



SONDERFORSCHUNGSBEREICH 504

Rationalitätskonzepte,
Entscheidungsverhalten und
ökonomische Modellierung

No. 08-28

Expectations about Coalitions and Strategic Voting under Proportional Representation

Michael Herrmann*

December 2008

Financial support from the Deutsche Forschungsgemeinschaft, SFB 504, at the University of Mannheim, is gratefully acknowledged.

*Sonderforschungsbereich 504, email: miherrma@rumms.uni-mannheim.de



Universität Mannheim
L 13,15
68131 Mannheim

Expectations about Coalitions and Strategic Voting under Proportional Representation

Michael Herrmann*

University of Mannheim, Sonderforschungsbereich 504

Abstract

In this paper, I suggest that voters may act strategically in proportional representation elections with post-election coalition building. Based on a stylized setup involving three possible coalitions of four parties on a single policy dimension, voters whose preferred coalition is least likely to win are predicted to strategically cast their ballot for a centrist party. By contrast, those who perceive a chance for their preferred coalition to become the next government are predicted to strategically vote for a non-centrist party. I test these predictions against the standard model of sincere proximity voting, using a unique dataset on voter expectations in the Austrian parliamentary election 2006. Analyses show that believing one's preferred coalition is non-viable raises the probability of voting for a centrist vs. non-centrist party while believing one's preferred coalition to be viable lowers the probability of voting for a centrist vs. non-centrist party.

*Address: Mannheimer Zentrum für Europäische Sozialforschung (MZES), A5 6, D-68159 Mannheim, Phone: +49-(0)621-181-2856, Fax: +49-(0)621-181-2845, Email: miherrma@rumms.uni-mannheim.de

A voter sometimes chooses something she does not want in order to get something she wants. Such behavior is usually termed strategic. The classic example is a voter who votes for a less preferred candidate in a simple plurality election because the preferred candidate has no chance of winning. More generally, incentives for strategic voting arise in situations where a voter could achieve a better outcome for herself by choosing an alternative other than the one she would pick if she was to decide alone. In this paper I consider a form of strategic voting that, so far, has not received much attention: strategic voting under proportional seat allocation and coalition governments. Assessing the incentives for strategic voting under these circumstances is of great importance since proportional representation and coalition governments are the most frequent in democratic regime worldwide. If voters in these systems change their vote according to their perception of the likely outcome of the election, then polls, campaigns and coalition announcements may have profound influences on voters' short-term behavior.

Proportional election rules are rarely subjected to the idea that voters may vote strategically. Since every vote is counted in the allocation of seats, every vote has equal impact on the election outcome.¹ Therefore, voters would not face incentives to misrepresent their preferences in order to be more influential in determining the election outcome. In other words, there are no losers or hopeless parties to shy away from in proportional elections.

This holds, however, only with respect to the allocation of seats in parliament. When it comes to decision making, virtually every parliament in the world applies some form of majority rule in decision making. Unless one party happens to win a majority of seats – which is extremely rare in proportional representation elections – it is customary for parties to form majority coalitions.² Majority coalitions are usually very effective in passing legislation and often reduce the influence of non-coalition members on policy

¹Strictly speaking proportional representation requires the number of represented parties to be small compared to the number of seats up for allocation. The more similar the two, the more the system will become plurality-like (cf. Cox & Shugart 1996).

²Empirically, it is not always the case for government coalitions to command a majority of seats. Denmark, for example, looks upon long history of minority governments. While minority governments are themselves a highly interesting object of study, the present article assumes the more intuitive and more frequently observed outcome of majority coalitions.

making far below the level implied by their seat shares. Majoritarian decision making and coalition formation thus introduce an element of disproportionality to the allocation of political power that might undermine incentives for sincere voting under proportional representation.

In this paper, I argue that if potential coalition outcomes are identifiable *ex ante*, then voters in PR systems may vote strategically, conditional on their beliefs about which coalition(s) will obtain a majority. Based on a stylized setup with four parties and three possible coalitions I suggest a simple logic whereby voters who expect their preferred coalition to be least likely to win vote differently from voters who expect their preferred coalition to have a fair chance of obtaining a majority. I test these predictions using data on voter expectations about the likelihoods of possible coalition governments prior to the 2006 parliamentary election in Austria. The analysis shows that expectations influence voting in ways consistent with the logic of choosing parties to achieve certain political outcomes.

1 Strategic Voting under Proportional Representation

The logic of strategic voting is well understood in the context of majoritarian elections. In these elections voters may defect from candidates that have no chance of winning and, instead, support their preferred candidate among those that have a chance of winning. An abundant literature is devoted to the study of strategic voting incentives under different forms of majoritarian rules, such as single member plurality, multimember plurality, or runoff elections (cf. Cox 1984, Palfrey 1989, Taagepera & Shugart 1993, Reed 1996, Niou 2001, Fisher 2004, Herrmann & Pappi 2008). Much less effort has been devoted, so far, on studying incentives for strategic voting under proportional representation.

A major obstacle for strategic voting under proportional representation is the multitude of parties in parliament and hence the difficulty in predicting the identity of the governing coalition that will form after the election (Downs 1957). A necessary condi-

tion for strategic voting is that voters be able to form beliefs about the likelihood of the outcomes they care about. In proportional representation systems such outcomes come mostly in the form governing coalitions. Theoretically, it is well established that proportional representation and anticipation of post-election coalition outcomes should lead to strategic voting in three-party systems (Austen-Smith & Banks 1988, Baron & Diermeier 2001).³ With more parties, however, voting to select the next government can become an immensely complex task.

The possibility of strategic voting hinges critically on the identifiability of electoral outcomes. For strategic voting to be feasible, a voter must find herself in a position where voting for certain parties will increase the chance of a preferred coalition over a less preferred one. If the deck is stacked in a way that every party could be a member in a whole range of possible coalitions then votes cannot be directed towards particular outcomes. For example, voting for a party because it is a member of one's preferred coalition will not give the voter much leverage in influencing the final outcome if the same party is also included in other, less preferred coalitions. What is needed for strategic voting are situations where votes for certain parties clearly distinguish between the outcomes the voter cares about.

Empirically, if one looks at real-world elections, one rarely finds situations in which every possible outcome is also a conceivable one. Surprisingly, even in countries with a large number of parties, the set of coalitions that are likely to form after an election is often rather small. The Netherlands and Belgium provide striking examples for this. The Dutch parliament, for instance is highly fragmented, with normally about eight to ten parties being represented. Yet, government formation is confined to only four "core" parties: Christian Democrats (CDA), Labour (PvdA), Liberals (VVD) and Progressives (D66). All other parties are left outside coalition bargaining. A similar argument can be made with respect to Belgium. Here, governments also typically involve only three par-

³Somewhat surprisingly, even if one assumes no coalition formation, i.e. unanimous decision making, in parliament there should still be high levels of strategic behavior by voters trying to leverage on the political outcome (De Sinopoli & Iannantuoni 2007). The patterns of strategic voting generated by unanimity rule in legislatures are, however, substantively different from those generated by majoritarian legislatures (Indridason 2008).

ties (acknowledging the fact that Flemish and francophone parties always go together): Christian Democrats, Socialists and Liberals. Other parties – with the exception of the Greens in 1999 – are relegated to opposition benches.

The Netherlands and Belgium are just two examples. The identifiability of certain coalitions, however, arises frequently in proportional representation systems (see Powell 2000, Strøm 1990). One reason for this is that popular incumbent parties often enter the electoral race with the intent to continue government, which in return puts pressure on opposition parties to join forces in order to provide a feasible alternative. Opposition parties may also join forces in an attempt to oust an unpopular incumbent government. Recent studies show that parties often signal coalition preferences or forge pre-electoral coalition agreements (Golder 2006). Indeed, such agreements exhibit a constraining effect on post-election coalition building, increasing the likelihood of the partners to jointly participate in post-election government (Martin & Stevenson 2001, Debus 2009). Another way for voters to identify viable coalitions is through the policy positions of the respective parties. Since coalition partners need to agree on future policy decisions, party positions are important for the formation and duration of multi-party government (Laver & Budge 1992, Müller & Strøm 1999, 2003). In particular, ideological closeness makes parties more likely to become, and stay, partners in government (see, e.g. Warwick 1992, 1996). Thus, even in situations where clear signals are largely absent, the possibility of certain coalition agreements can still be evaluated on the basis of parties' positions.

Of course, elections under proportional representation do not always render voters with a clearly defined set of outcomes. The predictability of coalition scenarios will often depend on the context of a given election. However, to the extent that coalition building processes within a country exhibit some continuity over time, one would expect voters to learn about the typical outcomes and develop strategies on voting more effectively. Even without past experience, pre-election polls and party signalling prior to an election combined with extensive media coverage may provide enough information to identify possible coalition outcomes. Thus, in many cases, one can imagine voters to have a good grasp on what the election really boils down to.

An increasing number of studies now suggest that voting behavior is indeed linked to coalition outcomes. The findings in the literature show, among other things, that voters hold fairly clear expectations about which coalitions are likely to form after the election even in systems with a large number of parties such as the Netherlands or New Zealand (van Holsteyn & Irwin 2003, Bowler et al. 2008), that a substantial fraction of voters in proportional representation systems do not vote for their preferred party (Blais et al. 2006, Shikano et al. 2009), that, on average, voters assign higher ratings to coalitions than to parties (Meffert & Gschwend 2008), and that coalition preferences influence vote choice above and beyond party preference, candidate characteristics and other variables (Blais et al. 2006, Pappi 2007). Provided that coalitions are meaningful entities in voters' perceptions of elections, we would expect to see some empirical connection between coalition expectations and voting under proportional representation. Bowler et al. (2008), for example, suggest that a strategic voter is someone who expects her preferred party not to take part in government and therefore votes for a second preferred party which has a better chance of becoming a government member.

Bargsted & Kedar (2009) are even more explicit: they assume voters do not hold preferences over parties but over policy (more precisely: policy outcomes) and cast their vote so as to best influence the final policy outcome. In particular, they argue that voters who expect their preferred coalition to fail, have an incentive to vote for the lesser of evils among the parties in the prospective coalition. Thus, for instance, center-right voters expecting a center-left coalition government should defect from their preferred center-right party and instead vote for the most rightist of parties in the prospective coalition in an attempt to "balance out" the government. The idea here is that, if a voter cannot influence which coalition wins, she can still achieve a better policy outcome by influencing the composition of the winning coalition. The authors apply their predictions to the 2006 Israeli *Knesset* election and find evidence for coalition balancing with respect to voting for the three major parties.

I shall pursue a somewhat different avenue. While Bargsted & Kedar take strategic voting to mean influencing the composition of the coalition which is already most likely

to win, I shall consider *strategic voting to influence which coalition wins*, in terms of seats obtained in parliament. I assume that voters are interested in policy outcomes⁴ and I consider an electoral situation with three potential coalition outcomes. Depending on their expectations about the probabilities of the different outcomes, voters then cast their vote so as to achieve the best outcome for themselves.

2 Voting over Coalitions

In what follows, I consider the possibility for strategic voting in a setup with four parties and three possible coalitions. Starting from the assumption that voters desire policy outcomes I derive predictions about optimal voting depending on voters' expectations about the coalitions' likelihoods of winning. A strategic vote arises if optimal voting leads to choosing a party other than the most proximate one in terms of policy.

Consider a unidimensional policy space. There are four parties, L^l, L^m, R^m, R^r with left, center-left, center-right and right positions, respectively. Let the post-election policy outcome be determined by any connected two-party coalition so that there are three possible coalitions each of which will implement a unique policy:⁵ a left coalition $L = \{L^l, L^m\}$ will implement a leftist policy, a right coalition $R = \{R^r, R^m\}$ will implement a rightist policy and a center coalition $M = \{L^m, R^m\}$ will implement an intermediate policy. I assume that the policy a coalition will implement is invariant to the seat shares of the parties within the coalition.⁶ The final policy outcome then only depends on the likelihood that a particular coalition assumes government. Voters hold beliefs over the coalitions' relative likelihoods of winning and vote to achieve the most favorable outcome for themselves. Given the unidimensional policy space and the three possible outcomes,

⁴Conceptually, this puts party preferences and coalition preferences on the same utility scale, yielding no qualitative difference between parties and coalitions. Parties and coalitions are rendered interchangeable from the perspective of the voter, i.e. both are judged based on the distance of the policies they would impose to the voter's preferred policy.

⁵This rules out the possibility of single party and three party government as well as two-party coalitions between non-adjacent parties, e.g. a center-left and right party coalition. For a theoretical justification of connected coalitions, see e.g. Axelrod (1970).

⁶Influencing the composition of the coalition and therefore the policy outcome might provide another incentive for strategic voting (see Bargsted & Kedar 2009). However, such considerations should largely depend on the expectation that a particular coalition will be the sure winner.

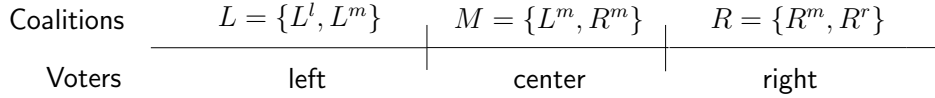


Figure 1: Basic setup: three coalitions aligned on a single policy dimension and voters divided up based on their preference over the outcome.

one can distinguish three types of voters: leftist voters with preference $L \succ M \succ R$, rightist voters with preference $R \succ M \succ L$ and centrist voters with preference $M \succ RL$. This simple electoral setup is summarized graphically in Figure 1.

In what follows, we shall focus on left and right voters. For reasons that will become clear shortly, centrist voters should always vote for their favorite centrist party, no matter what the expected outcome. Thus, centrist voters are of no interest here because their voting strategies do not depend on the expected outcome of the election.

To understand the strategic incentives of non-centrist voters, consider a voter on the left and assume, for the sake of argument, that voters could indeed vote for coalitions. Then that voter's decision problem resembles that of a voter in a three-candidate majority contest. Being a leftist she prefers government by L and, hence, votes for L unless she believes her vote is most likely to make a difference in determining whether M or R come to power in which case she might cast a vote for her second preference coalition M to prevent the worst outcome (i.e. a R -government). An analogous argument holds for rightist voters, who would also vote for coalition M to prevent an L -government if they consider R to be hopeless.

So far so good, one might say, but voters cannot vote for coalitions. While this is true to the extent that parties and not coalitions appear on the ballot, voting for certain parties may nevertheless provide some leverage on coalition outcomes: suppose a leftist voter wanted to increase the chances of her preferred coalition relative to the other coalitions. Obviously, the only sensible strategy would be to vote for party L^l , because that party is not included in any other coalition. Voting for L^l thus corresponds to supporting the preferred outcome. What if L is not a viable option? How could a leftist voter then increase the chances of her second preference coalition M over R ?

Apparently, she could do so by giving her vote to party L^m . Voting for L^m does not help R , as L^m is not part of R . It does, however, help M and hence arises as a natural choice for a leftist voter whose preferred coalition is not viable. By the same reasoning, a rightist voter may increase the chances of her preferred coalition by giving her vote to party R^r and otherwise vote for party R^m . One might object that left and right voters should always vote for the two middle parties as this would help their preferred coalition as well as their second choice, in case the preferred coalition is unlikely to succeed. Note, however, that a voter who expects the election to lie between her most preferred and second most preferred coalition should always vote for either L^l or R^r , as only this would increase the chances of her preferred coalition over the other coalition.

Let us now consider the incentives for coalition voting in greater detail. Given her expectations about the likelihood of each coalition to obtain a majority, a voter casts her vote to best influence who will win a majority and who will not. To see what this means, suppose first all three coalitions were expected to obtain exactly equal seat shares. This situation is depicted in scenario (a) of figure 2. Suppose the voter's preference profile is $R \succ M \succ L$, then in scenario (a) the only sensible strategy would be a vote for R^r . Doing so would create an additional seat for party R^r and thus a parliamentary majority for R . Voting R^m would yield an additional seat for party R^m and create a majority for R as well. However, it would also create a majority for M and thus render the outcome less appealing to the voter, who would rather see her preferred coalition commanding a unique majority. It is easy to see that, by the same reasoning, left voters should vote for L^l instead of L^m .

What happens, when coalitions enjoy different levels of support? Suppose a voter's preferred coalition is expected to come in first and her second preference coalition in second place. This situation is depicted in scenario (b) of figure 2 (again for a voter with preference profile $R \succ M \succ L$). In scenario (b) the voter expects M to win less seats than her favorite coalition R but more than L . Thus, M 's expected seat share could be about 50 percent – as suggested in the graph – but it could also be above or below this threshold. If the voter is going to be decisive in this scenario, then it will be most likely

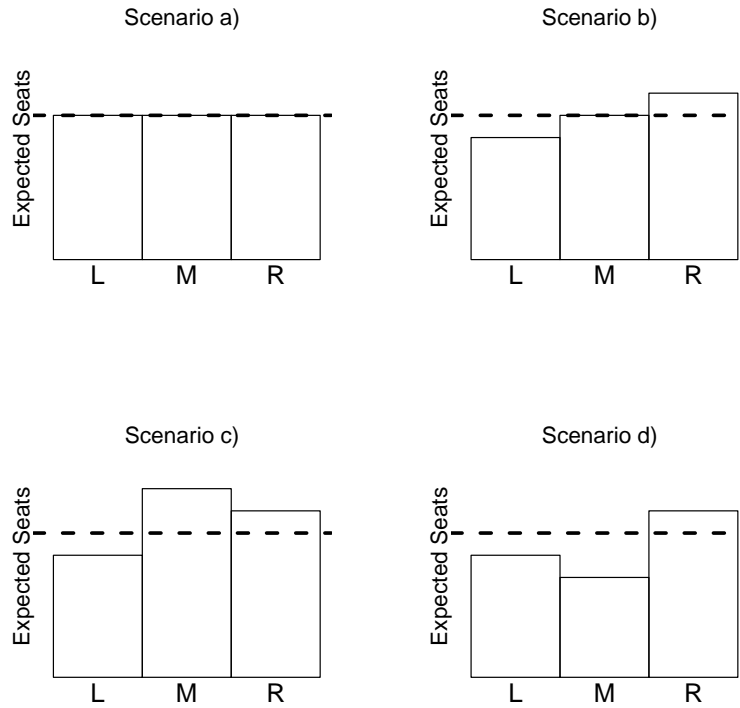


Figure 2: Voter beliefs about coalition outcomes. The bars in each histogram indicate the expected seat shares for the coalitions. The dashed line indicates the majority threshold. Note that, by design, expected seat shares for coalitions L and R are linearly dependent, such that each coalition can only win seats at the expense of the other. This is because every party in parliament must be a member of either L or R . This means that, unless both L and R tie at $\frac{1}{2}$, only one of them can be expected to hold a majority. By contrast, the share of seats for M may vary independently of L or R 's seat share.

in determining whether M will obtain a majority. For a voter who wants R to win, voting R^m would thus increase the likelihood of a less preferred outcome (a majority for R and M). Voting R^r , instead, would strengthen the preferred coalition over the second preference coalition. Thus, under this scenario, voters to the right would have an incentive not to vote for the center-right party. This is due to the fact, that a single vote will have a large impact in deciding between a single majority coalition outcome or a less preferred two-majorities outcome.

What if the preferred coalition is expected to come in second place behind M ? Such a situation is depicted in scenario (c) for a right voter. Here, the voter is most likely to be decisive between R and L . To break a tie between L and R she could cast a vote for either R^r or R^m . However, given that M is the main contender for victory – and the preferred outcome would be one in which R commands a majority vis à vis M – voting R^r is a more suitable strategy, because it would not only break a tie between L and R but also increase the chance of a majority for R over M . Thus, a right voter in this scenario still has an incentive not to vote for the center party.

Next, let us consider two scenarios in which L and R are the most viable contenders (see scenario d). As in the previous case, a decisive vote is most likely to break a tie between L and R . Again, for a right voter, this begs the question of whether to choose R^r or R^m . The two most likely outcomes in this case would be a majority by R or a majority by L . If L does not win a majority, then neither will M . Thus, no additional benefit can be derived from deciding between parties R^r and R^m . A coalition oriented voter in this scenario should, therefore, be indifferent between voting for a centrist or a non-centrist party.

The incentive to vote for one of the center parties should be greatest for voters whose preferred coalition is expected to come in third place. In this case, if a vote is to make a difference, it will not be between the voter's most preferred and second most preferred coalition and so she would be better off voting for one of the two center parties. To see this, consider again scenarios (b) and (c), this time from the perspective of a left voter. In the scenario (b) coalition L is expected to come in third place behind M . A left voter

in this situation is most likely to be decisive between her second and third preference coalition. A decisive vote would yield a majority for M which is better than a single majority of L . A vote for L^l can only help L but not M . Hence, a leftist voter in this situation has an incentive to choose the center party L^m . In scenario (c) L is expected to come in third place behind R . A leftist voter in this situation is most likely to be pivotal between her most preferred and least preferred coalition. Hence she might cast a vote for either L^l or L^m . However, expecting her preferred coalition to come in third place, she would want to support her second preference coalition as well. Only a vote for L^m could achieve both goals.

We are now prepared to formulate empirical predictions about voting in a three-coalition setting. Given their expectations about coalitions' relative likelihoods of winning,

1. leftist and rightist voters who expect all coalitions to be equally likely to win a majority should choose a left, resp. right party over a center-left, resp. center-right party.
2. leftist and rightist voters who expect their least preferred coalition to come in third place should choose a left, resp. right party over a center-left, resp. center-right party.
3. leftist and rightist voters who expect their most preferred and least preferred coalitions to compete for victory should be indifferent as to the choice between left, resp. right over center-left, resp. center-right.
4. leftist and rightist voters who expect their preferred coalition to come in third place should choose a center-left, resp. center-right party over a left, resp. right party.

To restate hypotheses two to four in more intuitive terms, if a voter expects the election to lie between her first and second preference coalition, only a vote for the non-center party in the preferred coalition could change the outcome in her favor. Conversely, if she

expects the outcome to lie between her second and third preference coalition, a vote for the center party is more likely to improve the situation than a vote for the non-center party. Because the preferred coalition is expected to do worst, the voter has an interest in strengthening her second preference coalition – in addition to her preferred coalition. This could only be achieved by voting for the center party. Finally, if the election is perceived essentially as a race of left versus right, with little support for the middle, voting for a center party would have the same effect as voting for a non-center party.

Compare these predictions with the traditional view that voters in proportional representation systems choose parties based on the ideological proximity of their platforms. Instead of forming beliefs about the likelihood of different outcomes and voting to achieve the best outcome for themselves, under proximity voting, voters merely vote their preference, i.e. the party whose advocated policy most closely resembles their own preference. To contrast the above predictions with the traditional proximity hypothesis, I shall thus refer to a vote for the party that is spatially most proximate as a “sincere” vote. By contrast, a “strategic” vote results if one’s expectation towards different outcomes leads to a choice of party other than the closest one.

The predictions of proximity voting and coalition voting can be summarized in an empirical model of party choice. Define the outcome variable $Y = 1$ if a voter to the left chooses party L^l or a voter to the right chooses party R^r , and $Y = 0$ if a voter to the left chooses L^m and a voter to the right chooses R^m , then the probability that a voter chooses a non-centrist party, conditional on her expectations, can be expressed as

$$\Pr(Y = 1) = \text{logit}^{-1}(\beta_0 + \beta_1 D_{tie} + \beta_2 D_{12} + \beta_3 D_{13} + \beta_4 D_{23} + \beta_5 PROX), \quad (1)$$

where β_0 denotes a constant term capturing effects of other unmeasured variables on the propensity to vote for a centrist vs. non-centrist party, D_{tie} denotes a dummy variable scoring one if the voter expects all three coalitions to obtain equal seat shares, and D_{12} , D_{13} and D_{23} denote indicators scoring one if the voter expects her first and second preference coalitions to compete for victory, or her first and third, or second and third

preference coalitions, respectively.⁷ Finally, *PROX* denotes the ideological proximity of the voter to the non-centrist party, as opposed to the centrist party. This serves as a baseline against which the effect of coalition expectations can be evaluated.

If voting is completely sincere, then the sign on β_5 should be negative and the *D*-variables should have no explanatory value as voters on the left and right simply choose the party closest on ideology. However, if voters are also interested in outcomes and take into account the relative likelihoods of coalition majorities, then voter expectations (i.e. the *D*-variables) should add some value to the model. In particular, hypotheses one, two and four imply that the individual coefficients on the expectation variables, β_1 and β_2 should be greater than β_4 and hypothesis three implies β_3 is smaller than β_1 and β_2 but greater than β_4 . Thus, we expect $\beta_1, \beta_2 > \beta_3 > \beta_4$.

2.1 Scope and Limits of Predictions

Given the simplicity of the electoral setup described in the previous section, one might wonder whether the logic for coalition voting outlined above also arises in situations involving more parties and coalitions. In principle, the basic argument should carry over to these settings as well. Concerning the number of parties, note that, for example, the number of parties obtaining seats in parliament must not be restricted to four. As long as additional parties are left outside of coalition bargaining, all the claims about strategic voting based on coalition outcomes remain unchanged. Additional parties merely increase the majority threshold that is, the number of seats necessary to form a majority coalition. But voters still face the same incentive structure: support a party that is part of the preferred coalition among the two viable coalitions (and not part of the disliked other viable coalition) if your preferred coalition is least likely to win, otherwise support a party that is part of your preferred coalition but not included in any other coalition. In addition, the assumption made above that the middle coalition acts as a bridge between the coalitions to its left and right is not strictly necessary. In

⁷In empirical estimation, coefficients β_1 through β_4 cannot be jointly identified. Depending on the comparison to be made, one coefficient must be fixed at zero.

principle, all three coalitions could be mutually exclusive and the basic argument still holds.

Concerning the number of potential outcomes, for strategic voting to make sense, the number of possible coalitions must not be three. More coalitions still leave the voter with essentially the same question: is my preferred coalition among the two most viable coalitions? If yes, then one should cast a vote for a party within the preferred coalition that is not also included in the other viable coalition. If no, one should consider voting for a party that is part of the preferred coalition among the two viable coalitions but not part of the other viable coalition. To be fair, things would probably become more complicated with additional parties, but to the extent that coalition outcomes are identifiable, it should still be the case for *some* voters that strategic considerations leave them with a set of distinct choices.

While the number of possible outcomes may be greater than three strategic voting cannot occur with less than three coalitions. With only two outcomes, trying to achieve a second best outcome is never optimal.⁸ This excludes, for example, cases of divided party systems, where a left block is expected to compete against a right block⁹ and also scenarios, such as the one described by Bargsted & Kedar (2009), in which a strong center party teams up with one of two possible coalition partners. While strategic voting of the kind described by Bargsted & Kedar might still be rational in situations involving two outcomes, strategic voting in order to influence which coalition will win the election cannot occur because voters should always support their preferred coalition no matter what the chances are.

⁸Not voting for the most preferred party in this setting would only make sense if that party was expected to be in a “wrong” (i.e. disliked) coalition. This is unlikely to happen, though, in a spatial context.

⁹Such a situation would require that every party is potentially a member of one or the other coalition and there is no possibility for parties to team up across blocks.

3 Application: The 2006 Austrian Parliamentary Election

In what follows, I shall apply the above model of coalition voting to explain voter behavior in the 2006 Austrian parliamentary election (*Nationalratswahl*). Austria serves as a suitable test case as elections are held under proportional representation and coalition politics closely resembles the stylized setup invoked in the previous section. In particular, two-party coalitions between ideologically similar parties are the norm in Austria. The last single party majority government dates back to 1983. Since then, no party has managed to attain a parliamentary majority again.

In the 2006 election four major parties were competing for seats in parliament: Greens, Social Democrats (SPÖ), Conservatives (ÖVP), and Liberals (FPÖ). Together, these parties had been constantly represented in parliament since 1986. Two other parties, a liberal alliance (BZÖ) and an independent list headed by former member of EU-parliament, Hans-Peter Martin, also drew substantial attention to their campaigns.¹⁰ Polls indicated both parties' support to fall short of the 4 percent threshold of representation. Ultimately the BZÖ passed the threshold by a tenth percentage point due to massive support in its home state Carinthia (*Kärnten*). In the following application, however, I will restrict attention to the four main parties that could be reasonably expected to obtain seats in parliament.

While parties were somewhat reluctant to committing themselves to certain coalitions, three coalitions were most likely to emerge from the election: a coalition by Greens and SPÖ, a grand coalition by SPÖ and ÖVP and a coalition by ÖVP and FPÖ. Grand coalition and ÖVP–FPÖ governments had both come to power in previous years: the first one from 1986 to 1999, the second from 1999 until 2006. The Greens and SPÖ had not taken part in any government together but both parties indicated a preference for forming the next government with each other.¹¹ Both parties also rejected FPÖ as coalition partner. FPÖ and ÖVP, on the other hand, remained fairly neutral (only FPÖ

¹⁰In 2005, members of the Liberal party, which had been in government with the Conservatives, demerged to the BZÖ, which stayed in power together with the Conservatives until the 2006 election.

¹¹For coalition signals of Austrian parties, see e.g. Debus (2007) and on the 2006 election in particular, see Müller (2008) and Luther (2008).

reciprocated the rejection of the Greens as a possible coalition partner). The scarcity of coalition signals left open the possibility of a coalition between ÖVP and Greens. However, as we shall see in the next section, from the perspective of Austrian voters, the Greens were perceived as much closer to SPÖ than to ÖVP.¹² Past experience also indicated considerable disagreement between both parties. Particularly, after the 2002 election, negotiations between ÖVP and Greens on forming a coalition government had failed due to political differences. In sum, given parties' positions, their signals and coalition records, I shall focus on the SPÖ–Green coalition, the ÖVP–FPÖ coalition and the grand coalition between SPÖ and ÖVP as possible outcomes.

Overall, the 2006 result was a very close call. In the months leading to the election, early polls saw the Greens at about 10 percent and FPÖ at about 7–8 percent. Later in the year polls still saw the Greens at about 10–14 percent and FPÖ at 5–9 percent. Forecasts on ÖVP and SPÖ vote shares were more fluctuating. Polls in early March saw ÖVP at about 38 percent and SPÖ at 40–42 percent. By July, SPÖ had dropped down to 32–36 percent and ÖVP was now ranging in between 39–42 percent. Shortly before the election, polls eventually indicated a neck-and-neck race between the two. In the end, the result lent neither enough support to an SPÖ–Green nor an ÖVP–FPÖ coalition. The terse entry of BZÖ made the SPÖ–Green coalition fall just 5 seats short of a parliamentary majority. The resulting government was then formed by the two largest parties SPÖ and ÖVP. If BZÖ had not entered parliament, the Greens and SPÖ would have obtained a tiny majority of 2 seats over ÖVP and FPÖ. With no sure winner, the election thus created a high need for voters to consider, how their vote would influence the likelihood of different coalitions.

¹²This is true with respect to ideology, as well as other major policy areas like, for instance, immigration (cf. Pappi 2007).

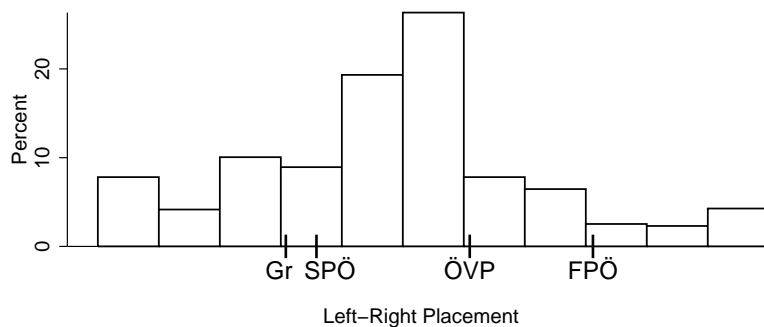


Figure 3: Distribution of voters and mean perceived locations of parties. N=1951

3.1 Data and Measures

To test the predictions about coalition voting, I employ data from a survey conducted in the weeks prior to the 2006 parliamentary election.¹³ Interviews were conducted by telephone on a representative sample of 1951 Austrian voters. Unlike standard surveys, this survey is unique in featuring a set of questions dealing with respondents' expectations about the likelihoods of different coalitions that might form after the election. Such information is crucial for assessing the possibility of coalition voting, yet it is almost never collected in election surveys.

Voter types were constructed based on respondent's ideological self-placements. Figure 3.1 shows the distribution of voters along with the (average perceived) positions of the four major parties on a standard 11 pt. left-right scale. Voters at positions 1–5 were coded as left and voters at positions 7–11 as right. Treating only voters in the middle as centrists gives us a reasonably large target population on which the predictions of the model can be tested. Expanding the centrist category to include voters at 5 would reduce the statistical power of the analysis, however, it would not lead to substantially different results.

Given the empirical distribution of party positions, the three prospective coalitions are taken to be $L = \{\text{Green, SPÖ}\}$, $M = \{\text{SPÖ, ÖVP}\}$ and $R = \{\text{ÖVP, FPÖ}\}$. In line

¹³The dataset to the study, entitled "Erwartungsbildung und strategisches Wählen – Vorwahlbefragung zur Nationalratswahl in Österreich 2006" is available, up from July 2009, at the GESIS Data Archive (<http://www.gesis.org/en/services/data/consultations/#Datenarchiv>) or, upon request, from the author.

with the model defined in Eq. (1) the dependent variable is a dummy variable scoring one for left voters choosing Greens and right voters choosing FPÖ and zero for left voters choosing SPÖ and right voters choosing ÖVP. Thus, I do not distinguish between voters on the left and right as both types of voters are observationally equivalent (i.e. they should respond to their beliefs in the same way).

The baseline hypothesis is that voters choose parties that are spatially close to them. For voters on the left, proximity voting implies choosing Greens or SPÖ, the closer their ideological position is to the voter’s position. The same holds for voters on the right with respect to parties FPÖ and ÖVP. I include a control variable to account for this tendency. The variable is calculated on the basis of respondents’ left-right self-placements and their individual perceptions of party positions. Let $d(\cdot)^2$ be the squared distance between the voter’s ideal point and the party given in parentheses, then the variable

$$PROX = \begin{cases} d(\text{Greens})^2 - d(\text{SPÖ})^2 & \text{if voter is left,} \\ d(\text{FPÖ})^2 - d(\text{ÖVP})^2 & \text{if voter is right,} \end{cases} \quad (2)$$

yields a measure for sincere voting by voters on the left and right. Larger values of *PROX* indicate closeness to a center party, smaller values indicate closeness to a non-center party. This variable yields a baseline against which hypotheses one to four can be tested empirically.

Voter expectations toward each coalition were measured by asking respondents to indicate how certain they were that a particular coalition would obtain a majority of seats. The question wording (translated into English) was:¹⁴

“Numerically speaking, what do you think, how likely is it that the following parties together will hold a governing majority in the next *Nationalrat*?”

Respondents were then presented with a list of possible coalitions and had to rate each one on a four point scale with categories labeled “completely certain”, “certain”, “rather

¹⁴The untranslated question wording was: “Für wie wahrscheinlich halten Sie es, dass die folgenden Parteien zusammen rein rechnerisch eine Mehrheit zur Regierungsbildung im neuen Nationalrat haben werden, ganz sicher, sicher, eher nicht, sicher nicht?”.

Table 1: Frequencies of Voter Expectations about Election Outcomes

All three coalitions equally likely	D_{tie}	27
Preferred coalition viable	D_{12}	463
Second preference coalition non-viable	D_{13}	14
Preferred coalition non-viable	D_{23}	112
Total		616

not” and “certainly not”. Only respondents who provided information on all three coalitions were considered for the analysis.

From the expectation measures, I constructed a set of indicator variables D_{tie} , D_{12} , D_{13} and D_{23} . D_{tie} scores one if respondents assign the same value to all three coalitions, otherwise zero. D_{12} scores one for left voters who perceive coalitions L and M in first and second place or right voters who perceive coalitions M and R in first and second place, otherwise zero. To be precise, the variable scores one as long as the coalition in second place is assigned a value greater or equal to the coalition in third place. The variable D_{13} scores one if coalition M is assigned a lower value than the other two coalitions, otherwise zero. D_{23} scores one for left voters who assign coalition L a lower value than the other two coalitions or right voters who assign R a lower value than the other two coalitions, otherwise zero.

Table 1 gives an overview of the distribution of the three variables. Most voters (about 75 percent) perceive their preferred coalition as viable. On the other hand, a substantial number (about 18 percent) expects their preferred coalition to come in third place (i.e. to be non-viable). Only few voters expect all three coalitions as neck-on-neck or perceive coalition M as least likely to win. Since M is comprised of the two biggest parties ÖVP and SPÖ, outcomes where M finishes in third place or ties with L and R are very unlikely. It should thus come as no surprise that only few voters believe in such outcomes. The perception of M as a viable coalition by most voters suggests that subjective beliefs are grounded in objective information from polls and other sources.

As we have seen in section 2, expected vote shares for coalitions L and R must add up to one. The expectation measurement does not impose such a constraint. With only four response categories, one would perhaps not want to go so far as to demand linear dependence. Still it could be argued that the response format implicitly suggests the majority threshold to lie between the two middle categories. Thus, one could impose the constraint that L and R cannot both be expected above or below majority and identify respondents who either believe that both, L and R , will not win a majority (i.e. “rather not” or “certainly not”), or who believe that both coalitions will win a majority (i.e. “certain” or “completely certain”). From the 616 respondents who placed themselves either left or right of center and provided complete information on the positions of all four parties, their vote choice and expectations about the three possible coalitions, a subset of 273 respondents exhibited beliefs inconsistent with the above requirement. Treating such beliefs as inconsistent or improper would lead to exclusion of those respondents from the analysis.

Our view is that the relative values of the expectation measures are more important than their absolute values. Focusing on relative values allows respondents to have their own perception of the position of the majority threshold. Also, if additional parties outside any viable coalition enter the parliament, this assumption no longer applies. It nevertheless appears reasonable to check whether results are robust to inclusion or exclusion of respondents whose beliefs deviate from the implicit restrictions of the response format.

4 Findings: Coalition Expectations and Strategic Voting

Table 2 shows the main results. Column one gives the results for proximity voting only. Not surprisingly, relative closeness has the expected effect of increasing a party’s chances of being chosen by the voter. From column two, we can see that expectations about parliamentary majorities indeed account for variation in voter choice between

Table 2: Sincere vs. Strategic Voting: Logit Regression Results

	Proximity only	Expectations only	Proximity & Expectations	Restricted Subsample
<i>PROX</i>	-0.028* (0.006)		-0.026* (0.006)	-0.021* (0.008)
<i>D_{tie}^a</i>		1.221* (0.444)	1.005* (0.455)	
<i>D₁₂^a</i>		0.612* (0.241)	0.504* (0.246)	0.623* (0.293)
<i>D₁₃^a</i>		0.859 (0.583)	0.709 (0.586)	1.632 (1.253)
Constant	-0.560* (0.086)	-1.147* (0.221)	-1.012* (0.226)	-0.967* (0.264)
logL ₀	-400.292	-400.292	-400.292	-227.107
logL ₁	-387.052	-395.047	-383.696	-218.592
N	616	616	616	343

* $p < .05$ two-tailed

Standard errors in parentheses.

^aCoefficients for D_{23} fixed at zero; for explanation of variables, see section 3.1.

centrist and non-centrist parties. The coefficients on the expectation variables are jointly significant ($LR\chi^2(3)=10.49$, $p < .05$) and correctly signed.

In line with hypothesis one, the coefficient on D_{tie} is positive and significant, suggesting that voters who expect a three horse race between all three coalitions are more likely to vote for the non-centrist party on their side of the ideological spectrum than voters who expect their preferred coalition to trail in third place (the reference group). Also, in line with hypothesis two, voters expecting their preferred and second preferred coalition to be the most viable contenders (i.e. group D_{12}) are significantly more likely to vote for a non-centrist party than voters whose preferred coalition is perceived as non-viable. Hypothesis three predicts no effect for voters who expect coalitions L and R to compete against each other. The coefficient on D_{13} is positive and – contrary to our prediction – greater than the coefficient on D_{12} . However, it is not significantly distinguishable

from zero. Since all the coefficients on the expectation variables are positive, this means that voters in the reference group, i.e. those expecting their preferred coalition to trail in third place, have the highest probability to vote for one of the centrist parties. In a sense, these voters desert their preferred coalition and vote for their second preference coalition because it has a higher perceived chance of winning.

In column three, we control for proximity voting. As can be seen, adding ideological proximity as an explanation to the model decreases the effects of voter expectations, but the substantive conclusions remain unchanged. Apparently, voters not only choose parties that are ideologically similar but also consider the potential effects of their decision on electoral outcomes.

Column four repeats the analysis with the subsample of voters whose expectations conform with the restriction of a commonly perceived majority threshold in the middle of the scale (i.e. respondents who perceive both, L and R , together above or below the majority threshold were excluded). Note that, with this restriction, category D_{tie} must be empty, because it is not possible to locate coalitions at exactly the majority threshold but only above or below it. Thus, the analysis is restricted to voters falling into one of the remaining categories. As can be seen, results also hold within the subsample of voters whose reported expectations most closely conform with the underlying model assumptions.

To get a sense of the impact of coalition expectations on voting, consider figure 4. The first panel shows the probability of voting for a non-centrist party depending on ideological proximity for voters who perceive their preferred coalition as non-viable and for voters who perceive all three coalitions as equally likely. The x-axis indicates the relative closeness to each party as measured by the variable $PROX$. Voters in the middle are ideologically indifferent. Not surprisingly, the probability of voting for a non-centrist vs. centrist party decreases as we move up the x-axis, i.e. as relative closeness to the center party increases. However, voters who expect their preferred coalition to be non-viable have a lower overall probability of voting for a non-centrist party because, given their expectations, a centrist vote is more likely to generate the desired result (a

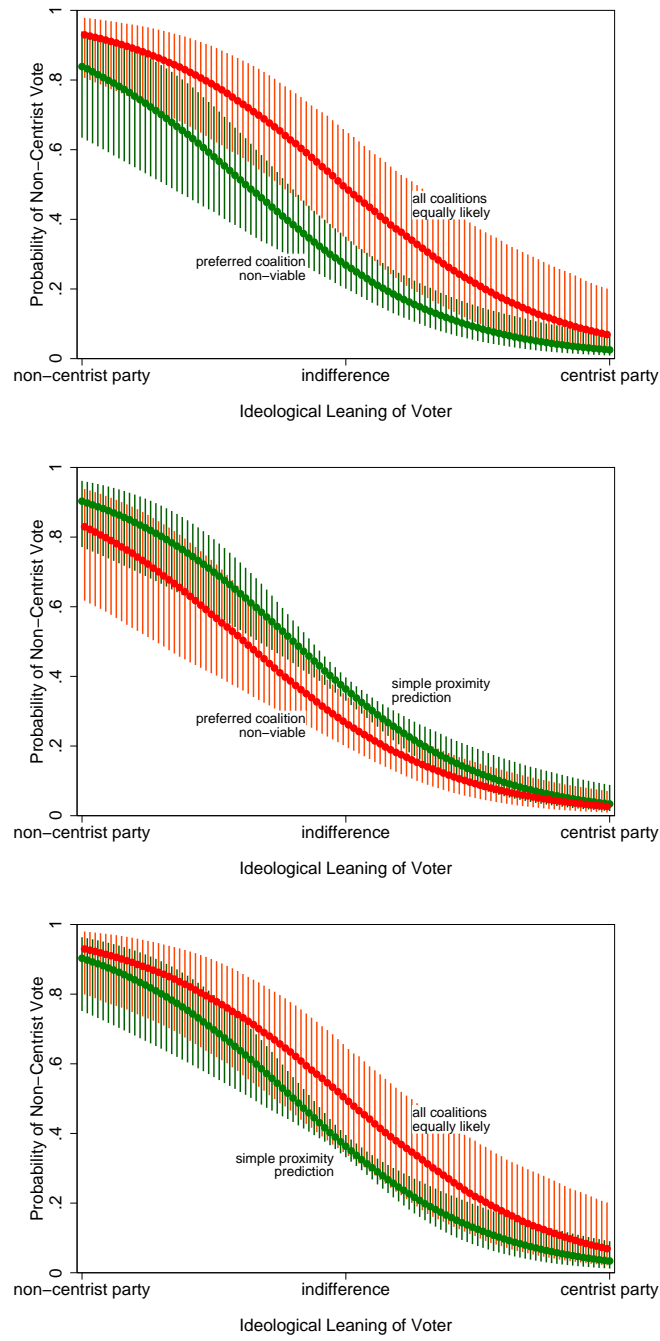


Figure 4: The probability of a non-centrist vote by ideological proximity. The simple proximity prediction in panels two and three is based on the results in column one of table 2. All other predictions are based on a model of coalition voting controlling for proximity (i.e. column three of table 2). Spikes on predicted values indicate 90 percent confidence intervals.

government by M rather than the third preference coalition). Conversely, voters who expect all coalitions to be equally likely have a higher probability to vote for a non-centrist party because, to them, it increases the likelihood of their preferred outcome (a majority for their preferred coalition rather than a majority for another coalition).¹⁵

How do these predictions relate to a model of pure proximity voting? The second panel compares the probability of voting for a non-centrist party for voters who perceive their preferred coalition as non-viable with the baseline prediction of proximity voting. For voters who strongly lean towards the centrist party, the predictions are almost identical. This is not surprising as both variables would predict the same behavior in this case. However, as voters lean away from the centrist party expectations about the non-viability of their preferred coalition reduce the probability of voting for a non-centrist party. Note that the difference is greater among voters leaning towards the non-centrist party. Thus, expectations about the non-viability of their preferred coalition may lead adherents of a non-centrist party to cast a strategic vote for the more distant centrist party.

In the third panel I compare the proximity prediction with the prediction for voters who perceive all coalitions as equally likely. Apparently, the perception of a three horse race raises the probability of voting for a non-centrist party, especially among moderate leaners and indifferent voters. For strong leaners, coalition expectations make little difference. For voters leaning moderately towards a centrist party, however, coalition expectations increase the probability of a strategic vote for a non-centrist party.

Overall, it appears that expectations about the viability of governmental coalitions in proportional representation systems can exhibit similar effects on voting behavior as expectations about candidate viability in simple plurality contests. Voters who perceive their preferred outcome as non-viable act differently from those who perceive their preferred outcome as viable. The latter tend to vote for the non-centrist parties in coalitions L and R while those who perceive their preferred outcome as non-viable rather choose to

¹⁵The greater uncertainty in the prediction for voters who expect all coalitions as equally likely is a statistical consequence of the relatively small number of voters in the sample who hold such beliefs.

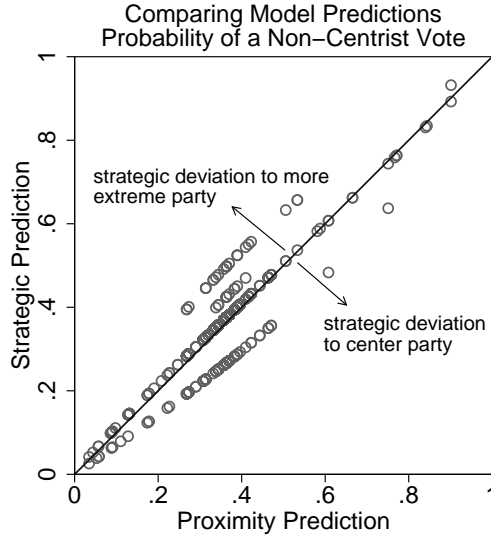


Figure 5: Where do strategic votes go? The plot shows the predicted probability of a non-centrist vote under pure proximity voting (column one of table 2) against the prediction from a model that also includes coalition expectations (column three of table 2). The diagonal separates respondents for which coalition expectations result in a higher probability of endorsing non-centrist parties (top left area) from those with a lower probability of endorsing non-centrist parties (bottom right area). Points on the diagonal indicate no change in predicted voting due to coalition expectations.

support coalition M and hence vote for one of the centrist parties. Both considerations may lead to voting for parties other than the ones closest on ideology.

How much deviation from proximity voting is entailed by voter expectations about electoral outcomes? To get a sense of the scope of strategic voting based on coalition expectations, we compare the predictions from the full model to those of a baseline proximity model. The results are displayed in Figure 5. As can be seen, there is substantial deviation in voting probabilities, once expectations are taken into account. Expectations may induce changes up to 13 percentage points in the predicted probability of voting for a non-centrist party. For one out of five voters in the sample (about 22 percent) the predicted probabilities from the two models differ by at least five percentage points. The predictions also bear out the fact that strategic deviations from proximity voting may go both ways, increasing the probability of voters who are ideologically closer to

centrist parties to vote for non-centrist parties and vice versa. Thus, strategic voting exerts centripetal as well as centrifugal forces.

5 Discussion

A long-standing view among scholars of elections is that voters in proportional representation elections simply vote their preference. By contrast, this paper suggests that when election outcomes are identifiable *ex ante* then voters have the ability of using their vote to alter the election outcome instead of simply expressing their preference by voting for the party they like best. Given voters' expectations about the likelihood of different (coalition) outcomes there is indication of strategic adjustments in vote choice. Voters may choose parties other than the closest one if they expect this to lead to a more favorable outcome.

If we accept that proportional elections give rise to strategic voting an natural question arising is which parties benefit more from strategic voting or, stated differently, whether strategic voting overall exhibits more centrifugal or centripetal forces? There are claims in the literature that, due to the watering down of policy positions in post-election bargaining, moderate voters are more likely to endorse extreme parties in consensual systems than they would in majoritarian systems (Kedar 2005). The results presented here suggest that this must not be the case. Strategic considerations might lead left- or right-of-center voters to support more distant left or right parties, but they may as well lead other voters to endorse more distant centrist party. Both choices may be consistent with voter expectations.

The possibility of strategic voting under proportional representation also leads to a more general question: do voters misrepresent their preferences more under proportional than under majoritarian rule? When it comes to evaluating election formulas, proportional representation is traditionally depicted as the mechanism most likely to elicit sincere voting. On the other hand majoritarian formulas selecting a single winner, such as majority runoff or simple plurality, are deemed to provide the strongest

incentives for voters to misrepresent their preferences and vote strategically. However, if we expand the focus to include what happens after the election has taken place, we may well find the opposite: majoritarian rule might render voting more honest, at least in terms of voters' policy preferences, than rules of proportionality. We are far from a definite conclusion on this point, but the question is an interesting one that deserves further scrutiny.

Overall, the analysis also points to the importance of information circulating prior to the election, particularly the information conveyed by public opinion polls and parties' coalition signalling. For example, in the 2005 German parliamentary election the Christian Democrats were predicted to become the strongest party in parliament, with about 41 percent of the popular vote. Yet surprisingly, on election day, Christian Democrats won only 35 percent of the votes, while their designated coalition partner, the Liberals, scored considerably better than in any forecast (almost 10 percent compared to 7 percent in the polls). It is not unlikely that the swing resulted from strategic voting by Christian Democratic supporters who preferred a center-right coalition with the Liberals over a centrist coalition between the Christian Democratic and the Social Democratic party. Indeed, the possibility of a centrist coalition became a major topic in the press right in the week before the election (Jung & Wolf 2005). Ultimately, the swing in voter support did not help to prevent the grand coalition (forecasts of Christian Democratic support were just grossly overestimated), but it gives us a hint on the effects beliefs about election outcomes can have on voters' short-term behavior. At the very least, observers of elections should come away from this with the warning that inferring the electorates' preferences from voting results can be misleading, because the same voters may vote differently if they expect a different outcome.

References

- Austen-Smith, D. & Banks, J. (1988), 'Elections, coalitions and legislative outcomes', *American Political Science Review* **82**(2), 405–422.
- Axelrod, R. (1970), *Conflict of interest: a theory of divergent goals with applications to politics*, Markham, Chicago.
- Bargsted, M. & Kedar, O. (2009), 'Voting for coalitions: Strategic voting under proportional representation', *American Journal of Political Science*. forthcoming.
- Baron, D. P. & Diermeier, D. (2001), 'Elections, governments and parliaments in proportional representation systems', *Quarterly Journal of Economics* **August**, 933–967.
- Blais, A., Aldrich, J. H., Indridason, I. H. & Levine, R. (2006), 'Do voters vote for government coalitions? Testing Downs' pessimistic conclusion', *Party Politics* **12**, 691–705.
- Bowler, S., Donovan, T. & Karp, J. (2008), Incentives for strategic voting in a PR system, Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago.
- Cox, G. (1984), 'Strategic electoral choice in multimember districts: Approval voting in practice?', *American Journal of Political Science* **28**, 722–738.
- Cox, G. & Shugart, M. S. (1996), 'Strategic voting under proportional representation', *Journal of Law, Economics and Organization* **12**, 299–324.
- De Sinopoli, F. & Iannantuoni, G. (2007), 'A spatial voting model where proportional rule leads to two-party equilibria', *International Journal of Game Theory* **35**, 267–287.
- Debus, M. (2007), *Pre-electoral Alliances, Coalition Rejections, and Multiparty Governments*, Nomos.
- Debus, M. (2009), 'Pre-electoral commitments and government formation', *Public Choice*. forthcoming.

- Downs, A. (1957), *An Economic Theory of Democracy*, Harper and Row, New York.
- Fisher, S. D. (2004), 'Definition and measurement of tactical voting: The role of rational choice', *British Journal of Political Science* **34**, 125–166.
- Golder, S. N. (2006), *The Logic of Pre-Electoral Coalition Formation*, Ohio State University Press.
- Herrmann, M. & Pappi, F. U. (2008), 'Strategic voting in German constituencies', *Electoral Studies* **27**, 228–244.
- Indridason, I. H. (2008), Proportional representation, majoritarian legislatures, and coalitional voting, Unpublished manuscript.
- Jung, M. & Wolf, A. (2005), 'Der Wählerwille erzwingt die grosse Koalition', *Aus Politik und Zeitgeschichte* **51-52**, 3–12.
- Kedar, O. (2005), 'When moderate voter prefer extreme parties: Policy balancing in parliamentary elections', *American Political Science Review* **99**, 185–199.
- Laver, M. & Budge, I., eds (1992), *Party Policy and Government Coalitions*, Macmillan, Basingstoke.
- Luther, K. R. (2008), 'The 2006 Austrian parliamentary election: From bipolarism to forced marriage', *West European Politics* **31**, 1004–1015.
- Martin, L. W. & Stevenson, R. T. (2001), 'Government formation in parliamentary democracy', *American Journal of Political Science* **45**(1), 33–50.
- Meffert, M. & Gschwend, T. (2008), Voting for coalitions? The role of coalition preferences and expectations in voting behavior, Paper presented at the Annual Meeting of the Midwest Political Science Association, Chicago.
- Müller, W. C. (2008), 'The surprising election in Austria, October 2006', *Electoral Studies* **27**, 151–190.

- Müller, W. C. & Strøm, K., eds (1999), *Policy, Office, or Votes? How Political Parties in Western Europe Make Hard Decisions*, Cambridge University Press, Cambridge.
- Müller, W. C. & Strøm, K., eds (2003), *Coalition Governments in Western Europe*, Oxford University Press, Oxford.
- Niou, E. M. S. (2001), 'Strategic voting under plurality and runoff rules', *Journal of Theoretical Politics* **13**, 209–227.
- Palfrey, T. R. (1989), A mathematical proof of Duverger's law, in P. C. Ordeshook, ed., 'Models of Strategic Choice in Politics', University of Michigan Press, Ann Arbor, pp. 69–91.
- Pappi, F. U. (2007), 'Partei- und Koalitionskriterien der österreichischen Wählerschaft für die Nationalratswahl 2006', *Österreichische Zeitschrift für Politikwissenschaft* **36**, 445–469.
- Powell, B. (2000), *Elections as Instruments of Democracy. Majoritarian and Proportional Visions*, Yale University Press.
- Reed, S. R. (1996), 'Seats and votes: Testing Taagepera in Japan', *Electoral Studies* **15**, 71–81.
- Shikano, S., Herrmann, M. & Thurner, P. (2009), 'Strategic voting under proportional representation: Threshold insurance in German elections', *West European Politics*. [forthcoming].
- Strøm, K. (1990), *Minority Government and Majority Rule*, Cambridge University Press, Cambridge.
- Taagepera, R. & Shugart, M. S. (1993), 'Predicting the number of parties: A quantitative model of Duverger's mechanical effect', *American Political Science Review* **87**, 455–464.

van Holsteyn, J. J. M. & Irwin, G. A. (2003), They say it can't be done: Strategic voting in multi-party proportional systems, Paper presented at the Annual Meeting of the American Political Science Association, Philadelphia.

Warwick, P. (1992), 'Ideological diversity and government survival in western european parliamentary democracies', *Comparative Political Studies* **25**, 332–361.

Warwick, P. (1996), 'Coalition government membership in west european parliamentary democracies', *British Journal of Political Science* **26**, 471–99.

Nr.	Author	Title
08-29	Thomas Gschwend	Electoral System Change in Belgium 2003: Party Strategies and Voter Responses
08-28	Michael Herrmann	Expectations about Coalitions and Strategic Voting under Proportional Representation
08-27	Karl-Martin Ehrhart Marion Ott Susanne Abele	Auction Fever: Theory and Experimental Evidence
08-26	Michel Regenwetter	Perspectives on Preference Aggregation
08-25	Daniel M. Bernstein Michael E. Rudd Edgar Erdfelder Ryan Godfrey Elizabeth F. Loftus	The Revelation Effect for Autobiographical Memory: A Mixture-Model Analysis
08-24	Markus Glaser Florencio Lopez de Silanes Zacharias Sautner	Looking Inside a Conglomerate: Efficiency of Internal Capital Allocation and Managerial Power Within a Firm
08-23	Markus Glaser Martin Weber	Financial Literacy und Anlegerverhalten
08-22	Markus Glaser Thomas Langer Jens Reynders Martin Weber	Scale Dependence of Overconfidence in Stock Market Volatility Forecasts
08-21	Patrick A. Müller Rainer Greifeneder Dagmar Stahlberg Kees Van den Bos Herbert Bless	The Role of Procedural Fairness in Trust and Trustful Behavior
08-20	Patrick A. Müller Rainer Greifeneder Dagmar Stahlberg Kees Van den Bos Herbert Bless	The Influence of Accessibility Experiences on the Willingness to Cooperate in Negotiations

SONDERFORSCHUNGSBereich 504 WORKING PAPER SERIES

Nr.	Author	Title
08-19	Jana Janßen Patrick A. Müller Rainer Greifeneder	A field study on the role of ease-of-retrieval in procedural justice judgments
08-18	Rainer Greifeneder Benjamin Scheibehenne	When choosing is difficult: Complexity and choice-overload
08-17	Paul Grout Wendelin Schnedler	Non-Profit Organizations in a Bureaucratic Environment
08-16	Clemens Kroneberg Isolde Heintze Guido Mehlkop	On shoplifting and tax fraud: An action-theoretic analysis of crime
08-15	Hermann Jahnke Dirk Simons	A rationale for the payback criterion
08-14	Peter Dürsch Jörg Oechssler Radovan Vadovic	Sick Pay Provision in Experimental Labor Markets
08-13	Carsten Schmidt Martin Strobel Henning Oskar Volkland	Accuracy, Certainty and Surprise - A Prediction Market on the Outcome of the 2002 FIFA World Cup
08-12	Mathias Sommer	Understanding the trends in income, consumption and
08-11	Hans Gersbach Hans Haller	Club Theory and Household Formation
08-10	Michael F. Meffert Thomas Gschwend	Strategic Voting in Multiparty Systems: A Group Experiment
08-09	Jens Wüstemann Jannis Bischof	Ausweis von Finanzinstrumenten in europäischen Bankbilanzen nach IFRS: Normative Erkenntnisse empirischer Befunde
08-08	Jürgen Eichberger David Kelsey	Are the Treasures of Game Theory Ambiguous?
08-07	Jürgen Eichberger Ani Guerdjikova	Multiple Priors as Similarity Weighted Frequencies

SONDERFORSCHUNGSBereich 504 WORKING PAPER SERIES

Nr.	Author	Title
08-06	Jörg Oechssler Andreas Roider Patrick W. Schmitz	Cooling-Off in Negotiations - Does It Work?
08-05	Jörg Oechssler Andreas Roider Patrick W. Schmitz	Cognitive Abilities and Behavioral Biases
08-04	Julian Rode	Truth and trust in communication - Experiments on the effect of a competitive context
08-03	Volker Stocké	Educational Decisions as Rational Choice? An Empirical Test of the Erikson-Jonsson Model for Explaining Educational Attainment
08-02	Siegfried K. Berninghaus Karl-Martin Ehrhart Marion Ott	Myopically Forward-Looking Agents in a Network Formation Game: Theory and Experimental Evidence
08-01	Sascha Huber Thomas Gschwend Michael F. Meffert Franz Urban Pappi	Erwartungsbildung über den Wahlausgang und ihr Einfluss auf die Wahlentscheidung
07-76	Michael Bremert Dennis Voeller Nicole Zein	Interdependencies between Elements of Governance and Auditing: Evidence from Germany
07-75	Jannis Bischof Jens Wüstemann	How Does Fair Value Measurement under IAS 39 Affect Disclosure Choices of European Banks?
07-74	Markus Glaser Philipp Schäfers Martin Weber	Managerial Optimism and Corporate Investment: Is the CEO Alone Responsible for the Relation?
07-73	Jannis Bischof Michael Ebert	IAS 39 and Biases in the Risk Perception of Financial Instruments
07-72	Susanne Abele Garold Stasser	Continuous and Step-level Pay-off Functions in Public Good Games: A Conceptual Analysis
07-71	Julian Rode Marc Le Menestrel	The role of power for distributive fairness