HOW REPRESENTATIVE ARE REFERENDUMS?

EVIDENCE FROM 20 YEARS OF SWISS REFERENDUMS

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Abstract

Direct democracy allows citizens to reverse decisions made by legislatures and even initiate new laws which parliaments are unwilling to pass, thereby, as its proponents argue, leading to more representative policies than would have obtained under a purely representative democracy. Yet, turnout in referendums is usually lower than in parliamentary elections and tends to be skewed towards citizens of high socio-economic status. Consequently, critics of direct democracy argue that referendum outcomes may not be representative of the preferences of the population at large. We test this assertion using a compilation of post-referendum surveys encompassing 148 national referendums held in Switzerland between 1981 and 1999. Uniquely, these surveys also asked non-voters about their opinion on the referendum's subject. Comparing opinion majorities in the surveys against actual referendum outcomes we show that representativeness increases slightly in turnout as well as over time. However, we find only few cases where the outcome would have been more representative even under full turnout vis-a vis a counterfactual representative outcome. Thus, our results are in line with research on the turnout effect in elections: Higher turnout would not radically change the outcome of votes. On balance we find more cases where referendums provided more representative outcomes than cases where the outcome was unrepresentative vis-a-vis representative democracy. Hence, we conclude that, overall, direct democracy seems to improve representation in Switzerland.

Keywords: Direct Democracy, Referendums, Representation, Turnout, Survey data, Switzerland

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1 Introduction

Proponents of direct democracy claim that it delivers more representative policy outcomes than a purely representative democracy. After all, referendums allow citizens to reverse decisions made by legislatures and even initiate new laws that legislatures are unwilling to pass, and to bring topics on the political agenda that would otherwise not have been dealt with. However, critics claim precisely the opposite: They argue that, firstly, turnout in referendums tend to be lower than in elections and, secondly, that voters and non-voters have different preferences. Hence, referendums should lead to more unrepresentative policies.

Overall, referendums can generate strong beliefs in the legitimacy of decisions taken through this procedure (Esaiasson, Gilljam, and Persson 2012) but the legitimacy of that procedure is also dependent on participation therein, not least because turnout can potentially influence the outcome of popular votes. Hence, whether low and skewed turnout in referendums leads to unrepresentative outcomes is an important question regarding the normative desirability of direct democracy.

In this paper we directly test for the effect of turnout on the representativeness of referendums, using the unique example of Switzerland, the country with the most established and long-lasting tradition of direct democracy as a complement of representative democracy. Concretely, we compare the actual results of Swiss national referendums against the majority *opinion* among the population estimated from post-referendum surveys as well as the *policy* which would have been passed in absence of the referendum – the latter represented by the national parliament's vote on the referendum issue. We focus on Switzerland because referendums are frequently held and there is great variation in turnout. The focus on Swiss national referendums also follows a very practical consideration. All national level referendums in Switzerland are routinely covered by post-referendum surveys. The so-called 'Vox' surveys have a unique feature which we exploit: self-reported non-voters are also asked how they would have voted if they had turned out to vote. Hence, we are able to compare the aggregated answers of both voters and non-voters combined against the actual referendum outcome.

We test whether higher turnout generally leads to more representative results. Our results confirm that the representativeness of opinions expressed at the ballot increases in turnout. However, that correlation is very small. In most cases even under full turnout the result would not change. If high turnout matters, then it should matter more for the perceived legitimacy rather than the outcome of a vote.

In the following, we first present the case of turnout in Switzerland before we assess the literature on the links between turnout and representativeness. Next, we present the VoxIt data we use, where we present a descriptive assessment of the representativeness of Swiss national referendums, before proceeding to our correlational analysis. Lastly, we discuss the results and implications for future research.

2 Why Turnout matters

2.1. Turnout in Swiss referendums

For the Swiss national referendums which we study, the argument that direct democracy sees lower turnout

than representative democracy seems to hold. Mean turnout in our sample of referendums held between 1981 and 1999 is indeed (slightly) lower (40.8%) than mean turnout in the five national elections held within the same period (45.8%) – see Figure 1. Most, that is 112 out of 148, referendums saw lower turnout than the respective preceding national election. Research on elections provides evidence that turnout tends to be skewed towards citizens of high socio-economic status (Armingeon and Schädel 2015; Nevitte et al. 2009; Lijphart 1997). If this extends to referendums and leads to differences in opinion between voters and non-voters we should expect a relationship between turnout and the representativeness of referendum votes.
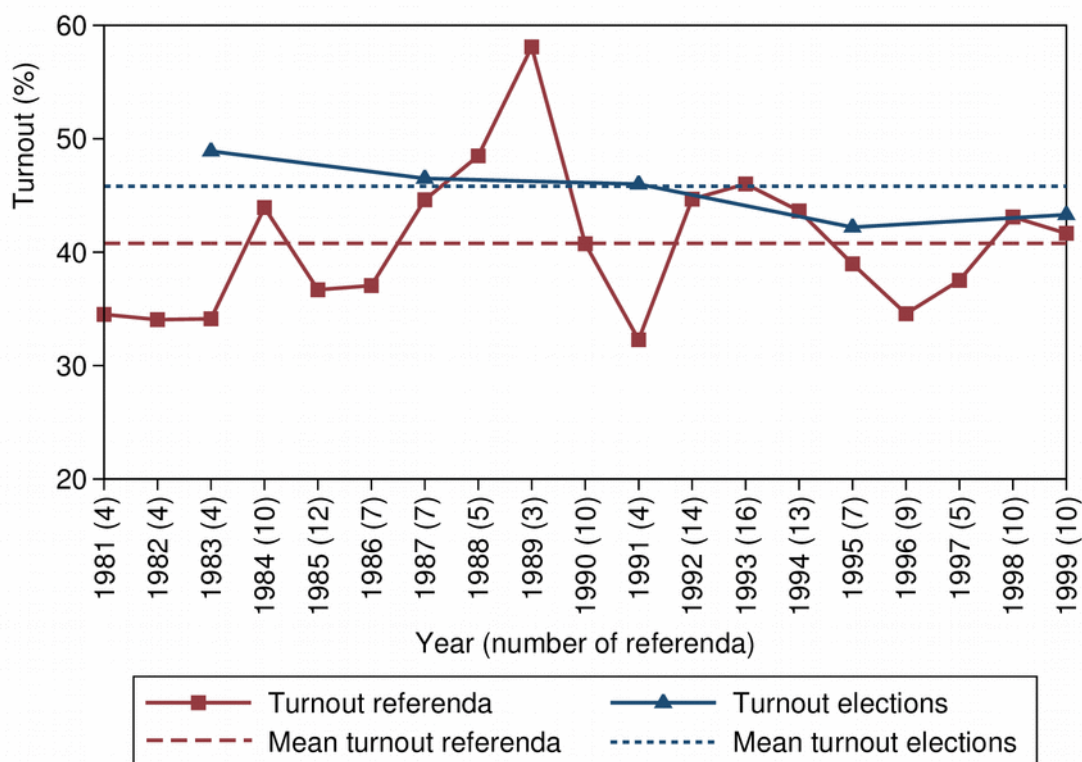

Figure 1: Turnout in Swiss national referendums and elections (1981-1999)

However, research in Switzerland shows that only less than a fifth of the population never votes in referendums, whereas around two thirds of citizens vote selectively and the rest always votes (Sciarini et al. 2016; Marques de Bastos 1993). Again, this raises the question if and how often referendum results are unrepresentative of the population at large. Furthermore, turnout in Swiss referendums is also subject to high fluctuation, ranging from 30% to 80%. Recent research suggests that changes in turnout can have a significant impact on electoral (Artés 2014; Finseraas and Vernby 2014) as well as referendum outcomes (Bechtel, Hangartner, and Schmid 2015), but with inconsistent results as to who profits. While some studies do provide evidence that higher turnout benefits the left through the additional mobilization of less well-off voters, the estimated effects are mostly small, too small to change who wins (Hansford and Gomez 2010; Citrin, Schickler, and Sides 2003). While some may view these findings to provide indirect evidence that representation is improved through higher turnout they do not constitute a direct test.

2.2. Why turnout matters for representation

Much of the research on turnout is explicitly or implicitly motivated by Tingsten's law of dispersion which states that lower turnout leads to more socioeconomically biased electorates (Tingsten 1937). Most established democracies have experienced a secular decline in turnout in the past decades (Hooghe and Kern 2016; Gray and Caul 2000). Not surprisingly then, turnout, at the individual as well as the aggregate level, has been and continues to be one of the largest literatures in research in political science (Blais 2006; Geys 2006). The negative consequences of low turnout have been most famously formulated by Lijphart (1997): "Low voter turnout means unequal and socioeconomically biased turnout." Lijphart argues that differences between voters and non-voters in terms of a number of socio-economic, demographic and attitudinal factors translate into worse representation of these citizens because they are under-represented in the electorate. Invoking Tingsten's law of dispersion he claims that the representation of less well to do voters worsens when turnout declines.

Social inequality in turnout is well documented. Beginning with Gosnell (1927) a large number of studies have shown that citizens with low income, less education, the young and also ethnic minorities display a lower propensity to vote (Armingeon and Schädel 2015; Leighley and Nagler 2013; Nevitte et al. 2009; Filer, Kenny, and Morton 1993; Filer, Kenny, and Morton 1991). It is also well know that where the classic left-right dimension is salient lower socioeconomic strate of the population lean more towards the left. Tingsten (1937) himself, in an analysis of Swedish elections, showed that poorer areas voted more for the socialists. A finding which has been corroborated for many other democracies, both on aggregate and individual level data (see for instance Lazarsfeld, Berelson, and Gaudet 1948, chap. 3; Berelson, Lazarsfeld, and McPhee 1954, chap. 4; Lewis-Beck et al. 2008, chap. 12; Clarke 1996, 40–45). Further, citizens of low income favor more redistribution (Alesina and La Ferrara 2005).

In this line of reasoning low, and biased, turnout implies a wealthier median voter who would move electoral outcomes and consequently policy to the right. To the extent that public policy systematically benefits voters over nonvoters, these problems should be even more acute in referendums as turnout is usually lower than in elections. For instance, Linder (2010, 95f) contends that, "especially when participation is low, the choir of Swiss direct democracy sings in upper or middle-class tones." We translate this expectation into the following hypothesis:

The higher turnout in a referendum vote the more representative will its outcome be.

However, based on the literature we do not have very strong expectations for this relationship to hold. There is no evidence that the left consistently profits from high turnout. If such correlations obtain, as they do in some cases, they are usually weak, too weak to alter who wins in most cases. In their summary of research on the topic Sinnott et al. (2017) suggest that where common sense expectations go wrong is in the implicit assumption that working class non-voters if made to vote will behave like working class voters. They conclude that if Tingsten's law of dispersion holds at all it does so for age not income.

This is in line with much of prior research. A classic study by DeNardo (1980) finds no relationship between

turnout and the results for the democratic candidate in US presidential elections. Rather, DeNardo shows that the incumbent party candidate tends to suffer from increases in turnout. Using individual level data Citrin (2003) and Brunell (2004) simulate results for US senate races and US presidential elections under full turnout. While they find slight gains for Democrats under full turnout, in most cases these change would not be enough to alter the election outcome. This is consistent with more recent results by Leighley and Nagler (2013, chap. 2) who based on the large samples of the Current Population Survey find that the income and education bias is unaffected by turnout levels.

More recently, more and more studies with an explicit identification strategy have sought to exploit exogenous shocks to turnout to reliably test for causal effects of turnout. They do find such an effect but produce inconsistent results. For instance two papers both using rainfall as an instrument for turnout, find that in one case US democrats profit from higher turnout (Hansford and Gomez 2010) and in the other case small other parties rather than the main left party in Spain profit (Artés 2014).

Finseraars and Vernby (2014) exploit an institutional reform in Norway as shock to turnout and find that the mainstream left party sees its vote share increase but so do radical right parties. Fowler (2015) finds turnout increases due to random overlap between US gubernatorial and congressional elections to benefit the Democrats, with great variance in effect sizes. As most studies report rather small effects of turnout variation on electoral outcomes, studies documenting large shifts in electoral and policy outcomes (Fowler 2013) are the exception to the rule.

Most of the evidence cited so far harkens back to the US. Yet, in Europe research has also been mostly unsupportive of Tingsten's Law as it concerns class. Of course, some papers such as Pacek and Radcliff's (1995) study of turnout and electoral outcomes in 19 states between 1950 to 1990 which Lijphart (1997, 5) cites as "the most persuasive evidence" find a relationship between turnout and left party's success. However, this paper's results, as Fisher (2007) convincingly demonstrates, do not hold up when methodological shortcomings are corrected. Summarizing a great number of studies from European countries Lutz and Marsh (2007, 545) conclude that "[t]here is no significant bias against the left that would be redressed if only turnout were higher."

While the literature on elections is large but inconclusive, we know even less about referendums because of a dearth of similar papers on referendums. We know of only three studies which have looked at the link between turnout and referendum outcomes. Early work by Di Giacomo (1993) who studies 60 referendums conducted during the 1980s shows that in 13 referendums the majority of non-voters would have voted differently from how the majority of voters voted. Of these 13 referendums six would have had a different outcome if all non-voters had participated – 10% of all the referendums in this period. Lutz (2007) analyses VoxIt surveys for 144 Swiss referendums separately correlating respondents' vote choice – or hypothetical vote choice for abstainers – with their reported participation. Significant correlations obtain in only half of the referendums. He then predicts how the proportion of yes-votes would have looked under full turnout,

concluding that in half of the referendums full turnout would have changed the share of yes-votes by 5-10%, and by less in the other half. Most recently, Bechtel et al. (2015) exploiting the introduction of compulsory voting in the Swiss canton Vaud in 1925 find that close to universal turnout caused by compulsory voting strengthened electoral support for leftist policy positions by 20 percentage points. They find a similar but weaker pattern for instances of direct legislation in Swiss cantons between 1908 and 1970.

While these results demonstrate that turnout can have an impact on the result of a referendum, they do not address the representativeness of that outcome. We seek to contribute to the literature by broadening the view to referendums and putting a focus on representation directly.

3 The data and what they tell us about the representativeness of referendums

3.1. The data

Here, we describe the data used in this paper – cumulated surveys from the Swiss 'Vox' surveys carried out after each national referendum since 1977 (data available for referendums from 1981 on) – and provide descriptive results on the representativeness of the referendums covered by the data.[3] The 'Vox' surveys were unique in asking all respondents, also non-voters, for their vote choice which in the case of non-voters is obviously hypothetical: "If you would have gone voting, which would have been your decision on..."[4] With this data, we are able to estimate the distribution of opinions on a referendum vote for the whole population.

This approach is similar to studies on the effect of direct democracy on representation in US states. These studies test whether policy – on abortion (Gerber 1996), on fiscal and tax issues (Matsusaka 2004) as well as range of mostly social issues (Matsusaka 2010; Lax and Phillips 2012) – is more likely to match survey-based estimates of majority opinion among citizens in states with direct democracy, even if no referendum was held on the issue. We use them same approach to obtain estimates of citizens' opinion on the issues at stake. Beginning with the year 2000, the 'Vox' surveys have unfortunately dropped the question asking non-voters how they would have voted had they participated. Still, this leaves us with a considerable number of referendums of all types: 50 initiatives, 43 referendums, 46 obligatory referendums and 9 counter-initiatives.

Switzerland has a long tradition of direct democracy dating back to the 19th century. Citizens vote on four dates per year with often more than one proposal on the ballot on a single day. Citizens themselves can initiate votes through the initiative for a partial revision of the constitution, which requires the collection of 100,000 signatures. The government may submit a counter-initiative to an initiative. Moreover, citizens can submit a recently passed law to a referendum by collecting 50,000 signatures. Referendums are also obligatory on constitutional changes and international treaties.

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3 We use a cumulation of 'Vox' surveys provided by FORS under the title 'VoxIt.'

4 In German: "Wenn Sie an die Urne gegangen wären...wie hätten Sie da abgestimmt, welches wäre Ihre Stellungnahme gewesen zur...". The survey question does, however, not restate the complete question and wording of the actual referendum in question, but just the title of the initiative, such as "Revision of the unemployment insurance" (in German: "Revision der Arbeitslosenversicherung"). Voters are simply asked how they actually voted.

For each of the 148 referendums we aggregate the individual-level data to obtain an estimate of the share of yes-votes among the population. We then compare our survey-based estimates against the actual outcomes of the referendum votes to produce the dependent variables for our analysis. Before we specify the operationalization of these variables in greater detail, we describe a number of challenges that the data pose us and how we deal with them.
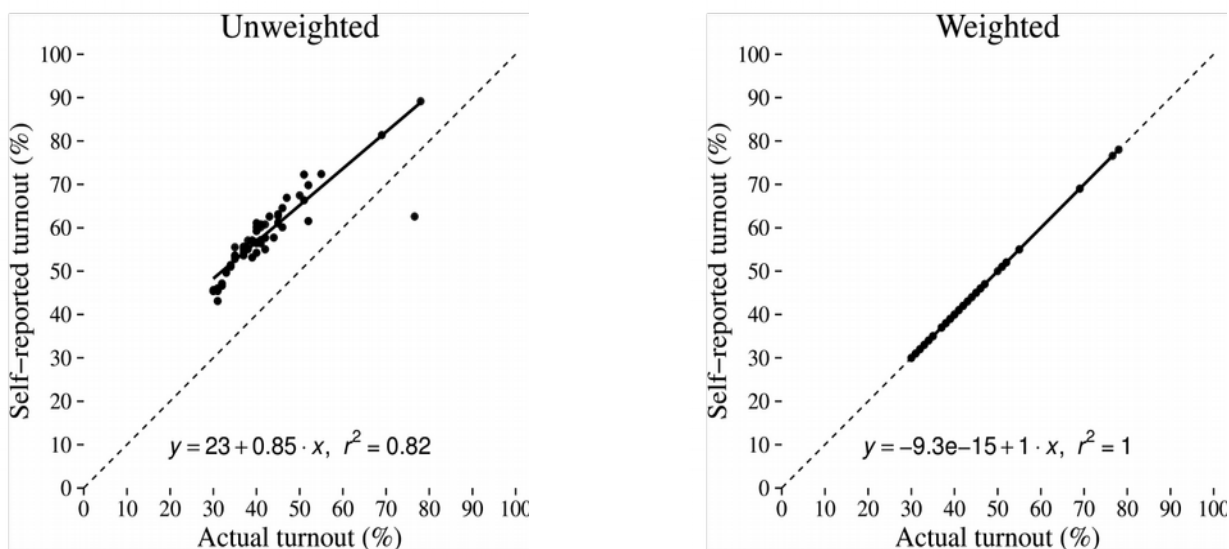

Figure 2: Reported against actual turnout before and after weighting. The dashed 45 degree line indicates a perfect fit between actual and reported turnout. Points above the dashed line indicate overreporting of turnout.

One problem with the surveys is that voters are over-represented and turnout is over-reported. Voters are more likely to participate in surveys and some non-voters are prone to lie about their participation due to the social desirability of turnout. Also, response rates in the Vox surveys which tend to correlate with turnout are low. Both turnout and response rates in Switzerland are low in international comparisons. Turnout estimated from the sample is on average 16.5 %-points higher than actual turnout.[5] We calculate weights to give less weight to self-reported voters and more weight to self-reported abstainers so that once we aggregate the data using weights we obtain the same turnout rates that have actually been reported (cf. Figure 2). We apply these weights when aggregating yes-shares for the population so that voters are not overrepresented in our aggregates.[6] There is little evidence that estimates of opinions for voters are biased by overreporting or improved through applying demographic weights (Funk 2016).

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[5] For further summary statistics on overreporting of turnout see the appendix, Figure 1 and Table 1.

[6] We also use these weights because we lack consistent provision of weights for the Vox surveys.

We can assess the accuracy of our estimates of turnout and adjust for discrepancies, but obviously we cannot check the validity of our estimates of majority opinion among non-voters and the population directly, as there is no benchmark to compare them to. What we can do, however, is look at survey-based estimates of opinion
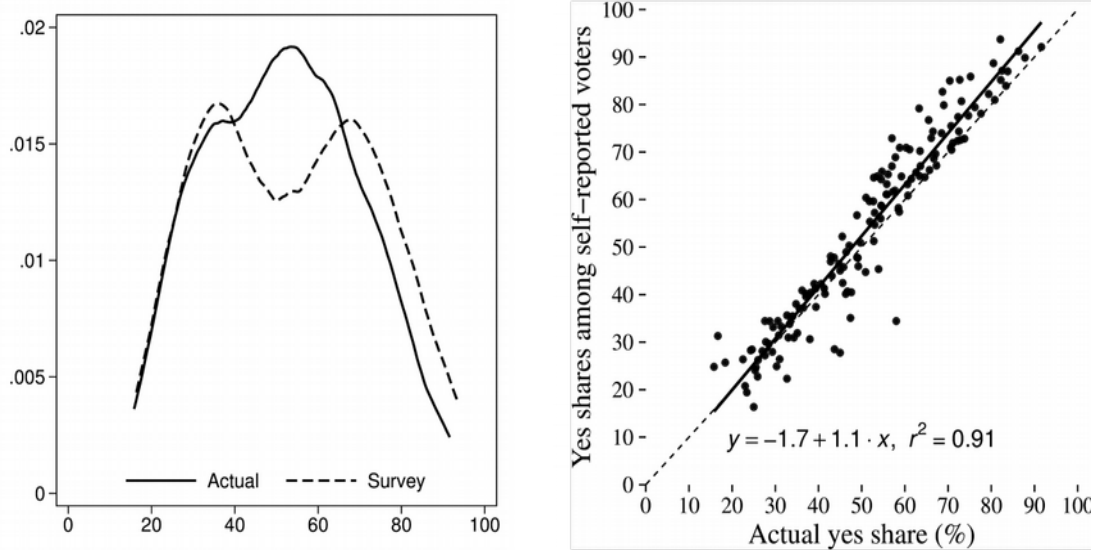

Figure 3: Reported against actual turnout before and after weighting. The dashed 45 degree line indicates a perfect fit between actual and reported turnout. Points above the dashed line indicate overreporting of turnout.
among self-reported voters. We do have a benchmark for this group: the actual referendum outcome.

Figure 3 (left panel) shows that actual and reported yes shares are similarly distributed, although the reported yes-shares in the survey show a dip around 50 percent indicating a band-wagoning effect. The 'VoxIt' surveys are conducted after a referendum so some respondents state having voted for the winning option despite having voted differently or not at all. Consequently, we see less close results in the survey data than actually occurred. Both distributions are fairly similar when it comes to means, standard deviations and confidence intervals.[7] If reported yes shares were perfectly equal to actual yes-shares we would expect all points to be on the 45 degree line. Most points are reasonably close to it (cf. Fig. 3, right panel). The average difference between actual and reported yes-shares is just 4.8%-points. Obviously, there need not be a connection between the accuracy of estimates of voters' opinions and the accuracy of estimates of non-voters' opinion. However, we are more confident about the quality of the data than we were if estimates of voters' opinions were very inaccurate.

Another caveat is the fact that self-reported non-voters have not been asked about their hypothetical vote
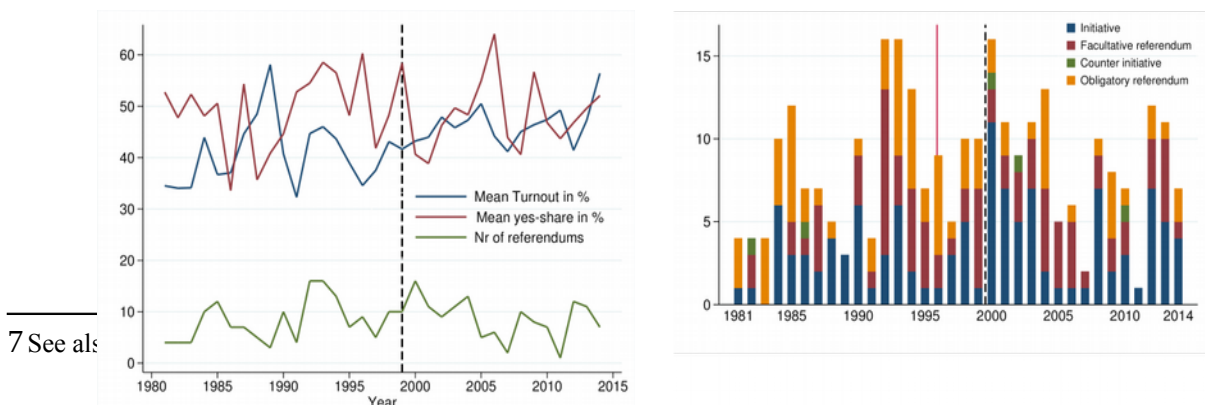
Figure 4: Left panel: Number, turnout, and yes shares in Swiss referendums on a yearly basis, 1981-2014. Right panel: Types of Swiss referendums per year, 1981-2014. The vertical dashed line indicates where our sample of referendums ends.

choice anymore since 1999. Can we assume that our results are representative of later and future referendums? When we look at Swiss referendums since 2000 and compare them to those of the period covered by our data, we find that the characteristics of referendums have not changed substantially since then. The number of referendums per year is similar from the 1980s to today. More importantly, mean turnout and yes-shares do not change significantly after 2000 (Figure 4, left panel), the same is true for the types of referendums (Figure 4, right panel). While it would be preferable to have data on more recent referendums, these comparisons at least do not give us strong reasons to believe that our analysis should not be broadly representative of more recent referendums.

Lastly, we need to clarify how we treat a third group of respondents: those who do not voice an opinion on an issue. The problem of non-opinions seems particular pertinent in referendums as voting behavior is more volatile than in elections (Leduc 2002). We aggregate yes-shares only among respondents who voice an opinion, ignoring respondents without an opinion. If we were to calculate yes-shares within the full sample, including missings on the vote choice variable, our estimates would be considerably lower and, we believe, inaccurate. From a normative point of view we treat respondents who lack an opinion as being indifferent between 'yes' and 'no'. There are many reasons why citizens have no opinion on an issue. One important reason is that they do not care enough about the issue to inform themselves. Finally, note that we simply mirror the same procedure which is used in referendums and elections, too. Here, vote shares are calculated within the set of cast votes – non-voters are ignored and, additionally, invalid and blank ballots are disregarded. On average 23.5% percent of respondents voice no opinion on a ballot proposition. Because we have assigned a weight of zero to respondents not holding an opinion, one may wonder whether we should give less weight to non-voters than to voters when we aggregate across the full sample. Surely, at least some non-voters have weaker preferences than voters, which is why they abstained in the first place. This may well be, but we lack a measure of intensity of preferences. In the absence of a convincing measure, we thus decide to stick to a 'democratic default' of weighing all opinionated citizens equally.

Having discussed the quality of our data we turn towards a description of the operationalization of our dependent variables. To obtain a quantitative indicator of representation we calculate the differences between actual and reported yes-shares. We also code a qualitative indicator of representation by checking whether opinion majorities in the sample and among actual voters are on opposite sides of 50%. In the next section, we conduct further comparisons to arrive at a total of four indicators of representation.

3.2 How representative are Swiss national referendums?

First, we classify a referendum as a *mismatch* if a minority in the survey said 'no' but a majority of actual voters said 'yes', or vice-versa. This way we simply check for divergences in opinions. However, Swiss direct democracy contains an institutional safeguard. The so called *Ständemehr* requires that for a popular initiative or obligatory referendum to pass a majority of cantons, in addition to a majority of voters

nationwide (*Volksmehr*), must vote yes.[8] This gives more weight to more rural and conservative over urban and progressive cantons. For example, a 2013 referendum on improving child care facilities and facilitating the return of women to the labor market was accepted by 54.3% of the population, but rejected by a majority of 13 cantons, notably the rural and conservative ones. According to critics, the *Ständemehr* should thus not really improve representation but rather reinforce the bias that critics of the process expect from referendums in general pro-conservative, pro-rural.[9]

Furthermore, even if we find that referendum outcomes diverge from the majority preference of non-voters and the population at large, we still need to ask ourselves whether the outcome that would have been obtained under a purely representative democracy would have been any different. After all, parliamentary elections can also be unrepresentative in the sense that turnout in Switzerland is low and skewed (Rosset 2013). Additionally, in most cases the majority of voters tend to follow the government's recommendation (Trechsel and Sciarini 1998). To address this question we look at the national parliament's votes on the referendum topics. We look for referendums which passed the *Ständemehr* and where the *Bundesrat* on the one hand and the popular majority on the other hand agree but are 'defeated' in the referendum by an unrepresentative sample of actual voters. We call such cases *unrepresentative outcomes*. While in theory differences between the two groups could be driven by both *Ständemehr* and a mismatch with the national parliament's decision the *Ständemehr* turns out to be inconsequential.[10]

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8 A canton is considered to be voting 'yes' if a majority of voters in that canton vote 'yes'.
9 We provide more background on the *Ständemehr* in the appendix.
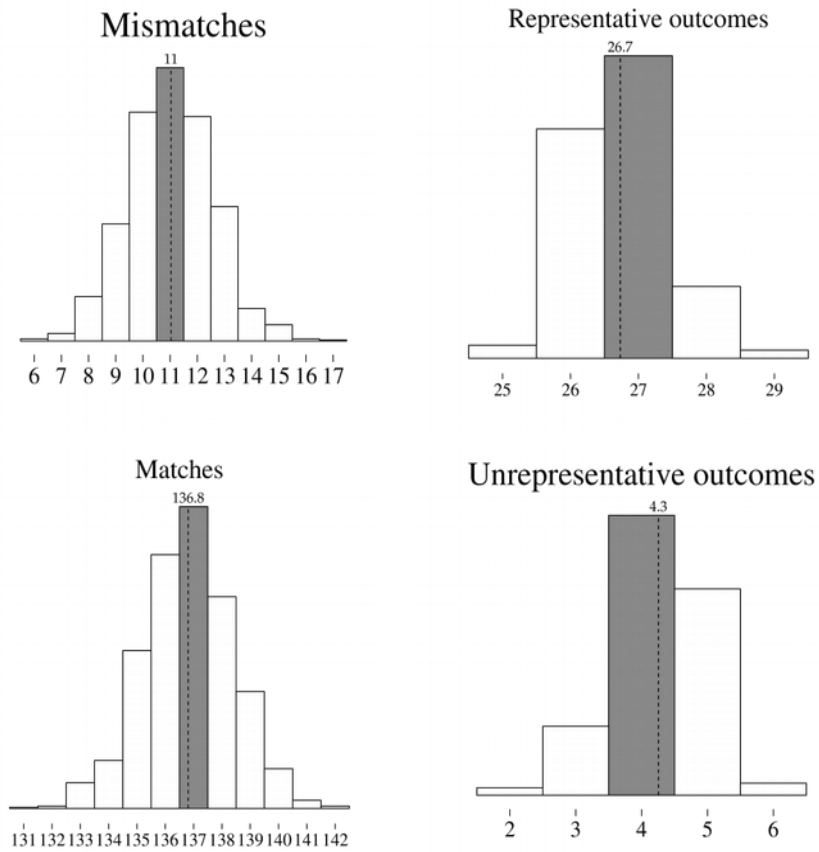10 See section 3.5 of the appendix for more details.

Figure 5: Top row: Distribution of estimated number of mismatches, and unrepresentative outcomes between actual referendum outcome and population. Bottom row: Distribution of estimated number of matches, passed matches and representative outcomes between actual referendum outcome and population. Comparisons based on 1000 simulated survey-based proportions. The median counts are highlighted in gray and means denoted by the vertical dashed lines.

A fair comparison of direct and representative democracy[11] requires us to also look for cases where a referendum probably led to a more representative outcome than a purely representative democracy. This means we also need to look for referendums which passed the Ständemehr and where opinion majorities among voters and the full population matched. We call these improvements over a hypothetical policy outcome under a purely representative democracy *representative outcomes*.[12]

Before we move on to our correlational analyses whether turnout affects representation we provide a brief descriptive assessment of the representativeness of referendums based on the variables we just described. The results of this assessment are provided in Figure 5.[13] They provide a distribution of counts of our qualitative indicators across simulated datasets: for each survey we take 1000 random draws from a binomial probability distribution with parameters (number of successes, i.e. voters that voted yes, and trials, i.e. sample sizes) obtained from the survey. This gives us not one but a 1000 estimates of yes-share among non-

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11 By which we of course mean the comparison of representative democracy with and without additional institutions of direct democracy.

12 In total we create six indicators of representation which we summarize in Table 5 in the appendix.

13 In the appendix we repeat the exercise for the group of non-voters only. Obviously the extent of misrepresentation is greater for non-voters.

voters and in the population for each referendum.[14] We use this approach to deal with random sampling error which is a necessary component of any survey and of particular relevance in our application. When we calculate 95% confidence intervals for the yes-shares estimated from the surveys, 54 of these include 50 percent. This means that there is a good chance (at least 5 in a 100) that actual population values are on the opposite side of 50 percent relative to our estimate. Hence, we may miss-classify some referendums if the yes-shares estimated from the survey are very close to 50%.

We find on average 11 (7.4%) referendum votes (with the highest density interval being [8, 14]) which did not match with majority opinion among the population and consequently are classified as mismatches. We find on average 4.3 [3, 5] of such *unrepresentative outcomes*. We also investigate whether referendums may in some cases have improved representation (cf. Figure 6, bottom row). First, the number of *matches* by definition is simply the difference between the number of *mismatches* and the total number of referendums. Secondly, we find on average 26.7 [26, 28] *representative outcomes* – cases where a referendum overturned the national parliament's decision. An average 4.3 *unrepresentative outcomes* versus 26.7 *representative outcomes* suggest that on balance referendums have improved representation of the opinion of a majority of the population.

4 Does higher turnout increase the representativeness of referendum outcomes?

This section presents the results of our analysis of the effects of turnout on the representativeness of referendum outcomes. We employ two sets of dependent variables: (1) a quantitative indicator, the difference between the actual and the reported yes share, and (2) and *mismatches,* a qualitative indicator of the representativeness of referendum outcomes.[15] Consequently, we present two sets of models – the first is composed of OLS regression models while the latter, due to the dichotomous nature of the dependent variable, comprises binary logistic regression models. The unit of observation is an individual referendum vote. Because multiple referendums may be held on the same day, some referendums are covered by the same survey. Hence, referendums held on the same day also share the same turnout. This is why we cluster standard errors by survey.

Our key independent variable in both sets of models is the turnout in a referendum. We include the year of the referendum, the unity of the federal government's parties on the referendum (support of all 7 federal governors = 7, support of none of them = 0)[16], as well as dummies for the type of referendum (referendum and initiative as opposed to obligatory referendum as a base category) and the topic of the referendum (foreign and defense policy and immigration policy, as opposed to domestic policy which is the base category) as control variables.

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14 See Figure 5 in the appendix for an illustration.

15 We do not use *passed mismatches* as dependent variable because its counts do not differ from *mismatches* and we do not use *unrepresentative outcomes* because there are two few positive cases.

16 We code this variable based on the parties' paroles. The *Bundesrat* consists of seven members of which in our period of study two were fielded by the Liberals (*FDP*), Conservatives (*CVP*) and Social democrats (*SP*) and one by the populist right party *SVP*.

Our data range from the beginning of the 1980s to the end of the 1990s. To make sure that changes in Swiss politics over this period do not obliterate turnout effects, controlling for the time dimension is important. Certain topics, further, may draw more voters, for instance because they are controversial, while others may be uncontroversial and elicit only low turnout. Similarly, obligatory referendums can entail minor changes to the constitution while initiatives most often are controversial. Hence, we control for the type of referendum to not wrongly attribute the effect of the type to turnout. When it comes to party unity, following Trechsel and Sciarini (1998), we assume that the more the federal government's parties agree on their vote recommendation for the referendum, the more likely voters are to follow this majority opinion. We expect greater unity and lower turnout in uncontroversial referendums. Hence, we would underestimate the effect of turnout if we were to omit party unity. A similar argument applies to the topics, as more controversial topics (i.e. immigration) should be associated with higher turnout and more mismatches between government policy and popular opinion.

We first present results for the degree of (mis)representation as dependent variable. Table 1 provides the results for models with the difference in yes-shares as dependent variable. Turnout is negatively correlated with the gap in actual and reported yes-shares across all models. This implies that the higher turnout the more representative the referendum. This relationship is robust to the inclusion of our battery of control variables (models 2 to 4). Consistently a one-unit increase in turnout is associated with a decrease in the gap of opinions of a tenth of a percentage point. This translates to a one stand deviation increase in turnout (8%-points) decreasing the gap in yes-shares by roughly one percentage point, a decrease of 17% over the average yes-share difference.

As outlined in section 2 we expected to see this relationship because the population of voters becomes more similar to the full population as turnout increases. Consequently, we see a stronger convergence between expressed opinions of voters and the opinion of the population at-large. Research has shown that most Swiss voters are selective voters while only a few are always or never voters respectively (Sciarini et al. 2016; Dermont 2016). We suspect that as turnout increases more selective voters are drawn to the polls while never-voters stay at home and that the latter are more different from regular voters than selective voters. Hence, non-voters will always be different from voters independent of turnout. Indeed, using only the non-voters as a comparison for mismatches we find hardly any relationship between turnout and our outcome of interest.[17]

The year of the referendum is also negatively correlated with the differences in yes-shares. The type as well as the topic of the referendum, however, do not show significant associations with the outcome, neither does party unity.

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[17] See Table 6 in the appendix.

	(1)	(2)	(3)	(4)
Turnout	-0.13*	-0.12*	-0.12*	-0.13*
	(0.05)	(0.05)	(0.05)	(0.05)
Year		-0.21*	-0.21**	-0.21**
		(0.08)	(0.07)	(0.07)
Party unity		0.01	0.14	0.12
		(0.19)	(0.25)	(0.26)
Referendum			1.54	1.94
			(1.27)	(1.21)
Initiative			1.35	1.35
			(1.54)	(1.59)
Foreign & Defense				1.49
				(1.22)
Immigration				-2.88
				(1.74)
Intercept	11.58***	421.38*	434.60**	435.35**
	(2.15)	(159.30)	(146.81)	(146.11)
N	148	148	148	148
R2	0.038	0.077	0.090	0.115
AIC	903.54	901.43	903.35	903.20
BIC	909.54	913.42	921.33	927.18

Clustered standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 0: Results of OLS regressions regressing the difference between actual and reported yes-share on turnout and controls.

Next we focus on *mismatches*. These mark potentially consequential differences in opinion because vote choice preferred by a majority differs between the groups. The dependent variable here is a dummy, where 0 indicates no mismatch and 1 indicates a mismatch. As described earlier, we find that out of 148 referendums in our sample, 22 (15%) referendum votes did not match with majority opinion among non-voters. Our key independent variable is again turnout. We employ the same controls as before.

Table 2 displays the results for *mismatches*. Turnout is again positively correlated with our indicator of misrepresentation but not significant in any model this time. The year of the referendum has a negative coefficient, meaning that over time referendums become less likely to be unrepresentative. This correlation, however, is not significant. Party unity again shows no significant coefficients, neither do type and topic of referendums (model 3).[18]

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18 Using only the non-voters as a comparison for mismatches, we again find no relationship between turnout and our outcome of interest. See Table 7 in the appendix.

	(1)	(2)	(3)	(4)
Turnout	0.04	0.05	0.04	0.02
	(0.04)	(0.04)	(0.03)	(0.03)
Year		-0.11	-0.10	-0.10
		(0.06)	(0.06)	(0.06)
Party unity		0.06	-0.08	-0.01
		(0.15)	(0.18)	(0.22)
Referendum			-1.06	-1.55
			(0.80)	(0.93)
Initiative			-1.07	-1.03
			(0.98)	(1.09)
Foreign & Defense				1.46
				(0.97)
Immigration				2.12
				(1.09)
Intercept	-3.95*	210.16	196.29	187.12
	(1.75)	(120.95)	(114.04)	(112.50)
N	148	148	148	148
AIC	90.64	91.59	93.72	92.63
BIC	96.64	103.57	111.70	116.61

Clustered standard errors in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001 .

Table 2: Results of logistic regressions regressing the occurrence of a mismatch on turnout and controls.

Generally, the results presented here are not surprising in light of our descriptive assessment presented above. The referendums analyzed here are not highly unrepresentative of the majority opinion in the sample, and thus there are hardly any correlations of other factors with representativeness. As we expected, higher turnout reduces unrepresentativeness, if only slightly. Further, the representativeness of referendums increases over time. We can only speculate about possible explanations here –one may be more equal turnout over time, especially between men and women. Female suffrage was introduced as late as 1971 in Switzerland, and the gender gap in turnout slowly decreased over the next decades, as Kriesi (2005) has shown. Assuming that a more gender equal turnout better represents the population's interests, this effect could explain the increase in representativeness over time.

As discussed in section 3, the 'Vox' data comes along with some problematic aspects for our analysis: overreporting of turnout, bandwagoning and random sampling error. The important question is whether these features of the data lead to a bias in our estimates. The overreporting of turnout can be countered, if only imperfectly, by weighting the data. Without weighting, non-voters would be underrepresented and hence the

extend of misrepresentation underestimated. Consequently, the coefficient estimates on turnout would also be biased downwards. Since we weight the data this problem should at least be alleviated. Bandwagoning – the tendency of some respondents to indicate their agreement with the majority opinion leading to an overestimation of the vote share of the winning option – should also result in an underestimation of misrepresentation. This would lead our coefficient estimates on turnout to be biased towards zero. Bandwagoning generally indicates weak opinions among some respondents. To us, bandwagoning does not actually imply a misrepresentation of people's true opinion but it is simply a function of some people's opinion being rather weak. Random sampling error, lastly, introduces random noise to our dependent variables because these are derived from our estimates of popular opinion. Hence, we would again expect an attenuation bias around the dependent variable.

This means that if there are problems with the data quality they would rather lead to an attenuation bias in our turnout estimates. Hence, we believe that the estimates of a turnout effect we present are conservative estimates because our approach of measuring representation tends to underestimate the extent of misrepresentation.

5 Conclusion

Direct democracy allows citizens to reverse decisions made by legislatures and even initiate new laws which parliaments are unwilling to pass, thereby, as its proponents argue, leading to more representative policies than would have been obtained under a purely representative democracy. Referendums are regarded as particularly important in the Swiss context which we study where they allow citizens to overturn the super-sized governing coalition which makes up the *Bundesrat*. However, direct democracy also has many critics who fear that referendums may in fact worsen representation. Given that turnout tends to be skewed towards citizens of high socio-economic status, critics of direct democracy argue that if participation is low, as is the case in the average Swiss referendum, referendum outcomes are not representative of the preferences of the population at large.

We tested this assertion using a compilation of post-referendum surveys encompassing 148 national referendums held in Switzerland between 1981 and 1999. We focus on Switzerland because referendums are frequently held and there is great variation in turnout. All national level referendums in this period are covered by surveys which uniquely ask non-voters for their hypothetical vote choice had they participated.

Comparing opinion majorities in the surveys against actual referendum outcomes we show that representativeness increases in turnout. Further, we find representativeness to increase over time, which can potentially be explained by more equal turnout, especially of men and women. Our results confirm critics' arguments that the representativeness of referendums is a function of turnout. The effect is not very strong, but we believe our estimates based on the Swiss data to be a conservative estimate of the turnout effect. Overall, the referendums analyzed here are not highly unrepresentative of the majority opinion in the sample. A purely descriptive assessment of the representativeness of referendums revealed 4.3 (2.9%)

unrepresentative outcomes versus 26.7 *representative outcomes*, suggesting that on balance referendums were beneficial rather than detrimental to representation.

We find only few cases where the outcome would have been more representative even under full turnout vis-à-vis a counterfactual representative outcome. Thus, our results are in line with research on the turnout effect in elections which finds that higher turnout would not radically change the outcome of votes. For instance, Citrin et al. (2003) find that nonvoters are more Democratic than voters in US Senate elections but that the structure of electoral competition weakens the effect of turnout on results considerably. The general lack of competitiveness of Senate races implies that there are few cases where higher turnout could have realistically changed electoral outcomes. Hence, only when referendums are very close may turnout affect the outcome. In our sample only nine out of 148 referendum results (6 %) are within two percentage points of the 'tipping point' 50 percent.

Our results can be regarded as a proxy for a referendum outcome under full turnout – however, caution should be applied when doing so. As (1997, 4) has pointed out, "nonvoters who are asked their opinions on policy and partisan preferences in surveys are typically citizens who have not given these questions much thought, who have not been politically mobilized, and who, in terms of social class, have not developed class consciousness. It is highly likely that, if they were mobilized to vote, their votes would be quite different from their responses in opinion polls." In that regard, it would be interesting to run a survey prior to a referendum which asks respondents for their likelihood to participate in the vote and their hypothetical vote choice if they were to go.

Another question of course is whether referendums lead to generally 'good' policy outcomes, even when they are responsive to the will of the majority. Some authors have argued that direct democratic institutions, even when responsive to the majority opinion, can lead to non-democratic outcomes. As Ferejohn (2008, 193ff.) claims, the quality of the outcome "depends on whether the median voter's wants really reflect some attractive conception of the common interest […] or whether, instead, they are ephemeral reactions to emotionally charged events, or are manipulated by special interests for their own purposes." Testing this claim empirically is difficult because the characteristics of a 'good outcome' have to be defined normatively. The Swiss case does provide examples of majority-supported referendum outcomes that could be considered as bad outcomes – for example, the rejection of a new naturalization law facilitating citizenship for second and third generation immigrants born and raised in Switzerland. Swiss voters rejected such policy proposals in 1983, 1994, and 2004 (mostly with very small margins). A new proposal was only recently accepted in February 2017. One could argue that in cases like this the median voters interest was probably driven by special interests rather than notions of fairness and justice. Generally, the tendency to have highly emotionally charged referendums ending in disputed outcomes has become more common in Switzerland since the 2000s concurrent with the rise of the populist right Swiss people's party. This makes this question, although scientifically and politically relevant, less of an issue for our analysis.

Further research should also focus on referendums beyond Switzerland. What this study does provide is an alternative way to study the representativeness of referendums, which we believe can fruitfully be applied not just in Switzerland but elsewhere, too. Kriesi (2005) refers to Switzerland's system of direct democracy as the "Swiss laboratory." It is precisely that with all the usual benefits and drawbacks. The Swiss political system provides us with a unique setting to study the representativeness of referendums, however it may be hard to generalize these results to other systems. Concretely, one may suspect that because of very low turnout in national elections direct democracy compares quite favorably in this setting, particularly as turnout in referendums is usually not much lower. In countries with larger differences in turnout we may find even stronger turnout effects.

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