Elections are essential institutions of democracies. Citizen’s participation and voting choices determine directly who gets elected to public office and indirectly affect final policy outcomes. The understanding of voters’ behavior is hence at the center of the analysis of democratic political systems.

It is therefore natural that voting behavior is a central object of study for both political scientists and political economists. And among the many topics associated with the analysis of voting behavior, the question of whether voting is sincere or strategic is unavoidable.

The study of strategic voting in political science started with Duverger (1951) and was given its full credential with the publication of Cox’s (1997) seminal Making Votes Count.

Duverger (1951) is known for his famous law according to which the single-member district plurality (SMP) system produces a two-party system. Duverger makes a distinction between two effects of SMP that reduce political competition: the mechanical and psychological effects. The mechanical effect is the systematic under-representation of small parties under such a system given that it is extremely hard for such parties to win a plurality of votes in a district. Duverger is the first to point out that SMP systems also engender a psychological effect on voters. Supporters of small parties that have little or no chance of winning desert their party and they vote for one of the top two contenders. This is strategic voting in SMP.

Cox (1997) extends, deepens, and formalizes the analysis of strategic voting. He lays out the conditions under which it should occur. Voters must be short-term utility maximizers, and they must have information about the relative strength of the various parties/candidates. He points out that strategic voting may take place in any type of electoral system and stresses that voters should care about ‘making their vote count’ first and foremost at the district level, though he considers later the possibility that voters care about which parties participate in government (pages 194-198).

Cox does not offer a clear definition of strategic voting, even though much of the book deals with it and it is the longest entry in the book’s subject index. This is not specific to Cox. Most authors who study strategic voting do not find it necessary to define the phenomenon. Implicitly, a vote is construed to be strategic when the voter is concerned with making her vote count, and therefore it is a vote that is influenced at least partly by the voter’s expectation about the outcome of the election.

The theoretical literature in economics considers strategic voting as an application of strategic behavior in the electoral context. The standard voting model considered is one where a finite set of voters must vote over a finite set of options (candidates or parties). An election rule determines how votes are translated into electoral outcomes (the winner of the election) over which voters’ preferences are defined. Consistently with a game theoretic approach, a strategic
voter is a voter who votes instrumentally, that is with the intention of maximizing her expected utility from the election outcome, given her expectations about how others are voting.\textsuperscript{1} The voting choices of a strategic voter are guided by preferences and expectations about the likely outcomes of the election. She is therefore a voter who makes rational or sophisticated calculations and perceives her vote as an instrument to affect the election outcome.\textsuperscript{2} Using Cox’s language, she is a voter who is concerned about making her vote count. In practice this means that her vote decision is conditioned on the events in which her vote is pivotal.

The literature often contrasts strategic with sincere voters.\textsuperscript{3} A sincere voter is a voter whose voting choices are guided solely by preferences. We can think of a sincere voter as an expressive voter who derives consumption utility from expressing her preferences in answering the question that she perceives to be asked in the voting ballot. Alternatively, we can think of her as a naïve voter who perceives that her votes determines the electoral outcome.\textsuperscript{4} Strategic and sincere voters have the same basis for preferences (or utilities) and they both take actions to maximize their expected utility. However, a sincere voter perceives her action (vote) as determining the final outcome of the election. So a sincere voter who votes for her favorite option gets utility from the act of voting for that option, even if the option does not win. Conversely, a strategic voter is aware that the outcome also depends on the actions of other voters.

In SMP a sincere voter always votes for her preferred option, in the sense that she votes for the option that she would like to win.\textsuperscript{5} We call such type of vote choice a sincere vote. Things are different for strategic voters. A strategic voter could find it optimal to choose a sincere vote, as we have just defined it. However, there are instances where a strategic voter may choose to vote for an option other than the one(s) she prefers the most, we refer to this type of vote choice as a strategic vote.

We want to stress the distinction between a (sincere) strategic voter and a (sincere) strategic vote. In fact, there is a lot of confusion in the way existing literature uses these terms because there are two (mostly implicit) definitions of strategic voting in the existing literature. The broad definition is the one consistent with the economic analysis of strategic behavior according to which it is a voting decision that is affected by concerns and expectations about the likely outcome of the election and that is not necessarily different from a sincere choice. The narrow definition is a vote that is decisively affected by these concerns and expectations, and thus a vote for a candidate other than the sincerely preferred one. So, while the difference between a sincere and strategic voter hinges on the voter’s motivation, the distinction between a sincere

\textsuperscript{1} See also the entry “strategic voting” in The New Palgrave Dictionary of Economics, by Feddersen (2008).
\textsuperscript{2} This definition is also consistent with a decision-theoretic approach where a voter forms expectations on the likely outcomes of the election.
\textsuperscript{3} For early accounts of this difference see Farquharson (1969).
\textsuperscript{4} The two interpretations are equivalent if the voter’s utility for expressing her preferences is modeled as the utility she would get if her vote was determining the outcome of the election.
\textsuperscript{5} The ballot structure in other electoral rules may ask voters to vote for multiple candidates, or to assign scores. Similarly there may be multiple candidates to be elected. We will discuss more in details later on what it means to be sincere in these cases.
and a strategic vote relates to the coherency of the vote cast with the voter’s preference ordering with respect to the options on the ballots.\(^6\)

As pointed out in Kawai and Watanabe (2013) making this distinction is extremely important for the following reason.\(^7\) Whether a voter is strategic, in the broad sense, is a model primitive, while whether she chooses an option other than the preferred one, and is therefore strategic in the narrow sense, is an equilibrium result. A sincere voter will always choose voting for the candidate that she would like to win, as if she were the decisive voter. Conversely, a strategic voter will choose to support her preferred option or not, depending on the context.

To clarify the distinction between the different concepts introduced, consider for example a SMP election in an electoral district with three candidates A, B, and C. Let us assume that a voter ranks the three candidates according to which one she would prefer to win as follows. She prefers candidate C followed by candidate B and, in turn, by candidate A.

If the voter is sincere, she votes for candidate C, her preferred option, independent of how other voters vote.

If the voter is strategic, she takes into consideration the behavior of other voters to determine the situations where her vote may count. Consider the simplest situation where ties are broken evenly, everybody votes and she knows the preferences of other voters. Her vote counts only if the top candidate has an advantage of at most one vote. In all other instances her vote does not count so she is indifferent among any vote choice.

Consider now the different situations where she is pivotal, that is her vote counts. Suppose that she expects C to be among the top two contenders. In this situation it is clearly optimal to vote for C. In fact, when C is expected to tie, voting sincerely would assure him a victory while voting for a different candidate would either let him tied or make him lose. Suppose now that the voter expects C to be far behind the other two candidates. If candidate B is leading by one vote, the voter would be indifferent between voting for C or voting for B. Clearly she would not want to vote for A, otherwise she will provide a chance of winning to her least preferred candidate. If candidate B is not leading by one vote, then the voter finds strictly optimal to vote for B. She deserts her favorite candidate C, who has no chance of winning, to give a chance to her second preferred candidate. By voting for B she can either induce a tie with A, or make him win for sure. Therefore, if we assume, as common in the literature, that voters do not play a weakly dominated strategy, it is easy to see that when C is expected to have a chance of winning, the strategic voter chooses to support her preferred candidate, while if C is expected to have no chance of winning, the strategic voter chooses to support some other candidate. Things are a bit more complicated when the voter does not know with certainty how many votes each candidate will obtain. In this case, she will have to consider the probabilities of the different pivotal events. However, the underlying rationale behind a strategic vote is the same.

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\(^6\) One may have opted for a different classification, notably one where a sincere vote is the vote cast by a sincere voter and a strategic vote is the vote cast by a strategic voter. We prefer our classification because most of the literature on strategic voting considers the narrow definition of the term. In addition, in the game theoretical approach it is the norm to refer to a sincere voting profile as a profile that is identical to what a sincere voter would have chosen.

\(^7\) Kawai and Watanabe (2013) use the term “misaligned vote” for strategic vote.
The incentives to vote for an option other than the option(s) one would choose if her vote was determining the outcome is not peculiar to SMP systems. A major result in social choice theory, due to Gibbard (1973) and Satterthwaite (1975), is that all voting systems are potential victims of strategic voting in the narrow sense. Different voting systems provide different incentives to vote strategically.

Although in some models voting for the preferred candidate remains an equilibrium strategy of all strategic voters, this is usually not the case. Importantly, models with strategic voters usually present a multiplicity of equilibria. This is why in elections with strategic voters voting becomes an issue of coordination. The winners of elections can be completely different depending on which equilibrium is played. If different types of equilibria are played over time, policy stability may be undermined. In addition, the existence of strategic voters affects the behavior of candidates and parties. From the practical point of view of a theorist who wants to build a realistic model of political competition to analyze relevant policy questions, theoretical models with strategic voters are much more difficult to deal with, compared to models with sincere voters, and often do not lead to unique policy implications. On the normative side, it is not clear which criterion to use to evaluate electoral outcomes and whether, and in which situations, electoral outcomes should be “better” with or without strategic voting. This is likely to depend on the electoral rule. These are some of the reasons why the understanding of whether and in which situations in the real world voters are strategic and cast strategic votes is an extremely important empirical issue.

One main challenge in analyzing empirically voters’ choices is that voters’ preferences are not directly observed. When one wants to address a number of relevant questions about political competition, it is essential to make some assumptions about the nature of voters’ utility and their degree of rationality or sophistication. The measurement of strategic behavior in specific empirical applications is therefore affected by these assumptions. For example, voters’ preferences can be defined over candidates, parties, government coalitions, or public policies. Any direct or indirect test of strategic voting is therefore a joint test of the strategic assumptions and other auxiliary assumptions. This general consideration holds for all other empirical analysis of individual and group decision making but it is worth keeping in mind.

Empirical studies on strategic voting in plurality systems implicitly assume that preferences are defined uniquely over the outcome of the elections. The specific conditions for a strategic vote then depend on what we interpret as the electoral outcome (the winner at the district level, the overall composition of the legislature, the final policy outcome, etc.) and the specific electoral system and form of government.

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4 When the objective of the election is to choose one among the multiple alternatives on a ballot, the criterion often used to judge an electoral rule is whether, or how often, it leads to the selection of the Condorcet winner. This is the alternative who, when all options are compared in pairs, would win a simple majority of votes against any other alternative. For the ability of SMP to elect the Condorcet winner with strategic voting see Palfrey (1989).

5 It should be noticed that the term strategic voter in the voting literature is more restrictive than what in game theory is a strategic agent. An agent maybe strategic in the game-theoretic sense, because he takes into consideration how other agents behave, but not be a strategic voter if he does not consider the effect of his choice on the relevant outcome of the election. This is the case, for example, in models of voting
In this article we review the empirical literature on strategic voting. For reason of space we do not consider the literature on turnout, on voting with asymmetric information, and voting in committees or legislation. \(^{10}\)

The article is organized as follows. We divide the analysis between plurality systems and other systems. \(^{11}\) We provide more detailed definitions of strategic voting in each context, discuss the challenges that researchers face in identifying strategic voting in the data, and the results that existing studies have found based on different methodological approaches.

**Plurality systems**

Early empirical studies of strategic voting concentrate the analysis on SMP systems, where the scope for strategic considerations is probably the most intuitive.

Consistent with Cox’s view that strategic voting is more important at the district level, most studies implicitly assume that voters’ preferences are defined over the winner of the election in their district. We will therefore start with the analysis of this situation.

Surveys are by far the dominant source of data in the field of elections and voting behavior, and remain the main source of data for political scientists who have been studying strategic voting in the last twenty years. Survey-based studies of strategic voting in political science follow two main approaches (see Blais et al. 2005). A first ‘direct’ approach consists of outlining, conditional on having some measure of voter’s preferences, the conditions that need to be met in order to conclude that a vote is strategic (in the narrow sense of the term). All these studies have concluded to the existence of some degree of strategic voting, though they have often estimated its level to be quite modest. A second ‘indirect’ approach consists of using a number of questions to measure voters’ preferences and their expectations about the outcome of the election, and to use them to estimate voting equations. The coefficients are then used to determine whether these expectations affect vote choice, over and above preferences, and to simulate how many voters, and which ones, would have voted differently in the absence of strategic consideration.

Blais et al. (2009) estimate the amount of strategic voting in one British and four Canadian elections using the direct approach. They set up two simple conditions for a vote to be defined

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\(^{10}\) For turnout and asymmetric information in elections, see, for example, Feddersen and Pesendorfer (1996), Feddersen (2004), Battaglini, Morton, and Palfrey (2010). For voting in committees and the Condorcet Jury Theorem see, for example, Austen Smith and Banks (1996), Feddersen and Pesendorfer (1998) and Guarnaschelli, Mckelvey, and Palfrey (2000). For voting in legislatures see, for example, Bueno de Mesquita (2000).

\(^{11}\) The interested reader is referred to Massicotte (2016) for a description of electoral systems and their classification into three groups.
as strategic, under the implicit assumptions that voters care about the elected party and that their preferences can be measured by a rating on a like-dislike scale: 1) the voter’s preferred party (that is, the party to which she gives the highest rating on a like/dislike scale) is not one of the top two contenders in her constituency (that is, it is not one of the two parties with the perceived highest chances of winning); and 2) she votes for the party that she likes most among the top two contenders. They find that the potential pool of strategic votes (those who satisfy the first condition) is between 10 and 15% and that the overall percentage of strategic votes is between 3 and 5% (about one-third of those who face the dilemma of whether to vote sincerely or strategically).

An even more direct way of ascertaining whether a voter has voted strategically is to ask directly about her motivation for her vote choice. This is the approach followed by, for example, Heath and Evans (1994) and Fisher (2000), who use data from the British election studies where respondents are asked “Which one of the reasons on this card comes closest to the main reason for the party you chose?” And among the four possible options, option 3 states “I really preferred another party but it had no chance of winning in this constituency”. If the respondent chooses this option her vote is counted as strategic. There are however some drawbacks in using this method. On the one hand, the ‘strategic’ option combines the two conditions for voting strategically in one statement. On the other hand, responses to such a question are bound to be affected by the set of other motivations that are offered. In fact, it has been shown that this method leads to higher estimates than other approaches.\(^\text{12}\)

Blais et al. (2005) compare the direct and indirect approaches. Using survey data on the 1999 election in the province of Ontario they find that estimates of strategic voting (in the narrow sense) are surprisingly low, ranging from 3.6% for the indirect approach to 5.5% using the direct approach.

Alvarez and Nagler (2000) propose a new survey-based indirect approach to study and measure strategic voting. The design is relatively simple. They estimate a model of vote choice in which the decision to vote for a given party depends on variables related to voter’s preferences, such as the socio-demographic characteristics of the individual, the relative proximity or distance between the individual’s positions on the main issues of the election and the positions of the various parties, and two variables representing strategic considerations. They use how ‘hopeless’ the party is in the respondent’s constituency (based on the outcome of the previous election) and how close the contest is likely to be between the top two contenders (again, based on the outcome of the previous election).

Alvarez and Nagler go on to show (with survey data for the 1987 British election) that the strategic variables are significant, even controlling for all the other factors, thus confirming the presence of strategic voting. They then proceed to estimating the amount of strategic voting by determining how many respondents would have been predicted to vote differently if strategic considerations had had no effect. They conclude that about 7% of British voters cast a strategic vote in that election, in the narrow sense of the term, that is, they would have voted differently in the absence of strategic considerations. In a later study, Alvarez et al. (2006) apply the same

\(^{12}\) See Blais et al. (2005) for a discussion.
methodology with a slight amendment. They propose a two-step approach whereby the focus is first on estimating the proportion of voters who find themselves in a situation where they had to decide whether to cast a sincere or strategic vote, that is, all those whose preferred party was third in their constituency (based on the outcome of the previous election). They point out that they correspond to about 20% of the electorate in the two elections that they analyze. They then show that about half of them are predicted to vote differently in the absence of strategic considerations.

The major limitation of this approach comes from the use of the outcome of the previous election as the basis of strategic considerations. On the one hand, the viability of the various parties may have changed considerably since the previous election. On the other hand what really matters is voters’ perceptions of party viability since their decisions are bound to depend on these perceptions, which may be quite different from objective indicators such as the outcome of the previous election. Indeed, Blais and Bodet (2006) show that these perceptions are shaped not only by previous electoral outcomes but also by recent polls. Furthermore, these pieces of information are less likely to be taken into account by less sophisticated voters, and partisan supporters engage in wishful thinking, overestimating the chances of ‘their’ party.

This has led to a second stream of research based on a vote choice model with a set of variables designed to take into account the factors that affect voters’ preferences plus voters’ perceptions of the various parties’ chances of winning in the constituency (see especially Blais et al. 2001). Such studies show that perceptions of viability have an independent impact on vote choice and then estimate the amount of strategic voting through simulations comparing the predicted probability of voting for the various parties in the absence of strategic considerations (that is, when viability perceptions are assumed to have no effect). Note also that while Alvarez and Nagler included only sociodemographic characteristics and policy distance indicators as determinants of preferences these studies incorporate more powerful predictors of vote choice (party identification, overall evaluations of the parties and leaders). As a consequence sincere preferences are better accounted for and the amount of strategic voting (narrowly defined) is usually deemed to be smaller (less than 5% overall).

Additional indirect evidence of the existence of strategic voting is provided by studies based on actual aggregate election results data, where no additional information is known about individual voters.

Cox (1997) formulates the bimodality hypothesis for SMP systems, according to which in any constituency there could be two of the following situations. One, where voters vote strategically because the order of parties in public opinion is clear so that they can evaluate which party to desert. Another, where voters cannot predict which candidate is second and third placed so that voters fail to coordinate on a desertion strategy. In this situation both second and third placed candidates receive votes. To test his theory Cox constructs what he calls the SF ratio (second to first loser’s ratio). This is the ratio of votes received by the second and third placed candidates. If we are in the equilibrium where voters vote strategically, voters concentrate their votes on the two top runners only (the Duvergerian equilibrium) and the SF ratio should therefore be zero. In the other equilibrium (the non-Duvergerian equilibrium), where the race is too close to call, the SF ratio should be one. He also argues that there should be more strategic voting in close
elections, because there the chance of affecting the outcome is higher. Looking at the
distribution of the SF ratio in British elections between 1983 and 1992, using constituency level
data, Cox finds empirical support for the bimodality hypothesis and also for the relation
between the SF ratio and margin of winning. The only drawback, recognized by Cox, is that we
cannot tell whether this strategic coordination is due to voters or parties, or both.\textsuperscript{13}

Myatt (2007) reconsiders the hypothesis of Cox (1997) and shows that when voters are
uncertain about the support for different parties in their constituency, some strategic voters
may find it optimal to cast a sincere vote for a party that ends in the third place. Fisher (2000)
tests both Cox’s bimodality hypothesis and Myatt’s model, using survey data in the British
general elections in 1987, 1992, and 1997. He finds that the SF ratio in some elections does not
show a bimodal distribution. In addition he argues that in order to claim the existence of
strategic voting, in addition to having a bimodal distribution, the SF should be inversely related
to the amount of strategic voting in a constituency. Using the direct measure of strategic votes
proposed by Heat and Evans (1994) he finds that the SF ratio and strategic voting are negatively
correlated, although not statistically significant, only for the 1992 election.

Anagol and Fujiwara (2016) provide indirect evidence of strategic voting, using aggregate
electoral outcomes. In particular, they provide insights on the psychological effect of SMP by
looking at the impact of strategic coordination on electoral results. Using a regression
discontinuity design in SMP elections worldwide, they compare the electoral trajectories of
second- versus third-placed candidates. They find that the runner-up is more likely to run and to
be elected in future elections. This is interpreted as evidence that voters use a candidate’s rank
in previous elections to coordinate their votes in successive elections. There seems to be a
systematic transition from a non-Duvergerian equilibrium, where second- and third-placed
candidates obtain similar amount of votes, to a Duvergerian equilibrium, where the vote share
for the second-placed candidate is much higher. Such effect is stronger the smaller the share of
votes for the winner.

Election outcome based analyses have systematically produced findings that are consistent with
the presence of strategic voting. However often the evidence is only indirect. In addition, it is
extremely difficult to sort out the role of parties and candidates from the role of voters in
generating the outcomes that are analyzed. Survey data are attractive because they contain an
interesting variety of individual level information. However, it becomes very difficult to identify
the causal relations between institutional factors (for example the electoral system or the
number of parties) and voting behavior. In addition, economists have been more wary about
using survey data to tap voter’s preferences, due, among other things, to the potential biases
existing in self-reported information. The approach often taken by economists when it comes to
analyzing voting behaviour assumes as departure point that existing survey measures of
preferences are unsatisfactory. A different approach, which can be used also with aggregate

\textsuperscript{13} More precisely, the second loser in closely contested districts may receive little support either because
his supporters strategically deserted him or because he himself came to the conclusion that he had no
chance of winning and thus devoted little time and effort to mobilize voters. See also Bol, Dellis, and Oak
(2016) concerning the question of strategic candidacy and the number of candidates.
election data, consists of treating preferences as unobserved and estimating or testing specific models of voting.

In this vein, rather than looking at strategic voting, Degan and Merlo (2011) structurally estimate a model of participation and (sincere) voting in the 2000 presidential and congressional elections in the US. Their estimated model replicates the patterns of abstention, selective abstention, split-ticket voting, and straight-ticket voting observed in the data, both for the overall sample and for specific demographic groups.14

Degan and Merlo (2009) analyze, in a context where voters face multiple multicandidate elections with observable policy positions, the conditions under which the hypothesis that voters vote in each election for the candidate who is closer to them ideologically is falsifiable. Henry and Mourifié (2013) use the results of Degan and Merlo (2009) to provide a formal revealed preference test of the spatial voting model in different national elections in the US. They find that in all instances the spatial model is rejected by the data. Then they add an unobserved valence dimension to preferences and assess the extent of voter heterogeneity that is needed for the model to match the data.

Existing studies estimate the extent of strategic voting in the narrow sense, but little is known about strategic voting in a broad sense. An exception is Kawai and Watanabe (2013). Using aggregate municipality level data from Japanese general elections under plurality rule, they use set estimator techniques to estimate a model of strategic voting and obtain estimates of the proportion of strategic voters according to both the broad and the narrow definitions. Identification of the fraction of strategic voters in each municipality is guided by the variation in voting outcomes among similar municipalities belonging to different districts compared to other municipalities in the same districts. They find that the average fraction of strategic voters, according to the broad definition, is between 63% and 72% in the least competitive races and between 82% and 85% in the closest races. Among these voters who made rational calculations, only between 1% and 4% cast a strategic vote in the narrow sense. They find, by running counterfactual experiments, that even if the proportion of strategic votes is small, it has a big impact on the number of seats won by the various parties, because strategic behaviour and misaligned votes are more likely when the winning margins are small.

We have mentioned in the introduction that the specific condition to detect a strategic vote, in the narrow sense, hinges on which electoral outcome voters are concerned with. In fact, voters’ preferences can be defined over candidates, parties, government coalitions, or public policies.

In contexts where voters must vote in different ballots simultaneously, they may consider each ballot separately or their preferences with respect to the outcome of one election may depend on the outcome in the other. In fact, in presidential systems like the US, where presidential and House elections take place at the same time, a voter can vote a split-ticket, that is voting for

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14 In situations where elections for different public offices take place at the same time, we have: selective abstention when a voter casts a vote in some of the elections but abstains in others, split-ticket in two different elections when a voter votes for different parties’ candidates in such elections, straight-ticket in two different elections when a voter votes for the same parties’ candidates in such elections. The phenomenon of selective abstention in the more general context where the voter is asked to vote on different items on the same ballot is also called roll off (see Feddersen and Pesendorfer 1996).
different parties’ candidates, for different reasons. She may be sincere and vote in each election for the candidate she prefers (Degan and Merlo 2011). She may internalise that the final policy outcome will depend on the joint partisan composition of the house and of the presidency and hence have induced preferences over such composition. In this situation she could vote sincerely as if her choice would affect the outcome in both elections (Fiorina 1992). Alternatively, she may vote strategically for different parties in order to induce a moderation in the implemented policies (Alesina and Rosenthal 1995).

One methodological approach that does not suffer from some of the limitations of survey-based and aggregate election-outcome approaches is the one based on laboratory experiments. The use of laboratory experiments allows testing theories of human behavior in strictly controlled settings, where participants are given payoffs and institutional rules are clear and exogenously defined so as to provide incentives according to the theoretical model to be tested. The fact that preferences and institutions are controlled means that, by changing preferences and institutions in the lab, the research can identify causal effects on behavior. In the voting context, lab experiments offer researchers the opportunity to examine precisely under what conditions voters are willing/able to adjust their vote decision depending on the voting rule and information about the decisions that other voters are likely to make, which is exactly what strategic voting is about. The main drawback of this approach concerns external validity, an issue that we discuss below.

The first lab experiments on strategic voting considered contexts where voters have complete information about their own preferences as well as the aggregate preferences over the candidates. They analyze mostly multicandidate single-ballot plurality elections with the objective of studying the existence of strategic coordination among voters.

The first studies date back to Felsenthal et al. (1988) and Rapoport et al. (1991). However they constrained voters with identical preferences to vote as a bloc, i.e the same way, undermining their scope of studying voters’ coordination.

These studies were followed by Forsythe et al. (1993), who study a similar election environment but allow voters with identical preferences to cast independent votes. They consider elections with three candidates, say A, B, C, and three groups of voters. The first two groups disagree on the ranking of candidates A and B, but rank candidate C last (C is the Condorcet loser). The third group ranks candidate C first. Information is complete. While no group constitutes a majority, the first two groups form a split-majority. In this context sincere voting would lead to a three-way race, where the Condorcet loser, C, wins. However, under strategic voting there exist equilibria in which voters in the first two groups coordinate on candidate A or B, who then wins.

Earlier studies on strategic behavior such as McKelvey and Ordeshook (1985a, 1985b) and Plott (1991) consider contexts with incomplete information, where the issues of voters’ coordination and information transmissions are jointly analyzed. See Rietz (2008) for a review. Laboratory experiments followed the methodology of experimental economics initiated by Vernon Smith to address topics such as committee decision-making, elections and candidate competition, information aggregation, voter turnout and participation games. See Palfrey (2008, 2016) for a review.

The reader interested in the details of the model at the basis of this experiment, as well as to a systematic review of the theoretical literature on strategic voting in large election is referred to Laslier and Nunes (2016).
The authors conduct a series of laboratory experiments with subjects paid conditional on voting outcomes. The payments that subjects receive determine indirectly their rank over outcomes. Subjects observe, when available, past electoral outcomes, the results of the polls, and then they vote. The study allows the authors to evaluate the ability of voters to coordinate and to analyze the different types of coordination devices used. They find that in absence of devices helping voters to identify the two front-runners coordination fails and the Condorcet loser wins in most cases. They also find that polls are very effective in allowing voters to coordinate, and that ballot positions (that are different for different groups) matter more in the presence of polls. In addition, voters coordinate to some extent on the outcome of the previous election.

Rietz et al. (1998) allow subjects the possibility to contribute to candidates in a pre-election campaign stage, where the amount of contribution is subtracted from a subject’s payoff. Total contributions gathered by each candidate are made public before the election. They are interested in evaluating the possible coordination role of the ‘costly signaling’ represented by campaign contribution and find that contributions have the same coordinating effect as pre-election polls.

More recently, Bouton et al. (2017) compare strategic voting and the emergence of Duvergerian equilibria in the divided-majority context with and without aggregate uncertainty about the distribution of preferences in the electorate. The experimental results are consistent with their theoretical predictions: sincere voting is dominant under aggregate uncertainty, but voters coordinate their vote on one candidate under aggregate certainty. In particular, 63% of subjects vote sincerely with aggregate uncertainty compared to only 28% with complete information. The proportion of subjects who vote for the strongest candidate is 32% with aggregate uncertainty and it increases to 72% without uncertainty. In the absence of aggregate uncertainty, subjects play the welfare-maximizing equilibrium, which involves voting for the candidates with the ex-ante strongest support. Aggregate uncertainty makes coordinating on the same equilibrium strategy more difficult.

Some researchers have been using lab experiments because they allow them to precisely estimate how people react to the strategic incentives provided by the voting system. Others, have been more reluctant towards this approach. Their relative skepticism is related to two kinds of considerations. The most obvious is that lab experiments cannot reproduce the environment of real elections, where the number of voters is finite but large so that the probability of being pivotal is infinitely small. The other consideration is that the preference for a given candidate over another that is induced in a lab experiment is necessarily small (a modest monetary payoff) while in ‘real’ elections some voters have strong affective attachments to some parties and candidates, which make them resistant to even considering deserting ‘their’ party, even if that party has no chance of winning whatsoever. The fact that lab experiments tend to suggest widespread strategic voting is interpreted by the sceptics as an indication that the experimental setting is ‘artificial’ (see, for instance, Dumitrescu and Blais 2014).

Another electoral system that is close to the plurality category is majority with run-off system, also called two-round system. This system is used for example to elect the French President. The

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17 For an analysis of Duverger’s Law under aggregate uncertainty see, for example, Myatt (2007).
system consists of two rounds, in which voters cast a single ballot for a candidate. In the first round if a candidate obtains a majority of votes he is elected and no second round takes place. Otherwise, the two candidates obtaining a plurality of votes pass to the second round. Here, the candidate winning a majority of votes is elected. When voters have utility over the elected candidate, a sincere voter myopically supports the preferred candidate among the ones on the ballot at each round. As explained in Aldrich et al (forthcoming book), in the second round, where there are only two alternatives, both strategic and sincere voters vote for their preferred candidate. In the first round, however, there is space for two types of strategic voting: (1) a voter whose preferred candidate has no chance of winning in the second round may choose to vote strategically for the preferred candidate among those who have some chance of winning in the second round. This type of strategic voting is equivalent to the one we have analyzed so far for SMP systems. (2) when voters can perfectly anticipate which candidate will obtain the plurality (but not majority) of votes in the first round but cannot figure out who will be the runner-up, there are two types of voters that may find it optimal to desert their favorite candidate. There are voters that prefer the top runner but may optimally choose to desert him and vote for a weak candidate who will then be defeated in the second round. There are also voters who do not want the top runner to win and therefore vote in the first round for a strong candidate, who may be able to defeat him in the second round.

Using survey-data, Blais (2004) examines strategic voting in the first round of the 2002 French presidential election, on the basis of questions about respondents’ preferences among the 16 candidates and their perceptions of their preferred candidate’s viability. He first estimates the amount of ‘standard’ strategic voting, that is deserting one’s preferred candidate who is perceived to be weak for a viable one. Blais concludes that there is a standard strategic vote if the following three conditions are met: 1) the respondent prefers a candidate other than the top two candidates (Chirac and Jospin); 2) he/she thinks that the chances of winning of her preferred candidate are weak; 3) she votes for Chirac or Jospin. He finds that only 1% of the respondents meet each of the three conditions and thus infers that there was little standard strategic voting (again, narrowly defined) in that election.

If voters’ utilities are defined over final policies, Blais (2003, 2004) found another possibility for strategic voting when voters anticipate who are the two candidates that will compete in the second round. A voter supporting one of the top two contenders may want to vote for a weaker candidate of which she likes the policy stance in some particular issue, to signal to the strong candidates that they should pay attention to such issue. This is what Blais (2004) calls “inverse” strategic voting. In this situation however, depending on the information available to the researcher, and conditional on a clear representation of the institutional setting determining the final policy outcome and of the voter’s utility, one needs to be careful to identify the set of conditions that allow discriminating a strategic vote from a sincere one. Under the assumption that the final policy outcome is determined by the winning candidate, Blais sets the following five conditions to be met in order to classify a vote as an “inverse” strategic one : 1) the person prefers one of the top two contenders (Jospin or Chirac); 2) she believes that her preferred candidate has good chances of winning; 3) she intends to vote for her preferred candidate (Jospin or Chirac) in the second round; 4) she votes for a weak candidate in the first round (not Jospin or Chirac); 5) she thinks that the weak candidate that she supports is the best to deal with...
at least one of the three problems that are most important to her personally. The data indicate
that as many as 8.5% of the respondents satisfy each of the five conditions. Blais shows that
these inverse strategic votes benefited Le Pen at the expense of Jospin and allowed Le Pen to
make it to the second round. This study suggests that there is as much (and perhaps even more)
inverse strategic voting in the first round of a two-round system though the particular election
that was examined may have been untypical.

There have been relatively few studies of strategic voting in two round systems. The little
evidence that we have suggests, however, that at least some voters take into account what they
believe to be the likely outcome of the first (or even the second) round when they decide how
to vote in the first round.

**Proportional Representation and mixed systems**

Proportional Representation (PR) systems always have multi-member districts, where, in their
purest form, voters vote for a party (rather than a candidate) and seats are distributed to parties
in proportion to the support received.

Proportional representation is the most frequent electoral rule that is used for legislative
elections in contemporary democracies (Carter and Farrell 2010, Table 2.1, page 27).

What is a sincere voter in a system where she has to cast one vote but the electoral outcome
consists of $m$ seats? If the voter utility is increasing in the number of seats gained by her favorite
party, using the *expressive voter* interpretation a sincere voter is a voter who wants to express
her preferences for the party she would like to win all of the seats. Similarly, using the *naive
voter* interpretation, she is a voter who perceives that the party she votes for will gain all the
$m$ seats, or that her vote pivotal for the allocation of one seat.

Studies of strategic voting have initially given little attention to PR systems because it was
thought that even strategic voters would always find it optimal to vote for their favorite party.
This argument was based on the presumption that proportional representation could be
achieved perfectly and that voters’ objective is to maximize the number of seats of their
preferred party. In this context no vote is wasted because each vote contributes marginally to
increase the number of seats of a candidate. This logic is however wrong if voters’ motivation is
different or there is only a limited discrete number of seats in each district.

In reality there is a small and integer number of seats that can be allocated to each district.
Under the assumption that voters are concerned about the number of seats won by their
favorite party at the district level, the same logic of wasted vote in SMP systems applies. In this
respect Cox (1997) develops a theoretical model predicting something reminiscent of
Durverger’s law that he calls the $m+1$ rule. This says that when there are $m$ candidates to be
elected by proportional representation in a district, there will be at most $m+1$ viable parties in
the election.
There are two other possible situations in which a vote could be wasted, and hence strategic voting emerges (see, Aldrich et al. forthcoming).

One type of strategic voting arises in PR systems when voters care about the governing coalition or final policies. In PR systems it is unusual that one party gets a majority of the seats and forms majority governments. Policies are usually the result of negotiations within government coalitions. So a strategic voter must take into consideration that a vote that increases the number of seats in Parliament for her preferred party does not necessarily increase the chances of that party being part of the government coalition. A sincere voter does not take these considerations into account. She behaves as if her vote could determine a single governing party. However, it is often the case that there are two major parties that would never form a coalition among themselves. In this situation we can think of two types of strategic situations where a strategic voter finds it optimal to deviate from a sincere vote and desert her favorite party. First, when the voter prefers a large party that has no chance of being part of the government coalition, she may desert it and vote for a smaller party who instead has chances to be a coalition partner. Second, when the voter prefers a small party, she may desert it to vote for a larger party that has good chances of being the leading party in a coalition.

A second type of strategic voting can emerge when the electoral law requires that in order to gain seats a party obtain a minimum threshold of votes, either at the district or the national level. Some voters may want to avoid wasting their vote on a party that they expect not to reach the required threshold and they will therefore vote for their second preferred party. This consideration exists for each type of outcome that the voter could be concerned about as long as they are sophisticated enough to consider the rule. A sincere voter would not be affected by this consideration, as in practice she behaves as if her choice determines the outcome.

Existing empirical works on PR systems provide indirect evidence for there being voters who are concerned about wasting their vote when casting a ballot, and are suggestive of which type of election outcomes are relevant to voters.

Various authors (see especially Bawn 1993) have compared the outcome of the list and constituency vote in mixed systems, especially Germany. In mixed systems voters have to cast two ballots: one that contributes to elect candidates nationwide according to proportional representation, and the other that serves to elect candidates at the district level according to SMP. Consistent with the initially thought common wisdom that there is more scope for strategic voting in elections with plurality rule compared to proportional representation, these studies show that small parties get much less support in the SMP constituency vote than in the list vote, indicating that small parties are strategically abandoned in the constituency vote. This is consistent with the view that voters vote independently in each ballot and some voters act strategically because they do not want to waste their vote on non-viable candidates. Although the result may also be due to weaker party mobilization, the fact that small parties lose more votes in constituencies where there is a close race between the top two contenders suggests that strategic voting is at play.

Comparisons of this type, in mixed systems, where the same individuals vote under two different electoral rules at a certain time and place, allow for controlling for time specific effects
in party preferences and country specific effects when trying to identify the effect on voting of electoral rules.

In the same spirit, André, Lachat, Hino, and Doray-Demers (2011) propose to sort out the sources of the difference in party fractionalization that can be observed in the outcomes of the PR (the control group) and non-PR (the treatment group) components of simultaneous elections in Japan and Switzerland. They first estimate the mechanical impact of the majoritarian rule by simulating the outcome of the majoritarian election with the PR vote (no psychological effect) but the majoritarian rule. The psychological effect corresponds to the total effect (the overall difference in party fractionalization between the PR and majoritarian election outcomes) minus the estimated mechanical effect. The last step is to decompose the psychological effect into the components due to parties and voters. They estimate the psychological effect on voters through a vote choice model which includes a viability variable which taps voters’ propensity to desert non-viable candidates in the majoritarian election and through simulations of what the outcome of the majoritarian election would have been under a scenario under which all parties are viable (and there is thus no strategic desertion on non viable candidates). All in all, about one third of the total effect of the electoral system appears to be the consequence of voters abandoning weaker parties in the non-PR election.

One implicit assumption behind the comparison of the results of the two ballots in mixed systems is that voters consider the two elections as independent. Spenkuch (2015) provides evidence of strategic voting from a natural experiment in Germany’s mixed system. It exploits a by-election in District 160 in Saxony that had to hold elections two weeks after the national elections, due to the sudden death of one of the candidates. This situation was peculiar because voters in district 160 cast their ballot after knowing the results in all other districts. In addition, it was a clear example in which the German mixed system provides perverse incentives where receiving more list votes, when a party has already an important number of candidate votes, can actually lead to that party winning fewer seats. There was a clear incentive for strategic CDU supporters to vote for its allied CSU in the list vote and vote massively for CDU in the candidate vote. It turns out that not only was this case, but also some supporters of the SPD voted for CDU in the list vote in an attempt to lower their number of seats. Using data about the actual election outcomes at the district and precinct levels, where District 160 is the treatment and the rest of Saxony is the control group, the empirical strategy to assess the extent of strategic voting (in the narrow sense) is a differences-in-differences estimation with both a pre and post treatment period. The results indicate that the effect of the by-election was to grant the CDU 4.9 more percentage points in the candidate vote and 3.6 less percentage points in the list vote, than what it would have had otherwise. In addition it is indirectly estimated that at least 8.8% of the electorate voted strategically. This is given by the change in CDU share of the list vote (CDU supporters who voted in the list vote for CSU) plus the change in the SPD share of candidate vote (other parties’ supporters supporting the SPD candidate).
One problem with empirical analyses comparing the election outcomes under different systems is the endogeneity of electoral rules. The following intriguing study controls for this endogeneity issue by exploiting the feature in Moroccan local elections, where the type of electoral rule depends on the size of the population.

Pellicer and Wegner (2014) study local elections in Morocco in 2003 and 2009. In those elections, municipalities below a certain population threshold have a majoritarian system while those above that threshold have a PR system. Moreover, the legal threshold in the PR elections changed from 3% to 6% between 2003 and 2009. The objective of the study is to analyze the effect of the legal threshold on the number of parties and decompose it into the mechanical and psychological effects. Focusing on municipalities close to the population cut-off, they use a differences-in-differences approach, using municipalities with a majoritarian system as the control group. They find that the increase in the threshold had a big impact, a PR system with a 6% threshold being equivalent to a majoritarian system in terms of the number of parties. The mechanical effect is estimated through a simulation of the 2003 outcomes with a 6% threshold. The analysis indicates that the mechanical effect is larger than the psychological effect but that in absolute terms the latter effect is quite substantial.

Moving to the analysis of voters’ motivations in PR systems, Blais et al. (2006) examine the 2003 Israeli election and show that voters’ preferences about the coalitions that could be formed after the election had an independent impact on vote choice, controlling for how people felt about the parties and leaders and their ideological orientations. The authors estimate that coalition preferences were a decisive consideration for about one tenth of the electorate, leading them to vote for a party that was not the most preferred. Similar results are found by Bargsted and Kedar (2009).

Gschwend (2007) demonstrates the existence of a coalition insurance strategy in the list vote of the 1998 election in Germany. More specifically, he shows that CDU supporters were prone to support the FDP (their potential coalition partner) if and when they were uncertain that the FDP would reach the 5% vote threshold that is required to obtain seats in the legislature and at the same time they like FDP almost as much as the CDU.

Bueno de Mesquita (2000) provides evidence that minority parties gained seats after the introduction of the direct election of the Prime Minister in Israel (1992-2001). This is interpreted as evidence that the supporters of minority parties were no longer concerned with their vote in the legislative election affecting the governing coalition.

There have been an increasing number of studies, especially in political science, of strategic voting in PR systems based on an experimental approach.

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16 Bueno de Mesquita (2000) considers the motivations that may have led the Israeli legislators to pass a law in 1992, which was later eliminated after the 2001 election, for the direct election of the Prime Minister. The endogeneity problem is somewhat mitigated by the fact that the electoral system is rarely changed and that the reasons why a given system was chosen 100 years ago may have little to do with contemporary politics.
A first study constructed so that voter’s preferences are defined over coalitions is McCuen and Morton (2010). They consider a series of 20 elections with three parties run with groups of 23 subjects. Each party and each voter has a position on the 23 point axis. A government is formed after the election. If a party has a majority of the votes, its position is the government position. If no party has a majority a coalition is formed between the party with the most votes and the party with the least votes, and the government position is midway between the positions of the two parties. Subjects’ payoffs are inversely related to the distance between their position and the position of the government. The treatments are the thresholds of representation (3, 5, or 7 votes) and the amount of information (low or high).

Under such a scenario, some of the centrist voters should vote strategically for one of the extreme parties in order to obtain a coalition including the centrist party and the extreme party that is not too far away from their position, especially when the threshold is low. They find that “42.5% of the aggregate choices of the tactical coalition voters are strategic as predicted” (page 321). Strategic voting is also more frequent under high information. They conclude that the level of strategic voting is relatively low but they stress the fact that the participants were unfamiliar with PR and so it is significant that a good number of them did engage in strategic coalition voting.

The following two studies concentrate instead on the incentive to vote strategically where there is a vote threshold.

Meffert and Gschwend (2011) conduct an experimental study of strategic voting under PR that focuses on the impact of polls and coalition signals. The student participants were asked to participate in an election that was actually about to take place in a German state.19 The main treatment was whether the polls indicated a safe or a close election outcome, the latter being a situation where the preferred small party was in danger of not reaching the 5% threshold to be represented in parliament. The authors find that the participants, despite engaging in modest wishful thinking, did adjust their forecast according to the poll information. But they report only a small amount of strategic voting, the latter being defined as not voting for the preferred party and volunteering a strategic consideration in an open-ended question about the reason for their vote decision.

Blais et al. (2014) consider an experimental set-up where there are 18 voters, 9 on the left and 9 on the right, and 8 parties, 4 on the left and 4 on the right. The winning coalition (left or right) is the one with the most seats, and this can only be achieved by voters coordinating on some of the parties within their camp, as the presence of a threshold (3 or 4 votes) means that votes can be wasted if they are dispersed, and some of the parties do not obtain the required threshold. They find a substantial amount of strategic desertion of non-viable parties, especially as the results of previous elections indicate which parties are likely or not to reach the threshold.

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19 We see the concern for external validity that motivates the design of experiments designed by political scientists. The authors made sure that the information that was provided about how the parties were doing was plausible in the context of that state’s political history.
Comparison of strategic voting under different electoral rules

Existing evidence of strategic voting in PR systems has led researchers to question whether there is really, as conventional wisdom assumes, more strategic voting under SMP than under PR.

Abramson et al. (2010) compare the propensity to desert one’s preferred party in majoritarian (presidential elections in the US and Mexico, the 1999 Israeli prime ministerial election, legislative elections in Britain) and PR elections (legislative elections in Israel and the Netherlands). They show that this propensity is higher in all cases among supporters of small parties. Furthermore, as there are more small parties in PR elections, there is in fact more strategic voting under PR.

Empirical studies comparing simple plurality to proportional representation belong to the more general category of studies that interested in assessing the effect of electoral rules on strategic behavior, and electoral outcomes.

Blais and Gschwend (2011) compare strategic voting in PR and non-PR election. They ascertain the degree of strategic desertion in 25 elections, where strategic desertion is defined as voting for a party other than the preferred one. They focus on non-leader induced desertion, that is, deserters who support the party of the leader that they prefer are construed not to be strategic. They find the same level of strategic desertion in PR and non-PR elections (22% and 21% respectively). They also show that the strongest determinant of desertion is the individual's preference strength: those who have weak preferences are more willing to desert their first choice.

Using an experimental approach, Blais, Labbé-St-Vincent, Laslier, Sauger, and Van der Straeten, (2011) compare the amount of strategic voting in one-round and two-round plurality elections. Groups of 21 subjects participate in a series of eight elections, four one round and four two round. Each of the 21 subjects is assigned a randomly drawn position of the 0-to-20 axis and there are five candidates located at different points on the same axis. Their payments are inversely related to the distance between their own position and that of the winning candidate. They focus on the vote choice of voters who are close to the ‘extremist’ candidates who have no chance of winning and they ascertain their willingness to strategically desert their first choice. They find a substantial amount of strategic voting and report little difference between one-round and two-round elections.

Exploiting quasi-experimental features of municipal elections in Brazil, similar to the Morocco local elections considered in Pellicer and Wegner (2014), Fujiwara (2011) studies municipal elections in Brazil, where municipalities below a certain population threshold have a single-

\footnote{17 elections were held under PR, 5 under a majoritarian rule, and 3 under a mixed system with two votes. In the latter cases, the authors examine each vote (PR and majoritarian) separately.}
ballot plurality rule while those above that threshold have a dual-ballot system. He finds that voters in single-ballot systems vote more for the top two candidates and less for the third candidate, and this is more so in contested races. While a concurrent explanation could be that voters are sincere but the electoral rule modifies the composition and behaviour of candidates, the paper provides some evidence (with both observed and unobserved candidate characteristics) that goes against this concurrent explanation.

Other electoral rules that have received attention in social choice theory and that are sometimes used as voting procedures in committees to select a single winner among \( k \) alternatives are: Borda count (or simply Borda) and approval voting. \(^{21}\)

Under Borda and approval voting there is only one winner of the election but in the voting ballot the voter is asked her opinion about all the alternatives. We then have to discuss the definition of a sincere voter and sincere vote in these contexts.

According to Borda, voters are asked rank the \( k \) alternatives and give to the \( s^{th} \) alternative a score of \( k-s \), so that the most preferred is assigned the score \( k \) and the least preferred is assigned the score 1. The alternative that receives the highest score, summing up the scores of each voter for each alternative, is the winner.

A sincere voter is a voter who votes as if her vote was determining the election outcome and who perceives that she has to rank all the alternatives in case the alternative she assigns the highest score among the feasible alternatives cannot make it to office.

It is well known that Borda can provide incentives to rational voters to assign a lower score (compared to what a sincere voter would choose) to an option that is in serious contention to the voter’s preferred option and a higher score to options that are unlikely to win. This is because assigning high scores to options that are serious contenders of the most preferred option could decrease the chances of this one of winning.

Under approval voting, voters are asked to approve or not each of the \( k \) alternatives in the ballot. The winner is the alternative with the highest number of approvals. Approval voting differs from all the other voting procedures considered so far because it is not solely based on the voters’ ranking of the options on the ballot.

What sincere voting is in this context, where the voter is free to choose how many alternatives to approve, is not clear. Brams and Fishburn (1978) introduce the concept of “admissible sincere” strategy, where a voter never votes for the least preferred alternative and, if she votes for an alternative, she must also vote for the alternatives that she ranks higher. Where the voter draws the line between the alternatives that she approves or not requires to add an approval threshold to the voter’s utility. Only if the utility generated by an alternative is higher than the

\(^{21}\) Both rules actually belong to the plurality category.
threshold does the voter approve the alternative. This definition is consistent with the expressive voting interpretation of sincerity amended by an approval threshold.

According to the naïve voter interpretation, a sincere voter is a voter who votes as if she was the only voter. To make it possible that she chooses to approve more than one alternative it must be that she perceives that any alternative she approves has a positive probability of not being selected to office, otherwise she would approve only her preferred alternative. Conversely, to make it possible that she does not always approve all the alternatives, it must be that the utility of the alternatives she votes for must be higher than her (perceived) default utility if no alternative is chosen, a natural approval threshold.

Borda and approval voting are not used in large elections but they are sometimes considered in times of electoral reforms. This is why the empirical evidence is mainly based on laboratory experiments.

Forsythe et al. (1996) are the first to compare the results of different electoral rules: simple plurality, approval voting, and Borda. They consider the same experimental context as Forsythe et al. (1993) and find that equilibria with two viable candidates often emerge with the plurality rule, while three-way races often occur in the other cases. The Condorcet loser sometimes wins regardless of the electoral rule. However, voters seem to play consistently with strategic voting.

Dellis et al. (2011) propose a laboratory experiment based on a spatial model of voting with concave preferences and three candidates. They test Dellis’s (2013) theoretical results that letting people vote for multiple candidates does not necessarily create multipartism. They consider three different electoral rules: simple plurality, approval, and dual voting. In dual voting, voters are required to vote exactly for two candidates. They find that plurality and approval voting produce the highest coordination converging to Duverger’s type equilibria with only two viable candidates. Conversely, there are multiple viable candidates under dual voting.

Bassi (2015) conducts a laboratory experiment where subjects have to choose among four alternatives under three different voting rules. Preferences over alternatives are induced by payments that subjects obtain when an alternative wins the election. She compares the experimental data with the strategies that would be used if voters were sincere, and k-level strategic (see Stahl and Wilson 1995). She finds that in all types of elections an important proportion of subjects cast strategic votes. The proportion of subjects choosing to vote according to the strategy prescribed by level-k reasoning was higher in plurality voting than in Borda or approval voting. Nevertheless, there was a higher number of subjects choosing the preferred option, compared to Borda or approval voting. Therefore, although in plurality subjects’ behavior is highly consistent to level-k reasoning, this often implies choosing the preferred option. Bassi also looks at the ability to select a Condorcet winner under the different electoral rules as a function of voters’ sophistication. She finds that the higher the voter sophistication the higher the probability of selecting a Condorcet Winner under plurality and Borda, but not under approval voting.

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22 Bassi (2015) considers three types of sincere strategies, based on three different types of approval thresholds.
There is thus a relatively large literature that has examined the presence of strategic voting under either PR (or mixed) systems or when voters are allowed to support many candidates (approval voting) or to rank order them (Borda). Political scientists have paid greater attention to PR elections, which are the most frequent in legislative elections, while economists have been more interested in elections where voters are allowed to express more fine-grained ‘preferences’, possibly because they are particularly concerned to determine under what conditions various rules do or do not allow the Condorcet winner to be elected.

Conclusion

The literature on strategic voting has shown that there is some degree of strategic voting under all kinds of voting rules and most especially that, contrary to conventional wisdom, there is as much strategic voting under PR as under the plurality rule, and that the propensity to vote strategically depends very much on the type of information that is available.

We have stressed the necessity of distinguishing between a strategic voter and a strategic vote. Some researchers opt for a broad definition of strategic voting whereby any vote that is consistent with an instrumental interpretation is deemed to be strategic while others adopt a narrow definition where a vote is deemed to be strategic only if it is consistent with an instrumental interpretation AND inconsistent with a sincere interpretation (the person does not vote for her preferred option). Either definition is perfectly acceptable, provided that the author is clear about which approach he/she is using.

Existing literature on strategic voting have tried to understand both whether voters are strategic or not, and under which conditions and to what extent strategic voters chose options different from sincere choices.

Who is more prone to cast a strategic vote, and under what circumstances? The ‘who?’ question has been at the forefront of survey-based research. Cox (1997) provides the basic intuition. In principle those who like only one option and those who are uninformed about the likely outcome of the election have no reason to vote strategically. It is thus not surprising to observe that strong partisans are less prone to vote strategically (Gschwend 2007). There is a more limited literature about voters’ degree of information, misinformation, or lack of information about parties’ or candidates’ viability (Blais and Bodet 2006). Given the central role that information plays in the voting behavior literature, there is clearly an important avenue for future research.

The ‘what circumstances?’ question has been most extensively examined in lab experiments. One central issue is whether there is more or less strategic voting under some voting systems (see Dellis et al. 2011). A lot of attention has also been paid to how the type and amount of information (Meffert and Gschwend 2011; Bouton et al. 2015) influences the propensity to cast a strategic vote.

The most obvious advantage of lab experiments is that they allow researchers to clearly isolate the impact of contextual factors while their most obvious limitation concerns their external validity. These data allow then to better understand the attitudes and perceptions that
condition people’s willingness to cast a strategic vote. Their challenge is to properly account for the contextual factors that shape these attitudes and perceptions.

The question then becomes whether it is possible to implement mixed designs that combine the merits of these two approaches (while minimizing their limits). Of particular interest from this perspective are quasi-experimental studies, such as those of Pellicer and Wegner (2014), that look at how a change in the electoral system (in this case the electoral threshold) affects voting behavior.

It would also be interesting to understand how citizens themselves view strategic voting, that is, whether they construe it as a perfectly legitimate way to make one’s vote count or on the contrary as a sort of opportunistic attempt to exploit the rules for their own personal advantage. Blais et al. (2015) observe that French voters who vote insincerely are less prone to prefer the existing two-round system, which suggests that at least some people do not appreciate being ‘forced’ to support a party or candidate that is not their preferred option.

In this respect, and to come back to Duverger (1951) and Cox (1997), little research has been conducted on the relationship between parties’ and voters’ strategic behavior. Cox, especially, has made the point that while voters vote strategically because they anticipate the mechanical impact of the electoral system parties do exactly the same, and they also anticipate voters’ psychological reactions, that is, their willingness to cast a strategic vote. We thus need to understand how voters react (or not) to parties’ strategic behavior. Intriguing studies along this line are those of Merolla (2009), who conduct mock elections to see how people react to party messages not to waste their vote or to vote with their heart according to their preferences, and Bol et al. (forthcoming), whose experiment includes both parties who have to decide to run alone or make a coalition, and voters who then have to decide to vote sincerely or strategically.

Finally, intrinsic in the distinction between sincere and strategic voters there is a dichotomy in voter’s motivation. However, in principle, the same voter may sometimes be sincere and sometimes strategic, depending on the situation. It is also possible that the two motivations coexist. These possibilities open up new empirical questions and challenges for future research on strategic voting.
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