

# What motivates bandwagon voting behavior: Altruism or a desire to win?

Rebecca B. Morton<sup>a\*</sup> Kai Ou<sup>b</sup>

<sup>a</sup>*Department of Politics, NYU NYC and NYU Abu Dhabi, 19 West 4th Street, 2nd Floor, New York, NY 10012, USA*

<sup>b</sup>*Department of Politics, New York University, 19 West 4th Street, 2nd Floor, New York, NY 10012, USA*

April 9, 2015

## Abstract

This paper surveys the literature on psychological and strategic mental processes of bandwagon behavior, discusses the literature of bandwagon behavior in the context of the two different types, bandwagon vote choices and bandwagon abstention effects, and examines the rationality of other-regarding bandwagon vote choices. Key experimental results are reported to investigate the extent that bandwagon behavior can be explained by other-regarding preferences in contrast to a psychological desire to simply support a winner. We find support for purely psychological non-other-regarding bandwagon behavior but primarily when subjects have information about the distribution of voter choices in previous elections but individual choices are private. Interestingly, when voting is public this type of bandwagon behavior disappears and bandwagon behavior that could be other-regarding is much higher. Given that observability increases other-regarding behavior in other contexts, our results suggests that some of the observed bandwagon behavior may be explained by other-regarding preferences as well.

*JEL classification:* A13; C90; D72; D83

*Keywords:* Bandwagon behavior; Majority voting; Other-regarding voting; Secret ballots

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\*Email address: rebecca.morton@nyu.edu.

# 1 Introduction

George Wallace, who was the master of Alabama politics, understood the bandwagon effect. He knew that people like to vote for the winner. He would often tell me that he would rather have someone say that he was going to win rather than say that they were going to vote for him. ... “If they hear someone say they’re going to vote for me, they figure they might have a selfish motive, but say he’s going to win invites everyone to get on the train to victory and vote for the winner.” Some country people would describe it as saying, “I don’t want to lose my vote voting for so-and-so, he can’t win.” Wallace used a unique political practice to exploit this bandwagon effect. He would employ what I call runners. These well trained runners would only number a handful of men because they had to be perfect for the job. They had to be believable, genuine and look the part. These men would circulate throughout the state-during an election year. They would pose as traveling salesmen. The state was full of country stores in those days. These country stores were where politics was talked. They were at the country branch heads. They were the grapevine for the rural community. ... Wallace’s man would stop at a country store in North Alabama several times, first to talk about the weather and the crops. On his next stop he would talk about football. Finally, after he had won the confidence of the locals in the country store, he would go into politics. These folks would ask their well-traveled friend how did the governor’s race look throughout the state. He would look them in the eye and say, “It ain’t no race, George Wallace is going to clean up. He’s going to get all the votes in South Alabama.” The North Alabamians would want to get on the bandwagon. The Wallace runner or traveling salesman would do the same thing in South Alabama. – Steve Flowers, Tuskegee News, August 16, 2012.

Voters ... gravitate towards those seen as winners. Ajay Kishore (28) from

Bhuntar in Himachal says, ‘My vote’s for the winning candidate.’ The expression ‘bandwagon effect’ alludes to group-think, simply following others. First-time voter Pulkit Sareen (22) from Patiala says a combination of Modi’s charisma and the bandwagon effect works for him. – Times of India March 18, 2014 report on voter intentions in the 2014 Indian parliamentary election.

The two quotes above illustrate the extent that both voters and candidates generally perceive that there can be bandwagon behavior in elections – that is, voters have a tendency to vote for the winner or want to be on the side of the winner. Numerous empirical studies have found some evidence supportive of bandwagon behavior. For example, in 2005 France changed its voting calendar such that voters in some western overseas territories voted before mainland France when they previously voted after the mainland. Morton et al. (2014) find evidence to support bandwagon behavior prior to the change when comparing voting behavior before and after the change in the calendar.<sup>1</sup>

Why does bandwagon behavior exist? A number of explanations have been put forward from the psychological (voters prefer to be on the winning side) to the rational/informational (bandwagon behavior due to strategic voting or voters using support for candidates as signals about unknown aspects of candidates’ qualities or policies). One possible explanation has received little attention in the academic literature – *other-regarding voting behavior*. Specifically, other-regarding voting means voters vote against their material self-interest and instead vote for a morally or socially appealing alternative. It is worth noting that bandwagon behavior may stem from a willingness of voters to vote with the majority even when their private preferences are with the minority (or to abstain and let the majority win). Minority voters may wish to support the majority either through directly voting for the majority or by abstaining because they wish to make the choice that benefits the most voters in society, even when they themselves

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<sup>1</sup>See also Nadeau, Richard; Cloutier, Edouard; Guay, J.-H. (1993) and McAllister, Ian; Studlar, Donley T. (1991).

may pay a cost to do so. Such an explanation makes intuitive sense. That is, in almost all naturally occurring elections and in experimental work a particular choice is more likely to win when it is supported by the majority, thus there is almost perfect correlation between providing support for choices that benefit the majority of voters (which would be other-regarding behavior by the minority) and bandwagon behavior. But the correlation leads to a problem. That is, it is almost impossible to distinguish between what has been considered psychologically motivated bandwagon behavior (which is not other-regarding) and other-regarding voting in naturally occurring elections or in prior experimental work.

What motivates bandwagon behavior has consequences for the impact of such behavior in elections. That is, if bandwagon behavior is purely a psychological desire to be on the winning side, then it can possibly lead to outcomes in elections that are contrary to voters' true preferences over policies. But if bandwagon behavior is rational and/or other-regarding, then it can be much less problematic for elections.

In this paper we present an experiment designed to evaluate the extent that other-regarding preferences might explain bandwagon behavior. In our experiments we abstract away most information and strategic explanations of bandwagon behavior so that we can focus on distinguishing between the two remaining explanations – a simple psychological preference for being supportive of the winner (or deserting a loser) versus an other-regarding motive of supporting the choice favored by the majority. That is, we consider voting behavior in a two-choice voting game in which one group of supporters has a clear majority and thus is more likely to win as a consequence and in a two-choice game in which supporters of both the choices are equal sized, but the voting rule advantages one of the choices. If bandwagon behavior is motivated by other-regarding preferences, then we should observe bandwagon behavior in the first case, but less so in the second.

We find that both psychological and other-regarding preferences motivate bandwagon behavior, but that each depends crucially on the privacy of vote choices and the information

that voters have about others' vote choices. We find support for purely psychological, non-other-regarding bandwagon behavior but primarily when subjects have information about the distribution of voter choices in previous elections, so are aware of which outcome has won in the past, but individual choices are private. Voters then do appear to have a psychological benefit from supporting the winner, even when such a choice is not other-regarding. Interestingly, when voting is public this type of bandwagon behavior disappears. However, when voting is public bandwagon behavior that could be other-regarding is much higher. Given that observability increases other-regarding behavior in other contexts, our results suggests that some of the observed bandwagon behavior in general may be explained by other-regarding preferences as well.

In the next section we review the previous literature on bandwagon and other-regarding voting. In Section III, we present our experimental design. Section IV discusses our experimental results, and section V concludes.

## **2 Literature review**

The first time that bandwagon behavior was observed as a phenomenon can be dated back to 1848. Originally, “bandwagon” was a horse-drawn wagon bearing a brass band, and it was used in a circus parade. A showman used his bandwagon and its music to gain attention for his campaign appearances. Because the showman’s campaign became more successful, other politicians strove for a seat on the bandwagon, hoping to be associated with the showman’s success. After that, bandwagons as a device have been widely used for local and national election campaigns.

In the past decades, bandwagon behavior has been one of the more popular topics in political behavior and has attracted attention from both political scientists and economists. In this section, we scratch the surface of the large literature on bandwagon behavior, summarize the psychological explanations, and pay special attention to the theoretical and empirical studies in

the framework of the political economy.<sup>2</sup>

Before reviewing the literature, it will be helpful to define further what we mean by bandwagon behavior. If we assume that, at least to some voters, voting behavior is a function of their expectations of the election outcome, then the perception about who the winner is (via polls, or knowledge of voter preferences) is assumed to influence voters' expectations, which in turn affects their voting behavior. Aggregate bandwagon effects could be caused by two different types of voter behavior that is influenced by such knowledge: *bandwagon abstention effects* and *bandwagon vote choices*. Bandwagon abstention effects occur when the knowledge that one candidate is more likely to win leads those voters who prefer the winner to participate more and the voters of the likely loser to participate less. Bandwagon vote choices occur when the knowledge that one candidate is more likely to win leads supporters for the loser to actually switch votes for the winner. In naturally occurring data at the aggregate level it is difficult to measure and distinguish between bandwagon vote choices and bandwagon abstention effects. Furthermore, many experiments on turnout (such as Levine and Palfrey 2007) voters are only allowed to choose whether to turnout or to vote their first preference, so possible bandwagon vote choices are not permitted.

Although it is easier to observe bandwagon behavior in a sequential voting setup, bandwagon behavior occurs in simultaneous voting when there is a widely perceived view of who will likely win. Under the scenario in which individuals know the results from earlier voting via leaked exit polls, voting becomes sequential in nature. In the case of complete information about the choices before them but incomplete information about other participants' preferences, the results of earlier decisions simply provides later participants with information about the likelihood that their vote may be pivotal.

Given the large number of theoretical and empirical studies that find bandwagon behavior, researchers have undoubtedly uncovered something, yet, little of the literature precisely distin-

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<sup>2</sup>See Palfrey (2009) and Morton (2014) for the discussions on the framework of political economy studies.

guishes the two types of bandwagon behavior. Furthermore, as we demonstrate in our study, bandwagon behavior can be explained by other-regarding motivations. However, other-regarding behavior in the context of voting hardly appears in the general treatment of political economy studies. In the rest of this section, we review the literature on psychological and strategic mental processes of bandwagon behavior, discuss the literature of bandwagon behavior in the context of the two different types—bandwagon vote choices and bandwagon abstention effects—and examine the rationality of other-regarding bandwagon vote choices.

### *2.1 Psychological and strategic mental processes*

From a psychological perspective, value references are crucial in determining individual preferences (Kahneman and Tversky, 1991). A number of informative studies have explored the existence of bandwagon behavior (Simon, 1954; Fleitas, 1971; Zech, 1975; Gartner, 1976; Straff in, 1977; Henshel and Johnston, 1987; Bartels, 1988; Kenny and Rice, 1994; Mutz, 1997).

Motivated by the study in which Leibenstein (1950) examines some “irrational” determinants of the consumer demand, Zech (1975) applied bandwagon behavior to the analysis of voting behavior. Zech (1975) claims that though the reasons that a voter engages in bandwagon vote choices vary, a considerable part of the motivation can be explained by the desire to be associated with the winning candidate. When a voter votes for the winning candidate, some intangible benefits can be expected. For example, voters may engage in bandwagon vote choices because they receive consumption utility or satisfaction from voting for the winner in an election, which is independent of the outcome of the election.

As we define above, if we assume that voting behavior is a function of expectations about the outcome of an election, then an individual voter will calculate the cost of voting against the payoffs to be received. Zech (1975) summarizes possible payoffs by voting. Though the benefits of voting vary across individuals, it is safe to claim that the possible benefits include the (1) psychological satisfaction from compliance with the ethic of voting, i.e., voters participate because they receive a consumption benefit from voting as a social norm—a so-called “citizen

duty” utility; (2) the consumption utility that voters may receive from the act of expression of their preferences provided in the ballot booth; (3) the satisfaction from casting a decisive vote in a close election; and (4) the “benefits the voter anticipates from the election of his favorite candidate.” The bottom line is that the psychological benefits of voting matter to voters when they are determining for whom they will vote. When voters perceive one candidate is more likely to win an election, by voting for the leading candidate voters may receive higher benefits; because for some voters the psychological benefits are the only payoffs they can receive from voting, voters will vote for the leading candidate, which leads to bandwagon behavior. Zech (1975) claims that voters whose original favorite candidate is not the leading candidate may switch their votes when they know the identity of the leading candidate, because those voters may perceive less benefit from voting for the candidate whom they feel is going to lose. However, the mechanism through which voters’ utility changes is not directly explained.

Bartels (1988) fills the gap and directly addresses the underlying mental processes that lead people to display bandwagon behavior in presidential primaries in the United States which take place sequentially. He describes four processes which could account for bandwagon behavior in that context: (1) contagion; (2) supporting the winner; (3) strategic voting; and (4) cue-taking. Based on Bartels’ summary, we describe the four processes below. Contagion refers to a “herd instinct” of individuals to associate with the likely winner of an election. When a leading candidate rides a wave of momentum, the candidate will generate such excitement that voters tend to give their support to the candidate “automatically and uncritically” (Bartels 1988). To some extent, contagion can be understood as the “unchecked enthusiastic emotion.” Supporting the winner is the motivation that individuals “jump on bandwagons” purely in a pursuit for the pleasure of “backing a winner.” These voters are different from the contagion voters, because they will evaluate the quality of the leading candidate rationally. But still, these voters decide to vote for the likely winner simply because “it feels good” to do so. For strategic voters, they want to select and vote for the candidate who has the best chance of winning the

general election. These strategic voters use bandwagons as an indicator to evaluate the quality of a candidate and predict the probability a primary candidate can win the general election. For them, prenomination momentum can be seen as a “telltale sign of a strong general election candidate.” For cue-takers, they are individuals who can be understood as “informational free-riders.”<sup>3</sup> They believe that the party has more information than they do, so they simply back the candidate who is more favored by the party and other voters. The cue-takes use bandwagons as signals to evaluate the quality of the candidate.

Kenny and Rice (1994) add “inevitability” as an additional process which can also lead to bandwagon behavior. They think that some voters vote for the leading candidate because they believe that even if they vote for their most preferred candidate, whom is another one, the leading candidate will win the election anyway. So, these voters “inevitably” switch to vote for the leading candidate not because they want to “jump on the bandwagon” but because they want to “throw in the towel.” But even if these voters do not mean to “jump on the bandwagon,” their behavior in fact leads to a bandwagon effect. Kenny and Rice (1994) claim that “[f]or contagion voters, euphoric emotion pushes them onto the bandwagon; for inevitability voters, defeat drags them onto the bandwagon. For strategic voters, boarding the bandwagon is a calculated, rational act; for those voters inclined to support the winner, rationality plays no role in their decision to jump on the bandwagon.”

Both Kenny and Rice (1994) and other scholars have noticed that the five processes mentioned above can work simultaneously. It is not that one of the five mechanisms can better explain bandwagon vote choices, but the five processes apply to different voters differently. Some people may be more persuaded by polls, while others—the certainty-oriented persons—may seek to maintain clarity about themselves and their environment (Sorrentino et al., 1984). The individual differences can explain the reason why bandwagon behavior are obvious and strong in some elections, but not in others.

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<sup>3</sup>A similar concept can be found in Caillaud and Tirole (2002).

Attention has also been focused on methods that take advantage of the political momentum in elections. The priming/learning effects on voting choices has been widely discussed in the literature. For example, Schmitt-Beck (1996) refers to a consensus heuristic, and argues that the mass media contribute to shaping the voters' expectations of about the likely outcome of an upcoming election, which in turn advantages the apparent future winner of the election. Mutz (1997) suggests that voters strategically vote for candidates other than their most well-linked choice because perceptions of popular support for a candidate alter voter attitudes toward that candidate, which in turn influences vote choice (similar to the cue-taking and strategic reasoning discussed above).

At the same time, another interpretation from the social psychological perspective outlines two distinct modes of processing which address directly how and why persuasion takes place (Petty and Cacioppo, 1986a,1986b). The key to these persuasion models is whether individuals have the motivation and ability to process a message. Recall that the key assumption of cue-taking is that people are thought to be more likely to use shortcuts in making decisions. Petty and Cacioppo claim that when voters have little motivation to carefully scrutinize all the information provided, the priming and persuasions can be of greater influence compared to the situation in which voters feel the election *per se* is highly relevant to themselves. Though the topics and research questions in the thread of persuasion studies are informative, the huge body of literature on the priming/learning effects of mass media on voters' choices is beyond the discussion of this paper.

## *2.2 Political economy research on bandwagon behavior*

The psychological desire for voting for the winner in an election has been incorporated in a number of formal theoretical models. For example, Hinich (1981) rests on an assumption that a voter gains some utility by voting for the winner, or loses some utility by voting for the loser, and considers a theory of voting in two candidate elections. Voting behavior depends both on voters' beliefs about the election outcome and their preferences over candidates. If voters have

private information about the choices before them in an election, then early voting results not only reveal the extent to which individual choice may be pivotal but may also provide later voters with insights into the information held by early voters about the choices, similar to the cue-taking and strategic motivations discussed above.

A number of researchers working from the assumption that voters have a psychological preference for voting for the winner, have examined how sequential voting works in a common value framework with incomplete information. That is, if voters had complete information about candidates they would agree over the best choice, but because they do not, they may disagree. Callander (2007) considers a game-theoretic setup in which voters receive utility from conforming to the majority, voting for the leading candidate, and derives an equilibrium under sequential voting in which voters vote for the winner even though their private information reveals that that candidate is not their own best choice. He compares simultaneous and sequential voting under asymmetric information. Specifically, he derives an equilibrium under sequential voting in which voters engage in bandwagon vote choices even though their private information may suggest that the leading candidate is not their own best choice. He finds that a desire to conform might induce momentum and bandwagons on the equilibrium path so that bandwagon voting may occur even when later voters' choices are not pivotal and the outcome is already decided. Callander (2008) investigates simultaneous elections and finds that some of the equilibria created by the desire to win generate negative information aggregation, which results in the election of the lower quality candidate.

By following pioneering experimental research on information cascades by Anderson and Holt (1997), Hung and Plott (2001) investigate sequential voting with a particular emphasis on herding behavior in experimental research, similar to Callander's model. The authors manipulate the payoff structure to investigate further possible explanations for cascade behavior in a "binary-signal-binary-action" setup. They consider a "conformity-rewarding institution" in which there are special incentives to conform to the decision of a majority. They reject prefer-

ence for conformity and non-equilibrium Bayesian behavior as explanations, in favor of Bayesian equilibrium behavior. When they include a treatment which induces preference for conformity with monetary incentives, they observe such behavior. They find that individuals place higher weight on public information relative to private information, and conformity voting may occur when subjects are rewarded for doing so.

Other work examines the extent that bandwagon behavior might be a rational response in an incomplete information environment without any assumed psychological benefit from voting for the winner. Battaglini (2005) shows that when voters can abstain, if the voting cost is not negligible, the set of equilibria in sequential private information voting games are disjoint from those in which voting is simultaneous, even if the voting cost is arbitrarily small. As he summarizes: “After any history of a sequential election, the expected benefit of voting for some alternative is proportional, but not equal to the net expected benefit in a simultaneous voting game.” The intuition behind his statement is that, because the probability of being pivotal is always history dependent, the results of early voting will not only affect later voters choices but also their strategic abstention decisions. It follows that the number of informative signals that can be aggregated in the election will be influenced.

Battaglini, Morton, and Palfrey (2007) compare the behavior of common value voters under simultaneous and sequential voting rules when voting is costly and information is incomplete (that is, they empirically evaluate Battaglini’s model). By using a three-voter game, the game-theoretic equilibria predict that when the cost of voting is low, early voters should participate and later voters should only participate if their votes are pivotal; when the cost of voting is high, early voters are more likely to engage in strategic abstention as they pass the decision onto later voters. They find support for these qualitative theoretical predications in laboratory elections; in particular, they find significant evidence of strategic abstention by later voters. Other results, however, are at variance with theory — they find that early voters tend to participate more than theoretically predicated, whereas later voters abstain more, sometimes even when their votes

could be pivotal. They conclude that, as predicated, although sequential voting tends to be more informationally and economically efficient than simultaneous voting, later voters benefit at the expense of early voters, so there is a cost in terms of equity.

Morton and Williams (1999, 2000) consider incomplete information but in a private value context with three candidates. They examine two principal concerns about the voting process and compare the efficiency and social welfare between simultaneous and sequential voting when voters have different underlying preferences over candidates (private values) but incomplete information. They ask two questions: (1) Whether sequential voting as in drawn out presidential primaries can lead to more informed, and perhaps better voter choices than simultaneous voting as in compact and front-loaded presidential primaries and (2) the extent that the representativeness of early voters affects the electoral outcomes and voting behavior in sequential voting. These questions are extremely difficult to answer using field data, but using laboratory experiments enables scholars to compare voting systems while holding voters' preferences constant. In addition, the controlled laboratory environment helps to identify the "clean" treatment effects, because the experimenters can control the information voters have about the candidates and the way in which this information is provided.<sup>4</sup> Morton and Williams (1999, 2000) show with theoretical arguments as well as experimental evidence that in environments with symmetric information, sequential elections may help voters to coordinate on superior candidates, and therefore improve the ability of the electoral system to aggregate preferences.<sup>5</sup>

### *2.3 Bandwagon abstention*

To understand bandwagon abstention effects, it is essential to mention the so-called paradox of not voting (Downs, 1957; Riker and Ordeshook, 1970). That is, in large elections, the probability a single voter casts a decisive ballot is negligible (the probability of being pivotal), which implies

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<sup>4</sup>The debate about the internal and external validity between field experimenters and laboratory experimenters is beyond the discussion of this article. We think both of the two research methods have their own comparative advantages in finding informative empirical evidence. The relationship between the evidence provided by field and lab experiments should not be substitutive but complementary.

<sup>5</sup>Other studies on the comparison between sequential and simultaneous voting can be found in, for example, Ali, Goeree, Kartik, and Palfrey (2008), and Irfanoglu, Mago, and Sheremeta (2014).

that if the voter faces a cost of voting and cares only about the instrumental value of voting, then voting is irrational. But of course, people do vote, hence a paradox.

Furthermore, there is a problem with the simple decision-theoretic reasoning above. That is, everyone followed the logic that rational people should not vote, then no one is voting, and any vote is pivotal. Hence, more recent formal models of voting have turned to game theoretic approaches, in which the probability of being pivotal is endogenously determined as a function of voters' actions.

When voters have complete information about the choices before them but incomplete information about other participants' costs or preferences, the results of earlier decisions simply provides later participants with information about the likelihood that their vote may be pivotal. It is thus straightforward to show that if costs of voting are more than negligible, even if the costs are minimal, learning that one's own decision will not affect the outcome implies that a rational individual should abstain. If however, a voter learns instead that the election is extremely close and there is a high probability of their vote being pivotal, then later voters may actually participate at greater rates than they would if voting were simultaneous and they had less precise information about other voters' choices. Thus, if we assume that voters only care about instrumental value of voting, the impact on the outcome of the election, it is indeed rational for voters to abstain if they are supporting the likely loser.

In a model in which all voters face the same distribution of positive voting costs (but costs are only privately known), majority supporters will participate less than minority supporters (PalFREY and Rosenthal, 1983; Borgers, 2004). However, in many experimental studies researchers find the opposite: majority voters are more likely to turn out and vote for their preferred candidate than minority voters.<sup>6</sup> Despite the fact that whether the experimental evidence is close to or far away from the equilibrium predictions, two possible mechanisms could work simultaneously or separately: (1) because a voter gains some utility by voting for the winner, the voters

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<sup>6</sup>Experimental evidence can be found in, for example, Duffy and Tavits (2008), Grober and Schram (2010), Kartal (2012), and Morton and Ou (2013).

who are supporting the leading candidate are more likely to turn out and vote; (2) because a voter loses some utility by voting for the loser, the voters who are supporting the loser are more likely to abstain, if they do not want to switch their votes.

Bandwagon behavior is often understood as voters “switching” their votes because they want to be on the side of the winner or because the informational mechanism works so that people take the choice of others as an indicator of political quality of the candidate, despite in some cases having a higher preference for one of the other choices. However, voters’ turnout and voting should be discussed separately, because bandwagon behavior are not only about bandwagon voting but also bandwagon abstention effects as we have noted. Observing an apparent bandwagon effect from exit polls is not inconsistent with bandwagon abstention effects resulting from such knowledge and does not necessarily require that voters are switching their votes to the likely winner. That is, if individuals receive higher utility from voting for a likely winner than a likely loser, *ceteris paribus*, then finding out the likely outcome of the election may lead to a stronger decline in turnout among those supporting the likely loser than those supporting the likely winner, resulting in an apparent bandwagon effect.

Agranov et al. (2013) use laboratory experiments to test for the impact of information revealed through polls and the welfare consequences they entail. Contrary to the pivotal voter model, the authors find that the propensity to vote increases with subjects’ predictions of their preferred alternative’s advantage. In addition, pre-election polls do not exhibit the decisive effects on welfare that the extant theoretical work on the effects of polls predicts. They find that pre-election polls lead to more participation by the expected majority and generate more landslide elections, which means that close elections are more prone to bandwagon behavior by which poll winners gain even greater leads in the actual election.

#### *2.4 Other-regarding voting*

In addition to the psychological and rational/informational explanations of bandwagon behavior, one possible explanation has received little attention in the academic literature – other-regarding

voting behavior. In fact, other-regarding behavior has been one of the most important and widely debated topics in behavioral economics and political science in the past twenty years. Many field and laboratory experiments have shown other-regarding behavior (Camerer, 2003; Fehr and Schmidt, 2006). However, despite the large and growing theoretical and empirical literature on charitable giving, redistribution, reciprocity, trust and trustworthiness, to date, other-regardingness in the context of voting has not been the subject of broader scholarly debate in economics and political science.

Recent theoretical findings (Jankowski, 2002, 2007; Feddersen and Sandroni, 2006a,b; Evren, 2012) claim that voters care about the outcomes that affect other voters, and voters have other-regarding or what Feddersen and Sandroni label “ethical” preferences over the outcomes.<sup>7</sup> According to these theories, voting behavior is instrumental but not necessarily selfish. Because individuals who have other-regarding preferences care about the outcomes that affect other voters, the more people in an electoral jurisdiction the more utility that an individual who has other-regarding preferences can obtain from the victory of his or her favorite candidate. In a large election, even if the probability of being pivotal is trivial, an individual will turnout and vote for the candidate whose proposal favors the people one cares about, because he or she receives more utility as the number of other people one cares about increases. Hence, other-regarding motivations can mean that the instrumental benefits from voting increase as the electorate size increases, which implies that turnout might be rational even in large elections where the probability of being pivotal is small. So although increases in electorate size reduce the probability of being pivotal, increases in electorate size can have the opposite effect on benefits, such that the product does not decline as quickly with electorate size as typically assumed. However, Morton and Tyran (2010) find little evidence that voter behavior is affected by electorate size even though they vary the size of the electorate in by a factor of 100.

There have been a few experiments investigating expressive voting. For example, Feddersen

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<sup>7</sup>Similar reasonings and findings can be found in Fowler (2006), Edlin, Gelman and Kaplan (2007), and Myatt (2012).

et al. (2009) observe other-regarding voting in a laboratory experiment but contend that the voting they observe is expressive, not instrumental. In their experiment they vary the probability of being pivotal and hold the size of benefits constant. Feddersen et al. contend that the other-regarding voting they observe is best explained by expressive motivations, i.e. voters receive consumption utility from voting for a choice that they perceive as other-regarding.<sup>8</sup> Morton and Ou (2013) compare the effects of public voting with secret ballots on voters' choices in elections. They find that when choices are public, voters whose selfish preferences are not other-regarding are more likely to abstain and to vote for the other-regarding choice than when voting is private.

It is worth noting that bandwagon behavior may be motivated by other-regarding preferences. That is, bandwagon behavior may stem from a willingness of voters to vote with the majority even when their private preferences are with the minority (or to abstain and let the majority win). That is, minority voters may wish to support the majority either through directly voting for the majority or by abstaining because they wish to make the choice that benefits the most voters in society, even when they themselves may pay a cost to do so.

In naturally occurring elections and in experimental work, a particular choice is more likely to win when it is supported by the majority, and as recent empirical studies have demonstrated, the minority does engage in other party voting—voting for the majority. The problem is that we do not know fully what motives bandwagon voting behavior. The difficulty lies in the fact that other-regarding preferences and the desire to win are often correlated. It is almost impossible to distinguish between what has been considered psychologically motivated bandwagon behavior (which is not other-regarding) and other-regarding voting in naturally occurring elections or in prior experimental work.

In this paper, we present an innovative experimental design to evaluate the extent that other-regarding preferences might explain bandwagon behavior. In our experiments we abstract away most information and strategic explanations of bandwagon behavior so that we can focus

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<sup>8</sup>Other experimental studies (Tyran, 2004; Shayo and Harel, 2012; Bischoff and Egbert, 2013) also find evidence supporting other-regarding expressive voting and bandwagon behavior.

on distinguishing between the two remaining explanations – a simple psychological preference for being supportive of the winner (or deserting a loser) versus an other-regarding motive of supporting the choice favored by the majority. To our knowledge, our study is the first to examine the extent that other-regarding behavior may explain bandwagon behavior.

### 3 Experimental design

#### 3.1 Voting games

In our experiment we study a simple voting game in which there are 10 voters, divided into two groups, which we label Type *A* and Type *B* voters. There are  $x$  voters of Type *A* and  $10 - x$  voters of Type *B*. In our voting games we consider two sizes of  $x = 6$  and  $5$ . When  $x = 6$ , then Type *A* voters are in the majority and when  $x = 5$  the groups are equal sizes. 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, and not how they vote. Table 1 presents the payoffs in the principal voting game we used. 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  $i$  votes for party  $j$ ,  $i \neq j$ , “other party voting.” Voting for a party is costly, while abstaining is free. The cost of voting was always \$2. Although subjects played 6-8 periods of a repeated voting game in a session, only one period of the total was paid. This period was randomly selected by one of the subjects at the end of the session. Subjects also received a show-up fee of \$8 and a total average payoff of approximately \$24.

**Table 1: Voter Payoffs**

<b>Voter Type</b>	<b>A wins</b>	<b>B wins</b>
<i>A</i>	20	5
<i>B</i>	5	20

We used two different types of random dictator voting rules in the experiment<sup>9</sup> We used the random dictator rule for three reasons. First, introducing a random effect on the outcome of the election allowed us to identify unique symmetric equilibria to the voting games, as described below.<sup>10</sup> Second, the random dictator rule introduced some uncertainty over the outcome of the election such that even if all voters voted sincerely, there was a probability that  $B$  could win the election. This uncertainty captures the “realism” of naturally occurring voting situations in which individual preferences may be subject to random shocks or variations. Third, in order to manipulate the degree of privacy subjects experienced in the voting games (as discussed below), we conducted the experiment “by hand,” not via computer networks as is typical for such voting experiments. Hence, it was more time efficient to use the random dictator rule than the traditional counting of the ballots (although we did also publicly count ballots in some treatments as we describe below). The two rules we used are the following:

- **Rule 1:** In each election all ballots (including abstentions) were placed in a box and a subject was chosen to draw one of the ballots to determine the winner. Subjects were chosen to draw the winners sequentially such that all subjects chose the winner in at least two elections. If the ballot drawn was an abstention then another ballot was drawn until a ballot marked with either  $A$  or  $B$  was chosen. If all voters abstained, then a random draw was used to determine the winner. We used Rule 1 when  $x = 6$ ; that is, Type  $A$  voters had a clear majority.
- **Rule 2:** The same as in Rule 1 except that for  $B$  to win, two  $B$  ballots must be drawn, whereas  $A$  could win with just one  $A$  ballot. So if the first ballot drawn said  $A$ ,  $A$  won. If the first ballot said  $B$ , then a second ballot was drawn. If the second ballot said  $A$ ,  $A$  won, but if it said  $B$ , then  $B$  won. If abstention ballots were drawn (either the first or

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<sup>9</sup>Feddersen, et al. 2009 use a similar mechanism as in Rule 1.

<sup>10</sup>An alternative method of introducing random effects in voting games is to make the cost of voting random as in Levine and Palfrey (2007). Given that we conducted this experiment without the aid of a computer network in order to manipulate privacy, the added complication of having a random cost of voting would have made the experiment longer than is typically acceptable for subjects.

if necessary second time), a new ballot was drawn. If all voters abstained, then  $A$  was declared the winner. We used Rule 2 when  $x = 5$ ; that is, both types of voters were equal in number.

Rule 1 is similar to a standard majority rule election with probabilistic voting. That is, having more supporters who vote sincerely their first choices increases the probability of a candidate winning and if the distribution of voter types is equal, neither candidate has an a priori advantage. Whereas under Rule 2, if the distribution of voter types is equal, then  $A$  is the likely winner. The advantage then of Rule 2 is that it disentangles the distribution of voting types from voting for the winner. That is, under Rule 1 and other majority voting games when voter types are unequally distributed with more  $A$  types as when  $x = 6$ , then if  $B$  voters choose  $A$  they could be doing so for two reasons – either because voting for  $A$  leads to higher aggregate payoffs or because  $A$  is more likely to win since  $A$  has more supporters. But if the number of voters is equal as when  $x = 5$ , then the only reason  $B$  voters might vote for  $A$  under Rule 2 is because  $A$  is more likely to win.

### *3.2 Predictions*

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  $A$  type voter votes for  $A$  and  $q$  as the probability that a  $B$  type voter votes for  $B$ . Given the random dictator rule, it is straightforward to show that any vote in favor of a party increase the probability that that party wins the election. Hence, for any distribution of voter choices, voting for one's own party strictly dominates voting for the alternative party. Thus, the only choice facing voters is whether to vote their own party or abstain and the probability that an  $A(B)$  type voter abstains is given by  $1 - p$  or  $1 - q$ . We solve for the symmetric mixed strategy equilibria, which are summarized in Table 2 below.

**Table 2: Selfish Predictions**

<b>Rule</b>	<b># <i>A</i> voters</b>	<b># <i>B</i> voters</b>	$p^*$	$q^*$	<b>Prob. <i>A</i> Wins</b>
1	6	4	0.35	0.52	50%
2	5	5	0.37	0.30	82%

Under Rule 1, rational choice analysis provides predictions similar to those found in other experiments using analogous payoff matrices: that minority 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. Under Rule 2, rational choice analysis predicts that Type *B* voters will turnout at a lower rate than Type *A* voters (a rational bandwagon abstention effects effect) and Party *A* is indeed more likely to win the election.

However, based on the previous empirical work discussed above, we expect that subjects' choices are affected by additional concerns, either a psychological benefit from supporting the likely winner (or deserting a loser) or because of other-regarding preferences. We expect that both motivations will be evidenced in our voting game with Rule 1. That is, we expect to find in Rule 1 that Type *A*'s will turnout more than Type *B*'s and that more Type *B*'s will engage in other-party voting than Type *A*'s. In contrast, in Rule 2, no voter has an other-regarding motivation for engaging in bandwagon behavior. If we find bandwagon abstention effects under Rule 2, these could be explained by either the rational effect discussed above or psychological desires to either support the winner or desert the loser. But if we find bandwagon vote choices under Rule 2, then a psychological motivation to support the likely winner will appear to explain those choices since all other motivations, including other-regarding preferences, have been eliminated.

### *3.3 Voting rule differences and expected effects*

Below we summarize the points of the above discussion:

- Bandwagon abstention effects exist when Type *A*'s turnout more than Type *B*'s and bandwagon voting choices exist when Type *B*'s engage in more other-party voting than

Type *A*'s.

- We expect to find both bandwagon abstention effects and bandwagon vote choices under Rule 1. This behavior may be due to either psychological or other-regarding motivations.
- We expect to find bandwagon abstention effects under Rule 2, which may be either rational responses or due to psychological motivations.
- If we find bandwagon vote choices under Rule 2, then psychological motivations will appear to explain those choices since other motivations such as other-regarding preferences have been eliminated.

### 3.4 *Subjects and basic procedures*

The experiment was conducted at NYU's Center for Experimental Social Science. A total of 120 subjects from the undergraduate student population participated. Subjects were recruited via a subject pool in which there are more than 4,500 registered NYU students from different majors. The diverse and large subject pool helps to guarantee that most students did not know each other before the experiment. Subjects were not allowed to participate in more than one session of the experiment. Subjects were identified by their ID numbers; no names were revealed before or after the experiment. 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 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 6-8 periods.<sup>11</sup> Each large envelope contained standard letter sized envelopes in different colors and ballot tickets, which are described below. Instructions

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<sup>11</sup>Under Rule 1, the voting game was conducted for 6 periods. Under Rule 2, the voting game was conducted for 8 periods. Because Rule 2 was relatively more complex, the voting game was repeated for more periods to give subjects more time to learn the game.

were read orally, allowing subjects to ask questions privately and to make sure that everyone had common knowledge of the decision tasks. Subjects also possessed written copies of the instructions.

As discussed above, in each period, under Rule 1, 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 with equal chance one of the parties would have been randomly chosen as the winner; as it happened this never occurred. However, under Rule 2, after all the votes had been collected, one of the subjects was randomly chosen to draw two voting choices 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 type A voters abstain but there is just one Party *B* vote, the probability that Party A wins is 50%; if all voters abstain, the probability that Party A wins is 50%.<sup>12</sup> At the end of the experiment, only one of the rounds was randomly chosen by a subject as the period to be paid.

### 3.5 *Voting privacy*

Given that observability of choices has an impact on other-regarding behavior, we varied the degree to which subjects' choices were observed by other voters. In the *Secret Ballot Treatment* or *SB*, all subject choices were anonymous except for the ballot randomly chosen to pick the winner in an election and the experimenters explained how the experiment worked to achieve this goal.<sup>13</sup> The instructions for the Secret Ballot Treatment under Rule 2 are available in Appendix A. In order to ensure anonymity in the Secret Ballot Treatment, subjects were randomly given the sealed envelopes which contained their role assignments etc.

In each period, subjects were asked to make voting decisions. Subjects were seated at

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<sup>12</sup>We flip a coin to determine the winner.

<sup>13</sup>An extensive discussion on the effects of privacy on voter choices can be found in Morton and Ou (2013, 2014).

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’ role— $A$  type voters or  $B$  type voters—as well as their ID numbers were marked on every ballot ticket and “For Payment” piece of paper. 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 subjects have made 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. 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.

In addition to the Secret Ballot Treatment, we conducted sessions using the Secret Ballot Treatment but revealing vote distributions after each election, the *Secret Ballot with Information Treatment* or *SBI*. Although in the Secret Ballot Treatment subjects have complete information about the distribution of voter types before they vote, given the random dictator rules, there is always some uncertainty over the outcome given abstention of other voters and voters may be uncertain as to how others have voted. If bandwagon behavior is a psychological response to knowledge of which party is the likely winner, then learning detailed, but anonymous, information about previous voting behavior in prior elections, should increase the tendency of voters to engage in bandwagon behavior as they have greater certainty over the identity of the winner.

If bandwagon behavior is purely based on other-regarding preferences, then such information could also have an effect by altering the expected benefits of voting selfishly if voters update their views on the probability of being pivotal, although the benefits independent of that probability from each outcome are not altered by this information. Therefore, we conducted *SBI* in which we revealed the information to subjects after each election as compared to *SB* in which we did not so reveal in order to see if such information was important in bandwagon behavior.

Finally, we conducted an additional treatment, *Public Voting* or *P*. The Public Voting Treatment was identical to the previous treatments 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.<sup>14</sup>

One of the subjects was randomly chosen to draw one envelope from the ballot box to decide

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<sup>14</sup>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 Battaglini, Morton, and Palfrey (2007) for a discussion of sequential versus simultaneous voting.

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.

We implemented the Public Voting Treatment to further explore the extent that bandwagon voting might be motivated by other-regarding concerns. That is, earlier research, as reviewed in the previous section has shown that individuals engage in more other-regarding behavior when those choices are made publicly. Hence we might expect that under Public Voting we will observe more bandwagon abstention effects and bandwagon vote choices under Rule 1 (but not under Rule 2) if other-regarding motivations are present. The increase in other-regarding behavior may be due to concerns about appearing to be more other-regarding than actual other-regarding preferences. However, the fact that voters perceive such behavior to be socially responsible when voting is public signals a perception that bandwagon behavior is other-regarding. Of course, we also expect that Public Voting should decrease abstention for voters as well given previous research on the effects of observability on turnout (see Morton and Ou 2014).

### *3.6 Voting privacy differences and expected effects*

In summary, our different vote procedure treatments have the following implications:

- Bandwagon behavior should be higher in the Secret Ballot with Information Treatment than the Secret Ballot Treatment.
- If Public Voting leads to greater bandwagon behavior than the two Secret Ballot Treatments under Rule 1, but has not much of an effect under Rule 2, then bandwagon behavior is likely partially explained by other-regarding preferences.
- Abstention will be lower for all voters under Public Voting.

Table 3 below summarizes the treatments, parameters, number of subjects and sessions, and implications of each for bandwagon behavior

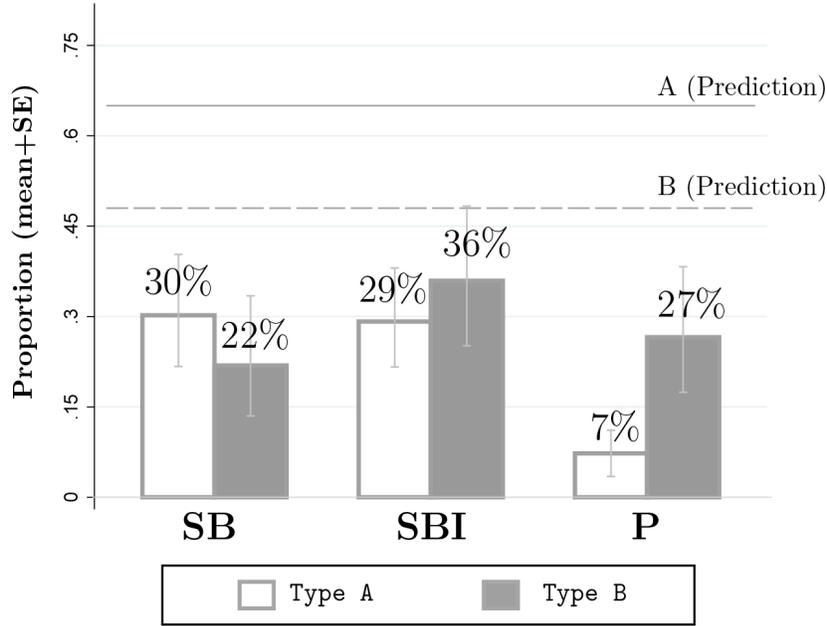
**Table 3: Treatment Summary**

Privacy	Rule	No. of Sessions	No. of Subjects	Bandwagon Abstention Effects	Bandwagon Vote Choices
SB	1	2	20	Psych or Altruistic	Psych or Altruistic
SB	2	2	20	Psych or Rational	Psych
SBI	1	2	20	Likely > SB	Likely > SB
SBI	2	2	20	Likely > SB	Psych if > SB
P	1	2	20	Altruistic > SBI	Altruistic > SBI
P	2	2	20	Psych or Rational	Psych

## 4 Experimental results

### 4.1 Voting rule 1 and bandwagon abstention effects

We begin our analysis of results by determining the extent we observe bandwagon abstention effects under Rule 1. We expect to find such effects given previous experimental evidence, even though theory predicts the opposite. We also expect that the effects will be stronger in SBI than in SB, as we expect information to facilitate the effects. Furthermore, if we find that bandwagon abstention effects are higher with observability, it is suggestive of other-regarding motivations behind bandwagon abstention. We also expect abstention to be lower under Public Voting in general. Figure 1 summarizes voter abstention by voter type and privacy treatment under Rule 1. We measure the percentage of abstention on the vertical axis, and distinguish subjects' types and privacy treatments on the horizontal axis.



**Figure 1: Abstention by Privacy Treatment and Voter Type Under Rule 1**

**Result 1** *We find weak evidence of bandwagon abstention effects under Rule 1 and some evidence suggestive of other-regarding motivations for the behavior.*

Surprisingly, given the previous experimental evidence, we find only slight evidence of bandwagon abstention effects in our sessions with voter privacy. In the Secret Ballot Treatment, Type A voters are not significantly less likely to abstain and instead we find that Type B voters are less likely to abstain (an underdog effect, as predicted by theory). Specifically, the abstention rate of Type A voters is 30%, but the abstention rate of Type B voters is 22%. However, the difference between the two types of voters is not significant.<sup>15</sup>

In the Secret Ballot with Information Treatment, we observe slight evidence suggestive of bandwagon abstention effects in that Type A voters are less likely to abstain than Type B's. The abstention rate of Type A voters is 29%, but the abstention rate of Type B voters is 36%. Yet, as above, the difference between the two voter types is not significant.<sup>16</sup>

<sup>15</sup>The z statistic for the comparison = 1.165, Pr = 0.12.

<sup>16</sup>The z statistic for the comparison = 0.900, Pr = 0.18.

Although we do not observe significant bandwagon abstention effects in either Secret Ballot Treatment, we do observe a significant higher abstention of Type *B* voters in SBI as compared to SB, which is suggestive of a bandwagon abstention effect.<sup>17</sup> As noted above, this effect may be due to either psychological motivations in response to learning the identity of the winner or due to other-regarding preferences if voters are using the vote distribution information from previous elections to update the probability that their vote will be decisive and thus their expected benefits.

Finally, we find that observability does appear to lead to bandwagon abstention effects under Rule 1. We find that in the Public Voting Treatment, Type *A* voters are significantly less likely to abstain than Type *B* voters (abstention equals only 7% for *A*'s and 27% for *B*'s).<sup>18</sup> Although we find bandwagon abstention effects in this case, we also find that abstention of both types of voters is lower in public voting than with secret ballots with information. However, the difference is significant only for Type *A* voters, which is consistent with bandwagon abstention effects caused by observability.<sup>19</sup>

Thus, in summary we find some evidence, albeit weak, of bandwagon abstention effects under Rule 1. Observability has a significant effect on such behavior, which suggests that other-regarding motivations may be at least a partial explanation of bandwagon abstention effects.

#### *4.2 Voting rule 2 and bandwagon abstention effects*

We now turn to examining bandwagon abstention effects under Rule 2. We expect to find bandwagon abstention effects in this situation as well, particularly since they are also theoretically predicted. Bandwagon abstention effects under Rule 2 can be thus either explained by psychological desires or rational responses, but not other-regarding motivations. As above, we expect

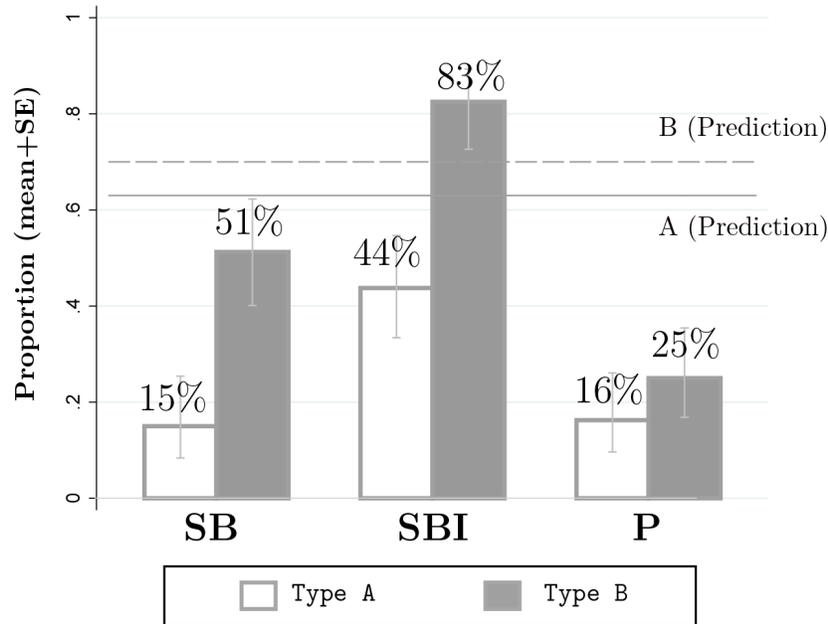
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<sup>17</sup>As for Type *A* voters, the abstention rate is not significantly higher under SBI as compared to SB. The abstention rate is 29% under SBI and 30% under SB. The z statistic for the comparison = 0.158, Pr = 0.44. As for Type *B* voters, the abstention rate is significantly higher under SBI as compared to SB. The abstention rate is 36% under SBI and 22% under SB. The z statistic for the comparison = 1.755, Pr = 0.04.

<sup>18</sup>The z statistic for the comparison of the two voter types = 3.344, Pr = 0.00.

<sup>19</sup>The z statistic for the comparison = 3.925, Pr = 0.00 for *A*'s and 1.144, Pr = 0.13 for *B*'s.

that information should increase bandwagon abstention effects when voting is private. However, in contrast to Rule 1, we expect no increase in bandwagon abstention effects under Rule 2 with observability since other-regarding motivations for bandwagon voting are not present. Figure 2 summarizes voter abstention by voter type and privacy treatment under Rule 2. We measure the percentage of abstention on the vertical axis, and distinguish subjects' types and privacy treatments on the horizontal axis.



**Figure 2: Abstention by Privacy Treatment and Voter Type Under Rule 2**

**Result 2** *Under Rule 2, we observe robust and significant evidence of bandwagon abstention effects when voting is private. We find slight evidence of bandwagon abstention effects when voting is public.*

We find significant bandwagon abstention effects under Rule 2 in both the Secret Ballot and Secret Ballot with Information Treatments – Type A’s abstain significantly less than Type B’s in both situations (15% compared to 51% in SB and 44% compared to 83% in SBI).<sup>20</sup> As above, information has a significant effect on abstention, in this case both Type A’s and Type

<sup>20</sup>In SB, the z statistic for the comparison = 4.871, Pr = 0.00 and in SBI = 5.083, Pr = 0.00.

*B*'s are significantly more likely to abstain under SBI as compared to SB.<sup>21</sup> Moreover, in SBI the abstention of *B* voters is greater than the equilibrium predictions of 70%.

In contrast with Rule 1, as expected observability leads to less bandwagon abstention effects. Type *A*'s abstain less than Type *B*'s (16% compared to 25%), but the difference is significant only at the 9% probability level in a two-tailed test.<sup>22</sup> We also find that abstention is significantly lower under Public Voting for both Type *A*'s and *B*'s as compared to SBI.<sup>23</sup>

In summary, we find stronger support for our predictions that bandwagon abstention effects will exist under Rule 2 than Rule 1, which is not surprising given that such effects are also rational. We also find further support for the evidence from Rule 1 that other-regarding motivations may partially explain bandwagon abstention effects in that we find that observability does not increase these effects under Rule 2 (the effects become indeed less), unlike Rule 1 where observability does lead to more bandwagon abstention effects.

### 4.3 *Voting rule 1 and bandwagon vote choices*

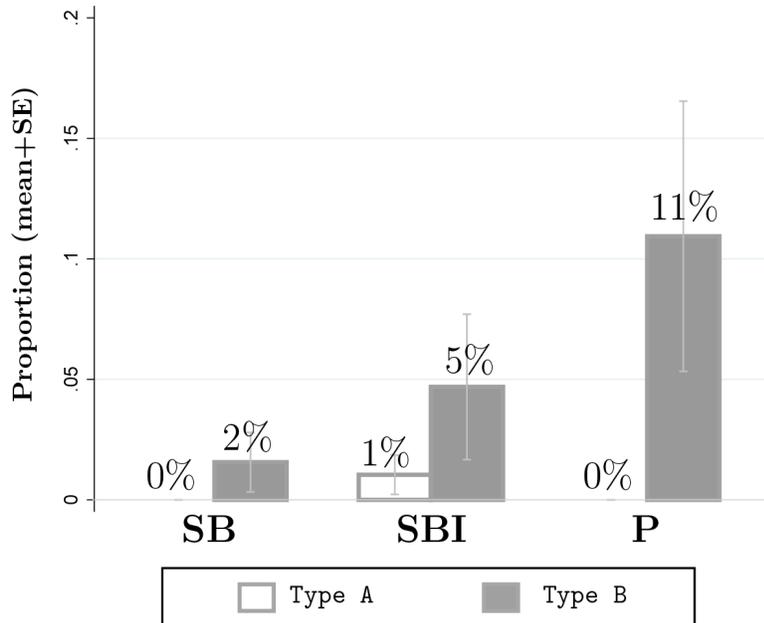
We now turn to our examination of bandwagon vote choices, beginning with those under Rule 1. Bandwagon vote choices exist when Type *B* voters vote for Party *A*. We expect to find that Type *A* voters only vote for Party *A* or abstain. We expect to find bandwagon vote choices under Rule 1 given prior experimental evidence of Feddersen et al. and Morton and Ou. We also expect to find more such choices in SBI than in SB given that information can both increase the psychological motivation to vote for the winning party and provide information relevant to their decision-making to voters who might wish to vote for the winning party for other-regarding reasons. If we find that observability leads to greater bandwagon vote choices under Rule 1, then we have evidence in support of other-regarding motivations as one explanation for bandwagon vote choices. Figure 3 summarizes other party voting by voter type and privacy treatment under Rule 1.

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<sup>21</sup>The z statistic for the comparison = 3.992, Pr = 0.00 for Type *A*'s and 4.199, Pr = 0.00 for Type *B*'s.

<sup>22</sup>The z statistic for the comparison = 1.368.

<sup>23</sup>The z statistic for the comparison = 3.795, Pr = 0.00 for Type *A*'s and 7.294, Pr = 0.00 for Type *B*'s.



**Figure 3: Other Party Voting by Voter Type and Privacy Treatment Under Rule 1**

**Result 3** *Under Rule 1, when ballots are secret, we find support for bandwagon vote choices with information only. Observability leads to much more bandwagon vote choices, suggesting that bandwagon vote choices are at least partially explained by other regarding motivations.*

We find that as predicted no evidence of other-party voting by Type A's, with 0% other party voting in the Secret Ballot Treatment and only 1% in the Secret Ballot with Information Treatment. In the Secret Ballot Treatment we also find that Type B's engage in very little other-party voting (2%) which is not significantly different from zero.<sup>24</sup> With information, we find more other-party voting by Type B's, which is consistent with our predictions; and it is significantly more than the other-party voting of Type A's at a probability level of 7%, although it is not significantly more than the degree of such voting in the Secret Ballot Treatment.<sup>25</sup>

Moreover, observability appears to lead to the most bandwagon vote choices under Rule 1, with 11% of other party voting by Type B's, which is significantly more than the 0% of

<sup>24</sup>The z statistic for the comparison = 1.229, Pr = 0.11.

<sup>25</sup>The z statistic for the comparison of A's and B's in SBI = 1.447. The z statistic for the comparison of B's choices in SB with SBI = 1.016, Pr = 0.15.

Type *A* other party voting.<sup>26</sup> The other-party voting by Type *B*'s under Public Voting is also significantly higher than that observed in the Secret Ballot with Information Treatment at the 9% probability level.<sup>27</sup>

In summary, we find some evidence of bandwagon vote choices when voters have information about previous vote distributions. In addition, we find support for other-regarding motivations behind bandwagon vote choices as we find that observability significantly increases such choices.

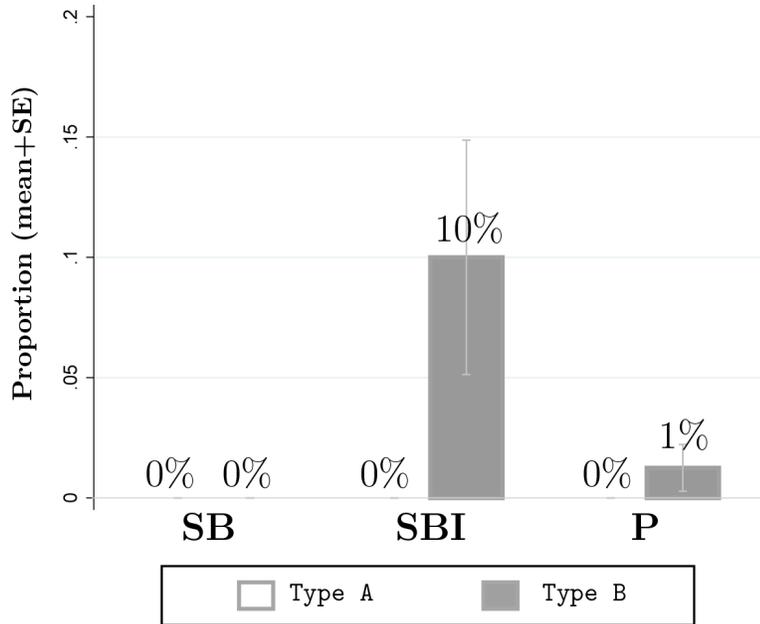
#### *4.4 Voting rule 2 and bandwagon vote choices*

Finally, we consider bandwagon vote choices under Rule 2. If we observe such choices they cannot be because of other-regarding preferences, since there is no other-regarding motivation for Type *B* voters to engage in such behavior and if we observe such choices they are likely motivated by the psychological desire to be on the winning side. Furthermore, we expect that such behavior, if it exists, is most likely to be evidenced in the Secret Ballot with Information Treatment, when voters are aware of the winner but engage in private voting. We do not expect observability to increase such behavior. Figure 4 summarizes other party voting by voter type and privacy treatment under Rule 2.

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<sup>26</sup>The z statistic for the comparison = 3.314, Pr = 0.00.

<sup>27</sup>The z statistic = 1.317.



**Figure 4: Other Party Voting by Voter Type and Privacy Treatment Under Rule 2**

We find indeed support for our predictions under Rule 2. We find no evidence of bandwagon vote choices in the Secret Ballot Treatment, with 0% of both types of voters engaging in other-party voting, but we find significant evidence for such behavior in the Secret Ballot with Information Treatment, with 10% Type *B*'s engaging in other party voting, while 0% of Type *A*'s do so.<sup>28</sup> We also find that not only does observability not increase bandwagon vote choices, it virtually eliminates them with only 1% of Type *B*'s voting for Party *A*'s, which is not significantly different from the 0% other-party voting of Type *A*'s.<sup>29</sup> These results suggest that bandwagon vote choices when voting is private cannot be completely explained by other-regarding preferences and suggests that indeed there is also a psychological desire to support the winner.

<sup>28</sup>The z statistic for the comparison = 2.902, Pr = 0.00.

<sup>29</sup>The z statistic for the comparison = 1.003, Pr = 0.16.

#### 4.5 *Summary of results*

We find evidence that both a psychological desire to support winners (or desert losers) and other-regarding preferences are at work in motivating bandwagon behavior. When the likely winner is the also the other-regarding choice, we find some evidence of bandwagon abstention effects and bandwagon vote choices, which increase with observability. However, when there is no other-regarding reason for voting for the likely winner, we also find bandwagon abstention effects and bandwagon vote choices, which decline with observability. The bandwagon abstention effects in this case may reflect rational responses to the voting situation but also may be psychologically motivated, but bandwagon vote choices can only be explained by a psychological motivation to support the winner. Surprisingly, we find that this apparent psychological motivation is suppressed when voting is public, reducing both bandwagon abstention and bandwagon vote choices.

## 5 **Implications**

With the growing use of social media through facebook and twitter, it is more and more the case that during elections voters are aware of how others have chosen and often the likely winner or outcome. Political scientists have long been aware that such knowledge appears to affect how voters behave, leading to bandwagon effects that typically advantage the expected winner. In some cases such behavior may be clearly rational as voters use polls and early voting to update their information which allows them to make more informed decisions. But others have suggested that the behavior may be psychological, simply a desire to be on the winning side (or to abandon a losing candidate). Furthermore, bandwagon behavior might also be other-regarding, in that the winner in an election is typically the choice preferred by the majority and minority other-regarding voters might make that choice because they perceive it as socially optimal.

In this paper we investigate whether bandwagon behavior is psychologically motivated or a

result of other-regarding preferences. We find significant evidence in support of psychologically motivated bandwagon behavior. In particular, we find that individuals engage in bandwagon behavior even when doing so is not other-regarding, particularly when they have more accurate information on the likely winner in the election. However, we also find evidence in support of other-regarding motivations for bandwagon behavior. That is, we find that when voting is public and bandwagon behavior can be other-regarding, we find evidence of bandwagon behavior. Yet, we find no evidence of such behavior when voting is public and bandwagon behavior is not other-regarding. Given that in other contexts observability increases other-regarding behavior, these results suggest that bandwagon behavior is also possibly motivated other-regarding preferences (at the minimum when voting is public). In fact, when voting is public we find zero evidence of purely psychologically motivated bandwagon voting.

The question as to what motivates bandwagon behavior is important in understanding the likely consequences. If bandwagon behavior is purely a psychological desire to be on the winning side, then it might be subject to manipulation by candidates and political parties that can result in outcomes that are contrary to voters' true preferences. But if bandwagon behavior is a rational response or due to other-regarding preferences, then such manipulation may be less successful in subverting voter preferences or lead to bad outcomes. Since our results suggest that voters are subject to a psychological desire to vote for the winning candidate when voting is private, even when doing so is not other-regarding or in their own interest, then bandwagon behavior may be problematic and it is appropriate to be concerned about such behavior. Moreover, our results suggest that information about likely winners can have strong effects on voter behavior that may not be desirable, suggesting that controls over information leakages during elections and polls prior to elections may be justified.

## **Acknowledgements**

Support for this research from New York University is acknowledged. We are grateful to the editor Heinrich Ursprung and two anonymous referees for their thoughtful suggestions. We also thank Han Il Chang, Dominik Duell, Jorge Gallego, Tianyang Xi, and Biling Zhang for their assistance in conducting the experiments. We especially appreciate the comments/advice of Timothy Feddersen who suggested the experiment. All errors remain the responsibility of the authors.

## **Appendix: Instructions for secret ballot rule 2**

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.

You are about to participate in an experimental session on voting procedures and you will be privately paid for your participation with a cash voucher at the end of the session. What you earn depends partly on your own decisions, partly on the decisions of others, and partly on chance.

This experiment will not be conducted via computers. The entire session will take place through the ballot tickets and envelopes on the table. Please do not attempt to talk with 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 do not make any marks on the instructions, envelopes, and ballot tickets. When you finish the experiment, do not take any of the experimental materials out of the laboratory.

## **Costs and Payoffs**

You will receive \$8 for showing up. In this experiment you will make a series of voting decisions in 8 rounds. One of the rounds will be randomly chosen to be paid as described below. In addition to your show up payment, you will earn a payoff based on the outcome of the election in the chosen round and your type. That is, there are two types of voters: A-type and B-type. Ten participants of this experiment will be randomly assigned as one of these two types. There are always 5 A-type voters and 5 B-type voters who are asked to make a series of voting decisions in this experiment. Your role—A or B-type voter will remain the same throughout the entire experiment.

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 if that election is chosen. 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. The cost of voting will be deducted from your payoffs.

## **How Voting Works**

There are 8 envelopes on the table. Each of these envelopes has a number written on the front. This experiment will last for 8 rounds. In the first round, you are asked to open the large sealed envelope labeled number “1.” Similarly, during the next round, you are asked to open the large sealed envelope labeled number 2,” and so forth, for 24 rounds.

In each of these large sealed envelopes, there are

1. Two envelopes: ORANGE and BLUE.
2. Three ballot tickets: “Vote for Party A,” “Vote for Party B,” and “Abstain”

In each election you first 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, “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, “Vote for Party A” and “Abstain” in the BLUE envelope.
- If you abstain, put “Abstain” in the ORANGE envelope, “Vote for Party A” and “Vote for Party B” all in the BLUE envelope.

Note that 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.

### **Winning Rule**

**Only the votes in the ORANGE envelopes will be used to figure out the winner in the election.** After we have collected your ORANGE envelopes, one of you will be randomly selected to draw **TWO** of the envelopes from the ballot box and open them. If one of the envelopes contains the ballot ticket marked “Abstain,” a replacement envelope will be drawn until an envelope which contains a vote is drawn. If both of the envelopes contain the ballot ticket marked “Abstain,” then two replacements will be drawn until two votes are drawn. If the ballot tickets in **BOTH** of the selected envelopes are “Vote for Party A,” then party A is declared the winner; if the ballot tickets in **BOTH** of the selected envelopes are “Vote for Party B,” then party B is declared the winner.

IMPORTANT: If one of the selected ballot tickets is “Vote for Party A,” and the other one is “Vote for Party B,” then party A is declared the winner. In other words, **if and only if BOTH** of the selected ballot tickets are “Vote for Party B” does party B win the election; otherwise, party A wins the election.

At the end of the experiment, one of the 24 rounds is randomly chosen to be "paid." Again, the experimenters will invite one of you to choose the round that will be paid.

### **Privacy**

Please note that only the experimenters know your vote choices, but your decisions are anonymous to other participants. 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.

Once the round to be paid is selected, the experimenters will calculate your payments by consulting the ORANGE envelopes for that round. Your payment is calculated based on the outcome of the election and your role (which is evident from the ballot ticket in your ORANGE envelope). The experimenters will check the ORANGE envelope to see your decisions. If you vote, that is, the experimenters do see the ballot ticket marked "Vote for Party A" or "Vote for Party B" of the selected round, the experimenters will deduct \$2 (the cost of voting) from your payment. If you abstain, the experimenters see the ballot ticket marked "Abstain" of the selected round, the experimenter will not deduct \$2 from your payment. If you put more than one ballot ticket, or no ballot ticket in the ORANGE envelope, your choice will be viewed as "Abstain," but you forfeit your payment.

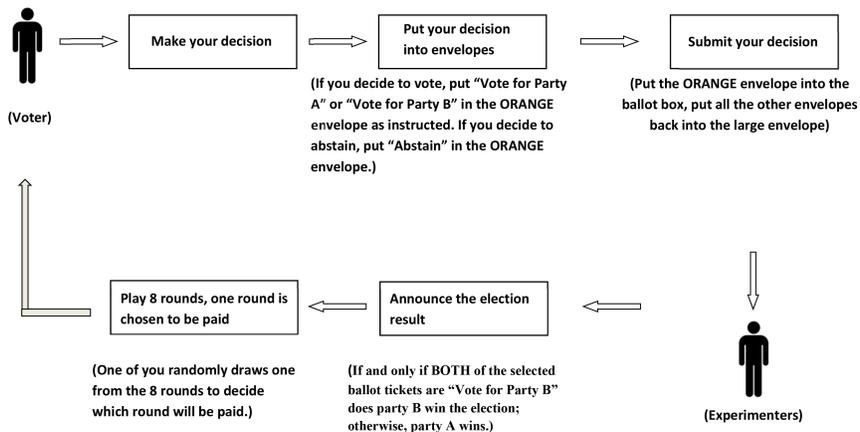
The experimenters will give the cash vouchers to you privately so that your payment is anonymous to other participants. When you receive your payment, please check if your payment is correct. If you have any problems with your payment, please report your problems to the experimenters. If your payment is correct, please sign your name on the receipt. The experiment is over and you are free to leave.

### **Summary**

- There are 5 A type voters and 5 B type voters who are asked to make a series of voting decisions in this experiment. There are two types of voters: A type and B type. You will randomly be assigned as one of these types.

- 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, the experimenters randomly ask one of you to draw two envelopes from the ballot box to decide the winner of that round. After the 8 voting games have been finished, the experimenters randomly ask one of you to draw one round from the 8 rounds as the round to be paid.
- Please note that only the experimenters know your vote choices. Your decisions and your payment are anonymous to other participants.

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 5 A-type voters and 5 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 receive 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.

Note that, if and only if BOTH of the selected ballot tickets are “Vote for Party B” does party B win the election; otherwise, party A wins. You should FOLD your ballot tickets before you put them into the envelopes so that your vote choice cannot be seen through the envelope.

Please make your decision now!

- If you vote for Party A, put “Vote for Party A” in the ORANGE 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, “Vote for Party A” and “Abstain” in the BLUE envelope.
- If you abstain, put “Abstain” in the ORANGE envelope, “Vote for Party A” and “Vote for Party B” all in the BLUE envelope.

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