Universität St.Gallen

Voter Turnout in Concurrent Votes

Reto Foellmi, Rino Heim, Lukas Schmid

August 2022 Discussion Paper no. 2022-09

School of Economics and Political Science, Department of Economics

University of St.Gallen

Editor: Mirela Keuschnigg
University of St.Gallen
School of Economics and Political Science
Department of Economics
Müller-Friedberg-Strasse 6/8
CH-9000 St.Gallen
Email seps@unisg.ch
Publisher: School of Economics and Political Science
Department of Economics
University of St.Gallen
Müller-Friedberg-Strasse 6/8
CH-9000 St.Gallen

Electronic Publication: http://www.seps.unisg.ch

Voter Turnout in Concurrent Votes[1]

Reto Foellmi, Rino Heim, Lukas Schmid

Author's address:

Reto Foellmi
SIAW-HSG
University of St. Gallen
Bodanstrasse 8
9000 St. Gallen, Switzerland
Email reto.foellmi@unisg.ch
Website sites.google.com/site/foellmireto

Rino Heim, MSc - Universität Luzern (unilu.ch)

Prof. Dr. Lukas D. Schmid - Universität Luzern (unilu.ch)

[1] For helpful comments, we are grateful to Alexander Fouirnaies and seminar participants at the University of Fribourg, the University of Lucerne, and the University of St.Gallen.

Abstract

This paper studies voter turnout in concurrent votes. We develop a theoretical model that incorporates proposition salience and two types of voting costs. The first type is fixed costs of going to the polls that are to be paid only once per voting day. The second type is information costs that must be paid for each vote separately. Our model explains how the net benefit of concurrent votes, defined as salience minus information costs, enters a voter's utility function and thereby affects turnout. We test our model predictions using data on concurrent propositions in Switzerland from 1981-2016. Our results suggest that both the proposition with the highest net benefit and the sum of the net benefits of all concurrent propositions are important determinants of the individual turnout decision. We also find that the marginal impact on turnout rises with the net benefit of a proposition.

Keywords

Concurrent votes, turnout, rational voter model, referendums

JEL Classification

D72; D90

1 Introduction

Holding multiple elections and referendums on the same day is a common practice in most developed democracies. In 68% of OECD countries, voters could vote for more than one election or referendum on the same day in the period from 2010 to 2021. In Colombia, Poland, Spain, and Switzerland, for instance, voters elected two different chambers at the national level on the same voting day. Other countries, such as Germany, Italy, Sweden, and the United States held elections for parliaments for different tiers concurrently. In addition, a number of countries that held referendums from 2010 to 2021 combined these with local or national elections, namely Hungary, Lithuania, New Zealand, United Kingdom, and Switzerland.

This paper analyzes individual turnout in votes (elections and referendums) that are held concurrently. In the theoretical part, we develop a natural extension of the rational choice model with single propositions by introducing fixed and variable components of both costs and benefits (Downs 1957; Riker and Ordeshook 1968). The fixed component occurs only once per voting day regardless of how many concurrent votes are on the agenda, and the variable part is vote-specific. Subtracting these voting costs from the salience, defined as gross benefit, of a specific vote gives us the net benefit for each single vote. We then explore how the different net benefits enter a voter's utility function and thereby affect turnout. A central assumption of our model is that the utility function of voting is a constant-elasticity-of-substitution aggregation of the net benefits of the single votes. Our model entails two polar cases. The first case is that a voter's total utility depends on the sum of net benefits of all votes. The second case is that total utility only depends on the net benefit of the vote with the maximum net benefit. For intermediate cases, the model predicts that a marginal rise in net benefit of the vote with the highest net benefit is the most important determinant of the individual turnout decision.

In the empirical part of the paper, we use data on federal popular votes in Switzerland from 1981 to 2016. We use the voting days with only one proposition to estimate both the average fixed costs and a parameter that re-scales the costs and the benefits in the empirical cost-benefit calculus. Based on these parameters, we compute the individual proposition net benefits for voting days with two or more concurrent propositions. These individual proposition net benefits help us understand how each single proposition affects the individual turnout decision on a voting day with multiple propositions. Our findings indicate that both the maximum proposition net benefit as well as the sum of all proposition net benefits matter for the individual turnout decision on voting days with multiple propositions. These findings are consistent with our theoretical model with an intermediate value of our central parameter, ρ, that describes the elasticity of substitution among the net benefits of all concurrent propositions. We observe the same pattern in a further empirical analysis, where we explore how the net benefit of each proposition affects turnout. We find that the proposition with the highest net benefit has the largest marginal effect on the individual turnout decision but lower-ordered propositions still have a significant effect on the decision to turn out. Two robustness tests support this conclusion. We show that our findings are robust to the use of binary net benefit measures and to changes of the functional form of the estimation equation.

Our paper contributes to a strand of rational choice models that seek to explain turnout based on a cost-benefit calculus. The starting point of this branch of theoretical research is Downs (1957). In his model, an individual votes if her expected benefits, the product of the probability of being decisive times the benefits, exceeds her costs of voting. More recent literature has endogenized the probability of being decisive in game-theoretic models and explain turnout even when voting costs are relatively high (Ledyard 1984; Palfrey and Rosenthal 1983) and in the context of uncertainty (Palfrey and Rosenthal 1985). A second branch of the literature goes back to Riker and Ordeshook (1968) who rationalize the cost-benefit calculus by including civic duty as an additional term in voters' utility function. One caveat of this approach is that civic duty is hard to observe. As a response to this, Coate and Conlin (2004) and Feddersen and Sandroni (2006) endogenize the concept of civic duty and rely on the behavioral assumption that a citizen's vote decision is driven by maximizing the welfare either of the population or of the group she belongs to. In a similar vein, Uhlaner (1989) and Morton (1991) assume that ideologically similar voters group together, coordinated by a leader and that these leaders can increase turnout by increasing the consumption benefit of their members. Our contribution to this literature is twofold. First, our paper explains with a rational choice model why individuals vote or abstain in the context of multiple concurrent votes. We analyze how the particular net benefits of concurrent propositions add up to the final individual turnout decision on a given voting day. Second, our theoretical and empirical analysis does not rely on constant benefits and costs for all supporters of a proposition, they vary at the individual level.

Our rational choice model in the context of multiple elections and votes is also related to the work of Degan and Merlo (2011). They study simultaneous two-candidate elections in an uncertain voting model where citizens are uncertain about candidates' positions and want to avoid voting for the "wrong" candidate. Their model differs from ours in several dimensions. First, we study a classical Downs model, while Degan and Merlo (2011) use an uncertain voting model. Second, their model is focused on two-party competition in elections, while we are interested in direct-democratic popular votes with multiple propositions. Third, they model turnout and the voting decision as a two-stage-process, while we are primarily interested in the turnout decision. Fourth, their model explains why voters selectively abstain in the context of simultaneous elections while we focus on how voters are mobilized in this context.

Recent empirical literature has shown that turnout increases by a substantial margin when holding concurrent elections from different or equal tiers (Bracco and Revelli 2018; Cantoni, Gazzè, and

Schafer 2021; Dehdari, Meriläinen, and Oskarsson 2021; Garmann 2016; Kogan, Lavertu, and Peskowitz 2018; Leininger, Rudolph, and Zittlau 2018), concurrent votes (Stutzer, Baltensperger, and Meier 2019), or combining elections and popular votes (Schmid 2016). We advance this strand of literature by theoretically and empirically showing the mobilization mechanism behind concurrent votes. Two aspects are crucial in this context. First, the voting costs comprise a fixed costs component that has to be paid only once for each voting day and therefore leads to economies of scale. Second, it is not only the highest proposition net benefit that predicts individual turnout, but also the propositions of lesser importance, albeit at a lower degree. The previous literature has not focused on why turnout increases when two low-salience elections are combined and why turnout of the high-salience election increases when holding it concurrent with a low-salience election. Our framework is able to explain these empirical regularities.

The remainder of this paper is organized as follows. Section 2 presents the theoretical model. Section 3 explains the institutional context. Section 4 presents the data and Section 5 discusses the econometric framework. In Section 6, we present our main results and robustness tests. Section 7 concludes.

2 A Model of Concurrent Votes

According to Downs (1957) an individual voter i compares the benefits and costs of voting for a single election or referendum

$$U_i = pB_i - C_i, \tag{1}$$

where all variables take positive values. The variable p denotes the perceived probability that the vote is decisive, B_i is the benefit for voter i when the preferred candidate wins (or the preferred result of the referendum is achieved), and C_i denotes the net costs of voting. Conceivably, elections and referendums with higher salience have a higher benefit B_i. The term C_i consists of two elements, fixed costs of voting F_i and information costs I_i. The fixed costs comprise the costs of going to the poll station or filling out the documents and going to the postbox. On the other hand, fixed costs may be reduced as voting entails civic virtue or expressive benefits (Riker and Ordeshook 1968; Dhillon and Peralta 2002). We assume fixed costs to be positive. The two elements enter costs C_i in an additive way, $C_i = F_i + I_i$.

How does this very simple model generalize to multiple elections and referendums? Assume there are N votes, indexed by j, that take place at the same time. Expected benefits pB_{ij} and information costs I_{ij} are vote-specific, whereas fixed costs F_i occur only once per voting day. Without fixed costs, the net benefit for a single vote U_{ij} is then given as $U_{ij} = pB_{ij} - I_{ij}$.

Obviously, voter i will participate in a single vote j only if $U_{ij} \geq 0$. When will voter i go to the polls to vote for some or all of the different votes? This depends on how the net benefits of the different votes are weighted.

With multiple votes, a voter may be attracted to cast a ballot because of the most salient issue or because of the number of all relevant votes that she may decide on. To capture this idea, we assume that the utility function of voting is a constant-elasticity-of-substitution aggregation of the net benefits of the single votes. From this utility value, the fixed costs of voting F_i are deducted. The utility of voting is

$$U_i = \left(\sum_{j=1}^{N} \left(\hat{U}_{ij} \right)^{\frac{1}{\rho}} \right)^{\rho} - F_i, \tag{2}$$

where $\hat{U}_{ij} = \max \left\{ U_{ij}, 0 \right\}$ and $\rho \in (0, 1]$. Note that the utility function in equation (2) encompasses the Downsian formulation for a single vote (1) as a special case. If we set $N = 1$ and assume $pB_i - I_i > 0$, the index j is no longer needed. We get directly $U_i = U_{ij} - F_i = pB_i - (I_i + F_i) = pB_i - C_i$, which is the formulation in equation (1) above.

The first-order conditions of the utility function of voter i are straightforward. The voter will go to the polls if $U_i \geq 0$ where U_i is defined by equation (2). If U_i is nonnegative and she goes to the polls, she will vote for a single vote j if $U_{ij} = pB_{ij} - I_{ij} \geq 0$. For votes where $U_{ij} < 0$, the voter will abstain.

The utility function encompasses several polar cases depending on the value of our central parameter ρ . With $\rho = 1$, the voter's utility function is $U_i = \sum_{j=1}^{K} \max \left\{pB_{ij} - I_{ij}, 0\right\} - F_i$ and the voter considers simply the sum of net benefits of all votes at stake minus the fixed costs. If ρ goes to zero, U_i approaches $\max_j \left\{pB_{ij} - I_{ij}\right\} - F_i$, the derivation is shown in Online Appendix A. In that case, total utility depends on the maximum net benefit of a single vote U_{ij} only. Hence, if ρ goes to zero voting decisions are driven by the single vote with the highest net benefit.

For intermediate values of ρ, the theory naturally predicts that an increase in the net benefit of vote j is of higher importance for the turnout decision the higher the net benefit of vote j is. To see this, consider the partial derivative of the utility function U_i in equation (2) with respect to a single vote $\hat{U}_{ij}$, we get

$$\frac{\partial U_i}{\partial \hat{U}_{ij}} = (U_i + F_i)^{1-\frac{1}{\rho}} \left(\hat{U}_{ij}\right)^{\frac{1}{\rho}-1} . \tag{3}$$

The impact on utility is proportional to $\left(\hat{U}_{ij}\right)^{\frac{1}{\rho}-1}$. An increase in net benefit of a vote with higher net benefit $\hat{U}_{ij}$ has a larger effect on the utility value U_i and thus on turnout than an increase of a vote where the net benefit is lower. This predicts that voting behavior is driven more strongly by the important votes, although the less important ones play a role as well. We will explore this prediction in the empirical section.

3 Institutional Background

Switzerland is a federal republic with a bicameral parliament, where the parliament has full legislation competences at the level of federal acts and members of parliament administer day-to-day governance, but the citizens remain the sovereign. This semi-direct democracy is unique and combines direct democratic elements with representative democracy. These direct democratic institutions consist of legislative and constitutional referendums. A legislative referendum can either be compulsory or optional. The compulsory referendum subjects the legislation drafted by political elites to a binding popular vote. Every amendment to the federal constitution needs to be approved in a compulsory referendum by the majority of the votes cast (*Volksmehr*) as well as by the majority of the federal units (*Ständemehr*).[1] The optional referendum empowers citizens to make a petition that calls existing legislation to a vote by collecting 50,000 signed petitions within 100 days.[2] This form of direct democracy effectively grants the voting public a veto on laws adopted by the politicians.

The constitutional referendum, on the other hand, empowers citizens in Switzerland to propose specific statutory measures or constitutional reforms to the government with a popular initiative. It requires the submission of 100,000 signed petitions within a time window of 18 months. The government and the parliament have the possibility to launch a counter proposition as an alternative to a popular initiative. The counter initiative is held concurrent with the popular initiative.

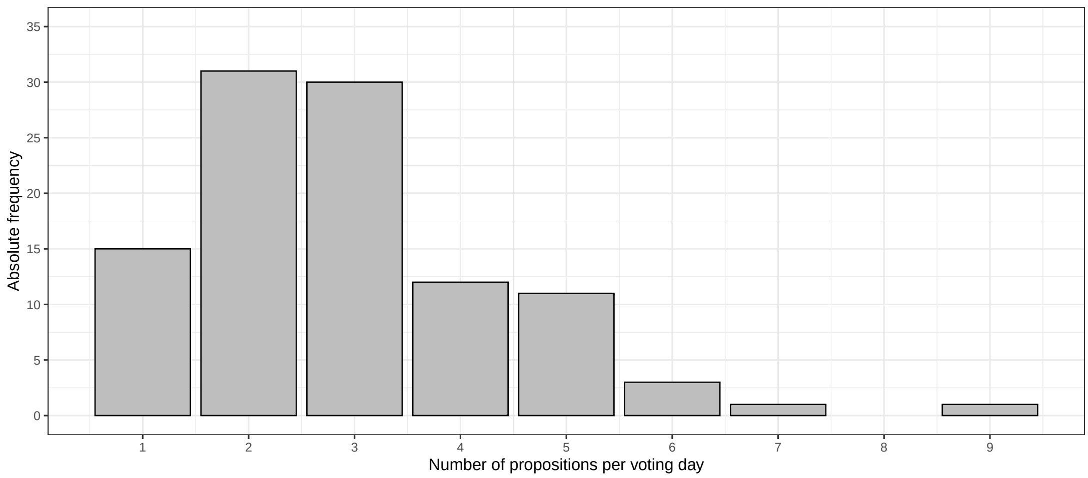
Overall, Swiss voters decided on 304 federal legislative and constitutional referendums in the

1. Each of the 26 cantons has one federal unit vote (*Ständestimme*), except for Basel-Land, Basel-Stadt, Nidwalden, Obwalden, Appenzell Ausserrhoden, and Appenzell Innerrhoden that have half a vote.

2. An optional referendum can also be called by eight cantons. This option, however, has been chosen only once.

period between June 14, 1981 and June 5, 2016.[3] Most of the propositions were held concurrent with other propositions. Only 15 voting days involved a popular vote with a single proposition, corresponding to a fraction of 14.4% of all popular votes. The average number of propositions per voting day is 2.9 with a maximum of nine propositions on the 18th of May 2003.[4] Figure 1 presents the distribution of the number of propositions per voting day. Most voting days include two or three propositions, and less frequently one, four, or five propositions. Very rarely, it happens that six, seven, or even nine propositions are on the ballot on a voting day.

Figure 1: Distribution of the Number of Propositions per Voting Day



Note: The graph shows the distribution of the number of propositions per voting day including all popular votes in the period from June 14, 1981 to June 5, 2016.

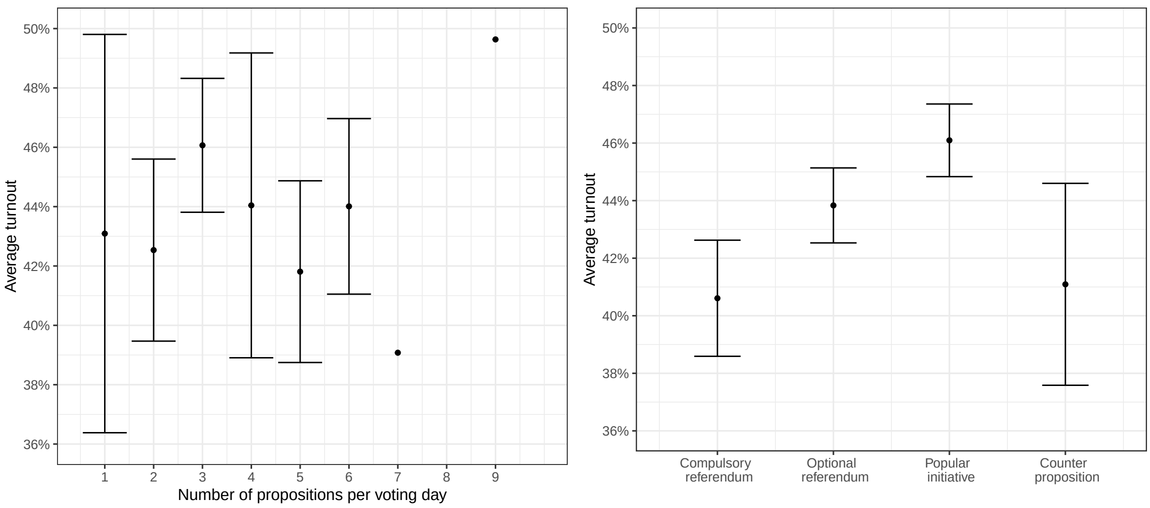
How are the number of propositions per voting day and the importance of the propositions related? On the one hand, the sample of voting days with single propositions includes important foreign policy decisions for Switzerland, such as the proposed membership to the United Nations (1986

3. We cannot use data after June 5, 2016 because there is no information on salience for non-voters in this period, as the survey was partially revised.

4. We do not include the voting day with nine propositions (May 18, 2003) and the voting day with seven propositions (May 17, 1992) in our analysis. The reason is that no respondent answered the questions on salience and information costs for all propositions on these two voting days. Therefore, we cannot construct the net benefits, our main measures of interest.

and 2002), membership to the European Economic Area (1992), the sectoral agreements with the European Union (2000), as well as the extension of the sectoral agreements to the new member states (2005). On the other hand, arguably less important propositions, such as the complete abolishment of animal testing (1985) and subsidies for small farmers (1989), were also decided as single propositions. The heterogeneity in the importance of single propositions is reflected in the turnout rate of these propositions. Both the voting day with the highest and the one with the lowest turnout rate are voting days with single propositions.[5] This pattern holds when using administrative data on the number of propositions and turnout. The left panel in Figure 2 presents evidence that there is no obvious pattern between the number of propositions and average administrative turnout.

Figure 2: Average Turnout by the Number and the Legal Form of the Propositions



Note: The left graph presents the average turnout by the number of propositions per voting day and the right graph presents the average turnout by the legal form of the proposition. The error bars present the 95% confidence interval. The confidence intervals for the average turnout of 7 and 9 propositions per voting day are missing because there is only one voting day for each of these categories.

In contrast to the number of propositions, the legal form is related to turnout as indicated in the right panel of Figure 2. With a turnout rate of 46.1%, popular initiatives have the highest average turnout, while optional referendums have an average turnout of 43.8%. Counter propositions and

5. The single proposition with the highest turnout rate was a compulsory referendum about the membership to the European Economic Area in 1992 with a fraction of 78.7% of eligible voters and the single proposition with the lowest turnout was an optional referendum about the animal disease act with a fraction of 27.6% of eligible voters.)

compulsory referendums have the lowest average turnout with rates of 41.1% and 40.6%.

The Federal Council decides on the number of propositions and their composition on a given voting day. It is, however, obliged to consider the appropriate deadlines by which a proposition must be put up to a vote. For administrative reasons, the Federal Chancellery chooses four voting days per year that are reserved for federal referendums and set at least 20 years in advance.[6] Based on these reserved voting days, the Federal Council decides at least four months before the popular vote takes place which propositions will be on the ballot.

4 Data

We use individual voting data from the post-vote survey “VoxIt”, that contains 226,223 observations and covers 273 federal propositions on 96 voting days, to explore how voters are mobilized on a voting day with multiple propositions (FORS 2016).[7] The post-vote survey data includes individual information about the political behavior of the participants, such as their turnout decision, the salience of each proposition, and the difficulty a participant had to make up her mind about a proposition.[8] It also includes detailed personal characteristics, such as age, gender, marital status, and education as well as political knowledge.

In analogy to our theoretical model, we empirically explore an individual’s decision to participate in a popular vote as the difference between the benefits and costs of voting. The costs of voting consist of two elements, net fixed costs of voting and information costs. As a measure of benefits, we

6. The exceptions with only two scheduled voting dates are the years in which federal elections take place. See https://www.bk.admin.ch/ch/d/pore/va/vab_1_3_3_1.html; accessed July 21, 2022.

7. Note that we exclude eight voting days with a total of 31 federal propositions. These propositions had either missing data or the survey participants were not asked about each individual proposition.

8. The survey participants were asked the following question: "In general, do you find it rather difficult or rather easy to imagine the impact of a yes or a no vote on your person, on people like you, with the information you have received?"

use the individual subjective salience. All respondents rated each proposition on a scale from 0 (not important) to 10 (very important). As a measure of information costs, we use the answer to the question whether a respondent had difficulties to make up her mind about a proposition. Table 1 presents the summary statistics of these two variables and the turnout decision from the post-vote survey data. Panel (A) reports the data of all 12,268 individuals on voting days with a single proposition.[9] Panel (B) presents the 67,941 participants who were asked about the propositions on voting days with multiple propositions. In both panels, we observe very similar statistics, the average turnout is about 66% and 67%, the average salience is slightly above 5 and an average of 44% of citizens had difficulties to form an opinion.

Table 1: Descriptive Statistics of the Empirical Cost-Benefit Calculus

Statistic	N	Participants	Mean	St. Dev.	Min	Max
			Panel (A): Single propositions			
Turnout	12,268	12,268	0.66	0.47	0	1
Salience	12,268	12,268	5.42	3.01	0	10
Difficulty	12,268	12,268	0.44	0.50	0	1
			Panel (B): Multiple propositions			
Turnout	213,955	67,941	0.67	0.47	0	1
Salience	213,955	67,941	5.20	3.12	0	10
Difficulty	213,955	67,941	0.44	0.50	0	1

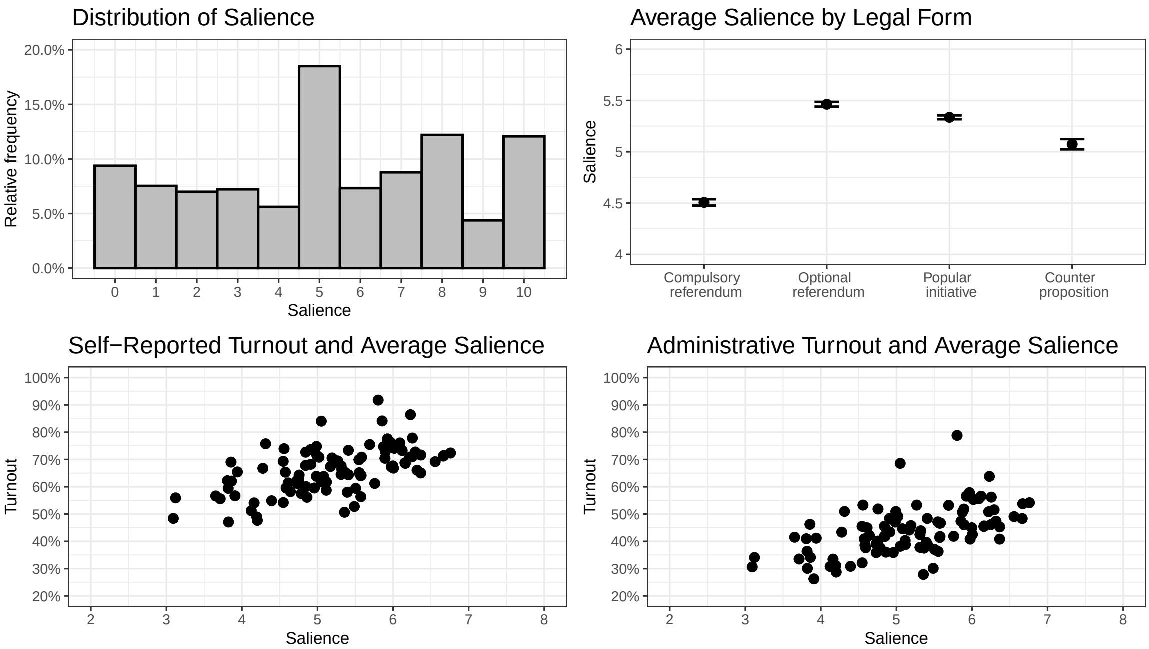
Note: This table presents the number of observations, the number of participants, the mean value, the standard deviation, the minimum and the maximum value for each variable that we use to construct the empirical cost-benefit calculus. Panel (A) contains voting days with single propositions and Panel (B) summarizes the data of voting days with two or more concurrent propositions.

Figure 3 presents descriptive statistics on the individual subjective salience and sheds light on how this variable is related to both the legal form of a proposition and turnout. The upper left panel shows the distribution of the measured salience for voters and non-voters. Citizens tend to choose prominent numbers in the middle and at the tails of the distribution (0, 5, or 10) more often. The mode with

9. We exclude one voting day with a single proposition (June 4, 1989) due to missing cantonal information of the survey participants.

a value of 5 is clearly higher than the other values. The upper right panel in Figure 3 presents the average individual salience for each of the four legal forms of a proposition. Optional referendums and popular initiatives score highest in terms of average salience, followed by counter propositions. Compulsory referendums achieve the lowest average salience. This relationship between the legal form and salience is qualitatively similar to the relationship between the legal form and administrative turnout in Figure 2, lending support to our salience measure.

Figure 3: The Individual Subjective Salience

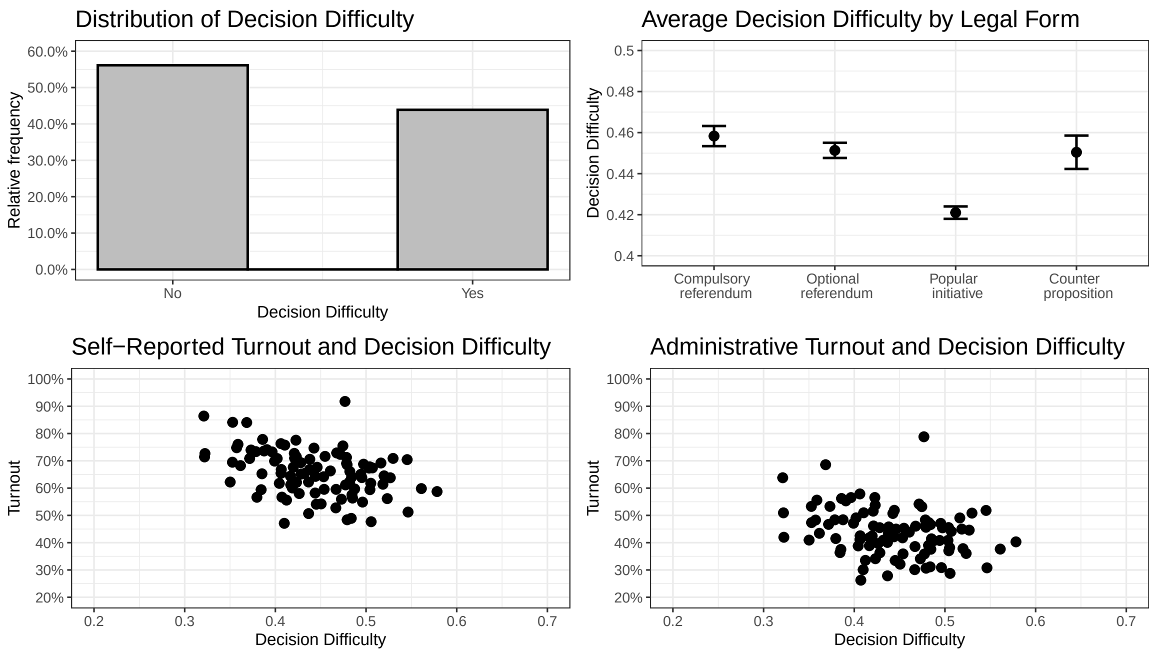


Note: The upper left panel presents the distribution of the individual subjective salience, which ranges from 0 (not important) to 10 (very important). The upper right panel presents the average salience by the legal form of the proposition, where the error bars illustrate the 95% confidence interval of the mean. The lower left panel presents the relationship between the average self-reported turnout from the survey with the average individual self-reported salience and the lower right panel presents the relationship between average turnout from administrative data with the average individual self-reported salience.

The individual salience not only depends on the legal form of the proposition, but is also associated with turnout. The lower two panels in Figure 3 demonstrate how the average salience per voting day from the post-vote survey is correlated with self-reported (lower left graph) and administrative turnout (lower right graph). In both graphs, we observe a strong positive statistical correlation of 0.58 and

0.55, respectively. This comparison of average salience ignores that the concurrent propositions on the same voting day may differ in terms of salience. However, there is a high congruence about which proposition is the most important per voting day among survey participants. The average congruence about the top proposition is clearly highest with a value of 84.5% when there are two concurrent propositions. This means that 84.5% of respondents rate the same proposition as the more important one on voting days with two propositions. The congruence decreases to 73.6% for voting days with three propositions and to 71.6% for voting days with four propositions and is still 69.3% for voting days with five concurrent propositions.

Figure 4: The Individual Difficulty to Form an Opinion



Note: The upper left panel presents the distribution of the individual difficulty a citizen has to form an opinion about a proposition. The upper right panel presents the average difficulty by the legal form of the proposition, where the error bars illustrate the 95% confidence interval of the mean. The lower left panel presents the relationship between the average self-reported turnout from the survey with the average individual difficulty and the lower right panel presents the relationship between average turnout from administrative data with the average individual difficulty.

The second part of the cost-benefit calculus in our theoretical model consists of the voting costs. Since we do not directly observe individual voting costs, we use the difficulty a citizen had to make up her mind about a proposition as a proxy for voting costs. Figure 4 presents descriptive statistics about our empirical measure of voting costs. The upper left panel shows the distribution of the decision difficulty for voters and non-voters. Over 50% of the observations in our data stated not to have had difficulties to form an opinion about the proposition. The upper right panel presents the average difficulty for each of the four legal forms of a proposition. There is no statistically significant difference among the average difficulty of compulsory referendums, optional referendums, and counter propositions, but the figure suggests that individuals have fewer difficulties forming their opinion about popular initiatives. A possible explanation for this pattern is the fact that political actors advertise popular initiatives more than the other legal forms and therefore, citizens have fewer difficulties to decide. As expected, the two lower graphs show that self-reported average turnout (lower left graph) and administrative turnout (lower right graph) are both negatively related to the average difficulty of the citizens per voting day with a correlation coefficient of -0.39 and -0.28, respectively.

5 Econometric Framework

5.1 Construction of Proposition Net Benefits

Our theoretical model explains the decision to turn out as a cost-benefit calculus. In the empirical part of our paper, we test whether this model is consistent with the data. In order to do so, we first need to bring the measures for the individual benefits and the individual information costs to the same scale and estimate the fixed costs. Empirically, the probability that voter i participates in proposition j is

$$t_{ij} = \frac{e^{(salience_{ij} + \tau * information_{ij} + \gamma)}}{1 + e^{(salience_{ij} + \tau * information_{ij} + \gamma)}}.$$

We use maximum likelihood to obtain estimates for the unobserved parameters τ and γ of this logit model by focusing only on voting days with single propositions. This procedure has the advantage that we do not need to estimate the parameter ρ from equation (2), since it is simply equal to one in the case of voting days with single propositions. Assuming that these parameters are constant across different voting days with single and multiple propositions, we use them to construct the proposition net benefits on voting days with multiple propositions. This allows us then to analyze how each proposition net benefit affects the turnout decision in the context of multiple propositions. Table B.1 in the Online Appendix presents the results for our parameter τ, which levels the empirical benefits and costs, and for our parameter γ, which consists of the fixed costs component and civic duty. The estimated parameters are $\hat{\tau} = -1.1$ and $\hat{\gamma} = -3.4$. Both estimates are highly statistically significant. A positive estimate for γ indicates that fixed costs exceed the consumption benefit induced by civic duty.

5.2 Descriptive Statistics

To empirically analyze the relationship between turnout and the cost-benefit calculus for federal popular votes in Switzerland, we aggregate the survey data described in Section 4 at the voting day level for each individual. For the main analysis, we only include voting days with multiple (at least two) propositions. We then aggregate the proposition net benefits for our two polar cases in equation (2), once with $\rho = 1$ (sum) and once with $\rho \to 0$ (maximum). We do this at the voters $\times$ voting day level. This leads to U^{sum}, the total sum over all positive proposition net benefits of casting a ballot on a specific voting day and U^{max}, the maximum proposition net benefit on a given voting day. Consider a voting day with two propositions. Individual i has a salience of 7 and 10 for these two propositions and the difficulty is for both propositions equal to 1. Then is $U^{sum} = (7 - 1.1 * 1) + (10 - 1.1 * 1) - 3.425 = 11.375$ and $U^{max} = 10 - 1.1 * 1 - 3.425 = 5.475$.

Table 2: Descriptive Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Turnout	67,941	67.01	47.02	0	100
Utility sum	67,941	11.62	9.73	−3.42	56.58
Utility max	67,941	2.79	3.01	−3.42	6.58
No. of propositions	67,941	3.16	1.08	2	6
Initiative	67,941	0.79	0.41	0	1
Counter initiative	67,941	0.20	0.40	0	1
Optional referendum	67,941	0.65	0.48	0	1
Compulsory referendum	67,941	0.35	0.48	0	1
Age	67,941	48.33	17.20	18	97
Male	67,941	0.50	0.50	0	1
Uni	67,941	0.17	0.38	0	1
Married	67,941	0.61	0.49	0	1
Political knowledge	67,941	0.68	0.36	0.00	1.00

Note: The data covers only voting days with at least two concurrent propositions. The columns describe the number of observations, the mean value, the standard deviation, the minimum and the maximum value for each variable we use in our main analysis.

Our outcome variable is turnout, which measures the individual turnout on a voting day, re-scaled from 0 (abstain) to 100 (turn out). We control for the political setting of the vote by including the number of concurrent propositions, which ranges from one to six, and the legal form of the vote by including indicator variables for popular initiatives, counter initiatives, and for optional and compulsory referendums. We further control for individual characteristics, such as age, gender, university degree, and an indicator for being married as well as a binary measure for political knowledge. Political knowledge is defined as the knowledge about the propositions at stake. The indicator variable is equal to one if someone can remember the names of all propositions they have voted on. The dependent and independent variables for our main analysis are summarized in Table 2. The average voter turnout in our sample of multiple concurrent propositions is 67.0%. There are on average 3.2 propositions per voting day and in 78.5% of these voting days the citizens can vote on a popular initiative, in 19.5% on a counter initiative, in 64.5% on an optional referendum, and in 35.0% of all voting days they can vote on a compulsory referendum. The average age is 48.3, men and women are equally represented, 17.1% have a university degree, 61.0% are married, and 68.5% have a high political knowledge.

5.3 Estimation model

In our theoretical model, we assume that the aggregation of the net benefits of the single propositions exhibit a constant elasticity of substitution. The parameter ρ determines how each single proposition net benefit affects the overall turnout decision on a given voting day. In the empirical part we first focus on the two polar cases with either $\rho = 1$, where voters consider simply the sum of net benefits of all propositions at stake minus fixed costs and with $\rho \rightarrow 0$, where the total utility only depends on the maximum net benefit of a single proposition. To explore whether these two utility measures can explain variation in turnout on a given voting day, we estimate a regression of individual turnout on the sum over all proposition net benefits and the maximum proposition net benefit per voting day. The main estimation equation is

$$Y_{icdt} = \mu_c + \delta_t + \beta_1 U_{icdt}^{sum} + \beta_2 U_{icdt}^{max} + X_{it}^{'}\beta + \varepsilon_{icdt}, \tag{4}$$

where Y_{icdt} denotes the turnout for individual i, living in canton c, for voting day d in year t, U_{icdt}^{sum} is the sum over all proposition net benefits for voting day d and U_{icdt}^{max} is the maximum net benefit for voting day d, $X_{it}^{'}$ is a set of control variables, μ_c and δ_t cantonal and year fixed effects, respectively, and ε_{it} is the error term. The matrix of control variables consists of the number of concurrent propositions, dummies for the legal form of the proposition, and individual characteristics, such as age, gender, university degree, and married as well as political knowledge. Our coefficients of interest are β_1 and β_2 which measure the impact of the sum over all proposition net benefits and the maximum proposition net benefit, respectively. By including canton fixed effects, we control for unobserved and time-invariant heterogeneity at the cantonal level, which might be related to the individual utility measures. The year fixed effects control for unobserved and canton-invariant factors, such as the overall decline in turnout.

We further explore how the net benefit of each proposition affects turnout by estimating regressions with each proposition net benefit of a respondent as a separate independent variable. This allows us to estimate the marginal effect of each proposition on the overall turnout decision on a given voting day. For example, let us assume that there are three propositions at stake on a given voting day and that individual i has a net benefit of 3, 4, and 7 for the respective propositions. In our regression, we include three independent variables with an entry of 7 for the highest net benefit, 4 for the second highest net benefit, and 3 for the third highest net benefit. The estimation equation is

$$Y_{icdt} = \mu_c + \delta_t + \sum_{p=1}^{P} \beta_p U_{icdt}^{p} + X_{it}^{'}\beta + \varepsilon_{icdt}$$

where U_{icdt}^{p} is the proposition net benefit for proposition p with $p = 1$ for the proposition with the highest net benefit, $p = 2$ for the proposition with the second highest proposition net benefit, and so on.

6 Effect of Proposition Net Benefits on Individual Turnout Decision

In this section, we use our survey data on federal popular votes in Switzerland to empirically analyze how each proposition's net benefit affects the individual decision to cast a ballot on voting days with multiple concurrent propositions.

6.1 Main Results

Table 3 reports the results of estimating equation (4) for voting days with at least two concurrent propositions. All regressions include canton and year fixed effects. Column (1) reports the effect of the sum over all proposition net benefits per voting day, U^{sum}, on turnout. The estimated effect is 1.6 percentage points and statistically significant. This indicates that the sum of all proposition net benefits is an important determinant of the individual turnout decision on a voting day. Column (2) presents the results when using the respondent's maximum proposition net benefit per voting day, U^{max}, as an independent variable. The point estimate is 5.4 percentage points and statistically significant. This indicates that for a voting day with multiple propositions the maximum proposition net benefit is an important predictor of turnout. To find out which utility measure dominates, we include both in the same regression and present the results in column (3). Both coefficients decrease in magnitude but are still highly statistically significant. The effect of U^{sum} is 0.6 percentage points and the effect of U^{max} is 3.9 percentage points. How do the magnitudes of these two coefficients compare in terms of a one-standard-deviation-change? The standardized effects are 5.8 percentage points for U^{sum} and 11.8 percentage points for U^{max}. In columns (4)-(6), we additionally control for the number of concurrent propositions, the legal form of the propositions, individual characteristics, and political knowledge. The estimated coefficients are qualitatively in line with the results in columns (1)-(3). In our most preferred model in column (6), the standardized coefficient for U^{sum} is 6.6 and for U^{max} it is 7.6. Overall, these results suggest that both the proposition with the highest net benefit and the sum of all proposition net benefits are important determinants of the individual turnout decision. Threw the lens of our theoretical model, our empirical estimates point to an intermediate value of the central parameter ρ.

Table 3: Effect of Utility on Turnout in Concurrent Propositions

	Dependent variable: Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
U^{sum}	1.612***		0.599***	1.392***		0.679***
	(0.099)		(0.096)	(0.078)		(0.077)
U^{max}		5.369***	3.929***		4.096***	2.510***
		(0.269)	(0.319)		(0.198)	(0.207)
Std. U^{sum}	15.7		5.8	13.5		6.6
Std. U^{max}		16.2	11.8		12.3	7.6
Covariates	No	No	No	Yes	Yes	Yes
Observations	67,941	67,941	67,941	67,941	67,941	67,941
R^2	0.121	0.138	0.143	0.244	0.247	0.251
Adjusted R^2	0.120	0.138	0.142	0.243	0.246	0.250

Note: The dependent variable of all six regressions is individual self-reported turnout, re-scaled to 0 and 100. All regressions include canton and year fixed effects, in columns (4)-(6) we additionally control for gender, marital status, age, education, political knowledge, the number of concurrent propositions, and the legal form of the propositions. The sample consists of individual post-referendum survey data about the federal popular votes in Switzerland for the period 1981-2016, including only voting days with two or more propositions. Standard errors in parentheses are clustered by canton and voting day. *** p<0.01, ** p<0.05, * p<0.1.

We further explore the theoretical prediction in equation (3) on the differential impact of the propositions' net benefits by estimating regressions with all ordered proposition net benefits of a respondent as a separate independent variable. We repeat this procedure for six different samples, namely the sample of all voting days with a single proposition, the sample of all voting days with two propositions, and so on. Column (1) of Table 4 presents the effect of the individual net benefit for voting days with a single proposition as a benchmark. The point estimate is 3.5 percentage points and statistically significant. Columns (2)-(6) document that the proposition with the highest net benefit is the most important driver of turnout, while most propositions with lower net benefits are statistically significant but substantially smaller. The pattern is most pronounced for voting days with two and three propositions for which we have good statistical power. These results are in line with our theoretical model. The partial derivatives of the utility function suggest that propositions with the highest net benefit exhibit a stronger marginal impact on turnout than propositions with lower net benefits. As we can see from Table 4, the marginal impact of individual net benefit on turnout is strongest for the proposition of highest net benefit and lower for the others. The estimates are less precise but qualitatively consistent with our theoretical model for voting days with four, five, and six propositions. The reason for this is twofold. First, the difference between the net benefits of two consecutively ordered propositions declines as the number of concurrent propositions increases, making it more difficult to distinguish them empirically. Second, the statistical power decreases, e.g., there are only two voting days with six concurrent propositions.

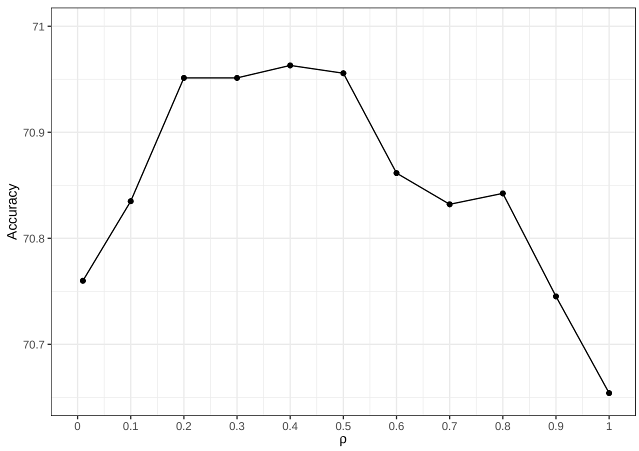
Table 4: Effect of Ordered Net Benefits on Turnout

	Dependent variable: Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
U^{1st}	3.474***	2.818***	3.039***	2.523***	3.678***	3.142***
	(0.434)	(0.270)	(0.290)	(0.320)	(0.443)	(0.769)
U^{2nd}		1.123***	1.316***	0.816	1.421**	−2.381
		(0.103)	(0.252)	(0.500)	(0.450)	(1.448)
U^{3rd}			0.478**	0.433	0.025	1.308
			(0.199)	(0.426)	(0.400)	(1.655)
U^{4th}				0.741*	0.743	0.103
				(0.370)	(0.525)	(1.837)
U^{5th}					0.871*	−0.162
					(0.415)	(0.984)
U^{6th}						1.643
						(1.088)
No. of propositions	1	2	3	4	5	6
No. of voting days	14	27	30	12	11	2
Observations	12,268	21,315	25,944	9,249	9,246	1,470
R^2	0.224	0.230	0.265	0.269	0.296	0.231
Adjusted R^2	0.222	0.228	0.264	0.266	0.292	0.212

Note: The dependent variable in all six regressions is individual self-reported turnout, re-scaled to 0 and 100. All regressions include canton and year fixed effects, and control variables for gender, marital status, age, education, political knowledge, and for the legal form of the propositions. The sample consists of individual post-referendum survey data about the federal popular votes in Switzerland for the period 1981-2016. Standard errors in parentheses in columns (1)-(5) are clustered by canton and voting day, and in column (6) they are clustered only by canton because the analysis includes only two voting days. *** p<0.01, ** p<0.05, * p<0.1.

These reduced-form results suggest that turnout on a voting day is affected by both the maximum and the sum of proposition net benefits, and that propositions with a higher net benefit are more important determinants of the turnout decision. This lends support to our theoretical model. We complement these findings with a more structural approach. Based on the model described in Section 2, we predict the individual turnout decision for different values of ρ and then compare the predicted turnout with the actual observed turnout. The resulting prediction accuracy is the share of correctly predicted turnout decisions which is depicted in Figure 5 for different values of ρ. These results show a limit value of $\rho = 1$, which is equivalent to taking the sum over all proposition net benefits per voting day, leads to the lowest prediction accuracy. At the other end of the spectrum, a model calibration with $\rho \to 0$ puts a lot of weight to the proposition with the highest net benefit and is slightly more accurate than the model with $\rho = 1$. However, a parameterized model with $\rho = 0.4$, which puts more weight on the higher proposition net benefits, gives us the highest prediction accuracy. The concave function in Figure 5 indicates that not every proposition has the same importance for an individual's turnout decision, but neither does the proposition with the highest net benefit alone.

Figure 5: Accuracy for Different Values of ρ



Note: The graph shows the accuracy of the predicted turnout based on equation (2) with different values for ρ. When $\rho = 1$, the model simply takes the sum over all proposition net benefits per voting day at the individual level. When $\rho \to 0$, the model puts a lot of weight on the maximum proposition net benefit per voting day.

6.2 Robustness

Binary Utility Measures — Our theoretical model in Section 2 predicts that an individual will go to the polls if the utility of voting is strictly positive. Our main results support the theoretical model, although the empirical analysis relies on continuous utility measures. As a robustness test, we create binary utility measures for the sum over all proposition net benefits, $1\{U^{sum} > 0\}$ and for the maximum proposition net benefit of a voting day, $1\{U^{max} > 0\}$. Table B.2 in the Online Appendix presents the results of estimating equation (4) with these binary utility measures. The results are qualitatively very similar to our main results using the continuous measure. All utility coefficients are significant and substantial in size. We further test the conjecture that propositions with the highest net benefit exhibit a stronger marginal impact on turnout than propositions of lower net benefit using binary utility measures. We first rank the proposition net benefits per voting day and then create an indicator for each proposition net benefit that equals one if the net benefit is strictly positive. The results in Table B.3 in the Online Appendix support the finding that the propositions with the highest net benefit have a stronger marginal effect on turnout than propositions with lower net benefits, even when the utility measures are binary.

Functional Form — Our main analysis relies on a linear probability model despite that individual turnout is a binary variable. To test the sensitivity of our functional form assumption, we estimate our main results with a logistic regression. Table B.4 in the Online Appendix presents the average marginal effects of regressing individual turnout on U^{sum} and U^{max} using a logit model and including canton and year fixed effects. The results corroborate our main findings in Table 3 as the magnitude and the significance levels of the coefficients are very similar. We also test whether the results that the highest proposition net benefit is the most important determinant of turnout are robust to a change in the functional form. Table B.5 in the Online Appendix presents how the cost-benefit calculus of each proposition affects turnout by estimating a logistic regressions with each proposition net benefit of a respondent as a separate independent variable. The results indicate that the main pattern is robust to a change of the functional form.

7 Conclusion

It is a common practice in Western democracies to hold votes concurrently. In this paper, we develop a rational choice model and empirically test its implications using federal popular votes with multiple propositions in Switzerland. Our theoretical model captures the turnout decision on voting days with multiple propositions as a cost-benefit calculus in which information costs matter. The voting costs comprise a variable and a fixed component where the variable information costs have to be paid for each proposition separately and the fixed cost component is voting day-specific. The distinction between the variable and the fixed part is the reason why the implications of the calculus are different for voting days with multiple concurrent propositions than for voting days with a single proposition. Our model relies on the assumption that the utility function of voting is a constant-elasticity-of-substitution aggregation of the net benefits of the single propositions. The two polar cases of this aggregation define the total utility of an individual as (i) the sum of net benefits of all propositions per voting day and (ii) the maximum net benefit of the single most salient proposition of a voting day. The derivative of the utility function implies that the proposition with the highest net benefit is the most important determinant of individual turnout.

In the empirical part of the paper, we test the implications of the theoretical model with data on federal popular votes in Switzerland from 1981 to 2016. Our findings suggest that both the maximum proposition net benefit and the sum of all proposition net benefits affect individual turnout in concurrent votes. These findings are consistent with our theoretical model with an intermediate value of our central parameter ρ on the elasticity of substitution among the net benefits of all concurrent propositions. We further find evidence that the most important proposition net benefit has the highest marginal effect on turnout and that the effect size decreases with lower ranked proposition net benefits.

Although our findings provide many interesting insights of how voters are mobilized in the context of multiple concurrent votes, we acknowledge that our analysis is not exempted from limitations. First, important parameters, such as the probability of being the decisive vote and the fixed costs, of the cost-benefit calculus are constant across all individuals and propositions. Our approach does not consider the potential heterogeneity between different demographic groups. Second, our rather simple model does not explain selective abstention or roll-off. It would be worth explaining how the cost-benefit calculus of a proposition affects selective abstention on voting days with multiple propositions.

References

Bracco, Emanuele, and Federico Revelli. 2018. "Concurrent Elections and Political Accountability: Evidence from Italian Local Elections." *Journal of Economic Behavior and Organization* 148:135–149.

Cantoni, Enrico, Ludovica Gazzè, and Jerome Schafer. 2021. "Turnout in Concurrent Elections: Evidence from Two Quasi-Experiments in Italy." *European Journal of Political Economy* 70.

Coate, Stephen, and Michael Conlin. 2004. "A Group Rule: Utilitarian Approach to Voter Turnout: Theory and Evidence." *American Economic Review* 94 (5): 1476–1504.

Degan, Arianna, and Antonio Merlo. 2011. "A Structural Model of Turnout and Voting in Multiple Elections." *Journal of the European Economic Association* 9 (2): 209–245.

Dehdari, Sirus H., Jaakko Meriläinen, and Sven Oskarsson. 2021. "Selective Abstention in Simultaneous Elections: Understanding the Turnout Gap." *Electoral Studies* 71:1–5.

Dhillon, Amrita, and Susana Peralta. 2002. "Economic Theories of Voter Turnout." *Economic Journal* 112 (480): 332–352.

Downs, Anthony. 1957. *An Economic Theory of Democracy.* New York: Harper & Brothers.

Feddersen, Timothy, and Alvaro Sandroni. 2006. "A Theory of Participation in Elections." *American Economic Review* 96 (4): 1271–1282.

FORS - Swiss Foundation for Research in Social Sciences. 2016. "Vox Data: Standardized Post-Referendum Surveys." *University of Lausanne.*

Garmann, Sebastian. 2016. "Concurrent Elections and Turnout: Causal Estimates from a German Quasi-Experiment." *Journal of Economic Behavior and Organization* 126:167–178.

Kogan, Vladimir, Stéphane Lavertu, and Zachary Peskowitz. 2018. “Election Timing, Electorate Composition, and Policy Outcomes: Evidence from School Districts.” *American Journal of Political Science* 62 (3): 637–651.

Ledyard, John O. 1984. “The Pure Theory of Large Two-Candidate Elections.” *Public Choice* 44 (1): 7–41.

Leininger, Arndt, Lukas Rudolph, and Steffen Zittlau. 2018. “How to Increase Turnout in Low-Salience Elections: Quasi-Experimental Evidence on the Effect of Concurrent Second-Order Elections on Political Participation.” *Political Science Research and Methods* 6 (3): 509–526.

Morton, Rebecca B. 1991. “Groups in Rational Turnout Models.” *American Journal of Political Science* 35 (3): 758–776.

Palfrey, Thomas R ., and Howard Rosenthal. 1985. “Voter Participation and Strategic Uncertainty.” *American Political Science Review* 79 (1): 62–78.

———. 1983. “A Strategic Calculus of Voting.” *Public Choice* 41:7–53.

Riker, William H, and Peter C Ordeshook. 1968. “A Theory of the Calculus of Voting Author.” *American Political Science Review* 62 (1): 25–42.

Schmid, Lukas. 2016. “Concurrent Elections, the Calculus of Voting, and Political Decisions.” *mimeo, University of Lucerne, https://www.unilu.ch/fileadmin/fakultaeten/wf/Dekanat/Bilder/Veranstaltungen/Lukas_Forschungsseminar2016.pdf.*

Stutzer, Alois, Michael Baltensperger, and Armando N Meier. 2019. “Overstrained Citizens? The Number of Ballot Propositions and the Quality of the Decision Process in Direct Democracy.” *European Journal of Political Economy* 59:483–500.

Uhlaner, Carole J. 1989. “Rational Turnout : The Neglected Role of Groups.” *American Journal of Political Science* 33 (2): 390–422.

Online Appendix

A Theoretical Derivations

A.1 Derivation of Utility Function for $\rho \to 0$

Let us denote the maximum value of U_{ij} by $\max_j U_{ij} =: U_{ij}^{\max}$. All $n \geq 1$ propositions that take the maximum value are denoted by the index $j^{\max}$ where $\arg\max_j U_{ij} =: j^{\max}$.

$$
\begin{aligned}
\lim_{\rho \to 0} U_i &= \lim_{\rho \to 0} \left(\sum_{j=1}^{N} U_{ij}^{1/\rho} \right)^{\rho} - F_i \\
&= \lim_{\rho \to 0} \exp \left(\frac{\ln \left[\sum_{j=1}^{N} U_{ij}^{1/\rho} \right]}{1/\rho} \right) - F_i.
\end{aligned}
$$

We substitute $\rho = 1/\nu$, when ρ approaches 0, ν goes to infinity. We apply Bernoulli-d'Hôpital's rule and divide both sides of the ratio with $U_{ij}^{\max}$. This yields

$$
\begin{aligned}
\lim_{\rho \to 0} U_i &= \lim_{\nu \to \infty} \exp \left(\frac{\left[\sum_{j=1}^{N} U_{ij}^{\nu} \right]^{-1} \sum_{j=1}^{N} U_{ij}^{\nu} \ln U_{ij}}{1} \right) - F_i \\
&= \lim_{\nu \to \infty} \exp \left(\frac{\sum_{j=1}^{N} U_{ij}^{\nu} \ln U_{ij}}{\sum_{j=1}^{N} U_{ij}^{\nu}} \right) - F_i \\
&= \lim_{\nu \to \infty} \exp \left(\frac{n \ln U_{ij}^{\max} + \sum_{j=1, j \neq j^{\max}}^{N} \left(U_{ij} / U_{ij}^{\max} \right)^{\nu} \ln U_{ij}}{n + \sum_{j=1, j \neq j^{\max}}^{N} \left(U_{ij} / U_{ij}^{\max} \right)^{\nu}} \right) - F_i.
\end{aligned}
$$

Evaluating the limes of the latter expression yields the desired result

$$
\lim_{\rho \to \infty} U_i = \exp \left(\ln U_{ij}^{\max} \right) - F_i = U_{ij}^{\max} - F_i.
$$

B Additional Tables and Figures

Table B.1: Maximum Likelihood Estimation of τ and γ

	Dependent variable: Turnout
τ	-1.100***
	(0.060)
γ	-3.425***
	(0.042)
Observations	12,268

Note: The dependent variable is individual self-reported turnout re-scaled to 0 and 100. The table reports the results of a maximum likelihood estimation of τ and γ using only the voting days with single propositions. Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table B.2: Effect of Binary Utility on Turnout in Concurrent Propositions

	Dependent variable: Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
$1\{U^{sum}>0\}$	35.681***		14.809***	26.482***		10.000***
	(1.998)		(1.445)	(1.349)		(1.180)
$1\{U^{max}>0\}$		32.434***	23.391***		24.705***	18.679***
		(2.046)	(2.217)		(1.400)	(1.605)
Covariates	No	No	No	Yes	Yes	Yes
Observations	67,941	67,941	67,941	67,941	67,941	67,941
R^2	0.085	0.097	0.101	0.217	0.225	0.227
Adjusted R^2	0.085	0.096	0.100	0.216	0.224	0.226

Note: The dependent variable in all six regressions is individual self-reported turnout, re-scaled to 0 and 100. The utility measures are binary and all six regressions include canton and year fixed effects. The sample consists of individual post-referendum survey data about the federal popular votes in Switzerland for the period 1981-2016, including only voting days with two or more propositions. Standard errors in parentheses are clustered by canton and voting day. *** p<0.01, ** p<0.05, * p<0.1.

Table B.3: Effect of Ordered Net Benefits on Turnout with Binary Utility Measures

	Dependent variable: Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
$1\{U^{1st}>0\}$	19.772***	14.574***	15.562***	11.656***	18.734***	3.526
	(1.945)	(2.065)	(2.811)	(2.670)	(3.856)	(9.542)
$1\{U^{2nd}>0\}$		11.938***	11.043***	0.633	11.508***	4.220
		(1.229)	(2.022)	(4.935)	(3.083)	(12.142)
$1\{U^{3rd}>0\}$			5.580***	7.189**	−1.598	11.787
			(1.169)	(3.232)	(4.117)	(20.983)
$1\{U^{4th}>0\}$				8.397***	8.397*	−23.785
				(2.428)	(3.808)	(21.435)
$1\{U^{5th}>0\}$					8.352***	23.787**
					(1.470)	(11.257)
$1\{U^{6th}>0\}$						−1.969
						(6.639)
No. of propositions	1	2	3	4	5	6
No. of voting days	14	27	30	12	11	2
Observations	12,268	21,315	25,944	9,249	9,246	1,470
R^2	0.197	0.208	0.227	0.242	0.250	0.210
Adjusted R^2	0.194	0.206	0.225	0.238	0.246	0.190

Note: Dependent variable is individual self-reported turnout, re-scaled from 0-100 and the utility measures are binary. All regressions include canton and year fixed effects. The sample consists of individual post-referendum survey data about the federal popular votes in Switzerland for the period 1981-2016. Standard errors in parentheses in columns (1)-(5) are clustered by canton and voting day, and in column (6) they are clustered only by canton because the analysis includes only two voting days. *** p<0.01, ** p<0.05, * p<0.1.

Table B.4: Marginal Effect of Utility on Turnout in Concurrent Propositions

	Dependent variable: Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
U^{sum}	1.689***		0.718***	1.352***		0.733***
	(0.093)		(0.119)	(0.068)		(0.089)
U^{max}		4.878***	3.187***		3.664***	1.972***
		(0.189)	(0.284)		(0.145)	(0.205)
Covariates	No	No	No	Yes	Yes	Yes
Observations	67,941	67,941	67,941	67,941	67,941	67,941

Note: The dependent variable in all six regressions is a binary measure of turnout. The table presents the average marginal effects of logistic regressions in percentage points. All regressions include canton and year fixed effects, in columns (4)-(6) we additionally control for gender, marital status, age, education, political knowledge, the number of concurrent propositions, and the legal form of the propositions. The sample consists of individual post-referendum survey data about the federal popular votes in Switzerland for the period 1981-2016, including only voting days with two or more propositions. Standard errors in parentheses are clustered by canton and voting day. *** p<0.01, ** p<0.05, * p<0.1.

Table B.5: Marginal Effect of Ordered Net Benefits on Turnout

	Dependent variable: Turnout					
	(1)	(2)	(3)	(4)	(5)	(6)
U^{1st}	3.382***	2.558***	2.478***	1.935***	3.091***	3.233**
	(0.334)	(0.254)	(0.237)	(0.280)	(0.257)	(0.174)
U^{2nd}		1.221***	1.301***	0.765	1.214***	-2.705
		(0.173)	(0.199)	(0.429)	(0.363)	(0.831)
U^{3rd}			0.599***	0.395	-0.012	1.356
			(0.215)	(0.384)	(0.234)	(1.794)
U^{4th}				0.893**	0.737	0.058
				(0.322)	(0.480)	(2.065)
U^{5th}					0.984*	1.825
					(0.466)	(0.490)
U^{6th}						0.024
						(0.042)
No. of propositions	1	2	3	4	5	6
No. of voting days	14	27	30	12	11	2
Observations	12,268	21,315	25,944	9,249	9,246	1,470

Note: The dependent variable in all six regressions is a binary measure of turnout. The table presents the average marginal effects of logistic regressions in percentage points. All regressions include canton and year fixed effects, and control variables for gender, marital status, age, education, political knowledge, and for the legal form of the propositions. The sample consists of individual post-referendum survey data about the federal popular votes in Switzerland for the period 1981-2016. Standard errors in parentheses in columns (1)-(5) are clustered by canton and voting day, and in column (6) they are clustered only by canton because the analysis includes only two voting days: *** p<0.01, ** p<0.05, * p<0.1.