Choosing an Electoral Rule: Values and Self-Interest in the Lab

Supplementary Material

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A1. Details of the experimental design

A2. Extra results

A1. Details of the experimental design

The first section of the appendix contains extra information about our experimental design:

- In A1A, we replicate the instructions that we gave to subjects at the beginning of each lab session to explain how the experimental design works. We projected the slides in the room and read the script out loud. Note that the order of the two electoral rules in the first stage (plurality and approval voting) varied from session to session. The order of the treatments in the second stage (veil and no veil) also varied from session to session.

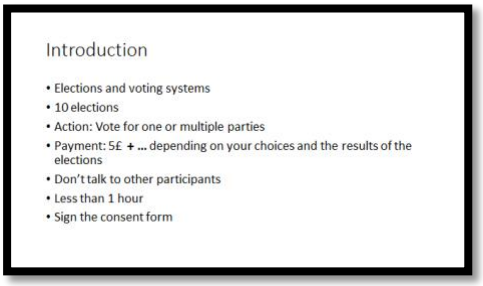
- In A1B, we reproduce the quiz questions that we asked subjects right after giving them the instructions. These questions aimed at checking that they understood the rules of the experiment. If their answer was incorrect, a message appeared on the screen explaining why this answer was in fact incorrect. In A1B, we also provide the proportion of correct answers.

- In A1C, we reproduce the screens that subjects saw on their computer when they had to make decisions. These screenshots give an idea of the information that we provided to subjects at that moment.

- In A1D, we report the socio-demographic variables that we have in our dataset in order to give a better sense of the nature of our samples.

A1A. Instructions

Slide 1



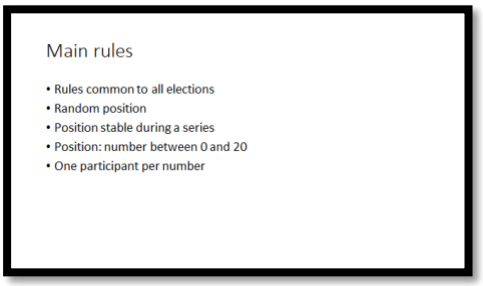
Thank you for agreeing to participate in this research experiment. This is an experiment about elections and voting systems.

You are going to participate in 10 elections. In each election, you have the option to vote for one or multiple parties. At the end of the experiment, you will get a 5£ for your participation, plus a sum which will depend on your choices and the results of the elections. The sum of money you will earn during the session will be given privately at the end.

From now until the end of the experiment you cannot talk to any other participant. If you have a question, please raise your hand and I will answer your questions privately.

This experiment should take about 1 hour. Before starting the experiment, I am asking to take a minute to read and sign the consent form.

Slide 2

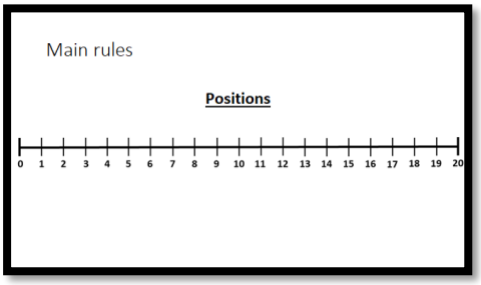


There will be 4 series of elections. I will explain the specific rules of these series later.

First, I will explain the main rules that are common to all elections. These rules apply to the entire experiment. At the beginning of each series of elections, you will be assigned a random position. This position is redefined at the beginning of each series and is stable for the elections of the series.

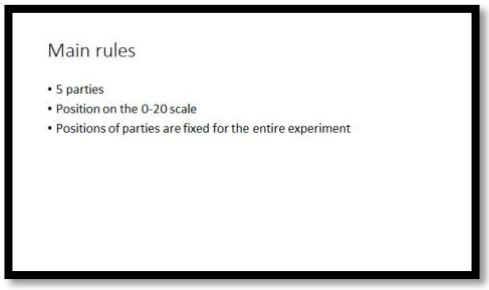
Your position is represented by a number between 0 and 20. There will be one participant per position. It is then impossible for two participants to have the same position.

Slide 3



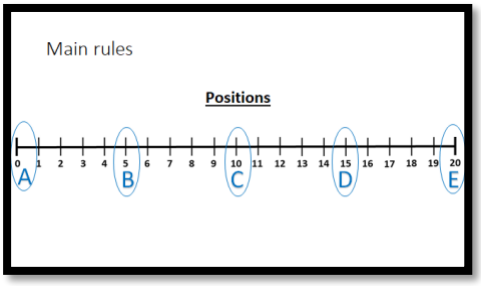
On the screen, you see a visual representation of the position of the participant. Each participant will be randomly assigned to a position on the 0-20 scale. This position will be stable for all the elections in a given series.

Slide 4



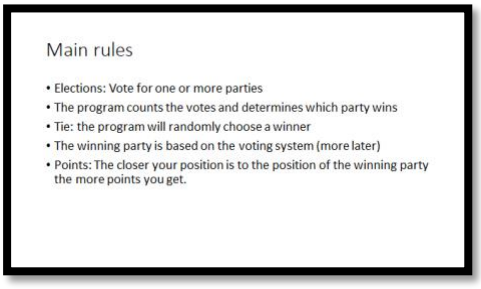
For each election, there are 5 parties. Parties also have a position on the 0-20 scale. The parties keep the same position for all the elections.

Slide 5



On the screen, you see a visual representation of the position of the parties. You see that party A is on the position 0, party B on the position 5, party C on the position 10, party D on the position 15, and party E on the position 20.

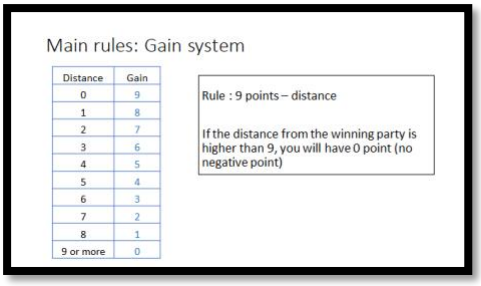
Slide 6



At each election, you will have to vote for one or more parties. After you have voted, the program counts the votes and determines which party wins the election. If there is a tie between parties, the program will randomly choose a winner among the tied parties. The winning party is based on the voting system, which is different depending on the series. I will explain that later.

At each election, you have the opportunity to earn points. The number of points earned depends on your position and the position of the winning party.

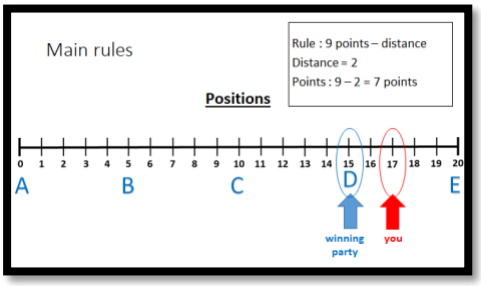
Slide 7



The number of points earned is 9 minus the distance between your position and the position of the winning party. For example, it is the distance between you and the winning party is 1, you will earn 8 points. If the distance is 5, you will earn 4 points.

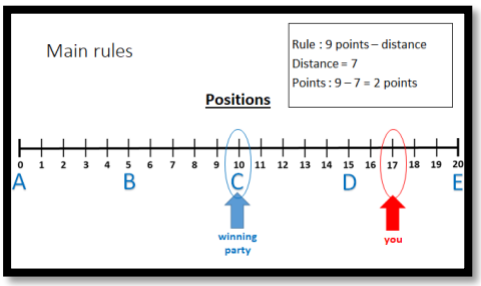
Note that if the distance is higher than 9, you will receive 0 point. There is no negative point.

Slide 8



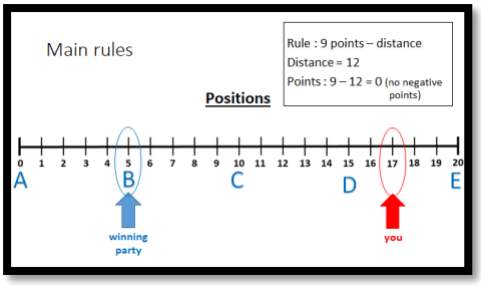
On the screen, you see a visual example of the distribution of points. Imagine that the program gives you the position 17 and that party D wins. Party D is located at the position 15. Your distance to the winning party is 2 then. You earn 9 minus 2, that is 7 points.

Slide 9



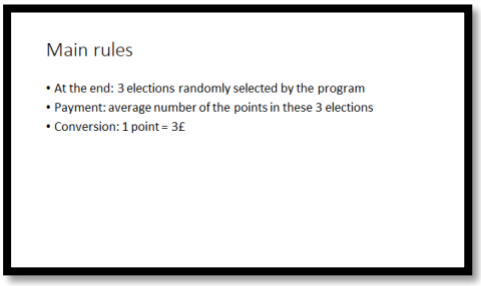
Now imagine that party C wins. Party C is located at the position 10. Your distance to the winning party is 7 then. You earn 9 minus 7, that is 2 points.

Slide 10



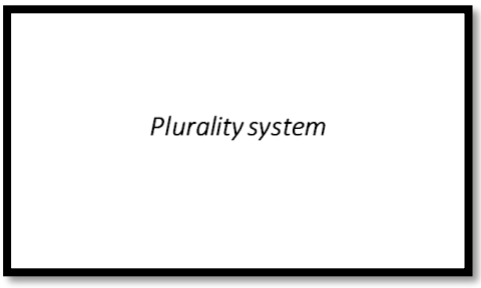
Finally, imagine that party B wins. Party B is located at the position 5. Your distance to the winning party is 12 then. You earn 9 minus 12, that is 0 point.

Slide 11



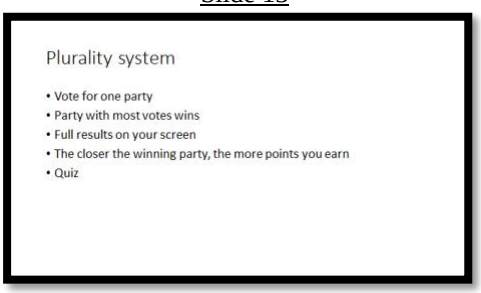
At the end of the experiment, 3 elections will be randomly selected by the program. The computer will calculate the average of the points you get in these elections, then round up the value. The computer will then convert the points into pounds. Each point is worth 3£. Depending on your decisions and the decisions of others, you can earn up to 32£.

Slide 12



This is all for the main rules. Now I will explain the rules specific to the first series of 4 elections. What is specific to this series is the voting system. For the first series, you will use the plurality system.

Slide 13

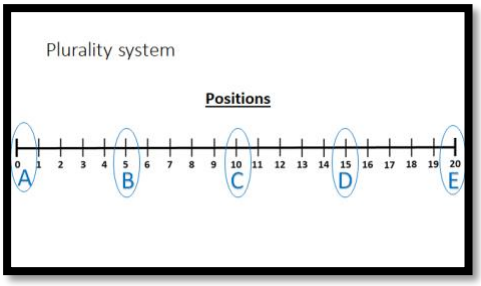


With the plurality system, you must vote for one of the five parties. Then, the party with most votes wins the election. After each election, you will see the full results of the election on your screen. You will see the votes received by each party, and the number of points earned by each participant in the room.

Your position will appear at the top of your screen. Remember that the closer your position is to the position of the winning party, the more points you earn. The number of points earned is 9 minus the distance between you and the winning party.

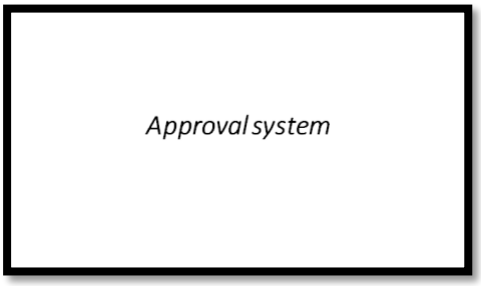
You are now going to proceed with the first series of 4 elections with the plurality system. Before that, you will have to answer to a short quiz about the rules of the experiment that I just explained. There is no point associated to this quiz.

Slide 14



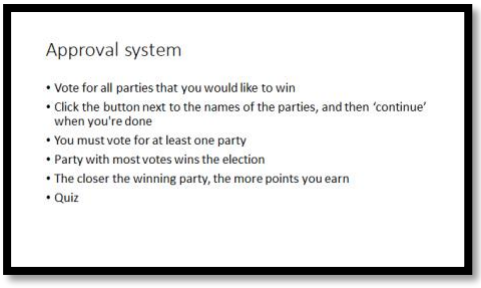
After that, there will be a series of 4 elections. During the 4 elections, you can check the screen to see the distribution of positions and the position of parties.

Slide 15



The first series is now over. Now, you are going to proceed with the second series of 4 elections. The main rules still apply for this series. What changes is the voting system. For this series, we will use the approval system.

Slide 16



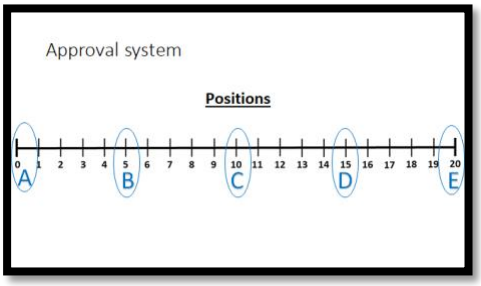
With the approval system, you can vote for as many parties as you want. You vote for all the parties that you would like to win. So, you can vote for up to five parties. Click the button next to the names of the parties you want to support and click 'continue' when you are done. You must vote at least one party. Then, the party that receives the most votes wins the election.

After each election, you will see the full results of the election on your screen. You will see the votes received by each party, and the number of points earned by each participant in the room.

Your position will appear at the top of your screen. Be careful, it may differ from the position you had during the previous series. Remember that the closer your position is to the position of the winning party, the more points you earn. The number of points earned is 9 minus the distance between you and the winning party.

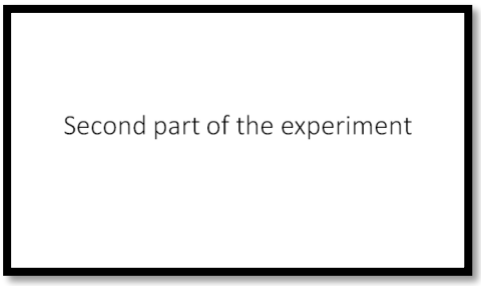
You are now going to proceed with the second series of 4 elections with the approval system. Before that, you will also have to answer a short quiz about the rules of the experiment that I just explained. There is no point associated to this quiz.

Slide 17



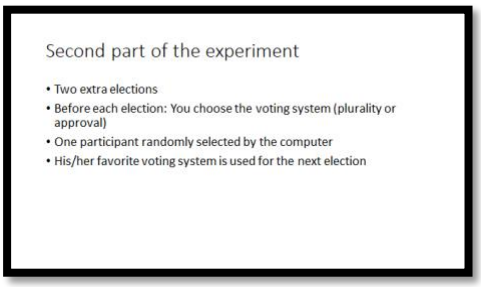
After that, there will be a series of 4 elections. During the 4 elections, you can check the screen to see the distribution of positions and the positions of parties.

Slide 18



This is now the second part of the experiment.

Slide 19

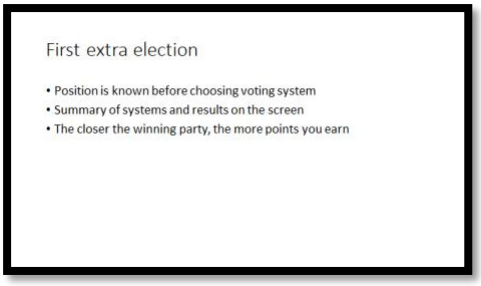


At this point, we have used two voting systems: the plurality system, and the approval system.

In the second part of the experiment, we will organize two extra elections. For these elections, you will choose the voting system that you want to use.

Before each of these last two elections, you will choose one of the two voting systems used in the first part. Then, the computer will randomly select one of the participants in the room. The preferred voting system of this randomly selected participant will be used in the next election. This election will work exactly as elections worked in the first part of the experiment.

Slide 20

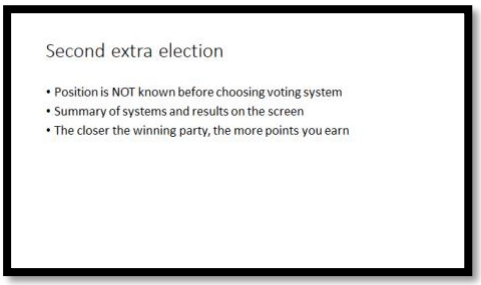


For this first extra election, you know your position on the 0-20 scale before choosing the voting system. It appears at the top of your screen. Be careful, it may differ from the position you had during the previous series.

You are now going to proceed with the choice of voting system and then the first extra election. To help you make a decision, a summary of the specific rules of each voting system will appear on your screen. We will also give you a summary of the results of the elections organized with each system during the first part.

Remember that the closer your position is from the position of the winning party, the more points you earn. The number of points earned is 9 minus the distance between you and the winning party.

Slide 21



You are now going to proceed with the choice of voting system and then the second extra election.

For this second extra election, you do NOT know your position on the 0-20 scale before choosing the voting system. This position will appear at the top of your screen after you choose the voting system. Be careful, it may differ from the one you had during the previous series. Remember that the closer your position is to the position of the winning party, the more points you earn. The number of points earned is 9 minus the distance between you and the winning party.

To help you make a decision, a summary of the rules of each voting system will appear on your screen. We will also give you a summary of the results of the elections organized with each system during the first part.

The experiment as such is over. Before proceeding with the payment, we will ask you to answer a short questionnaire about your socio-demographic characteristics and your opinion on some topics.

Thank you for participating in this experiment.

A1B. Quiz questions

Question 1 (plurality), correct response rate = 96%

Imagine the following electoral results:

Party A: 4 votes
Party B: 7 votes
Party C: 3 votes
Party D: 6 votes
Party E: 1 vote

Which party wins the election?

Party A
Party B
Party C
Party D
Party E

Answers:
[If Party B] Yes, party B wins because it is the one with most votes.
[If other party] No, party B wins because it is the one with most votes.

Question 2 (plurality), correct response rate = 71%

Is the following statement true or false?

"If my position on the 0-20 scale is 17, that I voted for party C (position 10), and that the winning party is party B (position 5), I earn 9 points minus the distance between my vote and the position of the winning party. It is 9 – 5 = 4 points."

True
False

Answers:
[If False] Yes, the statement is false. The number of points you earn is a function of the distance between the position of the party and your position, not your vote. If your position is 17 and the winning party is B (position 5), you earn 9 – 12 = 0 point (points cannot be negative).
[if True] No, the statement is false. The number of points you earn is function of the distance between the position of the party and your position, not your vote. If your position is 17 and the winning party is B (position 5), you earn 9 – 12 = 0 point (points cannot be negative).

Question 1 (approval voting), correct response rate = 96%

Imagine the following electoral results:

Party A: 10 votes
Party B: 3 votes
Party C: 4 votes
Party D: 15 votes
Party E: 13 votes

Which party wins the election?

Party A
Party B
Party C
Party D
Party E

Answers:
[If Party D] Yes, party D wins because it is the one with most votes. Note that since you have multiple votes, the total number of votes is larger than the total number of participants in the room
[If other party] No, party B wins because it is the one with most votes. Note that since you have multiple votes, the total number of votes is larger than the total number of participants in the room

Question 2 (approval voting), correct response rate = 91%

Is the following statement true or false?

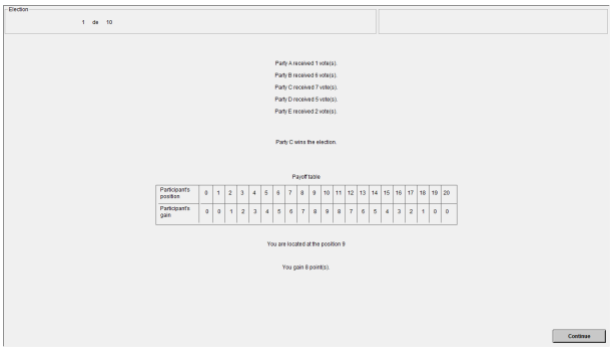
"If my position on the 0-20 scale is 13, that I voted for party D (position 15) and party E (position 20), and that the winning party is party D (position 15), I earn 9 points minus the distance between my position and the one of the winning party. It is 9 – 2 = 7 points."
True
False

Answers:
[If False] No, the statement is true. The number of points you earn is function of the distance between the position of the party and your position. If your position is 13 and the winning party is D (position 15), you earn 9 – 2 = 7 points.
[If True] Yes, the statement is true. The number of points you earn is function of the distance between the position of the party and your position. If your position is 13 and the winning party is D (position 15), you earn 9 – 2 = 7 points.

A1C. Screenshots of decision screens

Voting screen (plurality)

Result screen



Choosing electoral rule screen

A1D. Description of samples

United Kingdom	**Mean**	**Standard deviation**	**Min**	**Max**	**N**
Age	21.83	4.42	18	56	126
Gender (female=0, male=1)	0.37	0.48	0	1	126
France	**Mean**	**Standard deviation**	**Min**	**Max**	**N**
Age	29.72	13.49	18	72	126
Gender (female=0, male=1)	0.15	0.36	0	1	126

A2. Extra analysis

The second section of the appendix reports some extra regression results.

- In A2A, we present the results of the elections of the first stage. In the first stage, there are four elections under each electoral rule. In A2A, we present the average vote share of each candidate (A, B, C, D, and E) and their share of victories over the four elections of the 12 sessions.

- In A2B, we present the descriptive statistics of the dependent, independent, and control variables used in Tables 4 and A2C.

- In A2C, we reproduce the regression analysis of Table 4 of the main text to which we add control variables. Like in Table 4, we use the variables Rational Benefits and Egalitarianism as predictors. However, we add some extra control variables for this extra regression table. These are: a variable capturing the difference in points obtained by the subject under approval voting and plurality in the elections of the first stage (Myopic Benefits), a variable capturing the difference in points obtained by all subjects under approval voting and plurality in the elections of the first stage (Average Gains), a variable capturing whether the experiment was conducted in Great Britain (vs France), and some variables capturing the age, gender and self-reported political interest of the subject. The results show that the findings of Table 4 are confirmed in that effect sizes of the two independent variables (Rational Benefits and Egalitarianism) remain the same although they lose statistical significance. Note that Egalitarianism is correlated at over 0.2 with several control variables (United Kingdom and age), which inflates standard errors.

- In A2D, we reproduce the regression analysis of Table 4 of the main text using an OLS instead of a logit regression. Like in Table 4, we use the variables Rational Benefits and Egalitarianism as predictors of the choice of approval voting over plurality in the second stage. The results show that the findings of Table 4 are confirmed in that effect sizes remain the same although they lose statistical significance.

- In A2E, we reproduce the regression analysis of Table 4 of the main text to which we add a variable capturing the difference in payoffs equality that the two electoral rules create in the first stage. Like in Table 4, we use the variables Rational Benefits and Egalitarianism as predictors. Then, we add first a variable that captures the difference in standard deviation of the distribution of payoffs among subjects under approval voting and plurality in the elections of the first stage. Second, we add one that captures the difference in the number of subjects receiving at least one point under approval and plurality in the elections of the first stage. Finally, we add an interaction between these measures of payoffs equality and Egalitarianism. The results show that the interaction effects are always statistically significant regardless of the measure of payoffs equality. Furthermore, they go in the expected direction: the larger the difference in payoffs equality, the stronger the effect of Egalitarianism (negative coefficients in the case of difference in standard deviation and positive coefficient in the case of difference in the number of subjects with a least one point). The quantities of interest are presented in Figure 2 of the main text.

A2A. Election results (first stage)

	A	B	C	D	E
Average vote share					
Plurality	1.42	4.85	7.73	6.06	0.94
Approval voting	5.94	9.62	11.40	9.94	5.60
Share of victories					
Plurality	0.00	0.10	0.65	0.25	0.00
Approval voting	0.00	0.19	0.62	0.19	0.00

Note: Entries are averages over the four elections under each system in the 12 sessions (48 elections by electoral rule).

A2B. Descriptive statistics (second stage)

	Mean	Standard deviation	Min	Max	N
Choice of approval voting (instead of plurality)	0.61	0.49	0	1	504
Rational Benefit (Approval – Plurality)	-0.02	2.68	-10	10	504
Egalitarianism	5.50	1.81	0	8	504
Veil	0.50	0.50	0	1	504
Myopic Benefit (Approval – Plurality)	-0.02	14.91	-36	36	504
Average Gain (Approval – Plurality)	-0.02	0.32	-0.57	0.57	504
Great Britain	0.50	0.50	0	1	504
Age	25.77	10.76	18	72	504
Gender (female=0, male=1)	0.26	0.44	0	1	504
Political Interest (0-10)	5.71	2.18	0	10	504

A2C. Regressions with control variables (second stage)

	(No Veil)	**(Veil)**	**(Pooled)**
Rational Benefit (Approval – Plurality)	0.020	0.009	0.021
	(0.011)	(0.007)	(0.011)
Egalitarianism	0.022	0.038	0.019
	(0.013)	(0.021)	(0.012)
Rational Benefit (Approval – Plurality) x Veil			-0.012
			(0.010)
Egalitarianism x Veil			0.022
			(0.015)
Veil			-0.101
			(0.069)
Myopic Benefit (Approval – Plurality)	0.008**	0.006**	0.007**
	(0.002)	(0.002)	(0.002)
Average Gain (Approval – Plurality)	-0.048	-0.002	-0.026
	(0.034)	(0.107)	(0.067)
Great Britain	-0.117**	0.070	-0.023
	(0.031)	(0.086)	(0.052)
Age	0.000	0.004*	0.002
	(0.002)	(0.002)	(0.001)
Gender (female=0, male=1)	-0.091*	-0.018	-0.055
	(0.045)	(0.054)	(0.040)
Political Interest	-0.010	0.002	-0.004
	(0.017)	(0.013)	(0.011)
N	252	252	504

Note: Entries are marginal effects estimated from logit regressions predicting the probability of choosing approval voting over plurality. Standard errors clustered by session are in parentheses. ** $p < 0.01$, * $p < 0.05$ (two-tailed).

A2D. Regressions with OLS (second stage)

	(No Veil)	**(Veil)**	**(Pooled)**
Rational Benefit (Approval – Plurality)	0.020	0.007	0.020
	(0.011)	(0.009)	(0.011)
Egalitarianism	0.022	0.044	0.022
	(0.012)	(0.022)	(0.012)
Rational Benefit (Approval – Plurality) x Veil			-0.012
			(0.011)
Egalitarianism x Veil			0.023
			(0.014)
Veil			-0.105
			(0.069)
Constant	0.477**	0.372**	0.477**
	(0.075)	(0.118)	(0.075)
N	252	252	504

Note: Entries are marginal effects estimated from OLS regressions predicting the choice of approval voting over plurality. Standard errors clustered by session are in parentheses. ** $p < 0.01$, * $p < 0.05$ (two-tailed).

A2E. Regressions probing mechanism (second stage)

	(No Veil)	**(Veil)**	**(No Veil)**	**(Veil)**
Rational Benefit (Approval – Plurality)	0.019	0.005	0.019	0.005
	(0.011)	(0.010)	(0.011)	(0.010)
Egalitarianism	0.014	0.008	0.001	-0.018
	(0.020)	(0.044)	(0.017)	(0.028)
Difference in Payoffs Equality (1)	0.074	0.143		
	(0.044)	(0.096)		
Difference in Payoffs Equality (2)	-0.005	-0.023		
	(0.007)	(0.020)		
Egalitarianism x Diff. in Payoffs Equality (1)			0.142*	0.260*
			(0.045)	(0.066)
Egalitarianism x Diff. in Payoffs Equality (2)			0.018*	0.047*
			(0.007)	(0.012)
N	252	252	252	252

Note: Entries are marginal effects estimated from logit regressions predicting the probability of choosing approval voting over plurality. Standard errors clustered by session are in parentheses. * $p < 0.05$ (two-tailed). The variable 'Difference in Payoffs Equality (1)' captures the difference in standard deviation of the distribution of payoffs in the elections of the first sage under approval voting and plurality. The variable Payoffs Equality (2) captures the difference between the number of subjects who received at least one point in the elections of the first stage under approval and plurality.