias, I analyze which part could have been generated by sampling error. For this, I calculate (based on the survey sample share yes of voters), the predicted mean share yes and its confidence intervals for the population of voters, taking into account the relevant sampling design (random sampling stratified by language area). Based on the 95 percent confidence intervals for the predicted mean share yes, I calculate confidence intervals for the survey bias as true share yes (at the ballot box) minus the lower/upper bound of the confidence intervals. If the confidence intervals includes 0, the survey bias could be generated by sampling error. Likewise, I report P-Values indicating whether, based on she (survey) sample share yes of self-declared voters, the null hypothesis (mean share yes for the population of voters equals the known true share yes as given by the voting result) can be rejected. As can be seen from Appendix Table 2, the null is rejected for roughly one third of the votes at standard levels of significance.[13] To give the reader an intuitive grasp of whether the votes with the highest survey biases have particularly low survey response rates, low vote reveal rates or a high over-representation of voters, I report the numbers for these last three variables as well. In line with Table 2, there does not

[13] At the 1% level of significance, I can reject the null for 51 votes, and at the 5%, for 60 votes.

seem to be a strong relationship with any of those. What are the topics of the votes with the largest gaps? From visual inspection, it looks like there are quite a few votes in the area of environment, immigration and redistribution, where the differences in stated and real ballot outcomes are high. To make a more systematic comparison, I define 12 broad policy areas, which are relevant beyond the Swiss context. These policy areas are international integration, immigration, military, protection of environment, nuclear energy, federal budget, direct democracy, health, redistribution, retirement age, gender equality and liberal attitudes. I selected all votes in a policy area that had either the same or the opposite goal (e.g. either to facilitate immigration or make it more difficult; either increase or decrease the size of the Swiss army, etc.) Since the framing of a ballot may matter (see Buetler and Marechal, 2007), I display the votes with opposing goals separately. Appendix Table 3 shows the selection of the votes per policy area. Overall, 90 votes could be assigned to these 12 policy areas, which leaves another 94 unclassified votes. Every selection process is to a certain degree subjective. To make this process as transparent as possible, I describe the goal of all 184 the votes (including the unclassified ones) in a Web-Appendix.

Subsequently, I would like to test whether the Survey Bias differs by policy area. The model I estimate is the following:

$$Y_{ijt} = \beta_j \cdot D_j + \varepsilon_{ijt} \tag{1}$$

The dependent variable is the Survey-Bias (= the difference between the stated "Share-Yes" of voters in the survey and the effective "Share-Yes" of the voting result) per vote i that falls into policy area j and was voted upon in year t. D_j is a dummy for each of the 12 policy areas. Standard errors are clustered at the voting-day level, to account for possible correlation of errors within a given survey sample.

— insert Table 3 about here —

Table 3 first column shows the differences in survey biases by policy area. As can be seen, the survey bias is positive and relatively high for votes aiming at facilitating immigration (12 percentage points), fostering international integration (5.6 percentage points), against nuclear energy (5.2 percentage points), for the protection of the environment (3.6 percentage points), pro gender equality (6.7 percentage points), or two votes involving a liberal attitude (8.5 percentage points). These last two votes with very high survey biases involved giving more rights to homosexual couples and liberalizing sexual rights of teenagers. High negative survey biases are found for votes that attempt to restrict immigration (-5.1 percentage points). Here, the share of respondents who admit having voted for tighter immigration laws is lower in the survey than the ballot box. Finally, note also that there are some policy areas (health, retirement age, direct democracy, federal finances), where there are no significant gaps between survey approval and real approval. Unsurprisingly, I can reject the Null Hypothesis that the gaps are the same across policy areas at the 1 % significance level.

What are the reasons for these survey biases? The main hypothesis is that people with certain preferences (e.g. against immigration) do not respond to the survey, or that they do respond but lie.[14] However, it could also be the case that over-representation of individuals with certain observable characteristics explains these gaps. As shown in Table 1, the share of Protestants, the share of elderly, and the share of highly educated is slightly higher in the survey compared to the shares in the census.

To assess the relevance of sample selection for the observed differences across policy areas, I re-weight the data, as is standard in polling research.[15] I correct for over-representation of elderly, the

[14]People may deliberately lie, or unconsciously misrepresent their preferences. See Bazerman and Gino (2013) for various examples of and explanations for unintentional dishonesty.

[15]To be precise, I re-weight the complete survey (including voters and non-voters) to match the population counterpart on certain characteristics for each vote separately. Then, I newly calculate the "Share-Yes" for the citizens who indicate they voted. The correction for over-sampling of one specific characteristic in Strata can be done either by specifying poststrata within svy-estimation and indicating poststrata weights (see Levy and Lemeshow, 1999, p. 196 ff. for a concrete example); or, if one aims at correcting oversampling of various individual characteristics, one can use a raking procedure. I perform the raking procedure with the stata command "survwgt". Apart from what is shown in Table 3, I also corrected for individual characteristics separately, and found that correcting for education affects the estimates most.

share of Protestants, and the share of highly educated (column (2)). As can be seen from Table 3, column 2, the biases from the re-weighted samples are often somewhat smaller, but do not disappear. Note that this type of re-weighting procedure corresponds to the classic strategy used by most of the major US news media including The New York Times, Gallup/CNN/USA Today, etc. (Blumenthal, 2004). There, opinion polls are weighted to match the U.S. census for gender, race, education and usually some geographic classification. Self-reported party affiliation is typically not used for re-weighting, because it is subject to error itself. Since I know the true voter preferences for the 184 surveys, it is nevertheless interesting to see whether the biases disappear if data are re-weighted according to self-reported party-identification. It turns out that the average share of self-declared left-wing voters in the survey (29 percent) is higher than the average share of left-wing vote shares in parliamentary elections (21 percent).[16] Either, left-wing voters are more willing to respond to surveys, or some (plausibly populist) right-wing voters do not indicate their favored party. Should the second explanation have some truth, then the share of self-declared left-wing voters in the survey is higher than the real share of left-wing voters in the survey. Table 3, column (3) presents the results when over-representation of left-wing voters in the surveys is corrected for. Many biases still persist, and the one on budget balance even becomes larger. Last, I investigate the sensitivity of the results with respect to controlling for the voting result (column (4)).[17] The magnitude of the estimated coefficients is sometimes affected, but the results remain qualitatively similar.

Summing up, the accuracy of the post ballot survey differs by policy area. As shown in Table 3, selection on observables does not seem to have generated the differences in survey biases across topics. Also, possibly with the exception of gender equality, the policy areas with particularly high biases (international integration, immigration, nuclear energy, liberal attitudes) are not characterized

[16]The share of self-declared left-wing voters is calculated as a percentage of all survey respondents who indicate a favored party.

[17]To take advantage of the larger sample of all (classified and non-classified) votes, I first regress the survey bias on the share yes of the ballot, and then use the residuals as the dependent variable in column 4.

by systematically low survey response or vote reveal rates (see Appendix Table 4). As such, it seems likely that either voters with certain (unobservable) policy preferences select into survey response, or survey respondents misrepresent their voting decisions on certain topics. In either case, there is not much the researcher can do to eliminate survey bias.

More importantly, the analysis suggests that surveys are inaccurate for topics on international integration, immigration, gender equality and votes involving a liberal attitude. These are the policy areas where a politically correct view is most obvious. Preferences on direct democracy, health, or the retirement age, however, appear to be less contaminated in surveys. From visual inspection of Table 3, it also looks as if left-wing policies tend to have a positive gap. As shown in column (5), the policy areas with the biggest positive gaps (international integration, immigration, liberal attitudes) were largely supported by the left-wing party. That raises the question about the existence of a liberal bias.

3.3 Liberal Bias

To investigate systematically, whether support of the left-wing party relates to the survey bias, I first define a dummy variable "Recommendation Left-Wing Party" that takes a value of 1 if the vote was supported by the left-wing party and 0 otherwise. Votes where the left-wing party made no recommendation are coded as a missing value (10 votes in total).

Table 4 first column shows that votes that were supported by the left-wing party had a 4.9 percentage point higher survey bias than votes where the left-wing party recommended a "no". As can be seen from the constant, votes where the left-wing party recommended a "no" had a negative survey bias (stated - true approval) of -1.7. Votes where the left-wing party recommended a yes had a positive average survey bias of 3.2 (=4.9-1.7), which is statistically different from zero. The result that votes supported by the left-wing party have a higher approval in the survey (I call this "liberal bias") is robust to adjusting for differences in the composition of survey respondents, (with regard to age, religion, and education (column 2), and self-declared party-affiliation (column 3)). The liberal bias

neither disappears when controlling for the ballot result (column 4), or when identifying the effect from within-survey sample variation (column 5).[18]

— insert Table 4 about here —

Clearly, this Section shows that surveys are less accurate on sensitive topics, and distorted towards a left-wing view. The next Section addresses the question why this is the case.

4 Mechanism

A natural interpretation for the detected liberal bias is that left-wing parties support more politically correct views (Liberal Attitude, Pro-Environment, Pro-Redistribution, Pro-Immigration, etc.) and this causes people with politically incorrect views either not to respond to the survey, or to respond and misrepresent their preferences.

What speaks against selection as being the only channel is the fact that the liberal bias persists when re-weighting for self-reported party affiliation. To test more explicitly the hypothesis that part of the survey-respondents falsify their preferences, I state conditions under which respondent-lying is more likely to occur. Of first order priority seems to be the importance of the vote. Votes with major consequences for the country are more salient and also more frequently discussed in the media. Admitting a politically incorrect view seems more costly in this situation. Since the VOX survey asks for the perceived importance of the vote for Switzerland as a whole, I can classify the votes according to whether they were ranked above or below the mean importance of the vote.

Table 5 left-hand side investigates whether the liberal bias is larger in important votes.[19] I define

[18] Note also that the estimated interaction terms recommendation Left-Wing Party times turnout gap, and recommendation Left-Wing Party times vote reveal rate are insignificant. Therefore, the liberal bias is unlikely to be caused by item non-response or non-voters being more liberal and pretending to have voted.

[19] I cannot do the same analysis with the individual topics, as the variance within topics is sometimes small (e.g. immigration).

a dummy variable "Importance Vote", which takes a value of 1 if the vote was above the mean, and 0 otherwise. As can be seen in Table 5 column (1), the bias is significantly larger for important votes. Column (2) relies on variation across votes that were held on the same day. Here, the set of survey respondents is the same. Again the liberal bias is only present in salient votes, even though the estimated interaction term is insignificant. Note also that results are qualitatively similar when relying on other measures for the importance/salience of a vote, such as intensity of advertisement in newspapers prior to the vote, or voter turnout.

The fact that the survey bias only exists for important votes suggests that some types of voters pretend having voted liberal when in fact they didn't. Who are these voters? Intuitively, I expect a self-reported left wing voter to be more embarrassed to admit a politically incorrect right-wing view than, for instance a self-reported populist right wing voter. In fact, if a survey-respondent admits to vote for the populist right wing party, he/she does not seem to bother too much about image concerns, and and therefore unlikely mis-represents his/her preferences on referendum votes.

While it is hard to fully answer who misreports his/her preferences as too liberal, some insights can be gained by looking at respondent behavior, broken down by the importance of the vote. To rule out selection, I compare survey responses for a fixed sample of respondents, who respond on how they voted on a mix of important and unimportant votes held on the same day. Table 5 columns three to nine document that for the unimportant votes (see row one), a self-reported left-wing voter's probability to vote yes goes up by 25 percentage points if the left-wing party recommends a "yes", while for the voters with different party affiliations, this probability goes down. As left and right wing positions are often negatively correlated, this is a natural pattern to suspect (at least for the right wing voters). Interestingly though, the negative effect remains (to a smaller extent) even when own-party recommendation is controlled for (columns (5), (7) and (9)). As such, having the left-wing party suggesting a yes-vote makes non-leftist voters less likely to vote yes in relatively unimportant votes.

What effect is to be expected for important votes? If non-left-wing voters dislike proposals supported by the left-wing party, this effect is plausibly larger when the votes are important and the stakes are higher.[20] Finding the opposite may therefore be indicative of respondent-lying. As can be seen from the second row of Table 5, we observe a negative interaction term only for subjects who indicate the populist-right wing party as their favourite party (and unlikely care about image concerns). For voters of the centrist/right-wing party, the estimated interaction term is positive. As such, the observed liberal bias detected in important votes is unlikely caused by self-reported populist-right-wing voters, but rather voters of other affiliations overstating their support for left-wing policies.

— insert Table 5 about here —

All this evidence suggests that some of the respondents misrepresent their preferences as too much left-wing in surveys. Apart from political correctness concerns, what other behavioral motives could lead survey-respondents to mis-represent their political views? A desire to behave in conformity with underlying norms and views (Bernheim, 1994; Kuran, 1995) may create a conflictive situation for minority-view holders. Since the voting result is known at the time of the survey, it is actually unusually clear what the majority view is. As such, I suspect some of the survey-respondents who voted against the majority, to be unwilling to reveal their true voting result.

To test this conformity motive with individual level data, I select from the surveyed votes of each respondent the ones where his/her favorite party recommended a "no". An individual deviates from the party's recommendation if he states he voted "yes". The empirical strategy will be to test whether an individual is more likely to report a deviation from his favourite party's recommendation (which is "no") if the vote was accepted. Columns (1) to (5) in Table 6 regress the indicator variable Deviation Party on the dummy vote accepted and individual fixed effects, for voters of the largest four parties

[20]Experimental evidence points towards individuals being less altruistic in large stakes compared to small stakes games (e.g. Andersen et al., 2011).

separately (columns 1-4), and together (5). Individual fixed effects capture an individual's innate propensity to deviate from the policy recommendation of their favorite party. Clearly, a deviation is up to 35 percentage points more likely if the vote passed. Column (6) restricts the set of votes to those where announced approval by the parties (weighted by their vote shares in elections) is similar to approval by the voters (i.e. the difference is smaller than 10 percentage points). The conformity bias persists and alleviates concerns that a vote could have been accepted precisely because voters deviate from party-recommendations. Last, columns (7) and (8) restrict the sample to narrowly accepted and rejected votes and report a smaller, but qualitatively similar, effect. Since the party-recommendation occurred before the vote, but the result is revealed after the vote, it is hard to explain this result by channels other than lying.[21]

— insert Table 6 about here —

In sum, the results suggest that surveys are biased towards a liberal and majority view, and part of these biases are generated by survey respondents falsifying their preferences. Even though falsification of answers in surveys is a severe problem, the problem is less grave if one is interested in analyzing differences in survey responses between groups (i.e. gender, religion) and the degree of mis-representation is the same between groups. The next section sheds light on this issue.

5 Canton-Characteristics and Differences between Stated and Official Approval

Switzerland offers a rare opportunity to shed some light on whether survey-biases vary across subgroups of people. This is especially relevant for researchers using the Eurobarometer or the World Value

[21]Note also that the conformity bias shows up in the aggregate data. Accepted votes have a more positive survey bias than rejected votes. This result holds even with voting day fixed effects and can therefore not be explained by selection.

Survey to compare political attitudes or values across countries. If survey biases are comparable across countries, this type of study makes perfect sense. If, however, due to different social norms, different types of people respond and/or lie, such an analysis may be less convincing. There is no way one can assess the accuracy of the measured attitudes across countries (since the "true attitudes" for the population are unobserved). The Swiss data allow one to compare at least whether survey accuracy differs for different cultures and religions within a country. The basis for this analysis are voting results at the canton level (available for every federal vote), which I can compare with the stated share yes votes of residents of a given canton.[22] The Swiss cantons are highly diverse in terms of culture, religion, and economic richness. While the majority of Swiss cantons are of German language, there are also a couple of French-speaking cantons and an Italian-speaking canton (plus one canton (Graubuenden) which has "Romantsch" as an official language). It is well-known that cultural differences between the German and non-German-speaking cantons are large. For instance, there is the official term "Roestigraben", which refers to the consistently different voting outcomes between the German and non-German-speaking cantons. Likewise, the Swiss cantons are heterogeneous with regard to religion. While certain cantons are predominantly Catholic, others are predominantly Protestant, and others are mixed. Last, cantons vary with regard to other characteristics such as income, age structure, education, and population size.

These data allow me to uncover interesting correlations, but not necessarily causal relationships. However, there are usually *no data available* to shed light on whether survey biases on reported attitudes (in this case for different policies) vary across cultures and religions. Again, the reason is that there is information as given in the surveys, but no comparison group revealing "true preferences". Keeping this caveat in mind, I analyze correlations between the absolute value of survey bias and various canton characteristics, taking canton-level voting results (from federal votes) between 1987-2000 as the basis of the analysis. Since some smaller cantons have very few survey respondents, I run

[22]The VOX-Survey asks for the respondents' canton of residence.

weighted regressions, with the number of surveyed voters per canton and ballot assigned as weights.

As can be seen from Table 7, cantons with a higher share of Protestants have lower biases on average. However, the significance of this result vanishes once more canton controls are added. The strongest partial correlations come from the language area and population size. Non-German-speaking cantons have on average a 2.7 percentage point lower bias than German-speaking cantons. Preferences of citizens in large cities are also more accurately represented in surveys. While the exact mechanism behind this result is beyond the scope of this paper, there is supplementary evidence that social norms and the pressure to act accordingly are lower in large cities compared to closely-knit communities (Funk, 2010). It is therefore possible that citizens used to expressing their opinions freely and used to acting in an environment of low social pressure also have fewer problems in revealing their true preferences in surveys.

— insert Table 7 about here —

6 Conclusion

This paper analyses how accurately political preferences are represented in surveys. Using unique data on all Swiss votes between 1987-2007, I find that the average difference between stated and real approval is 4.7 percentage points. More importantly, I show that the amount of survey bias differs a lot with regard to the policy areas involved. For instance, citizens inaccurately reveal their preferences on issues related to integration, immigration, the environment, and certain types of regulation, but not on federal finances, health, and institutions. Therefore, the paper sheds light on which types of survey questions are more or less likely to be contaminated.

As for the behavioral mechanisms, the data point towards respondent-lying as being part of the story. An interesting avenue for future research would be to trying to decompose precisely the amount

of survey bias into selection and respondent-lying, and to deepen our knowledge through which survey methods these two biases can be reduced. Also, the finding that survey accuracy depends on culture seems noteworthy further investigation. For instance, using list-randomization techniques, one could investigate whether lying on socially sensitive issues differs between subjects, and which part of between-subject variance is explained by the subjects' nationalities. If the latter is important, it indicates that cross-country comparisons of stated attitudes in surveys should be handled with greatest care.

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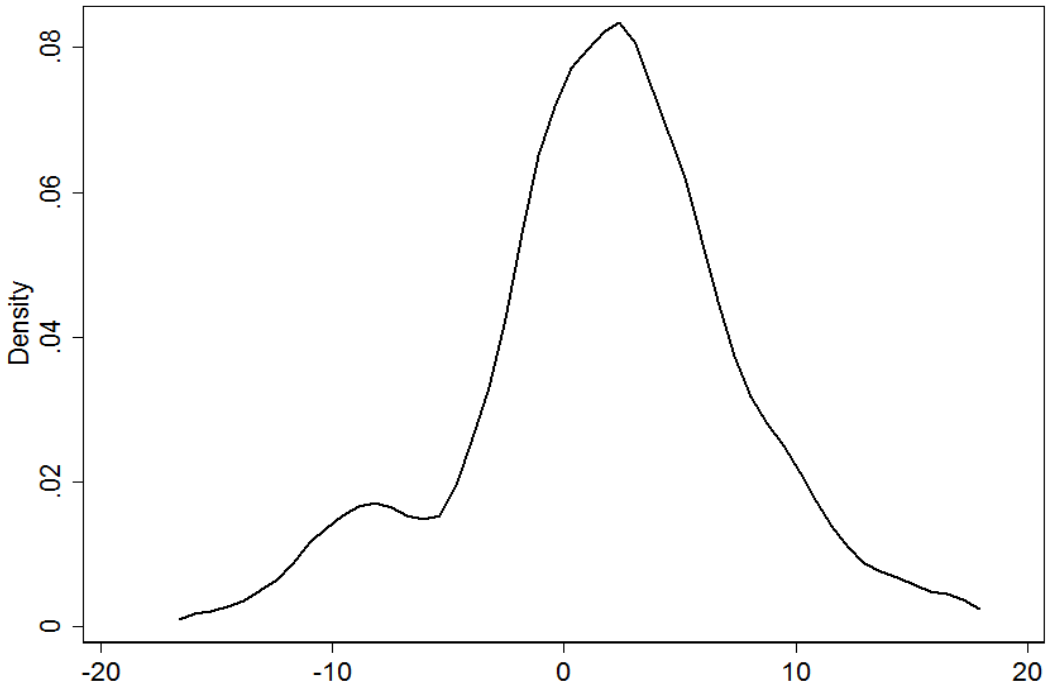
FIGURE 1

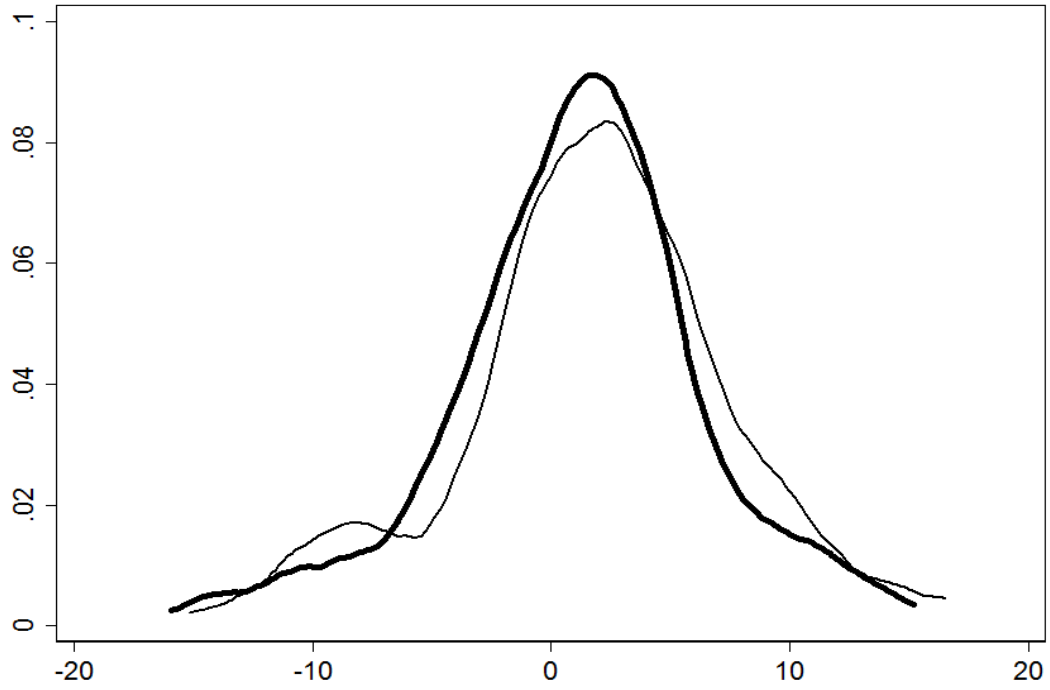
Distribution Survey Bias ("Share Yes" Survey - "Share Yes" Ballot)



Notes: Figure 1 shows the kernel distribution of the gaps between reported share yes in the VOX survey and and actual share yes at the ballot. Data Source: Swiss Federal Statistical Office; VOX-Data.

FIGURE 2

Distribution Survey Bias, weighted and unweighted samples



Notes: Figure 2 shows the kernel distributions of the gaps between reported share yes in the VOX survey and and actual share yes at the ballot. The black line uses unweighted data, the black bold line the weighted data. Data Source: Swiss Federal Statistical Office; VOX-Data.

TABLE 1

Summary Statistics, VOX Sample and Swiss population sample (people older than 20)

	VOX Mean (1990)	Swiss (PUS Data) Mean (1990)	Test Diff. in Means P-Value	VOX Mean (2000)	Swiss (PUS Data) Mean (2000)	Test Diff. in Means P-Value
Share Women	0,50	0,51	0,1117	0,51	0,52	0,9604
Share Protestants	0,44	0,41	0,0002	0,43	0,35	0.0000
Share Catholics	0,47	0,46	0,4574	0,43	0,42	0,0556
Age 20-39	0,41	0,42	0,7039	0,35	0,38	0,0000
Age 40-59	0,35	0,33	0,2787	0,35	0,36	0,0050
Age 60plus	0,24	0,25	0,3030	0,30	0,26	0,0000
Linguistic Area: Geman	0,72	0,72	0,8968	0,69	0,71	0,0118
Linguistic Area: French	0,23	0,23	0,7538	0,24	0,24	0,4949
Linguistic Area: Italian	0,05	0,05	0,8133	0,06	0,05	0,0004
Higher Education	0,21	0,19	0.0084	0,30	0,27	0.0000

Notes: The data displays characteristics of VOX-survey respondents for the years 1990 and 2000, and a representative sample of 5% of the Swiss population (Public Use Sample - PUS) for the same years. The characteristics to be compared are sex, religion, age, language and education. Higher Education is a dummy variable taking a value of 1 if the individual has a high-school degree or higher. Individuals older or equal to 20 years are considered.

TABLE 2

Characteristics Survey Sample and Survey Bias (Absolute Value)

	(1)	(2)	(3)	(4)	(5)
Cooperation Rate (in %)	-0.0624		-0.0481		-0.0471
	(0.0906)		(0.0928)		(0.0946)
Vote Reveal Rate (in %)		-0.113***	-0.0286		-0.0296
		(0.0344)	(0.0572)		(0.0618)
Turnout Gap				-0.0265	0.0155
				(0.145)	(0.178)
Constant	6.568*	14.19***	8.565	4.534*	8.377
	(3.478)	(3.099)	(5.638)	(2.343)	(5.636)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Number of Votes	73	184	73	184	73
R-squared	0.242	0.224	0.244	0.177	0.245

Notes: Dependent variable is the absolute value of the difference between the share "Yes" in the survey and the official share "Yes" of the ballot result (with surveys being re-weighted on age, religion and education). Cooperation rate is the share of contacted people who respond to the survey. Vote Reveal Rate is the share of voters (per vote) which reveal their voting decision (answer with "yes" or "no"). Turnout Gap is the difference between reported turnout in the survey and official turnout at the ballot (in %). Standard errors clustered at the voting day level in parantheses. *** denote significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level.

TABLE 3

Survey Bias, by Topic

	(1)	(2)	(3)	(4)	(5) Share of votes supported by Left
PRO INTERNATIONAL INTEGRATION (9)	5.646***	2.185**	6.080***	3.860***	100
	(0.940)	(0.900)	(0.751)	(0.747)	
PRO IMMIGRATION (3)	12.22***	7.985***	12.40***	10.68***	100
	(0.200)	(0.332)	(0.0978)	(0.425)	
CONTRA IMMIGRATION (8)	-5.123***	-2.858*	-3.369	-7.382***	0
	(1.871)	(1.672)	(2.090)	(1.422)	
CONTRA INCREASE ARMY (10)	2.946***	2.625***	-0.492	1.767**	86
	(0.565)	(0.643)	(1.204)	(0.747)	
PRO PROTECTION ENVIRONMENT (23)	3.616**	2.539	4.136***	1.980	100
	(1.346)	(1.513)	(1.323)	(1.278)	
CONTRA NUCLEAR ENERGY (4)	5.187***	4.836***	1.818***	4.011***	100
	(0.740)	(1.084)	(0.194)	(0.265)	
PRO BUDGET BALANCE (2)	2.663	2.159	6.157***	-1.556	0
	(1.657)	(1.564)	(1.755)	(2.116)	
PRO DIRECT DEMOCRACY (5)	2.190	1.901	1.788	0.694	60
	(3.572)	(3.009)	(2.380)	(3.130)	
PRO LIBERALIZATION HEALTH (5)	0.937	-0.292	1.263	-0.189	100
	(1.540)	(1.346)	(2.106)	(1.904)	
CONTRA LIBERALIZATION HEALTH (5)	-0.374	-0.622	0.989	0.418	67
	(0.669)	(1.494)	(1.090)	(0.900)	
PRO REDISTRIBUTION (7)	3.871***	3.059**	2.049**	3.445***	100
	(0.978)	(1.207)	(0.785)	(0.932)	
PRO INCREASE RETIREMENT AGE (2)	-3.436	-4.644*	0.844	-4.813***	50
	(2.698)	(2.553)	(2.692)	(1.666)	
CONTRA INCREASE RETIREMENT AGE (5)	0.106	2.244	-3.196	-0.488	100
	(1.410)	(1.708)	(3.169)	(1.241)	
PRO GENDER EQUALITY (3)	6.661	5.487	5.516	6.484*	100
	(4.667)	(3.480)	(3.309)	(3.682)	
PRO LIBERAL ATTITUDES (2)	8.515***	5.404***	8.519***	5.362***	100
	(0.781)	(0.310)	(0.467)	(1.326)	
Use of Weights to calculate Survey Bias	No	Yes	Yes	No	
Characteristics		Age, Religion Education	Left-Wing Voters		
Controls	None	None	None	Voting Result	
Number of Votes	90	90	90	90	
R-Squared	0.563	0.450	0.508	0.534	
H0: Equality of estimated coefficients (P-Value):	0,0000	0,0000	0,0000	0,0000	

Notes: The dependent variable in (1) to (4) is the difference between a ballot's approval in the survey ("stated share yes") and true approval as measured at the ballot box ("real share yes"). The number in (5) is the share of votes per policy area, where the left-wing party recommended a "yes". In column (2), the surveys are re-weighted to match the population on age, religion and education. In column (3), surveys are re-weighted to match vote-shares of the left-wing party in elections. Standard errors clustered at the voting day level in parantheses. *** denote significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level.

TABLE 4

Liberal Bias

	(1)	(2)	(3)	(4)	(5)
Recommendation Left-Wing Party	4.949***	3.144***	3.104***	4.820***	2.944**
	(1.083)	(1.026)	(1.089)	(1.131)	(1.166)
Constant	-1.659*	-1.132	-0.167	-5.421***	-3.049*
	(0.913)	(0.871)	(0.931)	(1.636)	(1.753)
Use of Weights to calculate Survey Bias	NO	YES	YES	NO	NO
Characteristics	NO	Age, Religion Education	Left-Wing Voters	NO	NO
Control Voting Result	NO	NO	NO	YES	YES
Year Fixed Effects	YES	YES	YES	YES	NO
Voting Day Fixed Effects	NO	NO	NO	NO	YES
Number of Votes	174	174	174	174	174
R-squared	0.361	0.277	0.256	0.409	0.642

Notes: Dependent variable is the difference between the share "Yes" in the survey and the official share "Yes" of the ballot result. In (1)-(4), standard errors clustered at the voting day level in parantheses. In (5), robust standard errors in parantheses. *** denote significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level.

TABLE 5

Mechanism Liberal Bias

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Recommendation Left-Wing Party	0.997	-0.592	0.247***	-0.101***	-0.0640**	-0.179***	-0.121***	-0.0944***	-0.0578**
	(1.705)	(1.761)	(0.0195)	(0.0290)	(0.0291)	(0.0221)	(0.0225)	(0.0239)	(0.0242)
Rec. Left-Wing * Importance Vote	5.440**	4.269	0.172***	0.0887**	0.0303	0.0795***	0.0560*	-0.200***	-0.183***
	(2.120)	(2.768)	(0.0254)	(0.0381)	(0.0389)	(0.0295)	(0.0294)	(0.0311)	(0.0315)
Importance Vote	-3.959**	-3.474	-0.136***	-0.0744**	-0.0253	-0.0529**	-0.0277	0.110***	0.101***
	(1.868)	(2.612)	(0.0231)	(0.0342)	(0.0343)	(0.0266)	(0.0265)	(0.0281)	(0.0282)
Data	Vote Level		Individual Level						
Fixed Effects	Year	Voting Day	Individual	Individual	Individual	Individual	Individual	Individual	Individual
Control Voting Result	YES	YES	YES	YES	YES	YES	YES	YES	YES
Control for Own Party Rec.			YES	NO	YES	NO	YES	NO	YES
Party Affiliation			Left (SP)	Centrist (CVP)		Right (FDP)		Populist Right (SVP)	
Number of Votes	132	132	12,193	5,233	5,233	8,214	8,171	7,489	7,489
R-squared	0.415	0.673	0.618	0.632	0.636	0.643	0.662	0.636	0.637

Notes: Dependent variable in (1) and (2) is the difference between the share "Yes" in the survey and the official share "Yes" of the ballot result. Importance Vote is a dummy variable that takes a value of 1, if the vote was above the mean level of importance of all votes, and 0 otherwise. In (1) standard errors clustered at the voting day level in parantheses. In (2) robust standard errors in parantheses. in (3) to (9), the dependent variable is a dummy variable taking a value of 1 if the survey respondent states to have voted "yes", and a 0 in case of a "no" vote. Robust standard errors in paranthesis. *** denote significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level.

TABLE 6

Deviations from Party Recommendations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Deviations from Party Recommendations							
	Left (SP)	Centre (CVP)	Right (FDP)	Populist Right (SVP)	4 Big Parties	4 Big Parties	4 Big Parties	4 Big Parties
Vote Accepted	0.283***	0.174***	0.347***	0.125**	0.235***	0.331***	0.129***	0.137**
	(0.0330)	(0.0270)	(0.0414)	(0.0591)	(0.0178)	(0.0697)	(0.0388)	(0.0628)
Constant	0.179***	0.166***	0.185***	0.241***	0.191***	0.166***	0.245***	0.243***
	(0.0153)	(0.00902)	(0.00642)	(0.00800)	(0.00489)	(0.0172)	(0.0164)	(0.0237)
Individual Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Votes	All	All	All	All	All	Congruent	Margin 40-60	Margin 45-55
Observations	4,500	5,075	5,302	3,421	18,298	7,871	6,145	3,231
R-squared	0.821	0.643	0.751	0.718	0.738	0.860	0.878	0.926

Notes: The dependent variable is whether an individual deviates from the recommendation of her preferred party (which is to vote "no"). The variable takes a value of 1 if the individual states to have voted "yes", and a value of 0 if the individual states to have voted "no". Vote Accepted is a dummy variable taking a value of 1 if the ballot has been approved by the Swiss electorate, and 0 otherwise. Congruent Votes (column (6)) are those where the parties and voters had similar approval (difference <10%). Margin 40-60 (column (7)) are votes with a share yes in that range, and Margin 45-55 are votes with approval rates between 45 and 55% (column (8)). Robust standard errors reported. *** denote significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level.

TABLE 7

Canton Characteristics and Survey Biases (in Absolute Values)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Share Protestants	-0.0871***	-0.0287	0.00916	0.00962	-0.00277	0.0222	0.00878
	(0.0289)	(0.0224)	(0.0210)	(0.0291)	(0.0421)	(0.0208)	(0.0200)
Age above 65	0.547**	0.262	0.343**	0.276	0.265	0.278	0.334*
	(0.244)	(0.172)	(0.156)	(0.189)	(0.188)	(0.167)	(0.177)
Education	-0.0897	0.153**	0.178	0.113	0.0838	0.163	0.128
	(0.0853)	(0.0676)	(0.112)	(0.121)	(0.106)	(0.119)	(0.115)
Non-German-Speaking		-2.766***	-2.282**	-1.928*	-1.832	-2.166*	-1.637
		(0.669)	(0.978)	(1.097)	(1.232)	(1.216)	(1.234)
Income		-0.000107***	8.92e-05**	5.08e-05	3.94e-05	5.44e-05	5.47e-05
		(1.71e-05)	(3.44e-05)	(4.68e-05)	(4.18e-05)	(4.00e-05)	(4.71e-05)
Percentage Rural Population			0.0486	0.0242	0.0175	0.0308	0.0213
			(0.0358)	(0.0381)	(0.0399)	(0.0365)	(0.0402)
Population Size (in 1000)			-0.0112***	-0.00948***	-0.00904***	-0.00965***	-0.0102***
			(0.00203)	(0.00275)	(0.00242)	(0.00230)	(0.00253)
Support Left-Wing				0.0279			
				(0.0638)			
Support Centre					-0.0252		
					(0.0448)		
Support Right-Wing						0.0345	
						(0.0399)	
Support Populist Right							0.0399
							(0.0545)
Constant	6.694*	8.345***	5.745	7.584**	9.772**	6.066	3.142
	(3.417)	(2.662)	(3.556)	(3.625)	(3.946)	(3.998)	(3.621)
Ballot-Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,539	2,539	2,539	2,168	2,151	2,132	2,168
R-squared	0.443	0.473	0.482	0.501	0.502	0.502	0.501

Notes: Dependent Variable is the difference between the reported and the effective share of yes-votes in absolute values, at the canton-level. Share Protestants is in percentage of the total population. Non-German-Speaking is a dummy variable for a Canton with (predominantly) french or italian language. Age above 65 is the share of Canton inhabitants with more than 65 years. Education is defined as the share of people older than 19 holding a high-school degree and higher. Percentage rural population is the share of Canton inhabitants living in rural areas. Support Left-Wing is the percentage of total votes (per Canton), the left wing party (SP) received at the federal elections. Support centre is the vote share of the CVP, support right of the FDP, and support populist right of the SVP. Standard errors clustered at the Canton-level in parantheses. *** denote significance at the 1% level, ** significance at the 5% level, and * significance at the 10% level.

APPENDIX TABLE 1

Summary Statistics, VOX Samples

	Obs.	Mean	Std. Dev.	Min	Max
Share Women (%)	184	50,7	1,7	48,1	55,3
Share Protestants (%)	184	42,5	3,7	33,4	49,5
Share Catholics (%)	184	42,8	2,9	36,9	50,3
Age 20-39 (%)	184	36,7	3,4	28,2	43,2
Age 40-59 (%)	184	34,4	1,6	30,4	37,4
Age 60plus (%)	184	26,7	3,9	20,4	33,8
Higher Education (%)	184	33,0	7,0	20,9	51,7
Linguistic Area: Geman (%)	183	70,6	1,4	68,5	75,0
Linguistic Area: French (%)	183	23,8	1,1	20,0	26,4
Linguistic Area: Italian (%)	181	5,5	1,0	0,0	6,7
Survey Bias (%)	184	1,75	5,70	-15,19	16,49
Survey Bias (Absolute Value) (%)	184	4,60	3,79	0,02	16,49
Turnout Gap (%)	184	15,45	2,81	8,03	24,84
Cooperation Rate (%)	73	36,24	6,12	25,20	48,00
Share Left-Wing Voters (%)	184	29,98	5,16	21,82	42,66
Share Centrist Voters (%)	184	14,95	3,51	8,13	23,16
Share Right-Wing Voters (%)	184	21,53	3,60	14,96	30,25
Share Populist Right-Wing Voters (%)	184	17,33	6,47	7,07	29,95
Share Emtpy Votes (%)	184	11,03	8,41	1,03	60,34
Importance Vote	138	0,53	0,50	0,00	1,00

Notes: The variables are averages per vote. Survey Bias is the difference between the Share Yes in the Survey and the Share Yes of the voting result. Turnout Gap is the difference between Turnout in the Survey and official Turnout at the ballot. Non-Cooperation Rate is the Share of contacted people who refused to participate in the VOX-Survey. Share Left Wing Voters is the share of voters with the socialist party (SP) as their favourite party (in % of voters which indicated a favourite party); share Centrist Voters the respective share of CVP Voters; share Right-Wing Voters the respective share of FDP Voters; share Populist-Right-Wing Voters the respective share of SVP Voters. Share Empty Votes is the share of votes (per ballot) that were left blank by the voters. Importance Vote is a dummy variable that takes a value of 1, if the vote was above the mean level of importance of all votes, and 0 otherwise.

APPENDIX TABLE 2

Votes, sorted by Survey Bias

Year	VOX Number	Title of Proposition	# Obs. (Mean: 536)	Survey Bias	Survey Bias 95% Confidence Interval		P-Value	Coop. Rate (Mean: 36)	Vote Reveal-Rate (Mean: 89)	Over-Rep. Voting (Mean: 15)
2004	854	Change Compensation Law	614	16,49	13,00	19,98	0,000	28	93,74	11,70
1987	341	Train 2000	612	16,04	12,20	19,32	0,000		94,30	17,00
1987	324	Law on Procedures on Initiatives with Alt. Drafts	444	15,53	11,73	19,32	0,000		78,17	14,74
1996	583	Fed. Res. Cantonal Authority Military Equipment	228	-15,19	-21,04	-9,34	0,000		49,14	14,18
1993	505	Measures on Unemployment Insurance	488	14,64	11,33	17,78	0,000		91,90	13,73
2004	832	Change of Swiss Code of Obligations	558	-13,50	-16,95	-10,05	0,000	31	89,00	17,30
2004	851	Easier Naturalization of Immigrants of 2 Generation	613	12,59	8,70	16,48	0,000	28	93,59	11,70
1991	411	For Reducing the Voting Age from 21 to 18	429	12,38	8,96	15,73	0,000		97,28	11,61
2004	852	Fed. Res. Naturalization Immigrants of 3 Generation	607	12,23	8,39	16,07	0,000	28	92,67	11,70
1990	396	Law on the organization of the federal judicature	433	-11,83	-16,34	-7,33	0,000		77,46	16,01
1994	533	For easier Naturalization of Immigrants	622	11,83	8,06	15,60	0,000		97,65	17,51
2000	724	For lower Costs of Hospitals	478	-11,21	-13,45	-8,96	0,000	39	82,84	15,35
1987	343	For Protection of the Swiss Moors	612	11,15	7,56	14,92	0,000		94,30	17,00
1992	466	Law on Paysants' Land Rights	533	10,75	6,69	14,82	0,000		84,34	17,20
2002	783	Law on the Electricity Market	503	-10,62	-14,83	-6,41	0,000	32	83,14	16,32
1993	502	Fed. Res. Union Laufen with the Canton BS	439	10,45	6,78	13,50	0,000		82,67	13,73
2000	713	For Pigouvian Tax on Energy	448	-10,35	-14,75	-5,95	0,000	41	79,15	11,17
1988	363	For Restricting Immigration	661	-10,31	-13,43	-7,05	0,000		92,84	17,80
2001	743	Fed. Res. Dioceses	390	10,16	5,82	14,50	0,000	42	72,36	10,95
2003	815	For a car-free Sunday per Quarter	518	9,98	5,70	14,27	0,000		89,31	8,13
2004	831	Counter Proposal to the Avanti Initiative	594	-9,76	-13,36	-6,16	0,000	31	94,74	17,10
2005	872	Law on Homosexual Couples	705	9,52	6,07	12,97	0,000	29	93,50	17,86
1990	402	Initiative against Nuclear Power Plants	555	9,46	5,47	13,46	0,000		94,23	18,61
1994	532	Federal Resolution on the Promotion of Culture	606	9,40	5,51	13,28	0,000		95,13	17,51
1994	525	Law on Aviation	470	9,33	5,20	13,45	0,000		83,78	16,04
2005	891	Initiative for food without Gen-Technology	607	9,21	5,41	13,01	0,000	29,5	94,99	20,63
2001	732	Initiative for Low Pharmaceutical Prices	678	-9,07	-12,18	-5,96	0,000	46	91,87	16,10
2004	843	Fed. Res. Taxation	617	-8,98	-12,40	-5,56	0,000	35	94,20	14,57
2006	912	Law on Foreigners	558	-8,86	-12,94	-4,78	0,000	25,2	88,29	13,49
2006	913	Change of the Asylum Law	561	-8,80	-12,87	-4,73	0,000	25,2	88,77	13,49
1996	585	Against Federal Subsidies for Parking Spaces	216	-8,53	-15,17	-1,89	0,012		46,55	15,18
2004	853	Initiative Postal Services for All	553	8,43	4,36	12,49	0,000	28	84,43	12,00
2002	791	Initiative against Misuse in Asylum Matters	554	-8,38	-12,48	-4,29	0,000	29	89,94	13,17
1993	504	Fed. Res. Health Insurance Premias	493	8,34	5,59	11,23	0,000		92,84	13,73
2006	921	Law on Cooperation with Eastern Europe	589	8,06	4,14	11,98	0,000	28,2	92,32	17,98
2002	761	Initiative for joining the United Nations	696	8,04	4,48	11,61	0,000	48	94,57	14,87
2005	881	Fed. Res. freedom of movement new EU members	672	7,99	4,36	11,61	0,000	33	94,65	15,59
1994	551	Law on the Health Insurance	575	7,85	3,85	11,84	0,000		94,42	17,18
1992	441	Fed. Res. on Switzerland joining the Bretton Woods	472	7,76	3,35	12,02	0,001		87,90	16,35
1989	381	For higher Speed Limits 130/100	759	-7,70	-10,97	-4,42	0,000		97,68	11,85
1992	446	Swiss Military Code	490	7,51	3,96	10,98	0,000		91,25	15,35
2003	813	Initiative «Yes to Fair Rental Prices»	550	7,45	3,35	11,56	0,000		94,83	8,03
2006	922	Law on Family Surpluses	598	7,42	3,97	10,87	0,000	28,2	93,73	17,98
1989	371	Initiative against Animal Farms	508	7,20	2,88	11,53	0,001		91,86	19,59
2000	714	Initiative for Restricting Immigration	518	-7,05	-10,97	-3,13	0,000	41	91,52	10,17
2004	841	Law on Age Insurance	623	-6,90	-10,30	-3,50	0,000	35	95,11	14,57
2000	711	Initiative for Promoting Solar Energy	496	6,80	2,52	11,09	0,002		87,63	11,17
1988	351	Fed. Res. on the Coordination on Traffic Policy	597	6,76	2,77	10,75	0,001		92,85	19,26
1998	651	Fed. Res. Funds for Infrastructure on Public Traffic	527	6,71	2,80	10,62	0,001	36	93,11	16,90
2003	824	Initiative for sufficient Occupational Training	528	6,66	2,57	10,75	0,001		87,56	10,40
1992	442	Law on Protection of the Waters	506	6,63	2,68	10,47	0,001		94,23	15,35
2000	692	Initiative for faster Direct Democracy	460	-6,52	-10,39	-2,65	0,001	43	84,71	12,35
1996	601	Initiative against Illegal Immigration	533	-6,15	-10,32	-1,98	0,004		88,25	13,68
1990	395	Federal Resolution on Building Vines	446	-6,12	-10,67	-1,57	0,008		79,79	16,01
2000	701	Fed. Res. Bilateral Agreements CH - EU	644	6,09	2,73	9,46	0,000	45	94,01	19,35
2002	781	Initiative Gold Reserves for Age Insurance	557	-5,83	-9,91	-1,74	0,005		92,07	15,32
2004	861	Fed. Res. compensation Federal/Cantonal Level	453	5,80	1,58	10,02	0,007	30	89,88	13,55
1987	342	Law on Health Insurance	610	5,73	1,62	9,20	0,005		93,99	17,00
2006	901	Fed. Res. on Constitutional Matters on Education	437	5,70	3,07	8,34	0,000	26,8	95,21	17,16
1999	671	Federal Resolution on a new Federal Constitution	595	5,67	1,85	9,50	0,004	30	93,85	17,70
2003	823	Initiative «For Restricting Nuclear Risks»	512	5,67	1,33	10,00	0,010		84,91	10,40
1999	684	Law on the Insurance of Disabled	590	-5,38	-8,88	-1,89	0,003	39	80,71	15,87
1994	521	Fed. Res. on Charges on National Strees	532	5,37	1,67	9,07	0,004		94,83	16,04
1994	531	Law on Military forces with Peaceful Missions	616	5,25	1,30	9,20	0,009		96,70	17,51
1999	663	Federal Law on City and Regional Planning	550	5,19	1,12	9,26	0,012		80,53	18,62
1993	501	Federal Resolution on Misuse of Arms	489	5,11	2,73	7,76	0,000		92,09	13,73
2000	725	Federal Law on the Employees of the Government	442	4,92	0,74	9,10	0,021	39	76,60	15,35
2005	871	Fed. Res. Bilateral Agreements CH - EU	718	4,87	1,30	8,44	0,008	29	95,23	17,76
1998	632	Fed. Res. on Measures for Budget Balancing	510	4,79	1,11	8,47	0,011	40	84,72	19,90
1993	512	Federal Resolution for Healthy Federal Finances	588	4,71	0,81	8,62	0,018		93,19	17,79
2000	721	Initiative «for a flexible Age Insurance»	498	4,68	0,37	8,99	0,034	39	86,31	15,35
1992	432	Initiative for Restricting Animal Testing	543	4,65	0,17	8,56	0,042		96,28	13,32

2002	762	Initiative for Lower Working Hours	689	-4,65	-7,67	-1,62	0,003	48	93,61	14,87
2004	862	Federal Resolution on the Swiss Financial Regime	417	4,62	0,66	8,58	0,022	30	82,74	13,55
2007	931	Initiative «For a social Health Insurance»	636	4,53	1,01	8,06	0,012	32,7	94,78	16,03
1992	445	Fed. Res. for a Civilian Service for Military Deniars	508	4,51	1,55	7,41	0,003		94,60	15,35
1998	641	Law on user-dependent heavy Trafffic Charge	623	4,44	0,63	8,24	0,022	43	92,99	15,07
2001	741	Federal Law on the Army	498	4,42	0,05	8,80	0,048	42	92,39	10,95
1993	492	Initiative Switzerland without new Figher Jets	697	4,40	0,70	8,10	0,020		96,01	17,38
1993	481	Law on Customs on Fuel	716	4,30	0,77	7,82	0,017		97,81	20,98
2001	742	Federal Law on the Army (Cooperation in Education)	473	4,29	-0,20	8,78	0,061	42	87,76	10,95
2003	811	Federal Law on the Military	507	4,28	0,81	7,74	0,016		87,41	8,33
1991	422	Swiss Military Law	449	4,21	-0,18	8,87	0,060		92,39	15,31
2003	801	Federal Resolution on Changes of Citizens' Rights	381	4,14	-0,24	8,52	0,064		89,44	13,27
1994	542	Swiss Criminal Code on Military Law	590	4,04	0,06	8,03	0,047		96,25	15,75
1994	552	Initiative for a healthy Health Insurance	556	-3,98	-6,94	-0,23	0,036		91,30	16,43
1997	612	Initiative «Against Exporting Arms»	489	3,88	-0,02	7,78	0,051		92,61	18,07
1998	633	Initiative «S.o.S. - Schweiz ohne Schnüffelpolizei»	471	3,85	-0,23	7,93	0,064	40	78,24	19,90
1991	412	Initiative for Promoting Public Transportation	409	3,73	-0,91	8,58	0,113		92,74	11,61
2004	863	Law on Research on Embryonic Stemm Cells	471	3,66	-0,47	7,79	0,082	30	93,45	13,35
1994	524	Initiative for Protection of the Alps	540	3,66	-0,52	7,83	0,086		96,26	16,04
1990	392	Initiative against Freeway Murten-Yverdon	521	3,58	-0,53	7,68	0,088		93,20	15,01
2003	802	Fed. Law Cant. Contributions Treatments in Hospitals	372	3,51	-0,48	7,51	0,085		87,32	13,27
1993	513	Measures for Protecting the Social Insurances	575	3,49	-0,38	7,35	0,077		91,13	17,79
2000	715	Initiative Referendum with Counter Proposal	319	-3,38	-8,45	1,69	0,191	41	56,36	11,17
1993	503	Initiative "For a Federal Holiday on August 1"	504	3,30	0,28	6,25	0,032		94,92	13,73
1999	685	Law on the Insurance of Mothers	674	3,28	-0,26	6,83	0,069	39	92,20	15,87
1988	362	Initiative for Shorter Working Hours	673	-3,25	-6,63	0,32	0,075		94,52	17,80
1996	581	Fed. Res. on the Revision of the Language Article	428	3,24	-0,60	7,08	0,098		92,24	14,18
1997	622	Fed. Res. on Financing the Unemployment Insurance	533	-3,23	-7,46	0,99	0,133		87,52	20,84
1988	352	Initiative for Decreasing the Retirement Age	621	-3,22	-6,79	0,36	0,078		96,58	18,26
2001	754	Initiative «For a voluntary civil service»	428	3,20	-0,97	7,37	0,132	37	78,39	17,38
1992	465	Law on Stamp Duties	552	3,17	-0,81	7,16	0,119		87,34	17,20
1997	611	Initiative Direct Democracy for Negotiations with EU	479	-3,14	-6,91	0,62	0,101		90,72	18,07
1992	461	Federal Resolution on Building the Swiss Railway	604	3,12	-0,61	6,86	0,101		95,57	17,20
1997	613	Against Federal Regulations on Gun Powder	371	2,98	-0,65	6,60	0,108		70,27	18,07
1993	514	Federal Resolution on Consumption Taxes	538	2,97	-1,09	7,03	0,152		85,26	17,79
1999	661	Fed. Res. on the Eligibility in the Federal Council	609	2,97	-0,31	6,25	0,076		89,17	17,62
2001	753	Initiative «for a Switzerland without Army»	493	2,85	-0,97	6,66	0,144	37	90,29	17,38
1990	401	Initiative against Nuclear Energy	555	2,81	-1,35	6,97	0,185		94,23	18,61
2003	822	Initiative «Against Nuclear Power Plants»	567	2,81	-1,15	6,77	0,165		94,03	10,30
1998	652	Federal Resolution on a new Corn Article	410	2,80	-0,91	6,50	0,140	36	72,44	16,90
2005	892	Federal Law on Opening Hours of Shops	606	2,70	-1,26	6,66	0,181	29,5	94,84	20,53
2001	752	Initiative «for a secure Age Insurance»	433	-2,58	-6,38	1,22	0,184	37	79,30	17,38
1995	573	Law on Aquisition of Property through Foreigners	478	2,55	-1,90	7,01	0,261		84,75	14,02
1994	523	Fed. Res. on usage-dependent Traffic Road Charges	497	2,52	-1,48	6,52	0,217		88,59	16,04
1990	393	Initiative against Freeway in the Knonauer Amt	523	2,44	-1,59	6,48	0,235		93,56	15,01
2002	792	Federal Law on the Unemployment Insurance	508	-2,36	-6,67	1,95	0,283		82,47	13,17
2000	712	For promoting renewable Energies	470	-2,32	-6,79	2,15	0,308		83,04	11,17
1992	431	Initiative for a cheap Health Insurance	536	2,30	-2,20	6,16	0,354		95,04	13,32
2003	821	Initiative «Equal Rights for Disables»	537	-2,29	-6,31	1,73	0,264		89,05	10,40
1998	642	Initiative cheap aliments and ecological agriculture	549	-2,23	-5,63	1,16	0,197	43	81,94	15,07
2006	911	Initiative Profits Swiss National Bank into Age Insurance	565	-2,23	-6,27	1,81	0,279	25,2	89,40	13,79
2002	782	Counterproposal Initiative Gold Reserves for AHV	538	-2,16	-6,37	2,05	0,314		88,93	15,32
1993	483	Initiative against Animal Experiments	702	2,11	-1,28	5,51	0,222		95,90	20,98
1990	394	Initiative against Freeway Biel-Solothurn/Zuchwil	521	2,08	-2,02	6,19	0,320		93,20	15,01
1999	664	Fed. Res. on Regulating Transplantation Medicine	542	2,05	-0,49	4,59	0,113		79,36	18,62
1996	602	Federal Law regulating working conditions	536	-2,03	-5,94	1,88	0,308		88,74	13,68
1996	592	Law Organization of the Executive and Administration	401	-1,99	-6,69	2,70	0,405		86,42	14,90
1993	491	Initiative "No more than 40 places for Arms"	704	1,89	-1,79	5,57	0,313		96,97	17,38
1991	421	Fed. Res. on Reorganizing the Federal Finances	436	-1,79	-6,45	2,86	0,450		89,71	15,31
1992	443	Initiative for Saving the Waters	497	1,73	-2,67	5,89	0,461		92,55	15,35
1993	482	Federal Resolution on Gambling Houses	712	1,66	-1,55	4,87	0,312		97,27	20,98
1999	683	Fed. Res. on Medical Prescription for Heroine	632	1,61	-2,26	5,48	0,414	39	86,46	15,87
1993	511	Federal Resolution on Federal Finances	593	1,60	-2,15	5,34	0,403		93,98	17,79
2004	842	Fed. Res. Finance Age Insurance with higher Taxes	624	-1,59	-5,19	2,00	0,385	35	95,27	14,57
1998	654	Federal Law regulating working conditions	425	1,54	-2,96	6,04	0,502	36	75,09	16,90
1990	404	Law on Road Traffic	546	-1,52	-5,68	2,64	0,474		92,70	18,61
1992	471	Federal Resolution on the European Economic Area	863	1,52	-1,60	4,89	0,320		98,97	10,53
1995	563	Law on Farming	505	1,45	-2,67	5,57	0,490		93,52	16,05
1989	382	Initiative for a Switzerland without Army	756	1,44	-2,01	4,89	0,414		97,30	11,85
1995	561	Counterproposal Ini. ecological and effective agriculture	509	-1,36	-5,67	2,95	0,536		94,26	16,05
1997	621	Initiative "Youth Without Drugs"	558	-1,34	-5,06	2,38	0,479		91,63	20,84
2000	691	Federal Resolution on the Reform of the Judiciary	435	-1,34	-4,70	2,02	0,433	43	80,11	13,35
1998	643	Ini. Age Insurance without increasing the Retirement Age	595	-1,33	-5,26	2,60	0,506	43	88,81	15,07
1990	391	Initiative for Restricting Road Making	520	1,31	-2,61	5,23	0,513		93,02	15,01
2001	733	Ini. security on the strees with speed limit 30	699	-1,27	-4,19	1,64	0,392	46	94,72	16,10
1993	515	Initiative for Reducing Problems with Alcohol	607	-1,25	-4,64	2,14	0,470		96,20	17,79
2001	731	Initiative «Yes to Europe!»	708	1,24	-1,89	4,36	0,438	46	95,93	16,10
2000	723	Initiative «Saving in the Military»	467	-1,20	-5,53	3,13	0,588	39	80,94	15,35

1987	323	Initiative for Direct Democracy in Military Expenses	505	1,18	-3,12	5,48	0,589		88,91	14,74
2000	693	Ini. fair Representation of Women in the Government	470	1,15	-2,42	4,71	0,527	43	86,56	12,35
2004	833	Initiative «Stricter Regulation for Sexual Offenders»	586	1,14	-2,86	5,14	0,577	31	93,46	17,20
2001	751	Federal Resolution promoting a Debt Break	475	-1,12	-4,46	2,21	0,510	37	87,00	17,38
1992	444	Counterproposal Ini. "Against Misuse in Gentechnology"	491	-1,09	-5,10	2,81	0,570		91,43	15,35
2000	694	Ini. Manipulations in the Technology of Reproduction	459	-0,97	-5,05	3,11	0,642	43	84,53	12,35
2002	772	Initiative «Protection of Mother and Baby»	497	0,91	-2,55	4,38	0,604	34	87,81	15,49
1987	322	Law on Residence of Foreigners	488	0,90	-3,28	5,08	0,673		85,92	14,74
1993	516	Initiative for Reducing Problems with Tabacco	607	-0,79	-4,21	2,64	0,652		96,20	17,79
2000	722	Initiative «for a flexible Retirement Age»	498	0,79	-3,52	5,09	0,720	39	86,31	15,35
1988	361	Initiative against Speculation with Properties	653	0,75	-2,74	4,42	0,644		91,71	17,80
1995	562	Resolution on Dairy Farming	505	0,73	-3,46	4,91	0,733		93,52	16,05
1990	403	Federal Resolution on the Energy Article	532	0,70	-3,12	4,53	0,718		90,32	18,61
1995	564	Law on Reducing Federal Expenses	498	0,54	-2,70	3,77	0,745		92,22	16,05
1996	582	Fed. Res. union Vellerat with Canton JU	406	0,52	-2,10	3,13	0,697		87,50	15,18
2000	695	Initiative «for cutting motorized Road Traffic into Half»	481	-0,51	-4,13	3,11	0,782	43	88,58	12,35
1998	631	Initiative «for Protection against Gen-Manipulation»	562	0,51	-3,40	4,41	0,799	40	93,36	18,90
2003	814	Initiative «For resaonable Health Costs»	500	0,50	-3,41	4,41	0,802		86,21	8,13
1996	591	Counterproposal Ini. «for a natural agriculture»	406	0,48	-3,55	4,51	0,816		87,50	14,90
2002	771	Law Regulating Abortion	527	0,48	-3,33	4,28	0,806	34	93,11	15,49
1999	681	Asylum Law	617	0,39	-3,17	3,95	0,830	39	84,40	15,87
1995	572	Initiative for better Age Insurance	452	-0,39	-4,49	3,71	0,853		80,14	14,02
1994	553	Law on mandatory measures in Immigration Law	572	-0,35	-4,55	2,88	0,659		93,92	17,18
1999	682	Fed. Res. on Urgent Matters in the Area of Asylum	562	-0,34	-4,08	3,41	0,860	39	76,88	15,87
2001	755	Initiative «for Taxation of Capital Gains»	451	0,27	-4,12	4,66	0,905	37	82,60	17,38
2007	941	Law on Insurance against Disability	600	-0,25	-4,17	3,66	0,899	34,4	96,46	24,84
1998	653	Initiative «for a reasonable drug policy»	522	0,25	-3,50	3,99	0,898	36	92,23	16,90
1987	321	Asylum Law	505	0,22	-3,85	4,30	0,914		88,91	14,74
1996	584	Against the Federal Duty to buy Spirits	184	0,18	-5,50	5,85	0,951		39,66	15,18
2003	812	Federal Law on Civil Protection	511	-0,17	-3,61	3,27	0,923		88,10	8,33
1994	541	Against Subsidies for Corn Production	544	0,11	-3,91	4,12	0,959		88,74	15,75
1994	522	Federal Resolution on Traffic Road Charges	508	0,04	-3,80	3,89	0,982		90,55	16,04
1995	571	Law on Age Insurance	522	0,03	-4,15	4,20	0,990		92,55	14,02
1999	662	Initiative «Proprietary for Everybody»	605	0,02	-3,90	3,95	0,991		88,58	17,62

Notes: Fed. Ref. abbreviates Federal Resolution and Ini. abbreviates Initiative. The table displays the year of the vote, the VOX number, the title of the vote, the observation count (= number of self-decleared voters who reveal their voting result), the survey bias (=difference between reported and official share yes), the 95 % confidence interval, the p-Value from a hypothesis-test (share yes population of voters=approval ballot), the overall response rate to the survey, the vote reveal rate (in %), and the turnout gap (= turnout reported - turnout official), in %.

APPENDIX TABLE 3

Description Policy Areas

Policy Area	Number of Votes	Content Votes	VOX Number Votes	
International Integration	9	Relationship with the European Union, Joining International Organizations (Bretton Woods, UN)	441, 471, 531, 701, 731, 761, 871 ,881, 921	PRO
Facilitated Immigration	11	Votes on Restricting/Facilitating Immigration	533, 851, 852 363, 553, 601, 681, 682, 714, 791, 913	PRO CONTRA
Increase Army	10	Votes that target at strengthening/weakening the Swiss Army	382, 422, 445, 491, 492, 612, 723, 753, 754, 811	CONTRA
Protection Environment	23	Votes that target at protecting the environment, mostly by regulations, financial incentives (charges, taxes) and traffic policy	341 , 343, 391, 392, 393, 394, 403, 412, 442, 443, 461, 481, 521, 522, 523, 524, 641, 651, 695, 711, 712, 713, 815	PRO
Nucler Energy	4	Votes that prohibit building new power plants, or ask to shut down all existing powerplants	401, 402, 822, 823	CONTRA
Budget Balance	2	Measures to reduce the Federal Deficit	564, 632	PRO
Direct Democracy	5	Measures to extend/facilitate direct democratic participation	323, 324, 692, 715, 801	PRO
Liberal Policies Health	8	Votes with more/less liberalization in the health sector: working conditions for women, advertisement on Tobacco/Alcohol, Medical prescription Heroine	342, 653, 683, 685, 771 515, 516, 772	PRO CONTRA
Redistribution	7	Subsidies Health Premia, Regulations Rental and Postal Service Market	551, 431, 552, 931, 853, 813, 814	PRO
Increase Retirement Age	7	Votes with the goal of increasing/decreasing the retirement age	571, 841 352, 572, 643, 721, 722	PRO CONTRA
Gender Equality	3	Improve conditions for working women after giving birth to a child, Introduce gender quota for the federal parliament and judiciary.	685, 693, 854	PRO
Liberal Attitudes	2	Regulation Sexual Acts Teenagers, Rights for Homosexual Couples	446, 872	PRO

APPENDIX TABLE 4

Survey Bias, Cooperation Rate and Vote Reveal Rate, by Topic

	(1) Survey Bias	(2) Cooperation Rate (Mean: 36)	(3) Vote Reveal Rate (Mean: 89)
PRO INTERNATIONAL INTEGRATION (9)	5.646	38.20	94.47
PRO IMMIGRATION (3)	12.216	28	94.64
CONTRA IMMIGRATION (8)	-5.123	34.64	88.31
CONTRA INCREASE ARMY (10)	2.946	37.67	90.69
PRO PROTECTION ENVIRONMENT (23)	3.616	40.75	91.69
CONTRA NUCLEAR ENERGY (4)	5.187		91.85
PRO BUDGET BALANCE (2)	2.663	40.00	88.47
PRO DIRECT DEMOCRACY (5)	2.190	42.00	79.52
PRO LIBERALIZATION HEALTH (5)	2.269	37	91.597
CONTRA LIBERALIZATION HEALTH (5)	-0.374	34	93.40
PRO REDISTRIBUTION (7)	3.871	30.35	91.57
PRO INCREASE RETIREMENT AGE (2)	-3.436	35	93.83
CONTRA INCREASE RETIREMENT AGE (5)	0.106	40.33	87.63
PRO GENDER EQUALITY (3)	6.974	36.67	90.83
PRO LIBERAL ATTITUDES (2)	8.515	29	92.37

Notes: The table shows the survey bias, the response rate to the survey (Cooperation Rate) and the vote reveal rate, by policy area.