

Social Interactions in Voting Behavior: Distinguishing Strategic Voting from a Bandwagon Effect

(Job Market Paper)^{*}

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November 2011

Abstract

Most previous empirical studies about strategic voting included the bandwagon effect with the results from strategic votes, and thus might overestimate the extent of strategic voting. This study proposes an indirect method for distinguishing the two effects by using a multinomial probit model and a data set with indexes for voters' subjective expectations. Strategic voting is motivated by the intention to affect which party wins the election in the constituency, but the bandwagon effect is driven by a desire to conform with the majority. Therefore, I infer that strategic voting occurs by voters who both believe their vote is pivotal and tend to vote for expected top two contenders; whereas those people who respond only to expected winning parties regardless of whether those vote matters may be bandwagon voters. Using data from the United Kingdom general election in 2005, this method estimates that 4.38 percent of the voters casting ballots among the three main parties in England voted using strategic voting, and that 0.88 percent of the voters casting ballots among the three main parties did not vote for their most preferred parties because of the bandwagon effect.

Keywords: voting behavior, social interactions, strategic voting, bandwagon effects

JEL classification: D71, D72, D84

^{*} This paper has benefited greatly from the advice of Marc Rysman, Laurent Bouton, and Daniele Paserman. I am also very grateful to Haldun Evrenk for his comments, and for the opportunities to discuss this paper with the students in his class. I offer my thanks to the participants of Empirical Microeconomics Lunch Workshop in Boston University, and the discussants on Panel 16 at the Elections, Public Opinion, and Parties Conference 2011 for their useful comments. The author takes full responsibility for any remaining errors and welcomes further feedback.

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1. Introduction

Strategic voting has long been one of the main topics in empirical studies of voting behavior. Scholars have claimed that, in the UK general election in 1987 under a first-past-the-post electoral system and involving three major parties¹, 6.5 percent to 17 percent of the voters did not vote for their most preferred parties because these voters thought that their most preferred parties had no chance winning the election (Heath et al., 1991; Niemi et al., 1992). In Canada, in the 1988 election and the 1997 election under the same electoral system, 3 and 6 percent of the voters respectively cast their ballots in this way (Blais et al., 2001; Blais and Nadeau, 1996). Scholars have argued that it was strategic considerations which caused the voters to vote this way, and hence they called this phenomenon strategic voting. However, is it possible that voters cast their ballots because of other motivations? For example, voters might simply have wanted to stand on the winner's side. Hence, the estimates above may include at least two kinds of voters: those who voted out of strategic consideration and those voters going with a winner. This study will propose a method to distinguish between the different kinds of voters.

In order to construct a way to tell the different kinds of voters apart, one should focus on their different motivations of the voters: *strategic voting is motivated by the intention to affect which party wins the election in the constituencies* (Blais et al., 2001), *but voters going with a winner possess a desire to conform with the majority* (Callander, 2008). The latter is generally called a bandwagon effect. In a three-party election under the first-past-the-post method, assume that voter J and voter K's most preferred candidate is expected to get the fewest votes. The voter J is a strategic voter, but K is a voter affected by the bandwagon effect. If J and K believe that their ballots are *crucial* in their constituency, such as in the case where their second preferred candidate is expected to win the election by a small margin, both J and K will tend to vote for their second preferred candidate. On the contrary, if they believe that their ballots are *trivial* in their constituency, such as in the case where their second preferred candidate is perceived to win definitely, the voter affected by the bandwagon effect will tend to vote for the candidate expected to win. However, in this case, although J's most preferred candidate has no chance of winning, J will still vote for her most preferred candidate because a vote for her most preferred candidate or for her second preferred candidate cannot change the result.

Based on this idea, this study proposes an indirect method for distinguishing strategic voters

¹ First-past-the-post voting refers to an election won by the candidate with the most votes. The winner does not necessarily receive an absolute majority of all votes cast.

from voters affected by the bandwagon effect. By using a multinomial probit model and a data set with indexes for voters' perspectives on election results before the campaign, I empirically investigate the interactions between the respondents' voting behavior and their *stated* expectations. The latter includes voters' expectations about which candidates would be the winners and which would be the “valid contenders” (I will explain this term later) in their constituencies, and the voters' perspectives on the importance of their ballots in the election.

This study finds that, in the 2005 general election, although voters in England had a tendency to vote for the expected winner, this tendency was not statistically significant. By contrast, the effect of strategic considerations was statistically significant. As the importance to the voter of their ballot increased, the tendency of voters to cast ballots for the expected winner also increased. Voters also tended to cast ballots for the expected valid contenders no matter how pivotal they saw their ballots. This may imply that the voters preferred a reduced margin of victory, which induces a moderated policy. My model estimates that, in that election, 5.23 percent of the voters casting ballots among three main parties in England did not vote for their most preferred parties because of their perspectives on the electoral results. My estimation also suggests that, in that election, 4.38 percent of the voters in England voted using strategic voting, and only 0.88 percent of voters in that election were driven by the bandwagon effect.

2. Literature Review

The discussion of strategic voting goes back to McKelvey and Ordeshook (1972), who extended the rational model to multi-party elections. A rational choice model believes that, for a voter, voting is an instrument to achieve an outcome. That is, voters care about who will win the election, and then they “rationally” calculate the impact of their own ballots on the electoral result to decide whether to vote and whom to vote². Voters care about not only the utility candidates can bring to them but also *the impact of their own ballots on the result*, or, in McKelvey and Ordeshook's (1972) term, the probability their ballots can change the result in terms of which party can win the election in the constituency. Hence, in a three-party election under a first-past-the-post method, if most voters of a constituency are not willing to vote for a candidate, and hence the candidate is expected to have no chance to win the election, then a rational voter will also tend not

2 Skeptics for the rational model argue that if voting is treated as an instrument, since there are many voters in a constituency, one must know that her own ballot is trivial, and she should decide to abstain. There is an obvious free-rider problem in the rational model. In the real world, because many voters choose turnout, skeptics believe that this model should not be used to describe the behavior of a typical voter.

to vote for that candidate even though that candidate is her most preferred one, because *a ballot to that candidate has no impact on the result*. In other words, a rational voter tends not to vote for the candidate expected to get the fewest votes in a three-party election under a first-past-the-post system.

In this sense, the strategic consideration is a special type of endogenous social effects prevalent among the political behavior of human beings. Manski (1993) defined endogenous social effects as the effect “wherein the propensity of an individual to behave in some way varies with the prevalence of that behavior in some reference group containing the individual.” The endogenous social effects may have different names in different contexts, such as “social interactions”, “peer influences”, “conformity”, “bandwagon effects”, “social contagion”, or “herd behavior”³. The variety of the names on these effects also reflects various types of endogenous social effects, or different perspectives among scholars on the causes of endogenous social effects⁴.

Among the empirical literature about strategic voting, there are basically two ways to identify this special type of social interactions in the real world. The first way is termed by Blais et al. (2005) as a “direct” method. In this approach, the detection of strategic voting relies on respondents' reports about their intentions of voting behavior. In most election studies of nowadays, respondents have been asked about the main reason for their choice in the Election Day. The (closed-ended) options for this question always include the sentence, “*I really preferred another party but it stood no chance of winning in my constituency*”, or the statement in similar wording. If one has claimed that this is the main reason for her choice, scholars say that she has cast a strategic vote in the Election Day. Researchers in this field commonly use this method (Evans, 2002).

The second way is called an “indirect” method (Blais et al., 2005). The indirect method first models how voters' perspectives on the election results affect voting behavior, and then uses the result from the estimation to get the predicted voting with strategic consideration and that without the same consideration. Scholars say that a respondent has cast a strategic vote, if the two

3 Since “endogeneity” is a bad word in an empirical paper, I use the term “social interactions” to name this effect below.

4 For example, when scholars use “bandwagon effects”, or “conformity” to name this phenomenon, it usually means that they think that the individual behaves by this way merely because she believes many other people also do the same thing. However, in the context of network marketing in pharmaceuticals sale, scholars use “social contagion”, and it implies that doctors use the medicine also used by others not because of conformity but because of other logic, such as to reduce the risk of adopting a new medicine (Iyengar et al., 2010).

predictions for her/him are different. For example, Blais et al. (2001) constructed a “no chance” variable, which indicated how far behind a party had been perceived by respondents to be in a given race. It equaled the distance between the expected chance to win the election of a party and that chance of the top contender. They then regressed stated voting on respondents' party identification, respondents' ratings on parties and party leaders, and the “no chance” variable, which they set for the strategic consideration. They found that around 3 percent of voters had cast a strategic vote in the 1997 Canadian election. Blais and Nadeau (1996), Alvarez and Nagler (2000) and Alvarez et al. (2006) are also studies using this method.

As mentioned in the beginning, there may be also another type of social interactions in voting behavior. Many studies in other contexts suggested that behavior of an individual tends to *conform* to the way in which most people also behave⁵. In voting behavior, it is generally called a “bandwagon effect”, wherein voters are apt to cast their ballots for candidates who are perceived to succeed, because they hope to be on the “winner's side” in the end (Nadeau et al., 1993). Hinich (1981) stated that an assumption that voters tend to vote for the winner “is no less plausible than the assumption that voters believe they can be pivotal.” An experiment conducted by Goidel and Shields (1994) found that, in the U.S., independents are tend to vote for a Republican candidate if the candidate is expected to win. They also found that weak Republicans are more likely to vote for a Democratic candidate expected to win. Callander (2007) showed that a desire to conform with the majority is critical to the existence of voting bandwagons in U.S. presidential primaries, and voting bandwagons cannot be driven only by an informational incentive to elect the better candidate.

Obviously, the direct method mentioned above cannot distinguish between the two kinds of social interactions. When a respondent claimed that she had chosen this party because another party she preferred had no chance to win, we cannot exactly know whether this came from the strategic consideration or just the incentive to stand on the winner's side.

The indirect methods used in Blais and Nadeau (1996) and Blais et al. (2001) cannot discriminate between the two effects either. As Blais et al. (2001) showed that voters tend not to vote for the candidates with a big value in the “no chance” variable, it may reflect the bandwagon effect not the strategic consideration. In Blais and Nadeau (1996), the difference between the constructed sincere preference ranking of individuals and the stated vote may even comes from other factors, such as campaign activities, not the two social interaction effects.

⁵ See, for example, Chen et al (2010), a field experiment on on-line communities.

Hence, this study will propose an indirect method which is able to distinguish between strategic voting and voting out of the bandwagon effect. As mentioned above, this method is based on the difference between the two effects: *strategic voting is motivated by the intention to make a difference in terms of which party wins the election in the constituencies, but the bandwagon effect is just the tendency of an individual to stand on the winner's side.* I can then infer strategic voting from the voting of people that both believe their vote is pivotal and tend to vote for winning parties, whereas if people that respond only to winning parties regardless of whether their vote matters may just be on the bandwagon. Thus, this study empirically investigate the interactions between respondents' voting behavior, their *stated* expectations on which candidates would be the winners and the “valid contenders” in their constituencies, and their perspectives on the importance of their ballots in the election.

Moreover, in contrast with previous studies using the indirect method, such as Alvarez and Nagler (2000) and Alvarez et al. (2006), the other property of this study is that I use the data measuring voters' subjective expectations in the regression. No matter what kind of social interactions prevalent among voting behavior there are, if an individual tends to behave in some way also prevalent among other voters in her constituency, since voting is secret and happens simultaneously, this tendency must be based on her *expectation* on other voters not the real behavior of other voters⁶. If I use the behavior of other voters in the current election instead of the subjective expectation data, I have to assume rational expectation⁷. If I use the real results from previous elections, I have to assume adaptive expectation. For both cases, I also have to assume that every voter in the same constituency has the same expectation⁸. The three assumptions are deemed problematic nowadays. In this study, I will also show that using the real results from *previous* elections cannot correctly catch the effect from strategic considerations on voting⁹.

6 Goidel and Shields (1994) also emphasized that expectations had played a significant role throughout their study on bandwagon effects.

7 In the last decade, some empirical and theoretical studies start to challenge the assumption of rational expectation, which says that we can use the final result of the society as the expectation of the representative agent in that society (Manski, 2004; Brunnermeier and Parker, 2005). Modern psychologists also find that people are notoriously bad in estimating the probabilities of future outcomes (Weinstein, 1980). In voting behavior, if we take a look at the survey data, it can be easy to find this. For example, in the pre-election survey of 2001 British Election Study, there was a question about which party would win the seat in the constituency. In the sample of England, around 30 per cent of respondents had a wrong guess. Therefore, it is problematic to set the final result as voters' perspectives on electoral situations.

8 Theoretically, if voters hold the same perspectives on the electoral situation, in a society full of rational voters, Palfrey (1989) showed that “multi-candidate contests under the plurality rules should result in only two candidates getting any votes”. Since we rarely see this, the assumption of common knowledge should be modified, if one wants to build a model of rational voters. Recently, advanced theoretical works are also trying to remove the assumption of common knowledge (Myatt, 2007; Clough, 2007).

9 Because of an endogeneity problem, I will not use the real result from the *current* election in the regression. The detail will be discussed later.

It has another drawback to use the real behavior of other voters instead of the subjective expectation data. If I run a regression from the voting behavior of an individual on the electoral result of the constituency containing the individual, it is sometimes difficult to discern whether a significant estimation result comes from the endogenous social effects, contextual effects, or correlated effects¹⁰ (Manski, 1993). For example, Alvarez and Nagler (2000) and Alvarez et al. (2006) found that, in a three-party election, voters tend not to vote for the party *gaining the fewest ballots in the previous election in that constituency* as the competition between the top two contenders increases. It is possible that the party gaining the fewest ballots in the previous election also exerts little effort in that constituency. Hence, what they caught might be the correlated effects, wherein voters in that constituency faced little advertisement from the weak candidate, not the endogenous social effects. Even though I can make sure that the significant relationship comes from the endogenous social effects, it is sometimes difficult to tell what types of endogenous social effects in this relationship by using only electoral results in the regression¹¹. Data about individuals' subjective expectations can give us more information in studies of social interactions (Manski, 1993; Manski, 2004).

I will apply this method on the United Kingdom general election of 2005. In Section 3, I will briefly describe the election and the 2005 British Election Studies, and then discuss the way I use respondents' perspectives on the probabilities of the events that each party would win the seat in her constituency. Section 4 focuses on the empirical model I will use. The estimation result will be shown on Section 5. Section 6 is a comparison study on the regression using subjective expectation data and that assuming adaptive expectations. Section 7 is the conclusion and discussion.

3. The Data Set and the Measurement of Voters' Perspectives

The United Kingdom general election of 2005 was held on Thursday, 5 May 2005, a working day, to elect members to the House of Commons, under the first-past-the-post system. The

10 Contextual effects are the effects wherein the propensity of an individual to behave in some way varies with the *exogenous characteristics* of the group. Correlated effects are the effects wherein individuals in the same group tend to behave similarly because *they face similar environments* (Manski, 1993).

11 Suppose a story of social contagion, where voters accept only the promotion for a candidate from their friends not the propaganda from parties. Voters enjoy expressing their political viewpoints to other voters in this society. I want to examine the bandwagon effects in this society, and I get a result showing that voters tend to vote for the candidate who finally gets the most ballots in the constituency. Because the candidate getting the most ballots also has the most supporters advertising for her/him, this result may reflect only the effect of the promotion from voters' friends (social contagion) not voters' incentive to stand on the winner's side (bandwagon effects). As what Goidel and Shields (1994) emphasized, the key for bandwagon effects is the expectation. When having data about voters' subjective expectations, I may be able to discern the two effects if voters do not form their expectations totally based on the frequency of the promotion from their friends.

official period of campaign ran from the dissolution of Parliament, 11 April in 2005, to the date of the poll. Three major parties, Labour, Conservative and Liberal Democrat, which fielded candidates in almost every constituency, competed for 628 seats in Britain¹². In Scotland and Wales, there were also other major parties, Scottish National Party (SNP) and Plaid Cymru, which had no candidates in England. Labour finally reached 356 seats, Tory won 198 seats and Liberal Democrat got 62 seats. SNP and Plaid Cymru got 6 and 3 seats, respectively. 3 of 628 seats from Britain were occupied by independent candidates.

The data set this study uses is 2005 British Election Studies (BES2005), which comprises a series of linked studies. Two of them are relevant to this study: the British Election Study pre-election cross-section survey and the British Election Study post-election panel and cross-section survey. The pre-election face-to-face survey was complete by 12 April 2005, roughly before the beginning of the official campaign. The post-election face-to-face survey began on 6 May 2005 and was complete by 4 July 2005. In order to correct for unequal selection probabilities and fit the profile of the sample to population estimates for Britain, England, Scotland or Wales, BES also offered a series of weighting factors, which are directly adopted by this study.

3.1 How Many Respondents did not Vote for Their Most Preferred Parties

Based on the direct method mentioned in the Section 2, from BES2005, one can have an idea about how many voters did not vote for their most preferred parties. However, as discussed above, when respondents reported that they did not vote for their most preferred candidates because these candidates had no chance to win in their constituencies, one cannot exactly know whether this came from the strategic consideration, the bandwagons, or maybe some other factors scholars have not explored yet. Hence, one cannot simply call this phenomenon strategic voting, below I will call this “misaligned voting” instead¹³.

In the post-election survey, the question about misaligned voting is:

People give different reasons for why they vote for one party rather than another. Which of the following best describes your reasons?

12 There are 646 constituencies across the United Kingdom; 18 of them are constituencies in North Ireland. In Britain, the Labour Party fielded candidates in every constituency. Tory had candidates in every constituency except for Glasgow North East. Liberal Democrat did not field candidates in Glasgow North East and Wyre Forest.

13 Kawai and Watanabe (2010) defined misaligned voting as the case wherein voters cast their ballots for a candidate other than the one they most prefer. For simplification, I use this term below for the case that voters' sincere voting is different from their stated voting, or the case that their predicted sincere voting is different from their predicted voting with social interaction effects.

1. *The party had the best policies*
2. *The party had the best leader*
3. *I really preferred another party but it stood no chance of winning in my constituency*
4. *(I voted tactically (VOLUNTEERED))*
5. *Other (WRITE IN)*

If one's answer was the point 3 or 4 above, then I say that one cast a misaligned vote in the polling day. Previous scholars using the direct method called this case strategic voting. For this kind of voters, they would then be asked which party they really preferred. Thus, I can get the information about who did misaligned voting and their reported sincere voting.

In Table 1, I show the stated voting and reported sincere voting for the respondents who claimed to cast a misaligned vote. Each entry in Table 1 is the weighted ratio between one kind of respondents casting a misaligned vote and respondents who cast ballots among three main parties. Each diagonal cell gives the share of inconsistent respondents whose stated voting and reported sincere voting are the same, but they claimed that they did misaligned voting. Each off-diagonal cell gives misaligned voting among three main parties. For example, the entry in the second cell of the row named "Tory" says that 0.23% respondents who reported misaligned voting cast ballots for Labour but they most preferred Tory. From this table, the direct method says that, in England, 6.94 percent of voters casting ballots among three main parties did misaligned voting. The reason why they did misaligned voting includes the two social interaction effects I discuss in this study and maybe some other factors scholars have not explored yet; now, we know only the two social interaction effects.

[Table 1 about here]

3.2 The Measurement of Voters' Perspectives

One set of questions from the pre-election survey is relevant to the measurement of voters' expectations on electoral results. The set of questions is:

On a scale that runs from 0 to 10, where 0 means very unlikely and 10 means very likely, how likely is it that Labour/Conservative Party/Liberal Democrats will win the election in this constituency?

From this set of questions, which will be called "Question A" below, I can theoretically get every respondent's subjective evaluation on the likelihood of event that each party would win the seat in

her constituency. However, before I use the response to this question, there are some considerations.

First, Blais et al. (2008) noticed that, for questions about voters' subjective probabilities, the framing of the question would make a difference. If the respondents were asked whether each party had “a chance of winning” and then they were invited to rate on the 0 to 100 scale the chance of the parties they thought had some chance¹⁴, then Blais et al. (2008) found that respondents had tended to say “no” in the first step. Under this framing of question, many candidates were perceived by voters to have a zero chance to win a seat. However, if respondents were asked directly to rate a party's chance on a 0 to 100 scale¹⁵, respondents seemed reluctant to answer 0, even with respect to parties that has never ranked 1st or 2nd highest share in a constituency in previous elections. Thus, for the candidates who were perceived to have a zero chance to win under the former wording of questioning, it was possible for them to be perceived to have a positive (but small) chance to win under the latter way of questioning¹⁶.

The second consideration is whether these subjective evaluations, especially the subjective difference between the evaluations for the likelihood of two events, are comparable among respondents. For example, under the framing of questions in BES2005, a voter A, who is a Tory's supporter, gives a number 5 for the likelihood of the event that Labour wins the seat in her constituency. A also answers 4 for the likelihood of the event that Liberal Democrat wins the seat, and answers 2 for the likelihood of a Tory's victory. Another Tory's supporter B reports 9, 6 and 5 for the likelihood of events that Labour, Liberal Democrat, and Tory win the seat, respectively. Then, I apply the “no chance” variable purposed by Blais et al. (2001), which I mentioned before. For the voter A, the value of the no chance variable to Tory is 3, and, for the voter B, its value is 4. Thus, according to Blais et al. (2001), if A and B are instrumentally rational voters, then B will be more willing to give up Tory than A because B holds a smaller hope that Tory can win the seat. However, the original responses for the question show that B is more optimistic about a Tory's victory than A (B reports 5 to the likelihood of this event, but A believes its value is 2). The key of

14 This was the framing of the question used in 2004 Canadian Election Study.

15 This was the framing of the question used in 2000 Canadian Election Study, and BES2005.

16 The problem may come from the former way, where the first step is a yes/no question. Manski (2004) argued that, while researchers ask respondents their subjective probabilities on some events, a yes/no question will easily overlook some important information. For example, if one is asked whether she will cast a ballot in the Election Day, an answer “no” does not mean that the probability of her attendance is zero. Manski (2004) said that it should mean the subjective probability of her turnout is low enough so that some form of “no” answer is more accurate than a “yes” answer. Hence, while a respondent is asked whether a party has a chance of winning, an answer “no” does not mean that her subjective probability for the event is zero, but that her subjective probability for the event is low enough.

this problem is that the same scale may have different meanings for different respondents.

Because of the two considerations, if I directly use the value got from Question A, it may cause problems. Fortunately, despite the absolute value of voters' responses may be unreliable, the subjective chance-ranking elicited by these questions does not be affected by the considerations above. In the example above, the chance-rankings for A and B are both Labour > Liberal Democrat > Tory. Thus, as the way economists usually use to deal with men's utility, in this study, I will use the subjective chance-ranking got from voters' responses instead of the absolute value. From the subjective chance-ranking, I can then know every respondent's guess on who the winner is. For a respondent, I define that the party perceived to have the highest probability to win in her constituency as the winner she guessed in the pre-election survey; the party with the second highest probability to win is defined as the "valid contender" with the winner she thought in her constituency.

In the sample where respondents chose turnout and answered this question (N=1176), Table 2 shows how the expected winner and valid contender were evaluated by the respondents. In the table, each entry is the number of respondents who gave two specific evaluations for the likelihood of a expected winner's victory and the likelihood of the same event for the valid contender. For example, the entry in the third cell of the tenth row says that 15 respondents reported 9/10 for the likelihood of the event that the winner wins the seat, and reported 2/10 on the likelihood of the same event for the contender.

[Table 2 about here]

However, there are some special cases deserved to be mentioned. In these cases, respondents set two more candidates the same value for the probabilities of events that they could win the seat. First, few respondents answered the same value for every party in the Question A. In this case, they did not guess who would be the winner, but they thought every candidate could be the valid contender in their constituencies. Secondly, some respondents set the same value for two candidates, and placed a lower value for the other one (for example, one answered a value 5/10 for Labour and Tory, and a value 2/10 for Liberal Democrat). In this case, they did not guess who would be the winner, either. They thought that the two candidates with the same value could be the valid contenders¹⁷. Thirdly, some respondents answered the highest value for one candidate, and

¹⁷ For the two cases, I can also set candidates with the same value as the expected winners not the expected "valid

the same value for the other two (for example, one set a value 7/10 for Liberal Democrat, and 5/10 for Labour and Tory). In this case, the candidate with the highest value is the winner they guessed, and the other two candidates are both valid contenders. Fourthly, some respondents set the highest value for one candidate, and zero for the other two. In this case, the candidate with the highest value is the winner they guessed, and, of course, the other two could not be the valid contenders since they had a zero chance to win the election. Table 3 shows the numbers of special cases I have in the sample where respondents chose turnout and answered this question (N=1176).

[Table 3 about here]

Readers now might want to know how well voters guessed the electoral results. In the sample of England from BES2005 pre-election survey (N=1929), voters are bad in estimating the election results. 856 (44.38%) respondents had wrong guesses on the winners in their constituencies. If I set the candidate who finally got the 2nd highest share in a constituency as the real “valid contender”, 984 (51.01%) respondents made wrong guesses on the valid contenders in their constituencies. Of course, while in a tight competition, one might put the actual winner as the expected valid contender, and guess the real valid contender as the expected winner. In this case, she made wrong guesses on the winner and valid contender, but she still correctly guess the set of the top two candidates in her constituency. By this criterion, 966 (50.08%) respondents had wrong expectations on the sets of the top two candidates in their constituencies.

Moreover, respondents in the same constituency had different perspectives on the electoral results. For example, in the pre-election survey, I have 24 respondents from the constituency, Albridge-Brownhills, and 21 respondents made guesses about who would be the winner. Among them, 16 said that Tory would be the winner, and 5 reported Labour. The standard deviation for these guesses made by respondents from Aldridge-Brownhills is 0.43. The pre-election survey covered 77 constituencies from England, and the average standard deviation among constituencies for the guess of the winner is 0.53. The facts discussed in the two paragraphs suggests that using the data measuring voters' subjective expectations in the regression is better than using the real electoral results if I want to know how voters' expectations affect their behavior.

There is also another set of question from the pre-election survey which is relevant to the identification of strategic voting:

contenders”. A robustness check suggests that it will not change the main results in the regression I get below.

On a scale from 0 to 10, where 0 means very unlikely and 10 means very likely, how likely is it that your vote will make a difference in terms of which party wins the election in this constituency?

From this question, which will be called Question B below, I can get how respondents saw the impact of their own ballots. If a respondent gave an answer 10 for this question, she believed that her ballot was crucial for the election; if she answered zero, she believed that her vote was trivial. Table 4 shows the frequency distribution of responses to this question from the sample where respondents chose turnout and responded to this question (N=1226). A brief regression shows that a respondent's answer from Question B has a positively statistically significant relationship with the inverse of the difference between the voting shares earned by the top two parties in the constituency containing the respondent. It suggests that, as the competition increases, voters see their ballots also more important. This result is shown in Table 5.

[Table 4 about here]

[Table 5 about here]

In the sections below, I will then examine how respondents' answers from Question A affect their voting behavior, and how this relationship interacts with their responses from Question B.

4. Modeling

The model by which I use to describe how voters' perspectives on the electoral results affect voting behavior can be expressed as the formula below. For a voter j , when she stands in front of a voting booth, what she can get from voting a party L is

$$U_{jL} = \alpha_L + \beta X_{jL} + \gamma_L D_j + \delta_1 WIN_{jL} + \delta_2 IMP_{jL} + \delta_3 WIN_{jL} IMP_j + \varepsilon_{jL} = V_{jL} + \varepsilon_{jL} ,$$

where X_{jL} is a vector of party attributes. D_j is a vector of voter characteristics. WIN_{jL} is the subjective response from Question A, and it is a vector of indexes of whether L was expected by j to be the winner or the valid contender in her constituency. IMP_j is the respondent's answer from Question B, and it is a measure of how vital the voter's ballot was (from the voter's perspective). My target is to get the estimated coefficients for WIN_{jL} , IMP_j and $WIN_{jL} * IMP_j$.

The control variables in this model include voters' party identification, parties' campaign activities, candidates' characteristics, and regular demographic variables.

First, I have several variables to measure voters' party identification. Blais and Bodet (2006) suggested that voters' party identification will affect voters' expectations. For example, if the voter j is a supporter for Tory, she will want to see a victory of Tory, and then overestimate the possibility that Tory wins the seat, or underestimate that of a defeat. Moreover, voters' party identification will also affect voting behavior. Hence, I have to add control variables for voters' party identification.

In the pre-election survey, there are several questions asking whether respondents are supporters for some party or just independents. However, some respondents may claim that they are independents, even though in fact they are closer to some party because of their positions on political issues. Thus, this study has also some variables related to respondents' and parties' positions on political issues, which include Britain's membership in the European Union, taxation and health care, and standpoints on left or right. In these variables, I calculate every respondent's *subjective* position distance to various parties in these issues. If she thinks that her position on an issue is closer to that of a particular party, the number from this calculation would be smaller.

Secondly, this model has some control variables relevant to parties' campaign activities. It is well known that candidates' campaign activities heavily depend on parties' perspectives on electoral situations, and, in most of cases, voters' viewpoints are close to parties' perspectives. A major party perceived to have no chance to win the election in a constituency does not usually put too much effort in that constituency. Therefore, if we do not control parties' campaign activities, the estimated effect from voters' perspectives may in fact catch the effect from parties campaigning.

From the BES2005 post-election survey, I can get the information about whether the respondent was contacted by a party's agent or candidate in four kinds of activities: doorstep canvassing, telephone canvassing, so-called "knocking up" and Party Election Broadcasts¹⁸. From the pre-election survey, I can also get the information about parties' activities before the campaign: whether the respondent was contacted by parties' local branches, and whether the respondent had

18 The doorstep canvassing is the activity through which a campaign team, including generally a candidate and local councilors, engages in face-to-face personal interaction with voters. The personal interaction can be also performed by telephone, where it is referred to as telephone canvassing. One purpose of canvassing is to disseminate the relevant information about candidates or parties. The other purpose is to figure out whether visited electors are supporters for their parties. Based on this information, a campaign team will send people to contact these identified supporters on the polling day and remind them to cast their ballots. It is called "Get Out The Vote" (GOTV) or "Knock-Up". Therefore, including the variable about GOTV may cause an endogeneity problem. I will not put the variable of GOTV into the regression, and hence the estimated effect on doorstep and telephone canvassing below will include the indirect effect from GOTV.

personal assistance from a party's local Member of Parliament.

Thirdly, two variables relevant to candidates' characteristics are included in the regression. One is an index of whether the candidate in the respondent's constituency is an incumbent. The other variable indexes whether the candidate in the respondent's constituency is a freshman candidate running for the party winning in the last election (for simplification, I call this kind of candidates successors below). A candidate can be an incumbent, a successor, or just a general challenger. An incumbent is always on the “focal point” in the constituency, and people rarely think that she will get the fewest votes in a three-party election. On the contrary, in a three-party election, a challenger must first persuade voters that she is the “main” challenger or a “valid” contender, or she may be perceived to be the last one in the election. If there is no incumbent in the election (that is, the incumbent chooses to retire), her successor is usually also on the focal point. A preliminary regression suggests that, if a candidate is an incumbent or a successor, voters are reluctant to believe that she will get the fewest votes in the election. Moreover, respondents believe that an incumbent is more able to secure her seat than a successor.

Fourthly, in this model, I also have some regular demographic variables, which include age, sex, whether the respondent owns a house, union membership, whether the respondent works in public sectors, income, and unemployment.

In the Election Day, the voter j could choose to vote the Labour Party, Conservative, or Liberal Democrat when she is in a voting booth. In England, except for the three major parties, there are also some small parties, such as Green Party, in some constituencies. I assume that the existence of alternatives of small parties does not change voters' decision *among three major parties*. Furthermore, small parties got a slight share of votes in the sample, so I neglect the choice of small parties in my model. Since BES2005 does not have samples from three special constituencies where small parties or independent candidates played an important role¹⁹, it is safe to do this. However, in Scotland or Wales, there are also other major parties. It must change voters' decision among three major parties to have the alternative of SNP or Plaid Cymru. SNP and Plaid Cymru also occupied a moderate share of votes there. Hence, in Scotland or Wales, it causes a problem to neglect the choice of SNP or Plaid Cymru in the model. For simplification, this model has only three major parties, so I have to restrict my analysis in the sample from England.

¹⁹ The three constituencies are Bethnal Green and Bow, Blaenau Gwent, and Wyre Forest.

I estimate this model by using multinomial probit instead of multinomial logit so that I do not have to assume that the error term for the alternative is independent to each other. I can get an estimate about the correlation coefficient between the error terms. Therefore, for the voter j , the probability for her/him to choose the party L is

$$Prob_{jL} = \int I(V_{jL} + \varepsilon_{jL} > V_{jC} + \varepsilon_{jC} \cap V_{jL} + \varepsilon_{jL} > V_{jD} + \varepsilon_{jD}) \phi(\varepsilon_j) d\varepsilon_j ,$$

where $I(\cdot)$ is an indicator of whether what j can get from voting L (Labour) is larger than those from voting C (Conservative) and D (Liberal Democrat). Since ε_j is distributed joint-normal, $\phi(\cdot)$ is a multivariate normal distribution function. It does not have a closed form, and hence it must be evaluated through simulation. I estimate this model through the maximum simulated likelihood method implemented by the Geweke-Hajivassiliou-Keane (GHK) algorithm.

5. Results

In this section, I will show first how respondents' subjective responses from Question A solely affect their voting behavior. Secondly, I will show how this relationship interacts with their responses from Question B. Thirdly, I will use this estimation result to get the predicted voting and calculate how many voters were finally affected by the bandwagon effect and the strategic consideration and changed their voting behavior.

5.1 Social Interactions: Effects of Expected Winner and Valid Contenders

In this part, I will examine to what extent voters tend to cast ballots for expected winner or valid contenders.

The result is presented in Table 6. Since Labour is the ruling party in the election 2005, I choose Labour as the base alternative. From the table, one can find that, even though I control for party affiliation, the estimated coefficient for expected winner is still positive and statistically significant, and the estimated coefficient for expected valid contenders is also positive and statistically significant. It suggests that voters' subjective expectations do affect their voting behavior. While in a voting booth, voters tend to cast their ballots to the candidate whom they expect to win the election in their constituencies, and candidates they expect to be the valid contenders in their constituencies.

Some may doubt this conclusion. Although this study has some control variables relevant to

candidates' and parties characteristics, such as voters' party identification, it is possible that candidates are also attractive for other characteristics which cannot be caught by the control variables I have. Thus, voters may think a candidate has a good chance of winning and vote for the candidate themselves, which generates this result, even though there is not effect of Question A on voting. However, this story cannot explain the result I get in the next section. That is, if the story is true, one should still see this relationship in the regression after adding voters' views on the impact of a ballot and the interaction term of Question A and B, which I do in the next section. But, in the regression of the next section, the estimated coefficient for Question A becomes statistically insignificant, while the intersection term is statistically significant.

[Table 6 about here]

5.2 Distinguish Strategic Consideration from the Bandwagon Effect

In this part, I will add respondents' answers from Question B in the regression. As mentioned above, by adding this variable, I can then distinguish strategic consideration from the bandwagon effect.

The result is presented in Table 7. From the table, one can find that, after I add voters' views on the impact of a ballot, although the estimated coefficient for the expected winner is still positive, the coefficient is not statistically significant. It suggests that, as voters see their ballots trivial, although they still tend to vote for the expected winner, this tendency is not statistically significant. That is, it implies that, not like the voting behavior in the US, the bandwagon effect is not statistically important among the voting behavior in England. By contrast, the estimated coefficient for the product of the expected winner and subjective views on the impact is positively statistically significant. It suggests that, as the importance of a ballot subjectively increases, the tendency of voters to cast ballots for the expected winner also increases. It implies the strategic consideration.

However, the estimated coefficient for the expected valid contenders is still positively statistically significant. By contrast, the estimated coefficient for the product of the expected valid contenders and subjective views on the impact is statistically insignificant²⁰. It suggests that voters

²⁰ As mentioned above, there are some special cases where respondents believed two more candidates have the same and the highest likelihood to win the seats in their constituencies. In this regression, I set these candidates as expected valid contenders not expected winners from a respondent's viewpoint. If I reset these candidates as expected winners not contenders, the regression results I discuss here are still the same.

always tend to vote for the expected valid contenders no matter how pivotal they see their ballots. Hence, this tendency does not come from voters' intentions to affect the electoral results in terms of which party wins the election in their constituencies. Since it is a tendency to an expected contender not a winner, it may not come from the desire to stand on the winner's side.

This tendency may come from voters' intentions to affect victory margins. Razin (2003) suggested that, when candidates' margin of victory shrinks, candidates have an incentive to moderate their policy. Hence, in contrast to an incentive to affect the electoral results in terms of which party wins the election, Castanheira (2003) proposed that voters may also want to affect victory margins. A tendency to vote for the valid contender may imply that voters prefer a moderated policy to a polarized one, so they are always willing to reduce the victory margin.

[Table 7 about here]

Based on the estimates from Table 7, I show the marginal effects in Table 8. For a voter j , a marginal effect is a simulated change in the probability of choosing a party L if j had thought that L would be the winner or the valid contenders in her constituency. I will also do several simulated changes in her choice probabilities as her view on the impact of a ballot changes and the product terms change. In Table 8, for a voter j , assume that her “original” probability to choose Tory was 0.265 if Tory was neither the expected winner nor the valid contender. Assume also that j thought her ballot had an “impact” 0/10 on the result. If j had thought that Tory would be the winner in the constituency, then the probability that she voted Tory would have increased to 0.300. It is the simulated effect from the incentive to stand on the winner's side. By contrast, if j had thought that her ballot had an “impact” 5/10 on the result, then her probability of voting Tory would have increased to 0.425 ($0.300 + 0.025 \cdot 5$). The value $0.025 \cdot 5$ is the simulated effect from the strategic consideration. Similarly, if j had thought Tory was the valid contender in the constituency, then her probability of choosing Tory would have increased to 0.376 when the “impact” was 0/10. If the “impact” had been 5/10, then her probability of voting Tory would have increased to 0.381. The difference between 0.376 and 0.381 is tiny.

[Table 8 about here]

5.3 How Many Voters Were Finally Affected by Social Interactions?

In this part, I use the estimation result from Table 7 to calculate the predicted voting without social interactions (predicted sincere voting), that with only the strategic consideration, that with only the bandwagon effect, and that with all social interactions. For getting the predicted sincere voting, I set the coefficients for expected winner, expected valid contenders, subjective impact, and their product terms as zero, and use the other estimated coefficients to calculate the predicted utility of each alternative for every voter. For each voter, the alternative with the highest predicted utility is her predicted choice. Similarly, for getting the predicted voting with an intention to affect the result in terms of which party wins the election (strategic consideration), I set the coefficients relevant to the expected winner and contenders as zero, and calculate the predicted choice for every voter. For the calculation of the predicted voting with only the bandwagons, I set all coefficients relevant to social interactions except for the one of the expected winner as zero, and calculate the predicted choice. For the calculation of the predicted voting with two social interaction effects, I use the full model presented above. If the predicted sincere voting for a voter is different from that with the bandwagon effect, I say that she cast misaligned voting because of the bandwagon effect. If the predicted sincere voting for a voter is different from that with only the strategic consideration, I say that she cast strategic voting. If the predicted sincere voting for a voter is different from that based on the full model, I say that she cast misaligned voting because of social interactions.

In Table 9, I show the result for the predicted sincere voting and predicted voting with only the bandwagon effect. The entries along the main diagonal of the table represent the weighted shares of respondents whose predicted sincere voting and predicted voting with the bandwagon effect are the same. Each off-diagonal cell gives the weighted share of respondents who did misaligned voting because of the bandwagon effect. For example, the entry in the second cell of the row named “Sincere Tory” says that 0.07% respondents are voters who most preferred Tory but voted for Labour because of the bandwagon effect; the entry in the first cell of the row named “Sincere Labour” says that 0.06% respondents are voters who most preferred Labour but voted for Tory because of the bandwagon effect. From the table, one can have an image of the extent of the bandwagon effect: in England, 0.88 percent of voters casting ballots among three main parties did misaligned voting because of the bandwagon effect.

[Table 9 about here]

In Table 10, I show the result for the predicted sincere voting and predicted voting with an

intention to affect the result in terms of which party wins the election. Similarly, the entries along the main diagonal of the table represent the weighted shares of respondents of whom two predictions are the same. Each off-diagonal cell gives the weighted share of respondents who cast strategic voting. From the table, one can say that, in England, 4.38 percent of voters casting ballots among three main parties did strategic voting.

[Table 10 about here]

In Table 11, I show the result for the predicted sincere voting and predicted voting with all social interactions. From the table, in England, 5.23 percent of voters casting ballots among three main parties did misaligned voting because of social interactions. Moreover, the predicted voting with all social interactions (the predicted voting based on the full model) correctly predicts 78.29 percent of the reported votes in the sample ($N = 1147$).

[Table 11 about here]

6. A Comparison between Subjective and Adaptive Expectations

Many previous empirical studies relevant to individuals' expectations and behavior used the real result of that behavior in groups containing individuals as the proxy to catch individuals' subjective expectations. As mentioned above, it may have problems. In this section, I will do a comparison between the regression using electoral results in constituencies containing voters and that using the data about voters' subjective expectations on electoral results. Moreover, because of an endogeneity problem, I will not run the regression using *current* electoral results. That is, I will not do the regression assuming rational expectation²¹.

I run a regression using *previous* electoral results in constituencies containing voters. In other words, I assume that voters form their expectations totally based on the previous electoral

21 If I assume rational expectation, that is, voters can always make a correct guess, then I can use the results of the 2005 general election as the voters' expectations in the election. Brock and Durlauf (2003) showed that, under some conditions, imposing the current results of the behavior in groups on a multinomial choice model can have no identification problem. However, the conditions are still too strong here. For example, one condition requires the error term, ε_{iL} , is independent and identically distributed across choices. In Table 7, one can find that, if I can correctly catch the effect from the strategic consideration, the error term may be independent across alternatives (the estimated correlation coefficient for error terms in that model equals zero). Yet, in the regression using *current* electoral results (the result is not shown here), the estimated correlation coefficient for the error terms is not equal to zero. Thus, I cannot assume that this condition is satisfied.

results (adaptive expectation), and hence every voter in the same constituency has also the same expectation. This is the way Alvarez and Nagler (2000) and Alvarez et al. (2006) used. In this case, the WIN_{jt} in the model above is replaced by a vector of indexes of whether a party got the 1st or 2nd highest share in the election of 2001 in voter j's constituency. IMP_j is still the respondent's answer from Question B, and it is a measure of how vital the voter's ballot was (from the voter's perspective). Therefore, under this model assuming adaptive expectation, if the strategic consideration is important, as the importance of a ballot increases (from voters' views), voters are more willing to cast ballots for *the party getting the 1st or 2nd highest share in the previous election* (in the model above, voters are more willing to cast ballots for the *expected winner or valid contenders*). The result is shown in Table 12.

For the purpose of comparison, I also run a regression without any variables relevant to social interactions. That is, this model does not have the part of WIN, IMP and WIN*IMP. The result is also shown in Table 12.

In Table 12, the column of model A is the model without the part of WIN, IMP and WIN*IMP. The column of model B is a part of the result in Table 7, the result of the model using subjective expectation data. The column of model C is the result of the model assuming adaptive expectation. In the column of model C, one can find that, among the estimated coefficients for social interactions, only the estimated coefficient for the product term of the winner and impact is statistically significant. After a comparison between the results from the model B and C, it suggests that the estimated coefficients in model B, which uses subjective expectation data, are more precise than those in model C.

Moreover, while comparing the model A with the model B, one can find that, after the voter's expectation is taken into account, the estimated coefficients for the variables of incumbents and successors decrease. It implies that, without the consideration of voter's expectation, the estimated coefficients for incumbents and successors include the impact of voter's expectation. Voters tended to vote for incumbents or successors partly because they believed that incumbents or successors would be the winner or at least the valid contenders. Interestingly, in the model A, the estimated coefficient for incumbents is smaller than that for successors, but in the model B, the two coefficients are the same (after the impact of voter's expectation is picked out). Under the influences of voters' expectations, voters are more willing to cast their ballots for a successor than an incumbent. As mentioned above, a preliminary regression suggests that respondents believed

that an incumbent was more able to secure her seat than a successor, and hence, under the strategic consideration, a ballot for a successor would be more “valuable” than a ballot for an incumbent. The smaller estimated coefficient for incumbents in the model A reflects that the strategic consideration is “stronger” than the motivation to go with the winner.

[Table 12 about here]

Actually, in the sample of England from BES2005 pre-election survey (N=1929), respondents' expectations are quite different from the previous electoral results in constituencies containing respondents. 802 (41.58%) respondents guessed that the winner in their constituency would not be the winner in the last election. 934 (48.42%) respondents thought that the valid contenders would not be the party who had gotten the 2nd highest share in the last election. 950 (49.25%) respondents believed that the sets of the top two parties in their constituencies would be different from those in the last election. Therefore, the previous electoral results cannot really catch every voter's expectation, so the model assuming adaptive expectation will miss some impacts from the expectation they cannot catch. This is the reason why the model assuming adaptive expectation is less precise than the model using subjective expectation data.

7. Conclusion

This study proposes an indirect method which can distinguish two social interaction effects among voting behavior: the strategic consideration and the bandwagon effect. Most previous empirical studies relevant to strategic voting counted the bandwagon effect into the effect out of the strategic consideration. If the bandwagon effect is trivial, it may be still able to get the correct estimation. However, studies on voting behavior in the US suggested that the incentive to stand on the winner's side is important for the US voters (Goidel and Shields, 1994; Mehrabian, 1998). Hence, in order to get a correct estimation on the effect of strategic consideration, it is necessary to have a method being able to tell the two effects.

The method this study develops is based on my understanding about the difference between the two effects: strategic voting is motivated by an intention to affect the result in terms of which party wins the election, but the bandwagon effect is driven by a desire to stand on the winner's side. If voters think that their ballots are trivial, strategic voters will not tend to vote for the expected winner, but the voters under the bandwagon effect will still tend to do so. Hence, this method

builds a model of voting behavior which considers voters' subjective expectations on the electoral results and voters' views on the impact of a ballot, and uses this model to estimate effects of the two factors on voting behavior.

This study finds that, in England, although voters tend to stand on the winner's side, this tendency is not statistically significant. By contrast, the effect of the strategic consideration is statistically significant. As the importance of a ballot subjectively increases, the tendency of voters to cast ballots for the expected winner also increases. Based on this estimation, my model says that, in England, 0.88 percent of voters casting ballots among three main parties did misaligned voting because of the bandwagon effect, and 4.38 percent of voters casting ballots among three main parties did strategic voting. My estimation also suggests that, in England, 5.23 percent of voters casting ballots among three main parties did misaligned voting because of social interactions.

However, this study also finds that voters tend to cast ballots for the expected valid contenders no matter how pivotal they see their ballots. This cannot be explained by an intention to affect the result in terms of which party wins the election. Since it is a tendency to a valid contender not an expected winner, it does not come from a bandwagon effect. A possible explanation is that voters have an intention to reduce victory margin because a reduced victory margin will induce moderated policy. This finding is then a supportive evidence for Castanheira (2003).

This study also does a comparison study between the model using subjective expectation data and the model assuming adaptive expectation. I find that the model assuming adaptive expectation is less precise than the model using subjective expectation data. The reason is that voters' expectations are quite different from previous electoral results in constituencies containing respondents. Since previous electoral results cannot really catch every voter's expectation, the model assuming adaptive expectation misses some impacts from the expectation they cannot catch.

However, 6.94 percent of voters reported that they cast a misaligned vote among three main parties, but the prediction of my model is 5.23 percent. The difference between the two numbers is not small. There are two possibilities. One is that my model still underestimates the impact of social interactions. Because the information about voters' expectations used by this model comes from the pre-election survey, it is possible that voters' expectations changed during the campaign.

Thus, the model using the subjective expectation data from the pre-election survey may miss some impacts from the expectation it cannot catch.

The other possibility is that reported misaligned voting includes other types of misaligned voting we have not explored yet. For example, the reported misaligned voting includes voters who claimed that they had voted tactically. Yet, one cannot actually precisely qualify what “voting tactically” means from a respondent's viewpoint: does it mean that they had an intention to affect the result in terms of which party wins the election, they wanted to reduce the victory margin, or some other “tactical” motivations? Hence, since my model does not include other possible types of misaligned voting, the prediction of my model must be smaller than reported misaligned voting. The question is: is there any other type of social interactions hidden in the reported misaligned voting? It requires another study.

Reference

- Alvaerz, R. Michael and Jonathan Nagler (2000), "A New Approach for Modelling Strategic Voting in Multiparty Elections," *British Journal of Political Science* **30**, 57-75.
- Alvaerz, R. Michael, Boehmke Frederick J. and Jonathan Nagler (2006), "Strategic Voting in British Elections," *Electoral Studies*, **25**, 1-19.
- Blais, Andre and Richard Nadeau (1996), "Measuring Strategic Voting: A Two-Step Procedure," *Electoral Studies*, **15**, 39–52.
- Blais, Andre et al. (2001), "Measuring Strategic Voting in Multiparty Plurality Elections," *Electoral Studies*, **20**, 343–352.
- Blais, Andre, Robert Young, and Martin Turcotte (2005), "Direct or Indirect? Assessing Two Approaches to the Measurement of Strategic Voting," *Electoral Studies*, **24**, 163–176.
- Blais, Andre and Marc A. Bodet (2006), "How Do Voters Form Expectations about the Parties' Chances of Winning the Election?" *Social Science Quarterly*, **87**, 477–493.
- Blais, Andre et al. (2008), "Measuring Expectations: Comparing Alternative Approaches," *Electoral Studies*, **27**, 337-343.
- Brock, William A. and Steven N. Durlauf (2003), "Multinomial Choice with Social Interactions," Working Paper.
- Brunnermeier, Markus K. and Jonathan A. Parker (2005), "Optimal Expectations," *American Economic Review*, **95**, 1092-1118.
- Callander, Steven (2007), "Bandwagons and Momentum in Sequential Voting," *Review of Economic Studies*, **74**, 653-684.
- Callander, Steven (2008), "Majority Rule When Voters Like to Win," *Games and Economic Behavior*, **64**, 393-420.
- Castanheira, Micael (2003), "Victory Margins and the Paradox of Voting," *European Journal of Political Economy*, **19**, 817-841.
- Chen, Yan, et al. (2010), "Social Comparisons and Contributions to Online Communities: A Field Experiment on MovieLens," *American Economic Review*, **100**, 1358-1398.
- Clough, Emily (2007), "Strategic Voting Under Conditions of Uncertainty: A Re-Evaluation of Duverger's Law," *British Journal of Political Science*, **37**, 313-332.
- Evans, Geoffre (2002), "On the Validation of Measures of Strategic Motivations: A Critical Comment on Alvarez and Nagler," *British Journal of Political Science*, **32**, 185-188.
- Goidel, Robert K. and Todd G. Shields (1994), "The Vanishing Marginals, the Bandwagon, and the Mass Media," *Journal of Politics*, **54**, 802-810.

- Heath, Anthony et al. (1991), *Understanding Political Change: The British Voter 1964–1987*. Oxford: Pergamon Press.
- Hinich, Melvin J. (1981), “Voting as an Act of Contribution,” *Public Choice*, **36**, 135-140.
- Iyengar, Raghuram, Christophe Van den Bulte, and Thomas W. Valente (2010), “Opinion Leadership and Social Contagion in New Product Diffusion,” *Working Paper*.
- Kawai, Kei and Yasutora Watanabe (2010), “Inferring Strategic Voting,” *Working Paper*.
- Manski, Charles F. (1993), “Identification of Endogenous Social Effects: The Reflection Problem,” *Review of Economic Studies*, **60**, 531-542.
- Manski, Charles F. (2004), “Measuring Expectations,” *Econometrica*, **72**, 1329-76.
- McKelvey, R. D. and P. C. Ordeshook (1972), “A General Theory of the Calculus of Voting,” in J. F. Herdon and J. L. Bernd, eds, *Mathematical Applications in Political Science*, 32-78. Charlottesville: The University of Virginia Press.
- Mehrabian, Lbert (1998), “Effects of Poll Reports on Voter Preferences,” *Journal of Applied Social Psychology*, **28**, 2119-30.
- Myatt, David P. (2007), “On the Theory of Strategic Voting,” *Review of Economic Studies*, **74**, 255-81.
- Nadeau, Richard, Edouard Cloutier, and J.-H. Guay (1993), “New Evidence about the Existence of a Bandwagon Effect in the Opinion Formation Process,” *International Political Science Review*, **14**, 203-213.
- Niemi, Richard G., Guy Whitten and Mark N. Franklin (1992), “Constituency Characteristics, Individual Characteristics and Tactical Voting in the 1987 British General Election,” *British Journal of Political Science*, **22**, 229–40.
- Palfrey, Thomas R. (1989), “A Mathematical Proof of Duverger’s Law,” in Peter C. Ordeshook, eds, *Models of Strategic Choice in Politics*, 69-92. Ann Arbor: University of Michigan Press.
- Razin, Ronny (2003), “Signaling and Election Motivations in a Voting Model with Common Values and Responsive Candidates,” *Econometrica*, **71**, 1083–1119.
- Weinstein, Neil D. (1980), “Unrealistic Optimism About Future Life Events,” *Journal of Personality and Social Psychology*, **39**, 806-820.

Table 1 Stated Voting and Reported Sincere Voting for Voters Casting Misaligned Votes

| | | Stated Voting | | |
|-----------------------|-----------|---------------|--------|-----------|
| | | Tory | Labour | Lib. Dem. |
| Stated Sincere Voting | Tory | 0.51% | 0.23% | 0.79% |
| | Labour | 0.31% | 0.46% | 2.08% |
| | Lib. Dem. | 1.21% | 2.31% | 0.71% |

Note: 1. Entries are the weighted shares of respondents voting among three main parties. The weighted N is 1581.2.

2. Each off-diagonal cell represents misaligned voting among three main parties.

3. Each diagonal cell gives inconsistent respondents whose stated voting and stated sincere voting are the same.

Table 2 How Expected Winner and Expected Valid Contenders Were Evaluated

| | | The evaluated likelihood for the event that the contender win the seat | | | | | | | | | | |
|---|----|--|----|----|----|----|----|----|----|----|---|----|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| The evaluated likelihood for the event that the winner win the seat | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 4 | 0 | 0 | 3 | 4 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 5 | 3 | 3 | 0 | 10 | 20 | 80 | 0 | 0 | 0 | 0 | 0 |
| | 6 | 2 | 2 | 2 | 8 | 36 | 62 | 22 | 0 | 0 | 0 | 0 |
| | 7 | 1 | 1 | 4 | 22 | 52 | 79 | 57 | 24 | 0 | 0 | 0 |
| | 8 | 8 | 5 | 14 | 43 | 52 | 72 | 47 | 42 | 15 | 0 | 0 |
| | 9 | 2 | 8 | 15 | 18 | 25 | 15 | 19 | 20 | 15 | 0 | 0 |
| | 10 | 78 | 21 | 8 | 26 | 11 | 41 | 19 | 18 | 8 | 6 | 5 |

Note: 1. This table shows how respondents evaluated expected winner and contenders in the sample where respondents chose turnout and answered this question (N=1176).

2. Entries are the numbers of respondents. For example, the entry in the third cell of the tenth row says that 15 respondents reported 9/10 for the likelihood of the event that the winner win the seat, and reported 2/10 on the likelihood of the same event for the contender.

Table 3 Special Cases for the Evaluation of Expected Winner and Contenders

| | Number of Cases |
|--|-----------------|
| Respondents thought that each party had <i>the same</i> likelihood to win the seat. | 13 |
| Respondents thought that two parties had <i>the same</i> likelihood to win but the other had a smaller likelihood to win. | 135 |
| Respondents thought that one party had the highest to win and the other two had <i>the same</i> but smaller likelihood to win. | 107 |
| Respondents thought that one party would be the winner and the other two had a zero chance to win. | 96 |

Note: This table shows how many special cases I have in the sample where respondents chose turnout (N=1176).

Table 4 How Voters Saw the Impact of Their Own Ballots

| | | Number of Respondents |
|---|----------------|-----------------------|
| The evaluated likelihood that the respondent's vote would make a difference in terms of which party wins the election in the constituency | 0 (trivial) | 174 |
| | 1 | 77 |
| | 2 | 123 |
| | 3 | 128 |
| | 4 | 72 |
| | 5 | 159 |
| | 6 | 94 |
| | 7 | 127 |
| | 8 | 120 |
| | 9 | 48 |
| | 10 (important) | 104 |

Note: This table shows the frequency distribution of responses to the question relevant to voters' viewpoints on the impact of their own ballots in the sample where respondents responded and chose turnout (N=1226).

Table 5 The Subjective Impacts of Ballots and Real Competition

Dependent variable: voters' subjective views on the impact of a ballot (from 0 to 10)

| Independent variables | Coefficients (Standard Deviation) |
|--|-----------------------------------|
| Real competition in the election of 2005 | 0.004 (0.002)* |
| Age | 0.017 (0.005)*** |
| Female | 0.403 (0.160)** |
| House owner | 0.101 (0.194) |
| Union membership | -0.197 (0.171) |
| Working in the public sectors | -0.019 (0.182) |
| Income-No answer dummy | -0.419 (0.272) |
| Income | -0.043 (0.048) |
| Unemployment | -1.252 (0.469)*** |
| Self-identity_Middle class | 0.029 (0.205) |
| Self-identity_Working class | 0.221 (0.199) |
| Constant | 3.338 (0.315)*** |
| N | 1638 |
| Adjusted R-square | 0.02 |

Note: 1. *p<0.10; **p<0.05;***p<0.01.

2. The real competition is defined as the inverse of the difference between the voting shares earned by the top two parties in the constituency containing the respondent in the election of 2005.

3. Some voters didn't want to answer the income question. I used a non-answer dummy to deal with these cases.

Table 6 Subjective Expectations and Voting Behavior

Dependent variable: voting choice – Labour (base alternative), Tory and Liberal Democrat

| Independent variables | Coefficients (Standard Deviation) | |
|------------------------------|-----------------------------------|-------------------------|
| Expected Winner | 0.58 (0.13)*** | |
| Expected Valid Contenders | 0.45 (0.12)*** | |
| Party Identification | 1.68 (0.12)*** | |
| Position Distance_EU | -0.16 (0.03)*** | |
| Position Distance_Taxation | -0.16 (0.04)*** | |
| Position Distance_Left/Right | -0.15 (0.04)*** | |
| Incumbent | 0.12 (0.10) | |
| Successor | 0.20 (0.19) | |
| Local Branch's Contact | -0.13 (0.13) | |
| MP Service | 0.31 (0.14)** | |
| Doorstep Canvassing | 0.32 (0.17)* | |
| Telephone Canvassing | 0.29 (0.30) | |
| Party Election Broadcasts | 0.39 (0.20)** | |
| | Tory/Labour | Liberal Democrat/Labour |
| Age | 0.02 (0.01)*** | 0.00 (0.01) |
| Female | -0.17 (0.19) | -0.47 (0.20)** |
| Home Ownership | 0.76 (0.25)*** | 0.27 (0.24) |
| Union Membership | -0.07 (0.19) | -0.01 (0.21) |
| Public Sector Employee | 0.01 (0.21) | 0.46 (0.22)** |
| Income | 0.02 (0.05) | -0.12 (0.06)** |
| Unemployment | -0.39 (0.82) | -0.05 (0.65) |
| Constant | -1.66 (0.43)*** | 0.23 (0.42) |
| Correlation Coefficient | 0.05 (0.17) | |
| N | 1161 | |
| Log Simulated-likelihood | -600.67 | |

Note: 1. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. This rule is not applied to the result of the correlation coefficient.

2. Some didn't want to answer the income question. I use a non-answer dummy to deal with these cases.

3. Some had no answer on position-distance questions. I use non-answer dummies to deal with these cases.

4. In the table, even when I control for party affiliation, I still have an "expected winner" and an "expected contender" effect.

Table 7 Subjective Expectations, Impact of Ballots and Voting Behavior

Dependent variable: voting choice – Labour (base alternative), Tory and Liberal Democrat

| Independent variables | Coefficients (Standard Deviation) | |
|------------------------------|-----------------------------------|-------------------------|
| Expected Winner | 0.14 (0.21) | |
| Expected Valid Contenders | 0.46 (0.20)** | |
| Winner * Impact | 0.10 (0.04)** | |
| Valid Contenders * Impact | 0.00 (0.04) | |
| Party Identification | 1.64 (0.12)*** | |
| Position Distance_EU | -0.15 (0.03)*** | |
| Position Distance_Taxation | -0.16 (0.04)*** | |
| Position Distance_Left/Right | -0.15 (0.04)*** | |
| Incumbent | 0.16 (0.10) | |
| Successor | 0.16 (0.19) | |
| Local Branch's Contact | -0.16 (0.13) | |
| MP Service | 0.26 (0.15)* | |
| Doorstep Canvassing | 0.34 (0.18)* | |
| Telephone Canvassing | 0.31 (0.31) | |
| Party Election Broadcasts | 0.42 (0.21)** | |
| | Tory/Labour | Liberal Democrat/Labour |
| Subjective Impact | -0.05 (0.03) | -0.06 (0.03)* |
| Age | 0.02 (0.01)*** | 0.00 (0.01) |
| Female | -0.15 (0.19) | -0.50 (0.20)** |
| Home Ownership | 0.77 (0.25)*** | 0.30 (0.24) |
| Union Membership | -0.01 (0.20) | -0.09 (0.21) |
| Public Sector Employee | 0.05 (0.21) | 0.49 (0.22)** |
| Income | 0.02 (0.05) | -0.15 (0.06)** |
| Unemployment | -0.44 (0.83) | -0.18 (0.64) |
| Constant | -1.48 (0.46)*** | 0.63 (0.45) |
| Correlation Coefficient | 0.00 (0.18) | |
| N | 1147 | |
| Log Simulated-likelihood | -581.80 | |

Note: 1. *p<0.10; **p<0.05;***p<0.01. This rule is not applied to the result of the correlation coefficient.

2. Some didn't want to answer the income question. I use a non-answer dummy to deal with these cases.

3. Some had no answer on position-distance questions. I use non-answer dummies to deal with these cases.

Table 8 Marginal Effects of Expectations

| | Conservative Pr(Labour) = 0.265 dp/dx | Labour Pr(Tory) = 0.466 dp/dx | Liberal Democrat Pr(L. Dem.) = 0.269 dp/dx |
|------------------------------------|---|-------------------------------------|--|
| Expected Winner | +0.035 | +0.040 | +0.030 |
| Expected Valid Contenders | +0.111 | +0.131 | +0.097 |
| Expected Winner * Impact | +0.025 | +0.030 | +0.021 |
| Expected Valid Contenders * Impact | +0.001 | +0.001 | +0.001 |

Note: 1. For Expected Winner, dp/dx is for discrete change from 0 to 1.
 2. For Expected Valid Contenders, dp/dx is for discrete change from 0 to 1.
 3. The marginal effects are calculated based on the estimates from Table 7.

Table 9 Predicted Sincere Voting and Voting with only the Bandwagon Effect

| | Voting with the Bandwagon Effect | | | Sincere - Totals |
|-----------------------------------|----------------------------------|--------|-----------|------------------|
| | Tory | Labour | Lib. Dem. | |
| Sincere Tory | 37.48% | 0.07% | 0 | 37.55% |
| Sincere Labour | 0.06% | 40.78% | 0 | 40.84% |
| Sincere Lib. Dem. | 0.09% | 0.65% | 20.86% | 21.60% |
| With the Bandwagon Effect - Total | 37.64% | 41.51% | 20.86% | 100% |

Note: 1. Entries are the weighted shares of respondents. The weighted N is 1100.5.

2. Each off-diagonal cell represents misaligned voting.

3. The marginal at the bottom is the predicted voting with the bandwagon effect for each party.

4. The marginal at the right end is the predicted sincere voting for each party.

Table 10 Predicted Sincere Voting and Strategic Voting

| | Strategic Voting | | | Sincere - Totals |
|----------------------------------|------------------|--------|-----------|------------------|
| | Tory | Labour | Lib. Dem. | |
| Sincere Tory | 36.03% | 1.41% | 0.12% | 37.55% |
| Sincere Labour | 0.06% | 40.78% | 0% | 40.84% |
| Sincere Lib. Dem. | 0.71% | 2.07% | 18.82% | 21.60% |
| With Social Interactions - Total | 36.80% | 44.27% | 18.93% | 100% |

Note: 1. Entries are the weighted shares of respondents. The weighted N is 1100.5.

2. Each off-diagonal cell represents misaligned voting.

3. The marginal at the bottom is the predicted voting with two social interaction effects for each party.

4. The marginal at the right end is the predicted sincere voting for each party.

Table 11 Predicted Sincere Voting and Voting with Social Interactions

| | Voting with Two Endogenous Effects | | | Sincere - Totals |
|----------------------------------|------------------------------------|--------|-----------|------------------|
| | Tory | Labour | Lib. Dem. | |
| Sincere Tory | 35.99% | 1.19% | 0.38% | 37.55% |
| Sincere Labour | 0.46% | 40.28% | 0.11% | 40.84% |
| Sincere Lib. Dem. | 1.16% | 1.94% | 18.50% | 21.60% |
| With Social Interactions - Total | 37.60% | 43.40% | 18.99% | 100% |

Note: 1. Entries are the weighted shares of respondents. The weighted N is 1100.5.

2. Each off-diagonal cell represents misaligned voting.

3. The marginal at the bottom is the predicted voting with two social interaction effects for each party.

4. The marginal at the right end is the predicted sincere voting for each party.

Table 12 A Comparison between Subjective and Adaptive Expectations

Dependent variable: voting choice – Labour (base alternative), Tory and Liberal Democrat

| | Model A | Model B | Model C |
|------------------------------|-----------------|-----------------|-----------------|
| Expected Winner | | 0.14 (0.21) | 0.17 (0.26) |
| Expected Valid Contenders | | 0.46 (0.20)** | 0.02 (0.21) |
| Winner * Impact | | 0.10 (0.04)** | 0.07 (0.04)* |
| Valid Contenders * Impact | | 0.00 (0.04) | 0.06 (0.04) |
| Party Identification | 1.64 (0.11)*** | 1.64 (0.12)*** | 1.64 (0.11)*** |
| Position Distance_EU | -0.13 (0.03)*** | -0.15 (0.03)*** | -0.14 (0.03)*** |
| Position Distance_Taxation | -0.14 (0.04)*** | -0.16 (0.04)*** | -0.15 (0.04)*** |
| Position Distance_Left/Right | -0.16 (0.04)*** | -0.15 (0.04)*** | -0.15 (0.04)*** |
| Incumbent | 0.25 (0.09)*** | 0.16 (0.10) | 0.01 (0.19) |
| Successor | 0.29 (0.17) | 0.16 (0.19) | |
| Local Branch's Contact | 0.03 (0.12) | -0.16 (0.13) | -0.06 (0.12) |
| MP Service | 0.30 (0.13)** | 0.26 (0.15)* | 0.24 (0.14)* |
| Doorstep Canvassing | 0.39 (0.17)** | 0.34 (0.18)* | 0.41 (0.17)** |
| Telephone Canvassing | 0.33 (0.29) | 0.31 (0.31) | 0.31 (0.29) |
| Party Election Broadcasts | 0.35 (0.19)* | 0.42 (0.21)** | 0.32 (0.19)* |
| Correlation Coefficient | 0.11 (0.16) | 0.00 (0.18) | 0.03 (0.17) |
| N | 1183 | 1147 | 1162 |
| Log Simulated-likelihood | -637.06 | -581.68 | -610.04 |

Note: 1. *p<0.10; **p<0.05;***p<0.01. This rule is not applied to the result of the correlation coefficient.

2. Some didn't want to answer the income question. I use a non-answer dummy to deal with these cases.

3. Some had no answer on position-distance questions. I use non-answer dummies to deal with these cases.

4. The estimated coefficients for voter characteristics are skipped here because of the lack of space.

5. Model A is the model without any part of social interactions, Model B is the model using subjective expectation data, and Model C is the model assuming adaptive expectation.