Supplemental Online Appendix for:
"Public Voting and Prosocial Behavior"
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Appendix A: Equilibrium Solutions to Voting Games

A1. Equilibrium Behavior Under Selfish Voting

In our experiment we study a simple voting game in which there are 10 voters, divided into two groups, which we label A and B voters. There are x A voters and $(10-x)$ B voters, where $x=6$ in our principal treatments. The size of the electorate and of each type of voters is common knowledge to all. All voters receive monetary payoffs that are only instrumental, that is, depend on which party is elected. Table 1 presents the payoffs in the principal voting games we used. In the experimental voting games, subjects were asked to vote for party A, party B, or abstain. Hereafter, for expositional purposes, we label the votes for own party "selfish preference" and the votes for other party "other party voting." Voting for a party is costly, while abstaining is free. The cost of voting was always \$2. All type i voters receive the same payoffs if party j is elected, $u_i^j > 0$. Subjects were asked to vote for party A, party B, or abstain. Moreover, type i voters receive higher payoffs if party i is elected; that is, $u_A^A > u_A^B$ and $u_B^B > u_B^A$. Hereafter, for expositional purposes we label u_i^i voter i's "selfish preference." We also label vote choices when voter i chooses party j, $i \neq j$, "other party voting."

As a benchmark for our analysis of the data, we derive the equilibrium predicted voting behavior assuming selfish behavior; that is, that voters care only about their own payoffs. We also focus on symmetric equilibrium strategies, i.e. where voters of the same type with the same information use the same strategies. Define p as the probability that an A voter chooses A and q as the probability that a B voter chooses B. Given the random dictator rule, it is straightforward to show that any vote in favor of a party increases the probability that the chosen party wins the election. Hence, for any distribution of voter choices, voting for one's own party strictly dominates voting for the alternative party. Furthermore, the only choice facing voters is whether to vote for their own party or abstain and the probability that a A (B) voter abstains is given by $1-p$ $(1-q)$. Define π_i as the increase in the probability of party i winning when a voter of type i chooses to vote rather than abstain. We assume voters make their voting decisions using the standard calculus of voting (randomizing when indifferent between abstaining and voting):

$$\begin{array}{lc} \text{If } \pi_i(u_i^i - u_i^j) > 2 & \text{vote for party } i \\ \text{If } \pi_i(u_i^i - u_i^j) = 2 & \text{randomize} \\ \text{If } \pi_i(u_i^i - u_i^j) < 2 & \text{abstain} \end{array}$$

There are no symmetric pure strategy equilibria to any of our voting games. We therefore solve for the symmetric mixed strategy equilibria.[1] The possible symmetric pure strategy equilibria are the cases where either all voters are voting, all are abstaining, or one type is

[1] There are asymmetric equilibria in pure strategies in Elections C and E2. In Election C there are asymmetric equilibria where 2 voters of each type participate and in Election E2 there are asymmetric equilibria in which 1 A type votes and 2 B types vote. There are also asymmetric mixed strategy equilibria as well in Elections E1 and E2.

voting and the other type is abstaining. When all voters are voting, $\pi_A = \frac{2}{45}$ and $\pi_B = \frac{1}{15}$ and when each is multiplied by the respective difference in payoffs in all elections the product is less than 2. Therefore, the voters are not optimizing if all are voting. When all voters are abstaining, $\pi_A = \pi_B = 0.5$, which when multiplied by the respective difference in payoffs in all elections the produce is greater than 2. Again voters are not optimizing if all are abstaining. If only A type voters are participating, then $\pi_A = 0$ and each would prefer to abstain; similarly if only B type voters are participating.

We thus turn to symmetric mixed strategy equilibria. To solve for these, we derive the reaction curves for each type of voter as functions of p and q. Specifically, equation (1) below presents the values of p and q such that a voter of Type A is indifferent between voting and abstaining and equation (2) below presents those values such that a voter of Type B is indifferent between voting and abstaining.

Equation (1): $-\frac{1}{10}p^5q^4 + \frac{2}{3}p^5q^3 - \frac{3}{2}p^5q^2 + \frac{10}{7}p^5q - \frac{1}{2}p^5 + \frac{5}{18}p^4q^4 - \frac{5}{2}p^4q^3 + \frac{45}{7}p^4q^2 - \frac{20}{3}p^4q + \frac{5}{2}p^4 + \frac{20}{7}p^3q^3 - 10p^3q^2 + 12p^3q - 5p^3 - \frac{5}{7}p^2q^4 + 6p^2q^2 - 10p^2q + 5p^2 + \frac{5}{6}pq^4 - 2pq^3 + \frac{10}{3}pq - \frac{5}{2}p - \frac{3}{10}q^4 + q^3 - q^2 + \frac{1}{2} = 2/(u_A^A - u_A^B)$

Equation (2): $\frac{1}{10}p^6q^3 - \frac{1}{2}p^6q^2 + \frac{3}{4}p^6q - \frac{5}{14}p^6 - \frac{1}{3}p^5q^3 + \frac{9}{4}p^5q^2 - \frac{27}{7}p^5q + 2p^5 - \frac{45}{14}p^4q^2 + \frac{15}{2}p^4q - \frac{9}{2}p^4 + \frac{10}{7}p^3q^3 - 6p^3q + 5p^3 - \frac{5}{2}p^2q^3 + \frac{9}{2}p^2q^2 - \frac{5}{2}p^2 + \frac{9}{5}pq^3 - \frac{9}{2}pq^2 + 3pq - \frac{1}{2}q^3 + \frac{3}{2}q^2 - \frac{3}{2}q + \frac{1}{2} = 2/(u_B^B - u_B^A)$

Solving these two reaction functions simultaneously for Election C yields a unique symmetric mixed strategy equilibrium in which $p \approx 0.345$ and $q \approx 0.52$ as shown in Figure A1 below.

Figure 1: Symmetric Mixed Strategy Equilibrium in Election C

Similarly, the unique symmetric mixed strategy equilibrium in Election E1 (E2) is given by $p \approx 0.0075$ (0.0825) and $q \approx 0.365$ (0.475) as shown in Figures A2 and A3 below.[2]

Figure A2: Symmetric Mixed Strategy Equilibrium in Election E1

Figure A3: Symmetric Mixed Strategy Equilibrium in Election E2

The analysis above is summarized in Table A1 below:
For Election C, our theoretical analysis provides predictions similar to those found in other experiments using analogous payoff matrices. That is, our analysis predicts that minority

[2]There are also asymmetric equilibria in Election C in which 2 of each voter types participate. In this case for those A types who are participating, the effect of their vote on the outcome is 1/6, which leads to an expected benefit of 15/6 ¿ 2. For those A types who are abstaining, the effect of their vote on the outcome is 1/10, which leads to an expected benefit of 1.5 ¡ 2. Similarly, each B type voter who is voting can be shown to be best responding, while each B type voter who is abstaining is best responding. Simple calculations also show that there are asymmetric equilibria in Election E2 in which one A type votes and 2 B types vote. There are no asymmetric equilibria in Election E1.

Table A1: Selfish Predictions

Election	p^*	q^*	Prob. A Wins
C	0.35	0.52	50%
E1	0.01	0.37	4%
E2	0.08	0.48	20%

voters will turnout at a higher rate than majority voters (the so-called underdog effect), such that the outcome of the election is a toss-up and the minority party, B, is as likely to win as the majority party. For Elections E1 and E2, however, the difference in payoffs to A voters from B winning instead of A are substantially less than the difference for B voters. As a consequence, we expect turnout of A voters to be substantially lower (almost nil) as compared to that of B voters and a much lower probability that A wins as compared to Election C.

A2. Equilibrium Behavior with Prosocial Voting

In our analysis above we assume that voters choose based purely on their selfish preferences and do not receive any utility from making a choice that is deemed more prosocial than the alternative. In our elections, however, if voters have prosocial motivations B voters might be willing to vote for party A in Election C because party A leads to greater aggregate payoffs, higher social welfare. And A voters might be willing to vote for party B in Elections E1 and E2 because party B not only leads to greater aggregate payoffs, but also maximizes the lowest payoff, and minimizes the inequity in payoffs. Indeed, Feddersen, Gailmard and Sandroni (2009) found evidence suggestive of prosocial other party voting in an election similar to our E1.[3] In particular, they argue that some voters displayed a tendency to engage in what they label "ethical expressive voting" in which they receive some additional consumption utility from voting for the prosocial choice independent of the electoral outcome. As the expected benefits from voting for a selfish choice decline with a decline in the probability of being decisive, then, they contend that selfish voters chose to abstain but prosocial voters continue to participate, advantaging prosocial choices.

We assume that with probability θ a voter is a "prosocial" voter and will always vote for the prosocial choice and with probability $1-\theta$ a voter is selfish and will make a voting choice in order to maximize his or her expected selfish payoffs. Furthermore, we assume that θ is a function of observability, such that an increase in observability of votes increases θ. As θ increases, we expect selfish voters to best respond by engaging in what we call "compensating behavior." That is, we expect selfish voters to change their voting behavior, such that those whose first preference is the prosocial choice abstain more and those whose first preference

[3]In their experiment they only allowed their equivalent of type A voters to participate and varied the probability that a vote was pivotal by varying the number of type A votes which could determine the outcome. Although they found evidence of type A voters choosing their equivalent of party B, since only these voters could vote they did not compare this tendency to the extent that B voters vote for A or to voter behavior in other elections in which voting for a nonselfishly preferred party was less clearly prosocial.

is not the prosocial choice vote their first preference more often. Table 2 summarizes the equilibrium values of p and q in the different elections for values of $\theta \leq 0.14$. Note that in Election C as θ increases the equilibrium value of p decreases and the equilibrium value of q increases, and in Elections E1 and E2 as θ increases the equilibrium value of p increases and the equilibrium value of q decreases, both of which reflects the compensating behavior discussed above. The compensating behavior should imply that even when we observe prosocial voting, the expected vote shares received by the two parties and the probabilities of winning should be the same as when all voters are selfish. Furthermore, the compensating effect implies that as θ becomes large, participation of voters whose first preference is the prosocial choice, even allowing for some to be prosocial expressive, is less than that predicted with only selfish voters. So for example, when $\theta = 0.10$, the predicted percent votes for A (total participation) from A voters (combining together both selfish and prosocial A voters) in Election C is 27%, as compared to 35% when $\theta = 0$. Similarly, when $\theta = 0.10$, the predicted percent votes for B from B voters in Election E1 (E2) is 22% (34%), as compared to 37% (48%) when $\theta = 0$. For $\theta > 0.14$ as θ increases the incentives for both types of voters decline considerably and A is expected to win close to 100% of the time in Election C and close to zero percent of the time in Election E1 (E2).

When $\theta > 0$, the remaining selfish voters are predicted to engage in compensating behavior. To see intuitively how compensating behavior works, consider Election E1. When $\theta = 0$, no voters are prosocial and in equilibrium A voters are predicted to vote for A at a low rate, with a 1% probability, and abstain with a 99% probability since the difference in payoffs between the two alternatives is small and voting is costly. In contrast, B voters are predicted to vote for B with a 37% probability and abstain with a 63% probability given that they have more at stake in the election. However, if $\theta = 0.14$, then some A voters will be voting for B. The remaining selfish A voters now have a greater incentive to participate and are predicted to increase the probability they vote for A to 2%. The selfish B voters, react in the opposite direction. Given that there is an increase in expected votes for B from prosocial voters, then remaining selfish B voters are predicted to vote for B now with only a 2% probability as well.

The compensating behavior has two implications. First, for low values of θ, less than 0.14 in our examples, in equilibrium the existence of prosocial voters does not affect the probability that the prosocial candidate wins. However, as θ becomes large, that probability does increase as prosocial voting becomes sizeable as the incentive to participate for selfish voters becomes inconsequential, even those whose preferences are contrary to the prosocial choice. Second, although the probability that the prosocial choice wins may not be affected by the effect of observability on prosocial voting when θ is within the range 0 to 0.14 in our examples, if given a choice, selfish A voters in E1 prefer secret ballots and selfish B voters in E1 prefer public voting. That is, if θ increases with observability, selfish A voters' expected utility is higher under secret ballots than public voting because they do not have to pay the cost of voting necessitated by compensating behavior and selfish B voters' expected utility is higher under public voting than secret ballots because the change in observability has the opposite effect on their behavior. If the effect on θ from observability is large, these differences in voter expected utility are larger as the probability that B wins will increase with observability. Hence, in E1 selfish A voters are predicted to prefer secret ballots and selfish B voters are predicted to prefer public voting. In general, voters whose selfish preference is not the prosocial choice are predicted to prefer secret ballots and voters whose selfish preference is the prosocial choice are predicted to prefer public voting.

A3. The Larger Game: Choosing Between Voting Mechanisms

Our analysis above suggests that observability can affect voting behavior when the effect on θ is small. If the effect on θ of observability is large, then observability may also increase the probability that the prosocial choices wins. What then do our results imply about voter preferences over voting mechanisms? Consider a larger game in which before voting, voters first choose (by secret ballot) whether to vote in the election using secret ballots or not. Assume that when secret ballots are used $\theta = 0$ but when voting is public $0 < \theta \leq 0.14$. As we can see from Table 2, even though the probability of winning for the two options is predicted to be the same under the two systems, because of the effects on selfish voter behavior, expected utility changes. In Election C, selfish A voters' expected utility is higher with public voting as they are more likely to abstain, but the expected utility of selfish B voters is lower with public voting as they are more likely to participate. In Elections E1 and E2 the opposite effects occur, selfish A voters have lower expected utility under public voting because they participate more while selfish B voters have higher expected utility because they participate less. If $\theta > 0.14$ with public voting, then we expect that the expected utility effects are stronger as the probability of winning of the prosocial choice increases. Hence, we expect that if voters have a chance to choose between secret ballots or not (using secret ballots), selfish voters whose selfish preference is the prosocial choice will choose public voting while those whose selfish preference is not the prosocial choice will prefer secret ballots.

Appendix B: Additional Empirical Results

We conducted three variants of election sequences in Experiment I. In the main text we report the results of our principal or main variant: *Sequence I.* In this article, we refer to the results reported in the main text as the main findings (unless noted otherwise). In Sequence I, we used a fixed order in which $x = 6$ (there were 6 A voters and 4 B voters) and subjects participated in Elections C, E1, and E2 sequentially, with 8 periods for each election type for a total of 24 elections. That is, for periods 1-8 subjects played Election C with $x = 6$, for periods 9-16, subjects played Election E1 with $x = 6$, and for periods 17-24, subjects played Election E2 with $x = 6$. Subjects also stayed in the same roles throughout the session. The design of Sequence I was chosen in order to facilitate learning and convergence to equilibria as well as within-subjects' comparisons of behavior. Although subjects engaged in repeated elections within the same cohort and they knew in advance they would participate in 24 elections, there was no opportunity for punishment of other voters across election periods since subjects did not know the voting games in advance nor when the voting games would change. Moreover, subjects knew that only one election period would be selected for payment.

For a robustness check on the effect of experiencing more elections on voting behavior, we varied our sequence of elections. In *Sequence II*, subjects participated in Election C for 8 periods and then Election E1 for periods 9-24, also with $x = 6$. We conducted Sequence II for two reasons: (1) Sequence I may have not allowed subjects sufficient learning experience in Election E1 to converge to equilibrium behavior and (2) our comparison of E1 and E2 in Sequence I may be confounded by the fact that E2 always follows E1.

For the second robustness check on the further effects of sequence, fixed roles, and fixed majorities, we conducted additional sessions using a more complicated sequence in which we varied election type by period, rather than in blocks, *Sequence III*, which is described in great detail later in Appendix B8. We also varied by period which party was in the majority and subjects' roles (so that subjects were sometimes A's and other times B's). Finally, we considered an alternative version of Election E2, Election E3, in which when party B wins, each type A voter receives 20 and each type B voter receives 25. That is, in this case the payoff to A voters if party B wins is the same as in Election E1, although the aggregate payoffs are greater. If we see more prosocial other party voting in E3 than in E1, we have greater evidence that the effect is due to the value voters place on aggregate payoffs than they place on fairness. Subjects were told that the elections would vary but they were not told how they would vary.

For the third robustness check on the experimenter demand effect, we conducted a new treatment: Secret Ballot with the Experimenter's Monitor (hereafter, SE). In this treatment, everything was identical to the Secret Ballot (S) treatment, except that the experimenter had a close look at the decision-making process.

Hence, in Experiment I, we conducted 14 sessions with 140 subjects. Table B1 summarizes the sessions we conducted in Experiment I by sequence, x, privacy, and voting rule.

Table B1: Summary of Sessions in Experiment I

Session Numbers	Sequence	x	Privacy	Non-monitor Subjects
1, 2	I	6	S	20
3, 4	I	6	SI	20
5, 6	I	6	P	20
7, 8	I	6	SE	20
9	II	6	S	10
10	II	6	P	10
11, 12	III	$\{4, 5, 6\}$	S	20
13, 14	III	$\{4, 5, 6\}$	P	20

B1. Detailed Analysis of Behavior in the Secret Ballots Treatment

We present here a detailed analysis of voter behavior in S using Sequences I and II and $x = 6$ to the equilibrium behavior under selfish voting. Figures B1 and B2 summarize voter behavior by election type in the Secret Ballot Treatment in these treatments. We measure the percentage voting for one's own party on the horizontal axis and abstention percentage is measured on the vertical axis. The distance between an observation and the diagonal line measures the percentage voting for the other party. Figure B1 presents behavior of A voters and Figure B2 presents behavior of B voters. C marks the average behavior of voters in Election C, E1 and E2 are likewise measures for the other two elections. We also include voter behavior in E1 under Sequence II in the last 8 periods, represented by the point E1′ as a better point of comparison with E2. CP, E1P, and E2P mark the predicted selfish behavior.

Figure A3: A's Secret Ballot Voting

Figure B2: B's Secret Ballot Voting

We find little support for the selfish point predictions overall. First consider abstention rates. Subjects of both types abstain on average much less than theoretically predicted, except for B voters in Election C, who came close to the theoretical prediction. Specifically, A voters abstain on average 23% of the time in Election C, 47% in E1 (56% in the last 8 periods of E1 in Sequence II) and 33% in E2 as compared to the theoretical predictions of (65%, 99%, and 92%). B voters abstain on average 46% of the time in C, 29% in E1 (22% in the last 8 periods of E1 in Sequence II) and 31% in E2 as compared to the theoretical predictions of (48%, 63%, and 52%).

B voters abstain significantly more than A's in Election C.[4] Moreover, we find that A voters abstain more than B's in Elections E1 and E2, but the difference is not significant in E2 and only significant in E1.[5] The selfish prediction is that voters will either vote for their own party or abstain. However, subjects do vote for the other party and prosocial other party voting exceeds non-prosocial other party voting even with secret ballots. In Election C B voters choose party A 2% of the time, which is more than A voters choosing party B in the same election (0%), but the difference is not significant.[6] This other party voting in Election C might be either prosocial or bandwagon voting (voting for the candidate preferred by the majority). In Elections E1 and E2, however, we find stronger evidence in support of prosocial other party voting instead of bandwagon voting. In E1, A voters choose party B 7% of the time and 8% of the time in E2 (as compared to B voters choosing A less than 1% of the time in E1 and 0% of the time in E2). The differences are significant.[7] Bandwagon voting would predict that B voters would be voting for party A in these elections, but we find little evidence of such behavior.

[4]The z statistic for the comparison = 3.73, $p < 0.001$.

[5]For E1 the z statistic = 3.31, $p < 0.001$ and for E2 0.28, $p = 0.78$.

[6]The z statistic for the comparison = 0.95, $p = 0.34$.

[7]The z statistic for the comparison in E1 = 2.70, $p = 0.007$ and in E2 = 2.37, $p = 0.018$.

However, the near equal other party voting of A voters in E2 as compared to E1 is contrary to our prediction, but may reflect learning and experience since subjects participated in E2 in the last 8 periods of each session. If we restrict our comparison of E2 behavior to the subjects who participated in E1 in the last 8 periods of Sequence II, we find slightly more prosocial other party voting of A voters in E1 than in E2 (10% as compared to 8%), but the difference is not significant.[8] Hence, it appears that prosocial other party voting is more driven by aggregate welfare concerns than fairness concerns. In general, we find evidence suggesting that prosocial other party voting is real and that there are likely prosocial expressive voters even when voting behavior is unobserved.

Our evidence of prosocial other party voting may suggest higher rates of participation of other voters as compensatory behavior, discussed above. But even if prosocial other party voting is 10%, abstention is much lower than predicted except for B voters in Election C. That is, from Appendix A above, when $\theta = 0.1$, A's are predicted to abstain 73% of the time in Election C, 89% in E1, and 81% in E2 and B's are predicted to abstain 40% of the time in C, 78% in E1, and 66% in E2, predictions which are generally higher than the observed abstention rates. Hence, our data shows excessive turnout even when allowing for compensating behavior of selfish voters.

In Election C, the greater than predicted turnout of A voters, the prosocial or bandwagon voting by B voters, and the lack of an underdog effect all result in a significantly higher proportion of expected wins by A than predicted (69% compared to 50%).[9] Even more interesting, we find also that A has a significantly higher probability of winning in Elections E1 and E2 than predicted (45% as compared to 4% in E1 and 52% as compared to 20% in E2).[10] Thus, even though there is prosocial other party voting by A voters in these two elections, because there is also a much greater percentage of selfish voting than predicted, the probability A wins is actually higher than predicted under selfish voting. Prosocial other party voting, then, is insufficient to offset the excessive turnout of majority voters in these elections.

B2. The Comparison of SI and P

When we compare SI and P, we find that prosocial other party voting does appear to be affected by whether voting is public or not, although the effect is not always significant. Specifically, in Election C we expect B voters to vote prosocially for party A. B voters choose party A 11% of the time when voting is public as compared to 0% of the time when it is private ($z = 2.72$, $p = 0.007$), whereas A voters in Election C vote for party B less than 1% of the time with both secret ballots and public voting ($z = 1.00$, $p = 0.32$). In Elections E1 and E2, we expect prosocial other party voting by A voters. We find significant effects in Election E2: A voters choose party B 38% of the time when voting is public as compared to

[8] The z statistic for the comparison is 0.41, $p = 0.68$.

[9] We measure the predicted probability of winning as the share of votes received by A, not counting abstentions. The t statistic for the comparison is 8.92, $p < 0.001$.

[10] The t statistic for the comparison for E1 is 17.78, $p < 0.001$ and for E2 is 15.84, $p < 0.001$.

16% of the time when it is private, whereas B voters in Election E2 never vote for party A.[11] In Election E1, we find also more other party voting by A voters (6% when voting is public as compared to 5% when ballots are secret) but the difference is not significant ($z = 0.31$, $p = 0.76$). We also find slightly more other party voting by B voters under public voting (3% as compared to 0%, $z = 1.43$, $p = 0.15$), but it is not significant. Figure B3 below presents other party voting by privacy treatment and voter type in each period in an election type.

Figure B3: Other Party Voting by Privacy Treatment (SI and P)

We find that overall abstention is significantly lower under Public Voting than in the Secret Ballot Information Treatment. A voters abstain 34% of the time overall in SI but only 20% in P ($z = 3.56$, $p < 0.001$), while B voters abstain 48% in SI as compared to 15% in P ($z = 7.05$, $p < 0.001$). When we break the effects down by election type, the effects become more nuanced. In Election C, which takes place in the first 8 periods of each session, the greater participation of both A voters (abstention is 22% in SI as compared to 7% in P) and B voters (abstention is 42% in SI as compared to 27% in P), which is significant.[12] In E1 we find that the effects of observability on turnout are significant. A voters abstain 43% of the time in SI but only 27% in P ($z = 2.27$, $p = 0.023$), while B voters abstain 48% of the time in SI as compared to 14% in P ($z = 4.20$, $p < 0.001$). However, we find that in Election E2, there is only a significantly higher participation rate of B voters, whose selfish preference is the prosocial choice (A's abstain 36% of the time in SI as compared to 27% in P and B's abstain 53% of the time in SI as compared to only 3% of the time in P).[13] Figure B4 below presents other party voting by privacy treatment and voter type in each period in an election type.

Figure B4: Abstention by Privacy Treatment (SI and P)

B3. The Comparison of S and SI

When we compare voting behavior in SI with S, we find similar behavior with a few differences as shown in Figures B5 and B6 below which compare abstention and other party voting behavior in S with SI, respectively. We find significantly greater abstention in SI by B voters in the prosocial elections.[14] We also find greater other party voting by A voters in SI in the first few periods of E2, but these voters converge to behavior equivalent of those in S. The overall difference is not significant.[15] When we compare the expected probability that A wins in SI with S, we find that there are no significant differences in expected outcomes

[11] The z statistic comparing A voters' choices = 3.43, $p < 0.001$.
[12] The z statistic for the comparison with A voters is 2.86, $p = 0.004$ and for B voters 1.86, $p = 0.06$.
[13] For the comparison for E2, Type A, the z statistic = 1.40, $p = 0.16$ and for Type B = 6.29, $p < 0.001$.
[14] The z statistic for the comparison in E1 is 1.99, $p = 0.047$ and for E2 is 2.51, $p = 0.012$.
[15] The z statistic for the comparison is 1.56, $p = 0.12$.

for Elections C and E2, but that A is significantly more likely to win in Election E1 under SI.[16] The difference in Election E1 is no doubt a consequence of the greater abstention by B voters in SI. The evidence suggests then that revealing vote distributions slightly leads to greater abstention by B voters in both Elections E1 and E2, which generally leads to a somewhat higher probability that A wins in Election E1.

Figure B5: Abstention in SI versus S

Figure B6: Other Party Voting in SI versus S

B4. The Comparison of S and P

When we compare the results of S and P, we find identical findings as when we compare SI and P. Specifically, in Election C we expect B voters to vote prosocially for party A. B voters choose party A 11% of the time when voting is public as compared to 2% of the time when it is private ($z = 2.19$, $p = 0.029$), whereas A voters in Election C never vote for party B with both secret ballots and public voting. In Elections E1 and E2, we expect prosocial other party voting by A voters. We find significant effects in Election E2: A voters choose party B 38% of the time when voting is public as compared to 8% of the time when it is private, whereas B voters in Election E2 never vote for party A.[17] In Election E1, we find 6% other party voting by A voters under public voting as compared to 8% when ballots are secret, which is not significantly different ($z = 0.56$, $p = 0.58$). We find slightly more other party voting by Type B voters under public voting (3% as compared to 2%, $z = 0.58$, $p = 0.56$), which is identical to what we noted above. Figure B7 below presents other party voting by privacy treatment and voter type in each period in an election type.

Figure B7: Other Party Voting by Privacy Treatment (S and P)

We find that overall abstention is significantly lower under Public Voting than in the Secret Ballot Information Treatment. A voters abstain 32% of the time overall in S but only 20% in P ($z = 3.21$, $p = 0.001$), while B voters abstain 34% in S as compared to 15% in P ($z = 4.51$, $p < 0.001$). When we break the effects down by election type, the effects become more nuanced. In Election C, which takes place in the first 8 periods of each session, the greater participation of both A voters (abstention is 18% in S as compared to 7% in P) and B voters (abstention is 41% in SI as compared to 27% in P), which is significant.[18] In E1 we

[16] The t statistic for the comparison of S and SI in Election C is 0.27, $p = 0.79$; for Election E1 is 2.98, $p = 0.006$, and for Election E2 is 0.57, $p = 0.58$.

[17] The z statistic comparing Type A voters' choices = 4.81, $p < 0.001$.

[18] The z statistic for the comparison with A voters is 2.18, $p = 0.029$ and for B voters 1.68, $p = 0.09$.

find that the effects of observability on turnout are significant. A voters abstain 46% of the time in S but only 27% in P ($z = 2.70$, $p = 0.007$), while B voters abstain 31% of the time in S as compared to 14% in P ($z = 2.32$, $p = 0.02$). However, we find that in Election E2, there is only a significantly higher participation rate of B voters, whose selfish preference is the prosocial choice (A's abstain 33% of the time in S as compared to 27% in P and B's abstain 31% of the time in S as compared to only 3% of the time in P).[19] Figure B8 below presents other party voting by privacy treatment and voter type in each period in an election type.

Figure B8: Abstention by Privacy Treatment (S and P)

B5. Voter Type Estimation

We assume that there are n subjects, each of whom has been observed over t times. Let y_{it} be the observed voting choice by subject i at time t. As the experimental results demonstrate, different voters' decisions may be driven by their types and characteristics. Following our theory discussed in the main text and complementary appendix, we assume that the prosocial voters ($\mathcal{P}$) will always vote for the prosocial choice, and the selfish ($\mathcal{S}$) voters will sometimes vote for the selfish choice but other times abstain ($\varnothing$).

The existence of the two distinct types of subject leads to a finite mixture model (Cappelen et al., 2007). We introduce two mixing proportions, $p_{\mathcal{P}}$ and $p_{\mathcal{S}}$, which represent the proportion of the population who are prosocial and selfish, respectively. Let p, $0 < p < 1$, denote the probability that an individual is a prosocial voter. Then, the likelihood choice for subject i is:

$$L_i = p \prod_{t=1}^{T} Pr\left(y_{it} = \varnothing|\mathcal{P}\right)^{I_{y_{it}=\varnothing}} Pr(y_{it} = A|\mathcal{P})^{I_{y_{it}=A}} | Pr(y_{it} = B|\mathcal{P})^{I_{y_{it}=B}}$$
$$+ (1-p) \prod_{t=1}^{T} Pr(y_{it} = \varnothing|\mathcal{S})^{I_{y_{it}=\varnothing}} Pr(y_{it} = A|\mathcal{S})^{I_{y_{it}=A}} Pr(y_{it} = Vote\ B|\mathcal{S})^{I_{y_{it}=B}}$$

where $I_{(\cdot)}$ is the indicator function that takes the value 1 if the subscripted expression is true and 0 otherwise. The sample log-likelihood is then:

$$LogL = \sum_{i=1}^{n} log(L_i)$$

The prosocial voters' conditional probability of voting for the prosocial choice is straightforward. On the selfish voters' conditional probabilities of voting for the selfish choice and abstaining, for the sake of simplicity, we assume that voters myopically do not think about

[19]For the comparison for E2, Type A, the z statistic $= 0.94$, $p = 0.35$ and for Type B $= 4.22$, $p < 0.001$.

the cross effects. They think of themselves as having a fixed probability of being a dictator based on the number of voters. The selfish voters will vote to maximize their own expected utility. Hence, we consider a logit model in which selfish voters vote for the selfish choice or abstain based on the optimization of the expected utility. Specifically, for a selfish voter, the probability of taking each action is the following:

$$Pr(\text{Selfish Choice}|sel) = \frac{e^{U_{\text{Selfish choice}}}}{e^{U_{\text{Selfish choice}}} + e^{U_{\text{Abstain}}}}$$
$$Pr(\text{Abstain}|sel) = \frac{e^{U_{\text{Abstain}}}}{e^{U_{\text{Selfish choice}}} + e^{U_{\text{Abstain}}}}$$

where $U_{\text{Selfish choice}}$ and U_{Abstain} are the perceived expected utility of voting for the selfish choice and abstaining, respectively. Note that the probabilities of voting for A, B, and abstaining are characterized by the expected utility from choosing these decisions. By an abuse of notation, the objective function of the maximum likelihood estimation is therefore given by

$$LogL = \sum_{i=1}^{n} \log L\left(u^{\text{Abstain}}, u^{\text{Selfish Choice}}, p\right)$$

The theoretical framework of the finite mixture model and the setup of our experimental design naturally determine that our analysis will focus on the conflict between selfish voting and other-party voting. As what we discussed earlier, the prosocial voting is the A's voting for B in E1 and/or E2 and B's voting for A in EC. Except for the specified prosocial voting, any other choice is selfish behavior. In the estimation, we assume that the strategic/selfish voters follow equilibrium behavior. The estimation is then done by using Matlab to find the value of p that maximizes the log likelihood function. We combine A's voting in E1 and E2; similarly, we focus on B's voting in EC. We report the results of the estimation in Table **??**.

The results of the mixture model estimation suggests that the public recognition of good behavior has a significant effect on voting behavior. Specifically, A voters are more likely to be a prosocial voter in Public Voting than in Secret Ballot. B voters' posterior probability of being a prosocial voter is affected by the privacy too, although the posterior estimation of prosocial B voters is not higher than 14%. The results of the mixture model analysis are consistent with our main results reported earlier.

B6. Learning

We now examine whether the data demonstrate learning effects within sessions. If learning occurs within a session we would expect that voting behavior would change over time. To determine if there was learning, we investigate whether an individual's propensity to vote in the next period decrease in the current margin of victory. Specifically, we estimate the probability that party A wins in each period, then we consider a Probit model in which an individual's voting decision is a function of the margin of victory of the last period. In all the regressions reported below, we use the probability that party A wins as the independent variable.

The regression analysis is based on the results of SI and P treatments. It is worth noting that our privacy procedures of the experimental design prevent us from identifying individual subjects' choices, so in the regressions we are not able to cluster our observations by subject. The results of these tests are summarized in Table B2 below.[20]

Table B2: Probit of Voting Behavior (Marginal Effects)

Treatment	Coefficient	Std. Error	z	$Pr > \|z\|$
Dependent Variable: A Voter Abstention				
Secret Ballots	0.670	0.209	3.20	0.001
Public Voting	-0.306	0.115	-2.67	0.008
Dependent Variable: B Voter Abstention				
Secret Ballots	0.319	0.253	1.26	0.208
Public Voting	0.260	0.118	2.20	0.028
Dependent Variable: A Voter Other Party Voting				
Secret Ballots	-0.492	0.118	-4.16	0.000
Public Voting	-0.727	0.160	-4.53	0.000
Dependent Variable: B Voter Other Party Voting				
Secret Ballots	-	-	-	-
Public Voting	-0.313	0.245	-1.28	0.202

We find that the margin of party A winning has a significant influence on an individual's voting decision. Specifically, under secret ballots, a Type A voter is significantly more likely to abstain as the margin of party A winning increases. However, with public voting, a Type A voter is significantly less likely to abstain as the margin of party A winning increases. Moreover, we find that the margin of party A winning has a significant positive effect on Type B voters' abstention decisions such that a Type B voter is more likely to abstain as party A is more likely to win, although it is only significant under public voting. With respect to other party voting, we do not find clear evidence that the margin of party A winning affects B voters' other party voting. However, A voters seems to be significantly less likely to vote for party B as party A is more likely to win.

We then test whether the coefficients are significantly different by treatment. The coefficient of each treatment is statistically indistinguishable by treatment. For the paired comparisons of A voters' abstention between Secret Ballots and Public Voting ($\chi^2 = 0.06, Pr = 0.809$). For the paired comparisons of B voters' abstention between Secret Ballots and Public Voting ($\chi^2 = 0.30, Pr = 0.585$). For the paired comparisons of A voters' other party voting

[20] We do not have estimations for B voters' other party voting under secret ballots because B voters never engage in other party voting under secret ballots.

between Secret Ballots and Public Voting ($\chi^2 = 0.47, Pr = 0.492$). These results suggest that although learning occurs in some treatments, because there is no significant difference of how the margin of party A winning affects an individual's voting between Secret Ballots and Public Voting, only minor and limited differences in the observed treatment effects are related to learning.

B7. First Robustness Check - Sequence II

The principal experiment (SI, S, and P) may have not allowed subjects sufficient learning experience in Election E1 to converge to equilibrium behavior and our comparison of E1 and E2 may be confounded by the fact that E2 always follows E1. To check if our main findings are robust to experiencing more elections, we conducted sessions using Sequence II in which subjects participated in Election C for 8 periods and then Election E1 for periods 9-24, also with 6 type A voters and 4 type B voters.

Figure B9: Abstention by Privacy Treatment in Sequence I and II (including S, SI, and P)

Figure B10: Other Party Voting by Privacy Treatment in Sequence I and II (including S, SI, and P)

When we compare behavior in secret ballots with public voting, we find essentially the same findings as reported in the main text. Specifically, public voting leads to less abstention of both types of voters overall (A voters abstain overall 35% with secret ballots as compared to 26% with public voting, while B voters abstain overall 40% with secret ballots as compared to 18% with public voting).[21] When we break the effects down by election type, the effects become more nuanced. B voters abstain significantly less in public voting in Elections EC ($z = 3.63$, $p < 0.001$), E1 ($z = 2.28$, $p = 0.023$), and E2 ($z = 5.61$, $p < 0.001$). The difference in abstention rates for A voters is significant only in Election EC in which their selfish preferences are also the prosocial choice.

The Indirect Effect Prediction of Observability suggests that B's should abstain more under public voting than the secret ballots, and A's should abstain less. However, in E1 we find that the effects of observability appears to not be long-lasting for B's, but that A's begin to abstain more under public voting than the secret ballots.

How does experiencing more elections affect voting behavior? In Sequence II in which subjects participate in 16 periods of E1 elections, in the latter half of the periods abstention is actually higher under public voting than the secret ballot. Specifically, in the first 8 periods of E1 combining Sequence I and II, A voters abstain 44% of the time under secret ballots, but only 28% of the time under public voting and B voters abstain 38% of the time under

[21]The z statistic for the comparison for A voters is 3.17, $p = 0.002$ and for B voters is 6.27, $p < 0.001$.

secret ballot, but only 18% of the time under public voting.[22] But in the last 8 periods of E1 in Sequence II, A voters abstain 56% of the time under secret ballots compared to 75% of the time under public voting and B voters abstain 22% of the time under secret ballot compared to 41% of the time under public voting ($z = 1.62$, $p = 0.11$). Although we find that observability leads to higher abstention for both types of voters in the latter half of E1, when examining the behavior more carefully, we see that abstention is much higher for A voters, whose first preference is not the prosocial choice, under public voting, than for B voters. In fact, in some periods, A voters abstain 100% of the time. Higher B voter abstention is to be expected after elections in which A voters are publicly abstaining as such high rates, which is evidence of some compensatory behavior by B voters. The results, nevertheless suggest that indeed observability has a differential effect on voters depending on whether their first preference is the prosocial choice, but in the opposite direction from predicted.

Our conclusions about the effect of observability on prosocial other party voting is also supported when we compare the pooled data of secret ballots with public voting; we find that other party voting is significantly higher for B voters in Election C and for A voters in Election E2.[23]

Finally, when we compare the expected probability that A wins under secret ballots with public voting we find similar results as in our previous analysis; that is, there is no significant differences in the expected probability that A wins in Elections C and E1, but that the expected probability A wins is significantly less in Election E2 (26% as compared to 53%).[24]

B8. Second Robustness Check - Sequence III

In our principal treatments subjects had fixed roles and the size of the majority was constant. We also used a fixed sequence of elections, with Election C always first. Our sessions using Sequence II partly controls the sequencing effect of E2 always following E1, but in order to determine if our results of the effects of privacy are robust to a more complicated environment, we also conducted sessions using Sequence III in which the election types varied randomly, majority sizes changes, and subjects' changed roles randomly.

Specifically, in Sequence III, subjects played elections C, E1, and E3 in a predetermined random order which was the same for both the S and P treatments as shown in Tables B3 and B4 below.

We used three values of $x \in \{4, 5, 6\}$ and three election types. Therefore, there were 9 different election/majority combinations. Time constraints from changing these combinations each period meant that we conducted 18 elections (2 of each combination) in total in sessions using Sequence III. As noted above subjects' types also varied randomly given the

[22]The z statistic for the comparison for A is 3.13, $p = 0.002$ and for B is 3.44, $p = 0.001$.

[23]The z statistic for Type A voters in Election C is 0.15, $p = 0.88$; for Election E1 1.69, $p = 0.09$; and for Election E2 5.06, $p < 0.001$. For Type B voters in Election C is 2.54, $p = 0.011$, for Election E1 0.95, $p = 0.34$; and for in neither treatment did these voters engage in other party voting in Election E2.

[24]The t statistic for the comparison for Election C is 1.17, $p = 0.25$; for Election E1 0.27, $p = 0.79$; and for Election E2 6.94, $p < 0.001$.

Table B3: Voter Payoffs in U.S. Dollars

	Election C	Election E1	Election E3			
Voter Type	A wins	B wins	A wins	B wins	A wins	B wins
A	20	5	25	20	25	25
B	5	20	5	20	5	20

variation in x.

Table B4: Order of Sequence III

Period	Election	x	Period	Election	x
1	E3	4	10	E1	4
2	C	6	11	E1	6
3	E3	5	12	C	4
4	E3	6	13	E1	6
5	C	6	14	E3	4
6	C	4	15	C	5
7	C	5	16	E1	5
8	E3	5	17	E3	6
9	E1	5	18	E1	4

Figures B11 and B12 summarize abstention and other party voting, respectively, by Election, Voter Type, and x (number of A voters). We find significant support for the effects of privacy on overall voting behavior found with our principal treatments in the sessions using the more complicated design. We find that observability leads to greater participation and prosocial other party voting in sessions with Sequence III, and voters engage in more other party voting when they are in the minority. Furthermore, prosocial other party voting is much higher when the voters whose selfish preference is not the prosocial choice are in the minority.

Abstention overall is much lower when voting is public (21%) as compared to when it is private (45%) in these sessions. Furthermore, when voting is public we find stronger evidence of prosocial other party voting. In our sessions using Sequence III, there were 304 cases in which a voter's selfish preference was not the prosocial choice. When voting was public (152 observations), 15% of the votes were for the prosocial choice, while when the secret ballot was used (152 observations), only 4% of the votes were for the prosocial choice, a significant difference.[25]

Figure B11: Abstention in Sequence III Sessions

[25] The z statistic for the comparison of proportions is 3.32, $p < 0.001$.

Figure B12: Other Party Voting in Sequence III Sessions

In Sequence III we consider situations in which we vary the size of the majority in Election E1 and E3, such that in some cases the prosocial choice is also the selfish preference of the majority of voters ($x = 4$) as well as cases where $x = 5$ or 6 (recall that in Sequence I $x = 6$). We find that the percentage of voters whose selfish preference is not the prosocial choice who engage in prosocial other party voting is significantly greater when $x = 4$, 17%, as compared to 5% when $x = 5$ or 6.[26] The difference is significant both when voting is secret (9% prosocial other party voting when $x = 4$ as compared to 0%) and when voting is public (25% prosocial other party voting when $x = 4$ as compared to 10%).[27] Our results, then, suggest that voters are more likely to vote prosocially instead of selfishly when they are in the minority and most likely to do so when voting is public (when 25% of votes are prosocial other party votes). This result is consistent with the fact that when $x = 4$, the aggregate social benefit from choosing the prosocial choice is greater given that more B voters benefit than when $x = 5$ or 6.

We find that in Sequence III voters engage in non-prosocial bandwagon voting when voting is public. Given that the observed prosocial other party voting is greater when the prosocial choice is the selfish preference of the majority, what appears to be prosocial other party voting might be interpreted as bandwagon voting (voting for the candidate supported by the majority). We find little evidence of bandwagon voting when the prosocial choice is the selfish preference of the minority overall. We find of those voters whose selfish preference is the prosocial choice, about 5% of minority ones cast non-prosocial other party votes and about 2% of non-minority ones do so.[28]

However, we find evidence of non-prosocial bandwagon voting when voting is public in Sequence III. Specifically, of the voters whose selfish preference is the prosocial choice, when voting is public we observe about 9% minority ones casting non-prosocial other party votes and only 1% of nonminority ones doing so, which is significantly different.[29] We find the difference is in the opposite direction and nonsignificant, though, when voting is secret (0% of such votes when in the minority versus 2% when nonminority).[30] Therefore, we find some evidence that observability not only leads to greater prosocial other party voting but also non-prosocial bandwagon voting in Sequence III and that some of the increase in prosocial other party voting may be due to bandwagon effects rather than an effect of observability on prosocial preferences alone. Notably, we found no evidence of such non-prosocial bandwagon voting in Sequence I and II and no effect of observability on non-prosocial bandwagon voting, when voters were allowed greater opportunities to gain experience and learn. So although we find some conformity effects of observability in Sequence III, these effects do not appear

[26]The z statistic $= 2.99$, $p < 0.001$.

[27]The z statistic for the comparison when voting is secret $= 2.90$, $p < 0.001$ and when voting is public $= 2.05$, $p = 0.04$.

[28]The z statistic $= 1.31$, $p = 0.19$.

[29]The z statistic $= 2.22$, $p = 0.03$.

[30]The z statistic $= 0.86$, $p = 0.39$.

to be robust.

Taken together, our main finding of the effects of observability on voting and election outcomes are robust to additional investigations. If anything, to the extent that the choice of the treatment and setup may miss some differences between the two voting environments, then the experimental analysis of this study could only lead to under-estimation of the effects of observability on political behavior and preferences.

B9. Third Robustness Check - Experimenter Demand Effect

Although we study a situation without intimidation and coercion, because in public voting the experimenter knew who made which decisions, it might result in experimenter demand effects. To identify the impact of the possible experimenter demand effects on our main findings, we conducted a new treatment: Secret Ballot with the Experimenter's Monitor (hereafter, SE). In this treatment, everything was identical to the Secret Ballot (S) treatment, except that the experimenter had a close look at the decision-making process.

The treatment was conducted using paper and pencil as the other treatments. Both subject roles and their ID numbers were marked on every ballot ticket and the "For Payment" piece of paper. No monitors were required, as the experimenter could tell each decision-maker's decision according to the submitted ballot tickets. The winner was determined by the random dictator rule as noted earlier. After the winner of an election was decided, the experimenter recorded the remaining votes in the ballot box on board. Only the experimenter knew who made which decisions. Subjects' decisions were anonymous to other subjects.

The experiment was conducted at the same laboratory using the same subject pool. We conducted two sessions for this treatment and 20 subjects participated in this study. Sessions averaged approximately 90 minutes each and the average payment was about $25. We conducted the three elections as in S and P and used Sequence I in this treatment.

If experimenter demand effects resulted in the differences, then we expect that we would observe more other party voting in SE than S and no difference between SE and P. Compared to SE, we find little to no differences in other party voting in S, but significantly more other party voting in P.

When we compare voting behavior in SE with S, we find similar behavior with a few differences as shown in Figures B14 and B13 below which compare other party voting behavior and abstention in SE with S, respectively. In both S and SE, voters rarely voted for the other party. The overall difference is not significant (3% in SE vs 4% in S, $p = 0.72$). A voters voted for Party B 4% of the time in SE and 6% in S ($z = 0.775$, $p = 0.44$), and type B voters voted for Party A about 2% of the time in SE and 1% in S ($z = 0.823$, Pr$= 0.41$). When we compare voting behavior in SE with P in Sequence I, however, we find that public voting leads to significantly more other party voting. That is, type A voters voted for Party B about 15% of the time in P but 4% in SE, which is significantly more ($z = 4.29$, $p < 0.001$). And type B voters voted for Party A more in P (5%) than in SE (2%), although it is only marginally significant under an one-sided proportion test ($z = 1.41$, $p = 0.08$). When we break the effects down by election type, we find essentially the same results as what we reported in the main findings.

Figure B13: Comparisons of Abstention under S, SE, and P in Sequence I Sessions

Figure B14: Comparisons of Other Party Voting under S, SE, and P in Sequence I Sessions

B voters choose party A 11% of the time when voting is public as compared to about 2% of the time when it is private but with the experimenter's monitor ($z = 2.19$, $p = 0.029$), whereas A voters in Election C never vote for party B in both P and SE. We find significant effects in Election E2: A voters choose party B 38% of the time in P as compared to 1% of the time when in SE, whereas B voters in Election E2 never vote for party A.[31] In Election E1, we find more other party voting by A voters (6% in P as compared to 11% in SE) but the difference is not significant ($z = 1.27$, $p = 0.20$).[32]

Regarding the experimenter demand effect on voter turnout, the theoretical implication is not clear. Then the effect is an empirical question. As noted earlier, we have learned that both A and B voters abstain more frequently in secret ballot. Now, when we compare the turnout in SE with S, we find that A voters abstain even more in SE.[33]. The difference is consistent across election types, and most salient in E2.[34] For B voters, the effect is mixed. B voters in general turn to abstain less, however, in most cases the differences between SE and S are statistically undistinguishable.[35] When we compare B's abstention in SE to P, we find that B voters abstain significantly less in P as compared to SE.[36]

When we compare the expected probability that A wins in SE with P, we find qualitatively the same result as reported in our main findings. That is, A is significantly more likely to win in EC under public voting (71% in P vs 58% in SE, $t = 4.17$, $p < 0.001$), and it is significantly less likely to win in E2 under public voting (26% in P vs 42% in SE, $t = 4.86$, $p < 0.001$). However, we find that the estimate of A winning in E1 is 53% in P and 38% in SE ($z = 2.55$, $p = 0.02$), which is different from our main results. Taken together, our experimental design controls for the experimenter demand effect. The comparisons between SE and S (P) suggests that our main findings of prosocial behavior are robust to the potential experimental demand effect, and the implications of the treatment effects between SE and P are largely consistent with our main results.

[31] The z statistic comparing A voters' choices = 6.40, $p < 0.001$.

[32] We also find slightly more other party voting by Type B voters in SE (5% as compared to 3%, $z = 0.46$, $p = 0.65$), but an examination of Figures B7 shows that the effect appears a mistake of voting or a reaction to the change of elections that did not survive after 1 or 2 rounds of voting, which is similar to the behavioral pattern that we reported in the main findings.

[33] The z statistic for A voters is 3.66, $p < 0.001$. The z statistic for B voters is 2.36, $p = 0.018$

[34] For EC, $z = 2.03$, $p = 0.043$; for E1, $z = 0.72$, $p = 0.47$; for E2, $z = 3.76$, $p < 0.001$.

[35] For EC, $z = 2.29$, $p = 0.022$; for E1, $z = 0.58$, $p = 0.56$; for E2, $z = 1.20$, $p = 0.23$.

[36] Overall, $z = 2.21$, $p = 0.027$. For EC, $z = 0.62$, $p = 0.54$; for E1, $z = 1.76$, $p = 0.08$; for E2, $z = 3.21$, $p = 0.001$.

B10. Survey in Experiment II

We conducted a short survey after subjects completed the voting decisions in the experiment. The survey questions can be found below.

1. What type of voter were you?
2. Most of the time how did you vote when ballots were secret?
3. Most of the time how did you vote when ballots were public?
4. Which voting method did you prefer? Briefly explain why you preferred that voting method.

Examining the survey, we see that many voters seem to clearly perceive the source of the benefits to B from public voting and made their choices for either secret or public voting because of these benefits. Figure B15 below summarizes the responses to our survey by voter type. 47% of A voters and 40% of B voters explicitly expressed such motivations.[37] Hence, we find evidence that voters were aware of the differences in the systems when making their choices. Of course, some voters expressed other reasons. Some of the B voters who chose secret ballots expressed a desire for privacy and to avoid tension. Some A subjects also wrote that secret ballots were more fair, allowing one to express one's true feelings without outside pressure. Such answers for A's seem to imply that they also felt pressured to abstain or vote for B in public voting, while they did not explicitly say so. We attempted as much as possible to ensure that each voting mechanism took the same amount of time, nevertheless 3 voters perceived that one or the other was faster and preferred the faster one. Although we observed only 3 abstentions in actual voting over the mechanism (all from A subjects), 14 subjects contended there was no difference in the voting mechanisms and claimed that they had no preference.

Table B5: Probits of Voting for Secret Ballots

Type A	Dependent Variable	dF/dx	Std. Err.	z	P > $\|z\|$
	% A Wins in S - % A Wins in P	1.70	0.45	3.75	0.000
	Number of Observations = 48				
	Pseudo R^2 = 0.23				
Type B	Dependent Variable	dF/dx	Std. Err.	z	P > $\|z\|$
	% A Wins in S - % A Wins in P	-1.22	0.60	-2.05	0.040
	Number of Observations = 32				
	Pseudo R^2 = 0.14				

[37] For example, one A voter who admitted to having voted for B wrote: "Either way I voted, basically the same, though I abstained more often in secret because I didn't have to prove that I was being generous." To quote one B voter: "Public voting outed people as selfish [derogatory term deleted] if they voted A. So I think it made more people abstain if they were an A Type."

Figure B15: Survey Responses by Voter Type

Appendix C: Description of Procedures

Instructions were read by the same experimenter in all sessions. The experimenters had not known any participants previously. After obtaining subjects' consent to participate, the experimenters gave each participant a copy of the written instructions and 24 large sealed envelopes. Each of these large envelopes had a number written on the front for each experimental period. Subjects were asked to open the sealed envelope labeled number 1 in the first period. Similarly, during the next period, they were asked to open the sealed envelope labeled number 2, and so forth, for 24 periods. Each large envelope contained standard letter sized envelopes in different colors and ballot tickets, which are described below. Instructions were read orally, allowing subjects to ask questions privately and to make sure that everyone had common knowledge of the decision tasks. As discussed above, in each period, after all the votes had been collected, one of the subjects was randomly chosen to draw one voting choice from the ballot box to decide the winner of that period. If an abstention ballot was drawn then another ballot was drawn in its place until one containing a party choice was selected. If all voters had abstained, then one of the parties would have been randomly chosen as the winner; as it happened this never occurred. Again, as discussed above, at the end of the experiment, only one of the rounds was randomly chosen by a subject as the period to be paid.

C1. Secret Ballot Treatment

In the Secret Ballot Treatment or S, subjects were told that neither the other participants nor the experimenter knew their decisions and payments, and the experimenters explained how the experiment worked to achieve this goal. In order to ensure anonymity in the Secret Ballot Treatment, subjects were randomly given the sealed envelopes which contained their role assignments etc. Furthermore, one subject was randomly chosen to serve as a monitor to ensure credibility and calculate subjects' payoffs as described below (so we recruited 11 subjects for each Secret Ballot Treatment).[38] After being chosen, the monitor was asked to wait in another room. The room had an open door such that the monitor could hear what was occurring during the experiment but not see the other subjects or observe their choices. The other subjects randomly chose their ID number cards. The experimenters had marked the same number on two pieces of paper and had stapled them together in advance. So, every subject received two ID number cards.

[38] To avoid design issues pointed out by [**?**] and [**?**], the monitor was selected publicly. The experimenters put eleven pieces of paper into an envelope. Ten of them were marked "Subject," and one of them was marked "Monitor." When all subjects entered the laboratory, the experimenters asked them to draw one piece of paper from the envelope to decide who was the monitor. All subjects were present during the entire process, which reduced any belief that subjects had that the monitor was a confederate of the experimenters.

In each period, subjects were asked to make voting decisions. Subjects were seated at individual work stations which were shielded such that their neighbors (either next to or behind) could not observe their choices. In each large envelope for each period, the two standard sized envelopes were orange and blue, and the ballot tickets were marked "Vote for Party A," "Vote for Party B," and "Abstain." The large envelope also contained a "For Payment" piece of paper. Subjects' roles—A type voters or B type voters—were marked on every ballot ticket and "For Payment" piece of paper, but their ID numbers were not marked on the tickets. If voting for Party A, subjects were asked to put "Vote for Party A" in the orange envelope, "For Payment," "Vote for Party B," and "Abstain" in the blue envelope; if voting for Party B, they were asked to put "Vote for Party B" in the orange envelope, "For Payment," "Vote for Party A," and "Abstain" in the blue envelope; if abstaining, they were asked to put "Abstain" in the orange envelope, "For Payment," "Vote for Party A," and "Vote for Party B" all in the blue envelope. After making their choices, the experimenters collected the orange envelopes into the ballot box, which was opaque. The experimenters were extremely careful not to collect ballots before subjects had completed making their decisions and not to scrutinize the orange envelopes.

Only the votes in the orange envelopes were used to determine the winner in the election using the random dictator rule discussed above. At the end of the session and the paid period had been selected, the blue envelopes of that period as well as one ID number card were given to the monitor who then calculated subjects' payoffs without knowing the identities of particular subjects. The monitor calculated the payoffs by consulting the submitted blue envelopes for the selected period. Specifically, the monitor saw on the "For Payment" sheet which revealed to the monitor a subject's type in the period and therefore how much he or she should be paid. The monitor checked whether the subject abstained or not by examining whether the subject included the "Vote for Party A" and "Vote for Party B" ballot tickets in the blue envelope. If the subject had included both of these, then the monitor knew the subject had abstained and did not deduct \$2 from the payoff. If the monitor did not see both of these ballot tickets in addition to the "For Payment" piece of paper, then he or she deducted the \$2 from the payoff.

Next, the monitor put subjects' payoffs in new white envelopes, sealed them and gave them to the experimenters. Subjects' ID number cards were taped on the front of the white envelopes so that the experimenters could check the second ID card in each subject's hands and accordingly give the sealed payoffs to the subjects. But the experimenters did not know how particular subjects voted by ID number nor how much they earned. The monitor was asked to add up the total amount that he or she paid to the subjects. The experimenters, from examining the orange envelopes and knowing the distribution of voter types, could tell how many voters abstained and calculate the total as well to check the monitor's calculation. Subjects were also asked to check their payments. If any subject had reported a wrong payment, the monitor forfeited his or her payment. However, no subject objected to his or her payoff calculation and monitor calculations always fit the expected total.

C2. Public Voting Treatment

The Public Voting Treatment or P, was identical to the previous treatment except the experimenters modified the ballot tickets and the function of the colored envelopes, adding an additional green envelope. Subjects received ballot tickets that were not marked "Vote for Party A," "Vote for Party B," or "Abstain," Only their roles and ID numbers were printed on the ballot tickets. They were asked to put one ballot ticket into every envelope. Next, if they voted for party A, they submitted the orange envelope; if they voted for party B, they submitted the blue envelope; if they abstained, they submitted a green envelope. Subjects were asked in a randomly determined order which varied each period to go to the rostrum and put their decisions into the ballot box. At the same time, the experimenters recorded their decisions of each period on the white board. This design was aimed to guarantee that, although subjects' identities were anonymous to each other, everyone knew who made which decisions. Special care was taken by the experimenters to make sure that subjects made their decisions simultaneously while behind the privacy screens and were not able to change their decisions after observing others' choices. Hence, although voters cast their ballots sequentially, the choices were actually made simultaneously.

We instituted measures to prevent subjects from observing the votes of others prior to making their own voting decisions. Specifically, subjects were instructed to choose which envelope to keep for their vote and put it aside. The experimenters collected the two envelopes that voters did not plan to use. The experimenters made sure that other subjects were not allowed to see this collection by placing the collected envelopes in a large opaque envelope. Then subjects individually put their votes in the ballot box publicly. Although some subjects might have seen how others had voted before they put their vote in the ballot box, there was no way for them to change their choices. Under sequential voting, subjects choices may be significantly different than when voting is simultaneous, particularly when the decisions are observed. See [?] for a discussion of sequential versus simultaneous voting. One of the subjects was randomly chosen to draw one envelope from the ballot box to decide the winner of that period. Note that the box in which the envelopes were placed was opaque. The subject could not see inside the box when the he or she made the random draw. Next, if the envelope was orange then party A was declared the winner; if the envelope was blue then party B was declared the winner; if the envelope was green then a new envelope was randomly drawn from the ballot box to decide the result.

C3. Instructions for Secret Ballot Treatment

Welcome to our experiment. When you entered the laboratory, you were asked to draw a card. The subject who drew the card marked "monitor" is assigned to be the monitor in this experiment. He or she makes the payments to the other subjects at the end of experiment. The monitor is being paid a flat amount which equals the maximum that can be earned in this experiment.

For all the other subjects, after the monitor was assigned to wait in another room, the experimenters asked each of you to randomly draw your experimental ID number cards. The

ID numbers are used to calculate your payments. Note that you received 2 ID number cards simultaneously. Each had the same number. Be careful not to lose any of the ID cards. Since now the monitor is in another room, the monitor does not know which person has which ID number. At the same time, each of you does not know other participants' ID numbers. Please note that, there is no connection between the seat number and your ID number. As we explain shortly, the monitor will calculate your payments anonymously using the ID numbers.

Voting Procedure

During the following experiment, we require your complete and undivided attention, and ask that you follow the instructions carefully. Please turn off your cell phones. For the duration of the experiment, do not take actions that could distract you or other participants. Peeking at other participants' decisions is not allowed during the session. And do not let others observe your decisions. If you have any questions during the experiment, please raise your hands. The experimenters will come to you privately and answer your questions. If we think the questions are of a general nature, we will announce the answers to everyone. Please restrict these questions to clarifications about the directions only. If you break silence while the experiment is in progress, you will be asked to leave the experiment.

Please find 24 envelopes on your tables. Each of these envelopes has a number written on the front. This experiment will last for 24 rounds. In the first round, you are asked to open the large numbered envelope labeled number "1." Similarly, during the next round, you are asked to open the large numbered envelope labeled number "2," and so forth, for 24 rounds.

In each of these envelopes, there are

1. three envelopes: ORANGE, BLUE, GREEN
2. three ballot tickets: "Vote for Party A," "Vote for Party B," and "Abstain"
3. one piece of paper: "For payment"

In the experiment, there are two groups of players: A-type voters and B-type voters. Beside the "monitor," ten participants of this experiment will be randomly assigned as one of these two types players. There are always 6 A-type voters and 4 B-type voters who are asked to make a series of voting decisions in this experiment. You can find your role—A or B-type voter—on the ballot tickets, and your role will remain the same throughout the entire experiment.

In each round, you need to decide whether to vote for party A, vote for party B, or abstain. Then once you decide, please select the associated ballot ticket and put it into the corresponding envelope as described below.

- If you vote for Party A, put "Vote for Party A" in the ORANGE envelope, "For Payment" in the GREEN envelope, "Vote for Party B" and "Abstain" in the BLUE envelope.

- If you vote for Party B, put "Vote for Party B" in the ORANGE envelope, "For Payment" in the GREEN envelope, "Vote for Party A" and "Abstain" in the BLUE envelope.

- If you abstain, put “Abstain” in the ORANGE envelope, “For Payment,” “Vote for Party A,” “Vote for Party B” all in the GREEN envelope, NOTHING in the BLUE envelope.

You should **FOLD** your ballot tickets before putting them into the envelopes so that your vote choice cannot be seen through the envelope. After you make your voting decisions, the experimenters will come around and collect the ORANGE envelopes. Please put the leftover envelopes back to the numbered large envelopes. Please note that neither the experimenters nor the other participants know your vote choices. When you are making your decisions, please place the ballot tickets confidentially and do not let others know your decision. Please raise your hand when you have made your decision.

Winning Rule

Only the votes in the ORANGE envelopes will be used to determine the winner in the election. In each round, after the ORANGE envelopes have been collected, one of you will be randomly chosen to draw one of the ORANGE envelopes from the ballot box and open it. If the envelope contains the paper marked ”Vote for Party A” then Party A is declared the winner; if the envelope contains the paper marked ”Vote for Party B” then Party B is declared the winner; if the envelope contains the paper marked ”Abstain,” or the envelope contains more than one ballot ticket, then a new envelope is randomly drawn from the ballot box in order to decide the result.

Costs and Payoffs

You will receive \$8 for showing up. You will also earn an additional payoff based on the outcome of the election in the chosen round and your type. That is, at the end of the experiment, one of the 24 rounds is randomly chosen to be ”paid.” The experimenters will randomly invite one of you to choose the round that will be paid. Your payoff will depend on your type and which party wins the election in the chosen round. For each election you will be given a separate set of instructions with a payoff table that explains what your payoffs will be in that election. Please read the instructions carefully for each round. The payoff tables may change from round to round.

Voting is costly. You will pay \$2 if you vote for either party A or party B. If you choose to abstain (not vote) you do not need to pay this additional amount. The cost of voting will stay at \$2 for the entire experiment. You will be paid based on your type and who the winner is for the selected round to be paid. So, if you abstain, you will also be paid. But please note that, whether you vote or abstain decides the probabilities that party A and party B wins the elections.

Privacy

Your decisions and payments are absolutely anonymous. Neither the other participants nor the experimenter knows this information.

In order to achieve absolute anonymity, the experimenters sealed all the large envelopes after they randomly put all the necessary materials into them. Then, the experimenters randomly distributed these large envelopes to your tables.

When the round to be paid is selected, you need to find the GREEN envelope of the selected. Please only submit the GREEN envelope of the selected round, but not the ones of other rounds. Also, you need to clip one of your ID numbers to the GREEN envelope using the provided paper clips. Note that, you need to FOLD the ballot tickets so that your decisions cannot be seen through the envelope.

After collecting all the GREEN envelopes, the experimenters will give them to the monitor who sits in another office of the laboratory. The monitor does not know who you are. He or she will simply put the voucher into each GREEN envelope based on the outcome of the election and your type in the selected round. The monitor will be able to calculate the payoffs by consulting your GREEN envelopes for the selected round. That is, the monitor will see on the "For payment" sheet your type. That will tell the monitor what your payoff from the election should be given who the winner is. The monitor can also see whether you abstained or not by seeing if you have included the "Vote for Party A" and "Vote for Party B" pieces of paper. If you have included both of these, then the monitor knows you abstained and does not deduct $2 from your payoff. If the monitor does not see both of these pieces of paper in addition to the "For payment" piece, then she or he will deduct the $2 from your payoff. The monitor will add up the total amount that she is going to pay to subjects. The experimenters, from examining the orange envelopes and knowing the distribution of voter types, will be able to tell how many abstained and be able to calculate the total as well to check the monitor to be sure the monitor's calculation is right. But the experimenters will never know whether you IN PARTICULAR abstained or not and if you voted, how you voted. No one will know this information.

Then, the experimenter gives back the GREEN envelope to each of you without knowing your payments. When you receive your payment, please check that it is the right amount that you should receive from participating in the experiment. If you have any problems with your payment, please report it to the experimenters. If your payment is correct, please come to the experimenter and sign your name on the receipt. The experiment is over and you are free to leave.

Summary

- There are two types of voters: A type and B type. You will randomly be assigned as one of these types. There are 6 A type voters and 4 B type voters who are asked to make a series of voting decisions in this experiment. The number of A type and B type voters, and your role—A type or B type—will remain the same throughout the entire experiment. But the payoff tables may change from round to round. You need to read the instructions carefully in each round.

- You need to pay $2 to vote. If you abstain, you do not need to pay the voting cost. You will be paid based on your type and who the winner is for the selected round to be paid. So, if you abstain, you will also be paid. But please note that, whether you vote or abstain decides the probabilities that party A and party B wins the elections.

- You need to select the associated ballot tickets, FOLD, and put them into corresponding envelope as required. In each round, one of the participants will be asked to randomly draw an envelope from the ballot box to decide the winner of the election.

After the 24 voting games have been finished, the experimenters randomly ask one of you to draw one round from the 24 rounds as the round to be paid.

- Your decisions and payments are absolutely anonymous. Neither the other participants nor the experimenter knows this information.

If you have any questions, please ask them now.

DO NOT TURN TO THE NEXT PAGE UNTIL INSTRUCTED TO DO SO.

Typical Page for a Period

In this round, there are 6 A-type voters and 4 B-type voters. Please check your role in the envelope. The payoff table for the two types of voters is shown below (Here subjects would find a table with the voting payoffs for the period).

This table tells you the payoffs you and the other members of the group receives for every potential winning alternative. For example, if Party A wins, A type voters receive 20 dollars, B type voters receive 5 dollars. If Party B wins, A type voters receive 5 dollars, B type voters receive 20 dollars.

Remember that voting is costly and if you choose to vote, you will pay $2 for voting. So, if you are an A type voter, and you choose to vote, and A wins, you receive $20-2 = $18. If you are a B type voter, and you choose to vote, and A wins, you receive $5-2=$3. If you abstain, you do not have to pay the $2 to vote.

Please make your decision now!

- If you vote for Party A, put "Vote for Party A" in the ORANGE envelope, "For Payment" in the GREEN envelope, "Vote for Party B" and "Abstain" in the BLUE envelope.

- If you vote for Party B, put "Vote for Party B" in the ORANGE envelope, "For Payment" in the GREEN envelope, "Vote for Party A" and "Abstain" in the BLUE envelope.

- If you abstain, put "Abstain" in the ORANGE envelope, "For Payment," "Vote for Party A," "Vote for Party B" all in the GREEN envelope, NOTHING in the BLUE envelope.

C4. Instructions for Experiment II

Welcome to our experiment. During the following experiment, we require your complete and undivided attention, and ask that you follow the instructions carefully. Please turn off your cell phones. For the duration of the experiment, do not take actions that could distract you or other participants. Peeking at other participants' decisions is not allowed during the session. And do not let others observe your decisions. If you have any questions during the experiment, please raise your hands. The experimenters will come to you privately and answer your questions. If we think the questions are of a general nature, we will announce the answers to everyone. Please restrict these questions to clarifications about the directions only. If you break silence while the experiment is in progress, you will be asked to leave the experiment.

General Description

This is a voting experiment, which consists of three parts and will last for 22 periods. For all parts of this experiment you will play a voting game, which we will describe shortly, with the same group of participants. In Part I (Periods 1-10), you will vote by secret ballots (which we explain below) and in Part II (Periods 11-20), you will vote publicly (which we explain below). In Part III, you will have the opportunity to vote to decide whether to use secret ballots or public voting. That is, In Period 21, you will be asked to vote to decide whether to use secret ballots or public voting in the following 5 periods; then in Periods 22-26, the voting experiment will be organized based on the selected winner of Period 21.

Please find large envelopes on your tables. Each of these envelopes has a number written on the front. In the first period, you are asked to open the large numbered envelope labeled number "1." Similarly, during the next period, you are asked to open the large numbered envelope labeled number 2," and so forth, for 26 periods.

In the experiment, there are two groups of players: A-type voters and B-type voters. The ten of you will be randomly assigned as one of these two types players. There are always 6 A-type voters and 4 B-type. You can find your role—A or B-type voter—on the ballot tickets, and your role will remain the same throughout the entire experiment. Even though the voting procedure changes, your assignment as an A-type or a B-type never changes. If you are an A-type when we use secret ballots you will also be an A-type when we use public voting.

In each period, you need to decide whether to vote for party A, party B, or to abstain. The payoff table for the two types of voters is shown below:

Voter Type	If Party A wins	If Party B wins
A	25	20
B	50	20

This table tells you the payoffs you and the other members of the group receive for every potential winning alternative. For example, if Party A wins, A-type voters receive 25 dollars; B-type voters receive 5 dollars. If Party B wins, A-type voters receive 20 dollars, B-type voters receive 20 dollars.

Voting is costly and if you choose to vote, you will pay \$2 for voting. So, if you are an A-type voter, and you choose to vote, and A wins, you receive $\$25 - 2 = \$23$. If you are a B-type voter, and you choose to vote, and A wins, you receive $\$5 - 2 = \$3$. If you abstain, you do not have to pay the \$2 to vote. So if you are an A-type voter, and you do not choose to vote and A wins you receive \$25. If you are a B-type voter, and you do not choose to vote, and A wins, you receive \$5. This payoff matrix will stay the same throughout the experiment. Note you will also receive \$8 for showing up.

Part I-Secret Ballot Voting

With secret ballots, your decisions and payments are anonymous to both the experimenters and the other participants. We explain the mechanism of how we maintain such anonymity below.

When you entered the laboratory, you were asked to draw a card. The subject who drew the card marked "monitor" is assigned to be the monitor in this experiment. He or she makes the payments to the other subjects at the end of experiment. The monitor is being paid a flat amount which equals the maximum that can be earned in this experiment.

For all the other subjects, after the monitor was assigned to wait in another room, the experimenters asked each of you to randomly draw your experimental ID number cards. The ID numbers are used to calculate your payments. Note that you received 2 ID number cards simultaneously. Each had the same number. Be careful not to lose any of the ID cards. Since now the monitor is in another room, the monitor does not know which person has which ID number. At the same time, each of you does not know other participants' ID numbers. Please note that, there is no connection between the seat number and your ID number. The monitor will calculate your payments anonymously using the ID numbers.

You will engage in the secret ballot from Period 1 to Period 10. You will be asked to open envelopes from "1" to "10," respectively. In each of these envelopes, there are

- A smaller white envelope.
- Three ballot tickets: "Vote for Party A," "Vote for Party B," and "Abstain."

In each period, you need to decide whether to vote for party A, vote for party B, or abstain. Then once you decide, please select the associated ballot ticket and put it into the smaller white envelope as described below.

- If you vote for Party A, fold the "Vote for Party A" ticket so that it cannot be read through the envelope and put it in the smaller white envelope.
- If you vote for Party B, fold the "Vote for Party B" ticket so it cannot be read through the envelope and put it in the smaller white envelope.
- If you abstain, fold the "Abstain" ticket so it cannot be read through the envelope and put it in the smaller white envelope.

Remember to FOLD your ballot tickets before putting them into the envelopes so that your vote choice cannot be seen through the envelope. After you make your voting decisions, the experimenters will come each period and collect the envelopes. Please put the leftover materials back to the numbered large envelopes. Please note that neither the experimenters nor the other participants know your vote choices. When you are making your decisions, please place the ballot tickets confidentially and do not let others know your decision. Please raise your hand when you have made your decision.

Winning Rule

In each period, after the envelopes have been collected, one of you will be randomly chosen to draw one of envelopes from the ballot box and open it. If the envelope contains the paper marked “Vote for Party A” then Party A is declared the winner; if the envelope contains the paper marked “Vote for Party B” then Party B is declared the winner; if the envelope contains the paper marked “Abstain,” or the envelope contains more than one ballot ticket, then a new envelope is randomly drawn from the ballot box in order to decide the result.

Privacy of Payment with Secret Ballots

When voting by secret ballot, your decisions and payments are anonymous to both the experimenters and the other participants. Although your role is marked on the ballot ticket, and your ID number is anonymous to others, so neither the experimenters nor the other participants know in particular who make which decisions.

As noted above, one of the voting periods (with the exception of Period 21) will be randomly selected to be paid. If the period to be paid is an election using secret ballots, you will need to find the leftover ballot tickets of the selected period, and return them to the experimenters in a blank white envelope which the experimenters will provide for you at that time. FOLD the tickets so they cannot be read through the envelope. Please only submit the leftover ballot tickets of the selected period, but not the ones of other periods. Also, you need to clip one of your ID numbers to the envelope using the provided paper clips. Note that, you need to FOLD the ballot tickets so that your decisions cannot be seen through the envelope.

After collecting all your envelopes as well as the corresponding ballot tickets of the period to be paid, the experimenters will give them to the monitor who sits in another office of the laboratory. Although each envelope has an ID number, the monitor does not know which of you has which ID number. He or she will simply put the voucher into each envelope based on the outcome of the election in the selected period and your type. The monitor will be able to calculate the payoffs by consulting your envelope for the selected period. That is, the monitor will see on the ballot tickets your type, and check the ballot ticket(s) in the envelope to know if you voted. If you vote, that is, the monitor does not see both “Vote for Party A” and “Vote for Party B” , the monitor will deduct $2 (the cost of voting) from your payment. If you abstain, the monitor sees that both ballots are in the envelope, the monitor will not deduct $2 from your payment. That will tell the monitor what your payoff from the election should be given who the winner is. The period number is marked on the ballot tickets. Please only submit the ballot tickets of the selected period. If you put the ballot tickets of other periods in the envelope, you forfeit your payment.

The monitor will add up the total amount that she or he is going to pay to you. At the same time, the experimenters, from examining the envelopes you submitted of the selected period, will be able to calculate the total as well to check the monitor to be sure the monitor’s calculation is right. Because there is no information on your ID numbers, the experimenters will never know whether you IN PARTICULAR abstained or not and how you voted. No one will know this information. Note that, the ID cards used with secret ballots and with public voting are different.

If the monitor’s calculation is right, then the monitor will put the cash vouchers into the corresponding envelopes and give the envelopes to the experimenters. Then the experimenters give back the envelopes to each of you without knowing how you voted and your payments. You use another ID number card in your hands to exchange your payoff.

When you receive your payment, please check if your payment is correct. If you have any problems with your payment, please report your problems to the experimenters. If your payment is correct, please sign your name on the receipt, and take the two ID number cards away from the laboratory.

Remember the following:

1. You will be assigned to a voting type. 6 of you will be assigned as type A voters and 4 of you will be assigned as type B voters. Your type will stay the same throughout the experiment. You will never change your type.

2. First you will play the voting game with secret ballots for Periods 1-10. You have a secret ballot ID card that will be used only for Secret Ballots. It is marked with an S.

3. Then you will play the voting game with public voting for Periods 11-20 (we will explain the procedures of how public voting works in Period 6 so there is not too much to remember, but simply put everyone will observe how everyone else votes). You have a public voting ID number that will be used for Public Voting. It is marked in ballot tickets. Your ID cards of secret ballot voting and public voting are different and unrelated to each other – the Secret Ballot ID cards are letters and the Public Voting ID numbers go from 1-10.

4. In Period 21 you vote whether to use secret ballots or public voting in Periods 22-26.

5. After all the voting has concluded, we randomly draw one period (excluding Period 21) to be paid.

6. If we used secret ballots in the selected period, we will use the payment procedures described above.

7. If we used public voting in the selected period, we will pay you according to your ID number in the public voting games.

   If you have any questions, please raise your hand and an experimenter will come and answer them privately.

Part II-Public Voting

When voting is public, whether you vote or abstain, and how you vote is known to all participants and the experimenters. We explain the mechanism of how we organize public voting below.

You will vote by public voting from Periods 11 to 20. You will be asked to open envelopes from "11" to "20," respectively. In each of these large envelopes, there are

- Three envelopes: ORANGE, BLUE, and GREEN.

- One piece of paper: "For payment"

In each election you first decide whether to vote for party A, vote for party B, or to abstain. Then once you decide, please select the associated ballot ticket and put it into the corresponding envelope as described below.

- If you vote for Party A, put "For payment" in the ORANGE envelope, and then put the blue and green envelopes back to the numbered large envelope. Make sure that no one can see which envelope you have kept.
- If you vote for Party B, put "For payment" in the BLUE envelope, and then put the orange and green envelopes back to the numbered large envelope. Make sure that no one can see which envelope you have kept.
- If you abstain, put "For payment" in the GREEN envelope, then put the orange and blue envelopes back to the numbered large envelope. Make sure that no one can see which envelope you have kept.

Note that, when you are making your decisions, please make sure that no other subjects or the experimenters can observe which envelopes you have kept and which have been placed back in the large. It is extremely important that you do not let others know your decision before you are called upon to cast your vote publicly. If you reveal your voting decision in any way before publicly casting your vote as called on by the experimenters, you will forfeit your payment. Please raise your hand when you have made your decision. The experimenters will come to you and collect the numbered large envelope, which will contain the other two smaller envelopes, so that in each period you cannot change your decision after you know other participants' choices.

When we collect all the large envelopes, the experimenters will come to you and collect your decisions. We will ask you to put your decisions into the ballot box publicly by putting the envelope with the "for payment" piece of paper in the ballot box and announcing your decisions loudly. At the same time, the experimenters record your decisions of each period on the white board, so that everyone will know who make which decisions.

Winning Rule

Note that, when you are making your decisions, please make sure that no other subjects or the experimenters can observe which envelopes you have kept and which have been placed back in the large. It is extremely important that you do not let others know your decision before you are called upon to cast your vote publicly. If you reveal your voting decision in any way before publicly casting your vote as called on by the experimenters, you will forfeit your payment. Please raise your hand when you have made your decision. The experimenters will come to you and collect the numbered large envelope, which will contain the other two smaller envelopes, so that in each period you cannot change your decision after you know other participants' choices.

When we collect all the large envelopes, the experimenters will come to you and collect your decisions. We will ask you to put your decisions into the ballot box publicly by putting

the envelope with the "for payment" piece of paper in the ballot box and announcing your decisions loudly. At the same time, the experimenters record your decisions of each period on the white board, so that everyone will know who make which decisions.

Payment Procedures if Period Selected Uses Public Voting

If the period selected for payment used public voting, then the experimenters will find the submitted colored envelopes of the selected period. The experimenters will know your votes by seeing the color of the envelope, and calculate your payoff by seeing on the ballot tickets which will have your type and public voting ID number. If you vote, that is, the experimenters see you submitted the ORANGE or BLUE envelopes, the experimenters will deduct \$2 (the cost of voting) from your payment. If you abstain, the experimenters see the GREEN envelope, the experimenters will not deduct \$2 from your payment. That will tell the experimenters what your payoff from the election should be given who the winner is. You will be privately paid for your participation with a cash voucher at the end of the session. When you receive your payment, please check if your payment is correct. If you have any problems with your payment, please report your problems to the experimenters. If your payment is correct, please sign your name on the receipt

If you have any questions, please raise your hand and an experimenter will come and answer them privately.

Part III and Period 11

In Period 21, you are asked to vote to decide whether to use secret ballots or public voting in the following 5 periods. You will vote over which voting process to use using secret ballots. In the envelope marked "21," there are

- One smaller WHITE envelope.
- Three ballot tickets: "Secret Ballot," "Public Voting," and "Abstain"

Note that each ballot ticket is marked with Period II and your type (A or B voter). But there is no ID number on any of the tickets, so your choice is anonymous to the experimenters and your fellow voters. Also, there is no cost of voting. Voting is free in this election. Once you decide, please select the associated ballot ticket, FOLD it, and put it into the corresponding envelope as described below.

- If you vote for using secret ballots, put "Secret Ballot" in the WHITE envelope
- If you vote for using public voting, put "Public Voting" in the WHITE envelope
- If you wish to abstain, put "Abstain" in the WHITE envelope.

Note that, your decisions are anonymous to both the experimenters and the other participants. Again, after the envelopes have been collected, one of you will be randomly chosen to draw one of the envelopes from the ballot box and open it. If the envelope contains the paper marked "Secret Ballot" then you will use secret ballots in the following 5 periods; if the envelope contains the paper marked "Public Voting" then you will use public voting in the following 5 periods; if the envelope contains both of the two ballot tickets or “abstain,” then a new envelope is randomly drawn from the ballot box in order to decide the result. If a decision is not made after all envelopes have been drawn, a coin will be flipped to determine the winner. Remember there is no cost to voting in this election.

If you have any questions, please raise your hand and an experimenter will come and answer them privately.