

Choices that Matter: When Party Behavior Reveals Preferences to Voters

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Abstract

This paper analyzes the conditions under which a party's behavior reveals new information to voters about its policy preferences. We argue that, for party behavior to change voter beliefs about the party, the action must reflect a choice among several options and the choice made must conflict with voters' opinions about the party. Otherwise, the party's decision simply confirms voters' priors. Applying this logic to government formation processes, we predict that joining a coalition does not always change voter perceptions of the party's position. Perceptions will only change if the party joins a coalition that is not the ideologically closest viable alternative. We employ three complementary empirical strategies: aggregate-level analyses of party reputations in 5 coalition-prone European countries, individual panel data, and a quasi-experimental test. All three empirical tests provide support for our claim. This paper contributes to our understanding of voter information processing, coalition politics, and party competition.

1 Introduction

A well-functioning representative democracy relies on citizens' capacity to process, evaluate, and react to the information that political parties generate through their behavior. It enables voters to hold incumbents accountable and identify where parties stand on policy issues. Even though a party's ideological preference is not directly observable, voters may use observable signals and cues to form beliefs about it. When elections are held, citizens use these beliefs to choose the party whose policy positions represents them best (e.g. [Dalton et al., 2011](#); [Iversen, 1994](#); [Merrill and Grofman, 1999](#)). It follows, then, that the ability of citizens to make inferences about party policy positions is central to the democratic process.

From a normative standpoint, the connection between parties and the electorate should be based on a two-way relationship where politicians respond to voter preferences and voters adjust their views about parties in response to their behavior (e.g. [Adams, 2012](#); [Converse and Pierce, 1986](#); [Dalton, 1985](#); [Ezrow, 2007](#); [McDonald and Budge, 2005](#); [Miller and Stokes, 1963](#)). Given that voter views about parties are crucial for voting decisions, understanding how citizens form and update these beliefs is of the utmost importance. Indeed, the relevance of this question has spurred some recent empirical research which concludes that parties' observable actions are more effective than rhetoric at (re)shaping voter opinions ([Adams et al., 2011](#); [Fernandez-Vazquez, 2014](#); [Fortunato and Stevenson, 2013](#); [Hetherington, 2001](#); [Lupu, 2014](#)).¹

Our paper takes these findings as the motivation to make a general argument about the conditions under which a party's actions change voters' impressions of where the party stands on policy issues. We specify two main requirements: first, the party's decision must reflect a choice among *several* options and, second, the choice made must conflict with citizens' prior opinions about the party. Following [Samuelson's \(1938; 1948\)](#) classical 'revealed preference' approach, we posit that a party's behavior provides information about its ideology only when

¹ For a general review of this literature, see [Adams \(2012\)](#).

the party had several possible alternatives. The second condition qualifies the first one: we claim that the type of party actions that prompt voters to change their opinions about a party are those that contradict their initial beliefs about the party. Otherwise, the party's behavior simply confirms voters' prior opinions.

We apply this general logic to party decisions to enter a coalition government in parliamentary democracies of Western Europe. While research in American politics tends to focus on the impact of legislative behavior on voter perceptions of party positions—(Ansolabehere and Jones, 2010; Carson et al., 2010; Grynaviski, 2010; Hetherington, 2001)—, we center our attention on government formation processes in which various parties have to reach an agreement to form a new cabinet. These bargaining processes are very common in European parliamentary democracies and can be illuminating of the policy priorities of political parties. We thus examine how a party's decision to join a coalition cabinet affects voter opinions about where the party stands ideologically. The implication of our general argument is that participation in a coalition is more informative about a party's position when the party has a choice between several viable coalitions and the one it enters was not initially perceived to be the ideologically closest option. Under these conditions, we claim, the party's decision is more likely to change voter opinions about the party's ideological position.

Our paper makes a novel contribution to the literature on the impact of coalition membership on voter perceptions of a party's position, initiated by the seminal work of Fortunato and Stevenson (2013). We advance this line of research by proposing an explicit theoretical mechanism to explain why coalition formation can modify voter opinions about parties in the cabinet. Such mechanism generates heterogeneous expectations that are borne out by the data. The scope of our argument, moreover, is broad since it can be applied beyond coalition formation processes. Empirically, we examine our hypothesis using several different types of data. In addition, we adopt an explicit causal identification strategy by taking advantage of a quasi-experimental test.

We follow three complementary strategies to test the empirical predictions. We first

analyze the effect of joining a coalition using party-level data on the left-right reputation of political parties in five coalition-prone Western European countries. We also leverage individual panel data from Norway to show how the effect of joining a coalition cabinet depends on voters' prior opinions. Finally, we take advantage of the random ordering in which survey respondents are contacted to compare the issue placement given to the British and German liberals right before and right after joining a government coalition. All three types of empirical evidence support our argument: a coalition partner's perceived position only changes when the party had viable alternative options that voters considered to be ideologically closer than the government it actually joined. Otherwise, voter perceptions remain unchanged.

Our paper has important implications for democratic theory and party politics. We show that an elite-driven process like that of forming a new government has consequences for mass politics. Voters observe the new cabinet and update their opinion of where parties stand accordingly, either confirming or adjusting their previous perceptions. Hence, even if multiparty governments tend to reduce the clarity of responsibility (Powell and Whitten, 1993), we show that coalition partners are, at least, held accountable for their decision to join the executive. This is good news for democratic politics, as it suggests that citizen attitudes toward parties are responsive to a core dimension of party behavior like the decision to form a government. Our findings also have implications for party decisions beyond government formation processes, as they suggest the conditions under which incumbent policies (Lupu, 2014), or the type of legislation passed (Harbridge and Malhotra, 2011; Hetherington, 2001; Grynaviski, 2010) are more likely to have consequences for party brands. Political parties, moreover, must incorporate the consequences for voter perceptions in their calculus to join a cabinet or not, since entering a government may affect the party's ideological image. Parties therefore face a trade-off: in cases where participation in a coalition may damage a party's policy reputation, seeking office now can undermine the pursuit of votes in the future (Fortunato, 2017; Müller and Strøm, 1999; Sagarzazu and Klüver, 2015).

2 Voters' Perceptions about Parties in Coalitions

There is a renewed interest among political scientists in the question of how voters form and update their beliefs about where parties stand on policy issues (Adams, 2012). The consensus that is emerging in this literature suggests that a party's *actions* are more effective than campaign *rhetoric* at shaping voters' beliefs about the party's ideological position. Specifically, it appears that campaign manifestos have a limited or null impact on voter perceptions of party positions (Adams et al., 2011; Fernandez-Vazquez, 2014). On the other hand, there is evidence that party behavior with tangible consequences, like the policies implemented in office (Lupu, 2014) or the legislative record (Grynaviski, 2010; Hetherington, 2001), have a significant influence on voter beliefs about where parties stand on issues.

In this paper we formulate a general argument about the impact of party actions on voter opinions. To test this argument we focus on party behavior during government formation processes in parliamentary systems. When no political party controls a majority of seats, the formation of a government typically entails a process where partners are chosen and coalitions are built. The results of previous work would suggest that party decisions to enter the government or, when applicable, choose among several viable cabinets have a strong impact on voter opinions. First, these decisions are widely observable because they receive significant media coverage. Second, the choices parties make during government formation processes have important policy consequences and therefore could be a key signal of what the party stands for ideologically. Indeed, the partisan leanings of cabinet members matter for policy outcomes (e.g. Bräuninger, 2005; Cusack, 1997; Iversen and Soskice, 2006; Klingemann et al., 1994; Warwick, 2001). The literature on coalition formation has consistently found, moreover, that the ideological distance between potential coalition partners is a relevant predictor of the cabinet that forms after an election (Glasgow et al., 2012; Martin and Stevenson, 2001). Hence, the composition of coalition cabinets could provide information to voters on parties' policy preferences.

A growing literature supports this claim. Most notably, [Fortunato and Stevenson \(2013\)](#) argue that voters use coalition participation as a heuristic to infer parties' ideological positions. Focusing on Western European coalitional democracies, [Fortunato and Stevenson's](#) evidence suggests that members of coalition governments tend to be perceived ideologically closer than parties outside the coalition even after controlling for the distance between their manifesto positions. Similarly, [Adams et al. \(2015\)](#) find that voters infer the position of parties on European integration matters taking who they partner with in a coalition government as a heuristic. In another recent piece, [Fortunato and Adams \(2015\)](#) show that voters map the Prime Minister party's position onto the placement of junior partners but not vice versa.

We take these findings as the starting point to make a more general argument about the effect of coalition formation on voter opinions of where parties stand. We argue that, even if a party's decision to join a coalition is readily observable and has tangible policy consequences, it will not always *change* voter perceptions about the party. Specifically, we map conditions under which forming a coalition changes voter beliefs but also identify scenarios in which joining a multiparty cabinet fails to alter public opinion. The account we propose therefore helps make sense of the previous findings on the consequences of joining a coalition. More so, it yields predictions about how voters process information about other types of party behavior beyond government formation processes.

3 Our Argument

Political parties frequently engage in actions that have policy consequences, like voting for legislation, passing budget proposals, and making and breaking governments. To the extent that they are observable, these decisions may provide voters with cues into the party's policy preferences. The purpose of our argument is precisely to define the conditions under which a party's behavior *changes* voters' notions of the party's policy position. We claim that

voters only reconsider their views of what a party stands for when two requirements are met: First, the party's decision reflects a choice between several viable alternatives and, second, the course of action conflicts with citizens' prior beliefs about the party's preferences.

The first condition that we specify derives from Samuelson's (1938; 1948) 'revealed preference' approach, which defines the condition under which an observer can infer the preferences of a consumer in the marketplace: "[i]f a collection of goods y could have been bought by a certain individual within his budget when he in fact was observed to buy another collection x , it is to be presumed that he has revealed a preference for x over y . The outside observer notices that this person *chose* x when y was available and infers that he preferred x to y " (Sen, 1973, p.241). On the other hand, if the collection of goods y is outside of the consumer's budget, then it is not possible to infer that the consumer prefers x to y . Therefore, an observable choice is informative about the agent's preferences only if the agent had other alternatives. Although this approach was initially conceived for market choices, it can also be used in the study of preferences in non-market behavior (Sen, 1973).

We apply this logic to party decisions to join a coalition cabinet. The argument implies that the choice of cabinet reveals information about the party only when the party can participate in several alternative coalitions. Specifically, since parties tend to prefer ideologically closer candidates (Martin and Stevenson, 2001), choosing a coalition among several alternatives is informative of the party's ideological position. Indeed, for a party that has the option of entering either a coalition L or a coalition R , joining the L cabinet signals that the party is ideologically closer to L than to R .² No such inference can be drawn, however, when the party has only one option to be in office.

While the first condition establishes when a party's behavior is informative about its policy preferences, the second requirement defines when that information will change voters' opinions about the party. If a party's behavior is consistent with voters' beliefs, then it

² It is true that a party may choose a coalition for reasons other than ideological proximity. Yet, unless the specific reason for the choice of coalition is known, the decision to enter L at least increases the probability that the party is closer to L than to R .

just confirms expectations and does not change voter opinions. Hence, a change in perceptions about the party only occurs when the party's choice is inconsistent with voters' initial opinions. Only in this case does the party's action prompt voters to adjust their beliefs. Specifically, when a party faces a choice between several viable coalitions, voters may have some beliefs about which coalition is the ideologically closest option. If the party decides to choose that one, the decision is consistent with voters' expectations and therefore citizens do not need to revise their opinions. Changes in voters opinions only occur when the party joins a coalition that voters did not initially consider to be the ideologically closest to the party. In that case the decision prompts voters to update their views about the party in order to render them consistent with the party's actions.³ Using the example above, choosing coalition L over coalition R changes perceptions of where the focal party stands only if voters initially believed that the party was closer to R than to L . Otherwise, the revealed preference for L only reinforces prior beliefs and does not change opinions.

In sum, our argument provides a general mapping of scenarios in which party actions change voter expectations about parties. Applied to the formation of coalition governments in parliamentary democracies, the argument implies that choosing a certain cabinet over other possible options reveals that the party has more similar policy views to the partners it selected than to the others. Hence, if voters initially thought that the party was closer to any of the other alternatives, the party's decision contradicts these beliefs and therefore voters need to adjust their opinions accordingly. On the other hand, if voters already perceived that the coalition that formed was the most ideologically consistent choice, the decision to join the cabinet simply confirms their prior beliefs. The observable implications that derive from this argument and that we test empirically are the following:

Hypothesis *Voter perceptions of a party that enters a coalition government are more likely to change when the party had (at least) one alternative coalition that voters perceived to be ideologically closer to the party.*

³ We detail the logic of our argument in a model of voter updating that is available in the [Supporting Information](#).

Corollary 1 If a party has only one potential coalition to join, the decision to enter is less likely to shift voters' opinions.

Corollary 2 Voter attitudes are less likely to change if the party joins the cabinet that was perceived to be the ideologically closest among all viable alternatives.

The predictions that derive from the argument hinge on two factors: The availability of viable coalitions and voters' beliefs about the position of each of potential coalition. While the first factor varies across country-election dyads, the second can differ across individuals. Our empirical strategy combines three complementary analyses that, taken together, tap into both sources of variation. We first take a broad cross-country across-time approach in which we analyze the impact of joining a coalition government in 5 European parliamentary democracies between 1979 and 2011. For each country-election pair we assess the number of viable coalitions that result from the seat distribution in the legislature and estimate voters' beliefs about a party's ideology by taking the average left-right placement that survey respondents attribute to the party. Our second empirical strategy exploits differences in perceptions across voters. Using panel data from Norway we compare the effect of joining a coalition between voters who think that the coalition is the most ideologically congruent choice and those who do not. Finally, we take advantage of the random ordering in which survey participants are contacted to evaluate whether respondents asked *after* a cabinet has formed have different opinions of coalition partners than those interviewed immediately before.

4 Evidence from Data at the Party Level: The Case of Five West European Countries from 1979 to 2011

Our outcome of interest are voter perceptions of party positions following the formation of a new cabinet. While our argument about the effect of coalition membership applies to any

policy dimension, in this party-level analysis we focus on parties' left-right reputations for reasons of theoretical relevance and data availability. The left-right dimension provides a good summary of European party positions on economic and social issues (Benoit and Laver, 2012) and it is a relevant predictor of voting decisions (Van der Eijk et al., 2005; Lachat, 2008). From a pragmatic point of view, survey data on parties' left-right positions are available for several European countries over a long period of time. Among European countries with a long-standing tradition of including left-right placement items in their election study questionnaires, we center our attention on the countries where coalition governments are frequent: Norway, Sweden, Denmark, Germany and the Netherlands.

We operationalize voter perceptions of a party's left-right position as the average left-right placement given to that political party. The main data source for these surveys is the European Voter Database (EVD), a collection of European national election studies.⁴ We calculate the average location attributed to a party among the whole sample of respondents. We draw the survey data from post-election waves to maximize the probability that, by the time the survey is fielded, it is already clear which government has formed or is likely to form.⁵ The countries and years included in our dataset are listed in Table 1.

For each party-year pair, we compute the variable $Position_{t+1}$, which denotes the average left-right placement given to the party in the post-election survey. $Position_t$, in turn, reflects the average placement in the previous survey. To give an example, $Position_{t+1}$ for the German Social Democrats in 2009 is the average placement in that year's post-election survey, while $Position_t$ is measured in the post-election wave of the 2005 election study. Both variables

⁴ For further information about this database, please refer to the following website: <https://dbk.gesis.org/dbksearch/sdesc2.asp?no=3911&db=e&doi=10.4232/1.3911> (doi:10.4232/1.3911) [last accessed September 2016]. Since the last elections covered by the EVD took place in 1998, we have updated our data with more recent surveys. These newer surveys come from either country-specific election studies or from the Comparative Study of Electoral Systems (CSES). Most of these surveys use a 0 – 10 scale. For surveys using a 1 – 10 axis instead, the data have been rescaled.

⁵ The process of coalition formation may in some cases drag on for months, and therefore it is possible that some cabinets have formed *after* the survey field date. Ours is therefore a conservative approach: To the extent that post-election survey waves are conducted before a coalition agreement is reached, our results will underestimate the effect of the membership in a coalition on a party's policy image.

⁶ German national election studies have asked respondents to place parties on a left-right scale since 1980. However, until 1998 these survey items were included in preelection waves rather than in postelection ones.

Table 1: Countries included in the analyses and years in which post-election surveys were conducted.

Country	Years
Denmark	1994, 1998, 2001, 2005, 2007, 2011
Germany ⁶	1998, 2002, 2005, 2009
Netherlands	1981, 1982, 1986, 1989, 1994, 1998, 2002, 2003, 2006, 2010
Norway	1977, 1981, 1985, 1989, 1993, 1997, 2001, 2005, 2009
Sweden	1979, 1982, 1985, 1988, 1991, 1994, 1998, 2002, 2006

range from 0 to 10, where 0 indicates a far left position and 10 a far right one.

We test our hypotheses using the *change* in a party’s average left-right placement as our dependent variable: *Update* takes the difference between the post-election and pre-election placements ($Position_{t+1} - Position_t$). This variable returns how far to the right (positive values) or to the left (negative values) the average voter perception of the party has moved with respect to the previous placement. Naturally, it potentially ranges from -10 (leftmost shift) to 10 (rightmost shift).⁷ Membership in the government that forms after the election is indicated by the dummy variable *Party Status*, which equals 0 if the party remains in opposition and 1 if it enters the government.

According to the argument, a party’s decision to enter a coalition cabinet is informative if the party had the option of choosing among several viable governments. We identify the set of cabinets that could plausibly form after each election using the following procedure. First, we estimate a model of government formation following [Glasgow and Golder \(2015\)](#), taking all the potential governments that could have formed (see also [Martin and Stevenson, 2001](#)).⁸ Second, for each formation opportunity, we rank each potential government according

⁷ We also estimate a model in levels using the post-election position $Position_{t+1}$ as our dependent variable. The results are offered in the [Supporting Information](#) section.

⁸ We run a conditional logit regression on a sample of formation opportunities in 18 countries from 1945 to 2012, in which we include the following covariates: presence of an incumbent party in the government, presence of the parliamentary largest party, total seat share of the government, total seat share squared, presence of the previous PM party, incumbent coalition, minority coalition, minimal winning coalition, and number of parties in the coalition (these are [Glasgow and Golder’s \(2015\)](#) covariates except for the variable indicating the ideological polarization of the government, which we do not include because our theoretical framework is precisely concerned with an ideological choice by the party joining a coalition).

to the predicted probability of formation. Third, we define the set of feasible cabinets as the decile of potential governments with the highest probability of forming.⁹ For instance, in the government formation opportunity of Sweden 1994, a total of 127 governments were hypothetically possible. After estimating the formation model, the predicted probabilities of each of them ranged from 0.0015% to 14.85%. Finally, we categorized as viable the 13 governments with the highest formation likelihoods.¹⁰

The information conveyed in the decision to join the government naturally depends on the ideological leaning of the cabinet that forms. For that reason, we specify the variable $Distance_{RG}$, defined as the perceived ideological distance between the party and the government that forms, measured before the election.¹¹ Positive values of $Distance_{RG}$ indicate that the government is perceived to be more right-leaning than the party, while negative values imply otherwise. We apply Gamson’s Law to calculate the overall left-right position of coalition cabinets (Gamson, 1961). Applied to policy formation, this logic entails that the policy position of a government can be equated to the seat-weighted average of the positions of the members of the coalition.¹² As a robustness check, we replicate our analysis estimating a coalition’s overall left-right position as the *unweighted* average of all coalition partners’ positions. This alternative operationalization does not affect the empirical findings.¹³

A dichotomous variable identifies the scenario in which, according to the argument, joining a coalition will *change* voter perceptions. The variable *Alternative* takes the value of 1 if the two conditions spelled out in the argument are met, i.e. the party can participate in several viable cabinets (as defined above) *and* the option it joins is *not* the one voters

⁹ In formation opportunities where the total number of potential governments is less than 10, we consider all options as feasible.

¹⁰ In the [Supporting Information](#) we present a robustness check in which we opt for a different procedure: all minimal winning coalitions are defined as viable. Results do not hinge on this definition.

¹¹ Hence $Distance_{RG}$ captures the perceived ideological proximity between a government and a party before that coalition enters office.

¹² We have calculated the position of the government that emerges as the seat-weighted average of the cabinet members’ positions even for minority governments. It is true that minority governments need the consent of opposition parties to make policy (Falcó-Gimeno and Jurado, 2011), but given the possibility these governments have to build law-specific agreements with other parties, we think it is most reasonable to consider cabinet members only in calculating the position of the minority government.

¹³ These results can be found in the [Supporting Information](#)

considered to be the ideologically closest. If either condition is not met, i.e. the party had only one viable alternative or, if there were several, it selected the option perceived to be the most ideologically congruent choice, *Alternative* takes the value of 0. The main purpose of the empirical analyses is precisely to compare the consequences of entering the government across these two scenarios.

Results

With these data, we estimate the following empirical model:

$$\begin{aligned}
 \widehat{Update} = & \beta_1 + \beta_2 Distance_{RG} + \beta_3 Party\ Status + \beta_4 Alternative \\
 & + \beta_5 Party\ Status * Alternative \\
 & + \beta_6 Distance_{RG} * Party\ Status \\
 & + \beta_7 Distance_{RG} * Alternative \\
 & + \beta_8 Distance_{RG} * Party\ Status * Alternative
 \end{aligned} \tag{1}$$

The variable *Party Status* captures how entering the government changes the party's left-right reputation. It is interacted with *Distance_{RG}* since the information provided by the decision to join the cabinet depends on the government's overall left-right position. To test the theoretical argument, we introduce an additional interaction with *Alternative*. It allows to compare the impact of government participation between the scenario where the argument predicts a change in voter perceptions (*Alternative* = 1) and the one where it predicts stability (*Alternative* = 0). In the first case, the effect of entering the government equals $\beta_3 + \beta_5 + (\beta_6 + \beta_8) * Distance_{RG}$. In the second, the impact is captured by $\beta_3 + \beta_6 * Distance_{RG}$. To facilitate the interpretation of the results of a regression equation with a triple interaction, we present marginal effects at different values of our key moderating variable as well as predicted changes in the dependent variable (Brambor et al., 2006).¹⁴

¹⁴As Brambor et al. (2006) note, evidence about conditional relationships require to go beyond the traditional results table and convey quantities of interest like the marginal effect of X on Y for different values of

Table 2 presents a first test of the theoretical argument. It displays the effect of joining a cabinet that is located one standard deviation to the right of the party in two scenarios: (1) when the party cannot join any other viable government or, if it can, that one is the ideologically closest option (*Alternative* = 0), and (2) when the party has several alternatives and it chooses a cabinet that voters did not perceive to be the ideologically closest alternative (*Alternative* = 1). The cell entries in the “Marginal Effect” column report the estimated shift in the perceived left-right position of the party. Positive values indicate that voters shift their placement of the party to the right. Negative values, on the other hand, imply that voters place the party closer to the left.

Table 2: Marginal effect of entering a government depending on whether an ideologically closer alternative exists. Scenario: the government is one standard deviation to the right of the focal party.

Scenario	Marginal Effect	Std. Error
<i>Alternative</i> = 0	-0.10	0.60
<i>Alternative</i> = 1	0.40*	0.11

Marginal effects and standard errors in their respective columns. Marginal effect computed for a value of $Distance_{RG}$ equal to one standard deviation to the right in the distribution of that variable, i.e. 2.85 units on the 0-10 left-right scale.

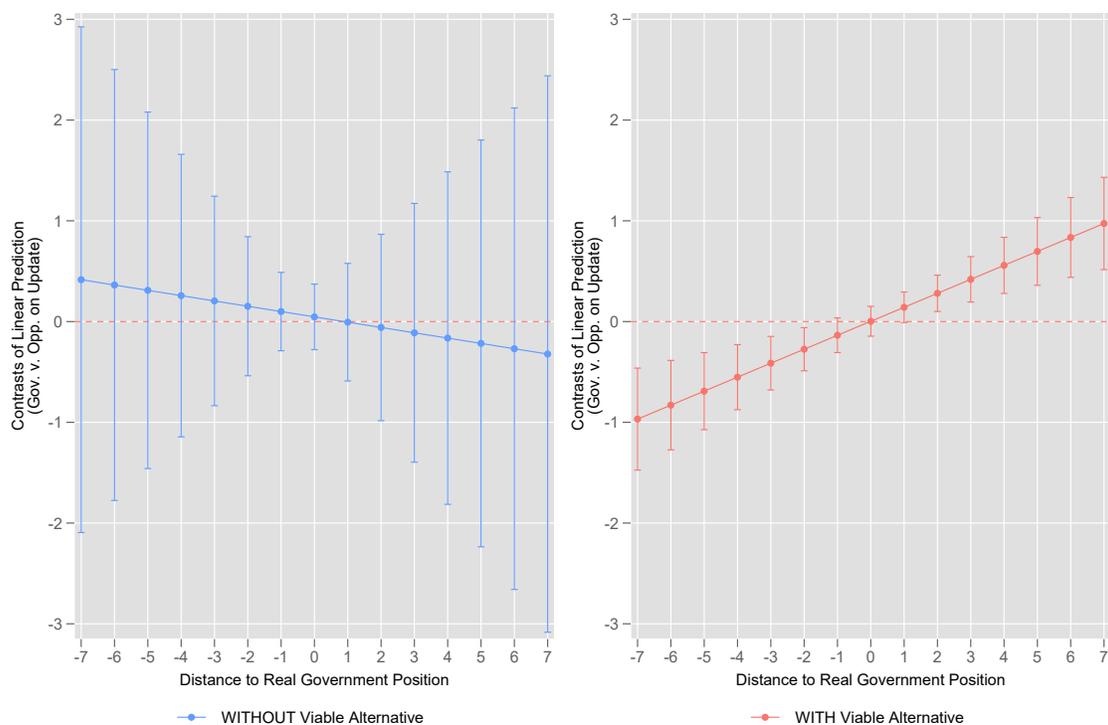
These estimates show that, when the party does not have an ideologically closer alternative government (*Alternative*= 0), entering a cabinet that is one standard deviation away in ideological distance, i.e. 2.85 units to the right on a 0-10 scale, barely changes voter perceptions: the shift is very small, -0.1 units, and in the opposite direction. This minimal change in the party’s reputation, moreover, is not statistically distinguishable from zero. In contrast, when the party can choose among several viable governments and it does not select the one that voters considered to be the most ideologically congruent option, voter opinions about the party change significantly: The party’s average placement shifts 0.4 units towards the position of the coalition that it joined. Indeed, we can reject the null hypothesis of no

the modifying variable. In any case, the estimated regression coefficients are reported in the [Supporting Information](#).

change.

Figure 1 provides a full comparison of the effect of entering a cabinet in each scenario. It reports the predicted shift in the party’s left-right image for several possible ideological distances between the party and the government that forms ($Distance_{RG}$). Positive values on the horizontal axis indicate that the government has a more right-wing reputation than the party, and vice versa. On the vertical dimension, positive values indicate that the party’s perceived position shifts to the right. The left-hand plot refers to a context where the party had not closer alternative. The plot on the right, in turn, reflects the change in perceptions when there was an ideologically closer viable alternative.

Figure 1: Predicted change in a party’s left-right reputation after joining the government. 95% Confidence Intervals.



NOTE: The left plot displays the predicted shift in the average left-right placement for a party that joins the government and had no other viable options. The right plot refers to a party that could have joined other potential viable coalitions instead of the one that actually formed. The horizontal axes indicate the left-right distance between the coalition that forms and the focal party.

The predicted shifts show that the decision to join a coalition does not always change voter perceptions about the party. If the party has no ideologically closer alternative to the

government that forms (left plot), the estimated effects of joining the cabinet are minimal, in the opposite direction, and we cannot reject the null hypothesis of no effect at all. Indeed, with no ideologically closer alternative, even entering a very ideologically distant cabinet does not significantly change voter opinions about the party's position. In contrast, when the party could have formed an alternative cabinet that voters perceived to be ideologically closer (right plot), entering the government reshapes the party's left-right reputation: forming a coalition that is more right-wing than the party makes voters shift their opinion about the party towards the right, and vice versa. While the predicted shifts with and without a closer *Alternative* are not statistically different, the empirical results still offer the following conclusion: There is clear evidence that joining a cabinet when the party had a viable alternative perceived to be ideologically closer changes voter opinions about the party. On the other hand, if the party does not have any ideologically closer alternative to the government that it joins, then the best guess given the data is that government participation will not have consequences for the party's reputation.

The same empirical pattern emerges in several robustness tests. First, we have analyzed whether results change if we adopt a different definition of what constitutes a viable potential government. We show that defining viable alternatives as the set of all minimal winning coalitions does not alter results. Second, we have checked whether the empirical pattern holds if we do away with Gamson's Law when computing the overall ideological position of a coalition. Using the *unweighted* arithmetic mean so that all coalition partners contribute equally to the overall coalition position does not change results. This finding suggests that the empirical pattern reported above is not driven by larger parties contributing more to the estimated position of coalition governments. Finally, we have tested the hypothesis using a regression model in levels instead of in first differences. In this model the outcome variable is defined as the party's average left-right placement after the election. The outcome is modeled as a function of the average placement before the election (i.e. the lag), the position of the government that forms, whether the party joins it, and whether it had any viable alternatives

or not. The same empirical pattern emerges using this alternative model specification. The evidence from these robustness checks is reported in the [Supporting Information](#).

5 Individual Panel Data Evidence: The Case of the Center Party in Norway 2005

The previous empirical analysis offers party-level evidence on how joining a coalition changes the party's left-right reputation. The same aggregate trend, however, is consistent with multiple patterns of individual-level changes. Indeed, our argument predicts a different response to a party's decision to enter the government depending on each voter's prior beliefs about the party. In other words, the same party decision can have different consequences for two voters with diverging initial opinions about the party. Choosing a coalition among several viable alternatives signals that the party is closer to that coalition than to any of the alternatives. For a voter who already thinks that the cabinet joined is the ideologically closest option that the party had, the party's decision corroborates the voter's perception of where the party stands. Hence, this voter has no reason to change her opinion about the party. In contrast, for a voter who thought that there was an ideologically closer alternative to the cabinet chosen, the party's decision is inconsistent with her prior belief and therefore drives her to *adjust* her opinion about where the party stands.

In this section we use individual-level panel data to exploit variation in voters' prior opinions and offer further evidence in support of the argument. To do so, we focus on the case of the Norwegian Center Party (*Senterpartiet*, Sp) in the coalition formation process of 2005.¹⁵ This case is particularly interesting to examine the theoretical argument for two

¹⁵Founded in 1920, the Sp is an agrarian party that is typically considered moderate from a left-right perspective. Since 1963, the Sp had been part of most of the right-of-the-center coalition cabinets that formed in Norway, in alternation with single-party social-democratic governments. As [Allern and Aylott \(2009\)](#) point out, it can be said that the Sp was originally anchored in the non-socialist bloc until the early two thousands: In 2001 it still advocated for the continuation of a centrist coalition that had been in office from 1997 to 2000.

main reasons. First, following the 2005 election, the Center Party had the choice between two viable potential coalitions. It could form a left-leaning coalition with the Norwegian Labor Party (DNA)¹⁶ and the Socialist Left Party (SV).¹⁷ Alternatively, the Center Party could join a right-leaning cabinet with the Conservative Party (H), the Christian Democratic Party (KrF), and the Liberal Party (V) — plus the participation or implicit acquiescence of the Progress Party (FrP).¹⁸ Second, while some voters perceived that the Center Party was closer to the right-leaning coalition, others considered that the left-leaning cabinet was the most ideologically consistent option. Hence, whatever the Center Party’s final decision, it confirmed some voters’ priors and spurred others to adjust their beliefs. The theoretical argument thus predicts change in perceptions among a group of voters and stability among the other group.

The Center Party eventually decided in favor of the left-leaning cabinet. This choice was not a matter of political survival but the expression of an ideological preference: The party “concluded that its goals were more attainable with new allies on the left” (Allern and Aylott, 2009, 273). Hence, this case is a good candidate to test whether or not the choice of coalition partners (left or right-leaning) affects voters’ perceptions of where the party stands on the left-right scale. According to the argument, the Center Party’s choice will change the perceptions of voters who had thought that the party was closer to the conservative coalition. On the other hand, it predicts no opinion change among citizens who already thought that the Center Party was closer to the left-leaning parties.

To test this empirical implication, we employ a panel survey from the Norwegian Election

¹⁶Since 2011, *Arbeiderpartiet* (Ap).

¹⁷The Center Party had reached a pre-election agreement with these two left parties to run separate lists but with a common policy agenda. This center-left agreement was explicitly considered as a pre-electoral commitment to form a joint coalition government in case the sum of the seats of the three parties reached the absolute majority in the *Storting* (the Norwegian parliament). The so-called red-green coalition eventually managed to win a narrow majority, obtaining a total of 87 seats that were enough to form a minimum winning coalition in a parliament with 169 seats.

¹⁸Even if the FrP decided not to formally participate in a coalition government or was ruled out as a coalition partner by other these potential partners, “[i]t was clear that the Progress Party would become a centre-right coalition’s primary support party, potentially providing a majority in numerous policy areas” (Allern and Aylott, 2009, 273).

Study (2001-2005). This study consists of a pre-election wave in 2001 and a post-election one in 2005.¹⁹ From 2001 to 2005 (before and after the formation of the left-leaning coalition), the average left-right position attributed to the Center Party moved slightly to the left, from 4.44 to 4.34. Using panel data allows us to identify which voters in particular made that update. [Figure 2](#) shows the distribution of the position attributed to the Center Party (Sp) in 2001 (t) and after the 2005 elections ($t+1$) for two groups of respondents. The panel on the left refers to citizens who considered in 2001 that the Center Party was ideologically closer to a left-leaning coalition.²⁰ Hence, for this group the choice that the Sp eventually made of partnering with the Labor and Socialist parties was consistent with their prior opinions about the party. The second group (right panel) is composed of respondents who had thought that the Sp was closer to the center-right coalition. Our argument implies that *only* voters in this second group shift their perception of the Sp toward the position of the coalition that formed. This is precisely what we see in [Figure 2](#): while the pre and post-coalition distributions on the left-hand panel overlap almost perfectly, the post-coalition ($t+1$) density in the right-hand side panel has clearly shifted to the left of the initial t curve.

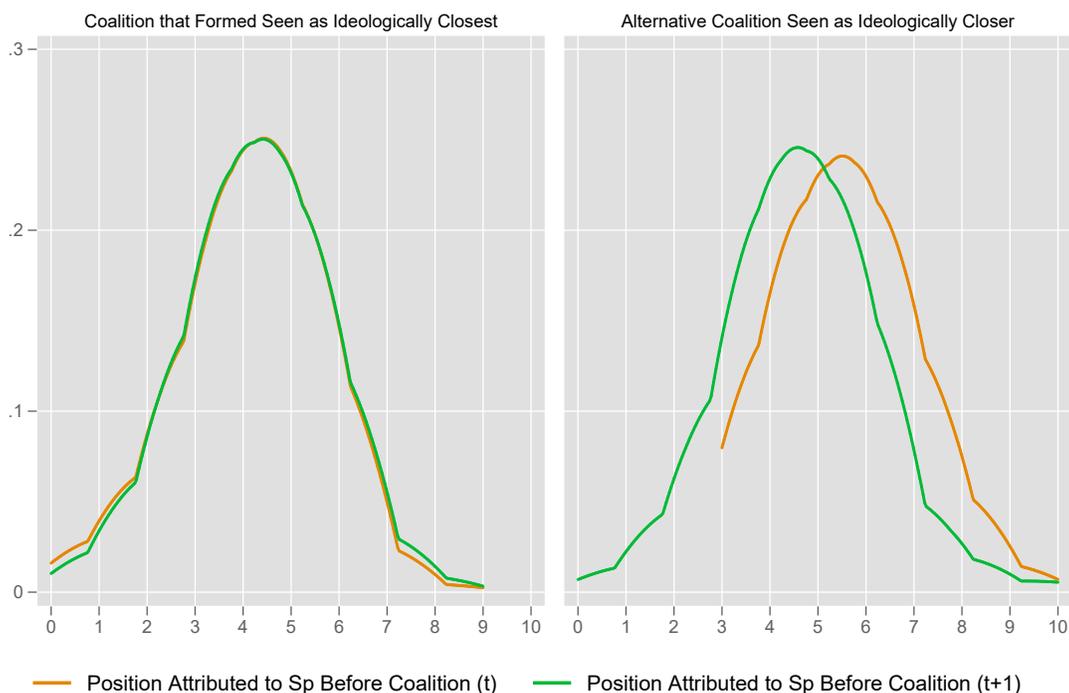
Another way to look at this is to compare the distribution of *changes* in opinions about the Sp across these two groups of respondents. [Figure 3](#) shows that, on average, voters who perceived the Sp's choice to be consistent with its left-right placement did not update their beliefs about the position of the party: The distribution is an almost symmetrical blue bell curve with a zero mean. In contrast, the distribution in red shows that those who thought that the Sp was closer to the center-right parties adjusted their opinions about the party towards the left.

[Table 3](#) shows that the difference in the average update across these two groups is statis-

¹⁹The fieldwork dates are Jun. 1st to Sep. 1st for the 2001 election study and Sep. 13th to Dec. 14th for the 2005 one. For further reference visit valgundersokelse.nsd.uib.no/webview/index/en/MyServer/Panelundersokelser.d.5/Norwegian-Election-Study-2001-2005-panel/fStudy/NSD1352

²⁰The perceived distances are again calculated according to [Gamson \(1961\)](#). That is, we subtract the attributed left-right position to the Sp from i) the seat-weighted average of the positions of the DNA, SV, and Sp to calculate the distance to the real government and from ii) the seat-weighted average of the positions of the H, the KrF, the FrP, and the Sp to calculate the distance to the alternative coalition.

Figure 2: Distribution of left-right placements attributed to the Norwegian Center Party (Sp) before (t) and after (t+1) forming a left-leaning coalition. The left panel portrays the opinions of those who already in 2001 considered that the party was ideologically closer to a left coalition. The right panel reports the perceptions of those who initially believed that a right-leaning coalition was the most ideologically consistent choice.



tically significant. The group who had thought that the right-leaning coalition was a more ideologically congruent alternative subsequently shifted its opinion 0.8 points toward the left. By contrast, those for whom the Sp had chosen the ideologically closest option did not update their perception of where the party stood on the left-right scale. Indeed, the average update is only 0.09 toward the right and it is not statistically significantly different from zero.

In the [Supporting Information](#) to this paper we show that the pattern of perception changes that we find is *not* a mechanical consequence of the fact that those who perceived that the left-leaning coalition was the most ideologically congruent choice also tended to place the party further to the left than those who had thought that the right-leaning alternative was the closest option. We also rule out the alternative explanation that the change in

Figure 3: Distribution of **changes** in perceptions of the Norwegian Center Party’s (Sp) left-right position. In blue, opinion changes among respondents who had thought that the (left-leaning) coalition that formed was the ideologically closest option. In red, shifts among those who, in contrast, had considered the right-leaning alternative coalition to be a more ideologically consistent choice.

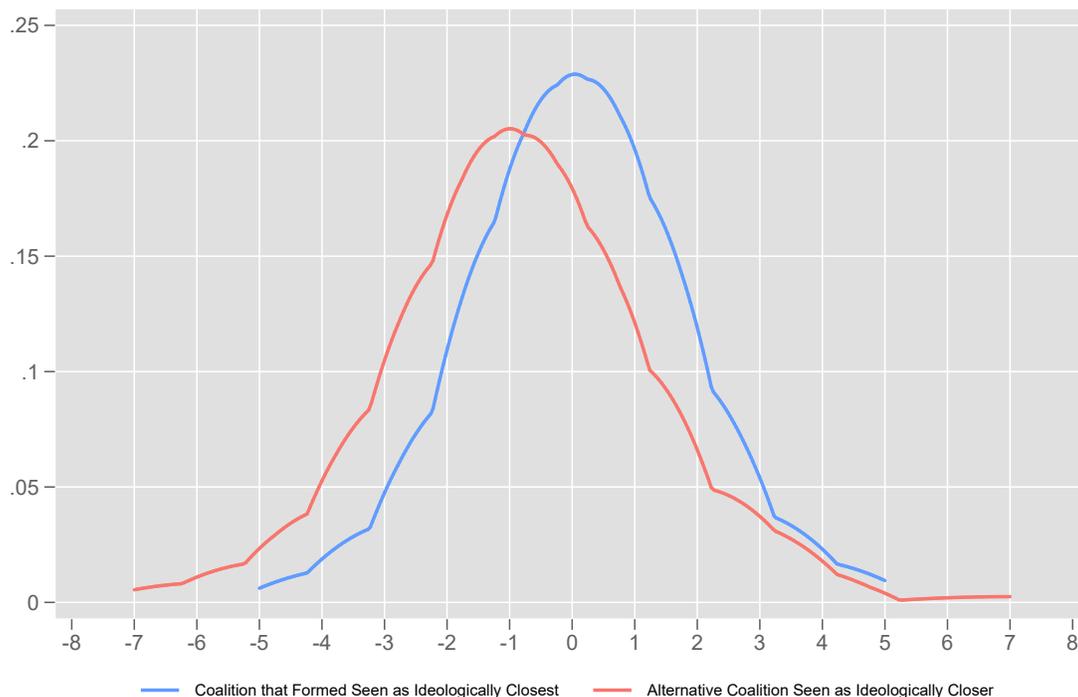


Table 3: Mean Comparison T-Test of Update for Two Groups

Group	Obs.	Average Shift	[95% Conf. Interval]
Sp closer to left-leaning coalition	547	0.09	[-0.05 , 0.22]
Sp closer to right-leaning coalition	135	-0.80	[-1.14 , -0.47]
Difference		0.89	[0.58 , 1.20]

opinions about the Center Party responded to an objective shift in party manifestos.

6 The Timing of Survey Responses as a Natural Experiment: The British and German Liberals

As a final test of the theoretical argument, we adopt a quasi-experimental identification strategy to ensure that the estimated effect of joining the government is driven by the coalition formation itself and not by any other factor. For that purpose, we take advantage of the random ordering in which survey respondents are interviewed to compare the issue placement given to a political party immediately *before* and *after* it joins a coalition government. Fielding a public opinion survey takes time and a new government may form while a post-election wave is being administered, which allows to classify respondents according to whether they completed the questionnaire by the time the new cabinet was announced or not.²¹ We leverage the fact that the timing in which respondents are contacted is orthogonal to their political predispositions to identify whether forming a coalition changes perceptions of where the party stands. The data that we use in this test is not panel and therefore we do not have information on individuals' priors. Hence, we compare the average perception of the party among respondents interviewed immediately before and those contacted immediately after the coalition announcement.

We examine two cases for which our theory has opposite predictions, the British Liberal Democrats in 2010 and the German Free Democratic Party in 2009. These two parties faced a similar strategic choice as they could decide between two alternative viable coalitions: the Liberal Democrats could partner with either the Conservative Party or with Labour (and some minor parties), and the German Free Democrats could either select the Christian Democratic Union or join a cabinet with both the Socialdemocratic Party and the Left Party. The key difference is that, while the German liberals chose the option that most citizens considered to be the ideologically closest—a coalition with the Christian Democrats—the British liberals preferred a government with the Conservatives even though most voters at

²¹The [Supporting Information](#) presents randomization checks comparing the two groups.

the time thought that Labour had more similar issue stances. Hence, the argument predicts a shift in the issue reputation of the British Liberal Democrats but no change for the German Free Democrats.

The British Liberal Democrats after the 2010 Election

For the first time in 36 years, the 2010 British general election did not provide any party with a parliamentary majority. Two viable options were on the table:²² a government between the Conservatives and the Liberal Democrats, and another between the latter and the Labour Party with the support of other minor parties. Before the Liberal Democrats eventually chose to ally with the Conservative Party, most British citizens considered that the Liberal Democrats were closer to Labour. [Table 4](#) presents the perceived issue placements of all three major British parties before the coalition formed and reports the percentage of citizens who thought that the Liberal Democrats were closer to the Conservative Party than to Labour. As can be seen, only a minority of respondents perceived the Conservatives to be the most ideologically similar choice. The decision of the Liberal Democrats was thus at odds with (most) citizens' priors about the party, and therefore the argument predicts that (most) voters adjusted their beliefs accordingly.²³

We test our claim using the post-election wave of the British Election Study Internet Panel.²⁴ Out of 13,356 respondents, 84% were interviewed between the coalition was announced (May 11th) and the remaining 16% afterwards.²⁵ The post-election questionnaire included a 0 – 10 issue scale regarding the trade-off between fighting crime and protecting individual rights where 0 indicates a “tough on crime” position. With these data, we compare the average perception of the Liberal Democrats between those interviewed before and

²²A minority government by the Conservatives, the plurality winners, was not seen as feasible given the context of financial crisis and the prospect of legislative defeats: spiegel.de/opinion-a-uk-minority-government-would-not-last-long.html and news.bbc.co.uk/uk_news/politics/election_2010.stm.

²³For the minority of voters who, before the coalition, placed the Liberal Democrats closer to the Conservatives, our argument predicts no update. By pooling all voters together, we *underestimate* the size of the shift if *all* citizens viewed Labour as the most ideologically congruent choice.

²⁴Additional information about this survey: www.bes2009-10.org/bes-data/MEMOCIPS.pdf.

²⁵For a reference on the timing of the coalition announcement, see cmn.com/05/11/uk.cameron.conservative.

Table 4: Pre-coalition average issue placements and percentage of respondents that considered that the Liberal Democrats were closer to a coalition with the Conservatives.

	LibDem placement	Conserv placement	Labour placement	% Conservative closer
taxes and spending ¹	5.5	4.3	5.8	31%
fighting crime tradeoff ²	4.8	4	5.1	36%

Data sources: (1) 2010 pre-election British Election Study internet survey, (2) pre-election British Election Study face-to-face survey.

those contacted after the coalition agreement is announced.

The evidence supports our prediction (Table 5). The perceived position of the Liberal Democrats shifts closer to the Conservative Party: Respondents interviewed after the coalition is announced see the Liberal Democrats as tougher on crime than those contacted immediately before. To ensure that this shift is driven by the formation of a coalition and not part of a trend common to all parties, we run a placebo test to check whether the perceived position of other parties also changes. As can be seen in Table 5, issue placements are not significantly different for either the Labour Party or the Conservatives. Hence, the formation of the cabinet changes perceptions about the party that made a choice that was not consistent with most voters' priors, but not about the other cabinet member or the main opposition party.

The German Free Democratic Party in 2009

In contrast with the British Liberals, our argument predicts no update in voter perceptions regarding the German Free Democratic Party (FDP) in 2009. While the FDP could also choose between two alternative multiparty cabinets, one with the Christian Democrats (CDU/CSU) and another with both the Social Democratic Party (SPD) and The Left, it opted for the coalition that most voters considered to be the ideologically consistent choice (CDU/CSU and FDP). Table 6 indicates that, before the coalition formed, most citizens al-

Table 5: Average party placement before and after the coalition forms. Issue: Trade-off between fighting crime and protecting individual rights. One-tailed difference in means t-test. Alternative hypothesis: after coalition, Liberal placement is closer to the “tough on crime” endpoint.

	before coalition placement	after coalition placement	Difference
Liberal Democrats	4.8	4.7	0.10*
Conservative party	3.1	3.2	-0.09
Labour party	3.5	3.4	0.06
N	11,231	2,125	

t-test: * $p < .05$

ready thought that the FDP was closer to a coalition with the CDU/CSU. Hence, choosing a cabinet with the Christian Democrats was consistent with most voters’ priors, and hence the argument predicts no significant change in the average placement of the party.

Table 6: Pre-coalition average issue placements and percentage of respondents that considered that a coalition with CDU/CSU was ideologically closer.

	FDP placement	CDU placement	SPD placement	% CDU/CSU closer
left-right	5.7	6.5	3.7	75%
taxes & spending	3.5	4.3	5.4	65%
libertarian dimension	5.6	6.2	4.3	58%
nuclear policy	3.7	3	5.9	64%

Data Source: pre-election wave 2009 German Longitudinal Election Study (GLES).²⁶

The analysis reported in Table 7 supports this prediction. Respondents contacted after the coalition agreement was announced do *not* have statistically different opinions about the position of the Free Democrats on any of the four issues included in the questionnaire.²⁷ Thus, joining a coalition government did not change the policy reputation of the FDP.

Taken together, the examples of the British Liberal Democrats and the German Free

²⁷The CDU/CSU-FDP coalition was announced on October 24th 2009 (<http://news.bbc.co.uk/2/hi/europe/8323651.stm>). Of the participants in the post-election wave of the 2009 German Election Study, 894 were contacted before the coalition formed and 1221 were interviewed after.

Table 7: Average placement of the German Free Democratic Party before and after the coalition is announced. German Longitudinal Election Study, post-election wave. One-tailed difference in means t-test. Alternative hypothesis: post-coalition FDP placement is closer to the CDU/CSU position.

	before coalition placement	after coalition placement	Difference
left-right	5.9	5.8	0.06
taxes & spending	3.1	2.9	0.18
libertarian dimension	5.9	6	-0.08
nuclear policy	3.2	3.2	0.05
N	894	1,221	

t-test: * $p < .05$

Democrats offer additional support for our argument that joining a multiparty government *only* changes perceptions of a party’s policy preferences when voters thought that the party had an ideologically closer viable alternative.

7 Discussion

In this paper we have analyzed how party decisions help voters make inferences about parties’ policy preferences. We have proposed a general argument to identify the conditions under which a party’s behavior changes voter perceptions of where the party stands ideologically. It posits that voters adjust their opinions when the party’s decision involves a choice among alternatives with different policy consequences and the decision it makes conflicts with citizens’ prior opinions about the party. We have tested our predictions by focusing on one of the most consequential decisions that parties can make in a parliamentary democracy, that of choosing to join a coalition government.

All three types of empirical evidence we leverage —time-series cross-section, panel, and quasi-experimental— offer support for our claim: they show that joining a multiparty cabinet has a stronger impact on citizen opinions when the party could have entered other alternative

coalitions and voters thought that at least one of these alternatives was a more ideologically consistent choice. It is true that, even in this scenario, the impact of coalition formation on voter perceptions appears moderate in absolute magnitude. Yet, when set against the the strong stability in Western European parties' left-right images (Dalton and McAllister, 2015), even small changes in voter opinions become substantively meaningful. Indeed, our estimates (Table 2) imply that, if the party had an ideologically closer alternative, joining a cabinet located one standard deviation away in ideological distance produces a notable 138% increase over the normal volatility in party images.²⁸

In this paper we have identified a general pattern of differences in the impact of coalition governments. Future work could extend this research agenda to analyze whether individual-level traits modulate the effect of coalition formation on citizens' opinions. It is plausible to expect, for example, that voters interested in politics will be the most responsive to party decisions to join a cabinet since they are the most likely to become aware of these party decisions (Delli Carpini and Keeter, 1996; Prior, 2005, 2007). At the same time, political predispositions can introduce biases in information processing that might moderate the impact of coalition agreements on citizen opinions (Zaller, 1992).²⁹ We thus believe our paper can spur relevant new research on the consequences of party behavior for individual attitudes.

Our findings also provide a theoretical mechanism and offer evidence for why participation in a coalition may have consequences in the upcoming election. Joining a cabinet may change voter perceptions of what the party stands for and thereby induce partisan switching along ideological lines (Adams et al., 2012; Levendusky, 2009). This could help explain why

²⁸This percentage results of comparing the effect on voter opinions we estimate, 0.40, with Dalton and McAllister (2015) estimate that the median shift in average perceptions across two consecutive elections is only 0.29 points on a 0-10 scale. Dalton and McAllister's data overlaps substantially with ours.

²⁹Note that our empirical expectations are robust to the existence of these biases. Even if citizens grant more weight to information in line with their initial opinions, we should still observe that party behavior that is consistent with a citizen's prior does not *change* her beliefs. It only reinforces them. In a nutshell, motivated reasoning may reduce the impact of information that is at odds with initial opinions, but it will still be the case that changes in citizen perceptions only occur when party behavior deviates from what was expected.

coalition partners tend to lose votes in the next election (Nannestad and Paldam, 2003; Stevenson, 2002) or even why the formation of certain coalitions is associated with a decline in support for democracy (Singh and Thornton, 2016). Indeed, our argument generates the testable prediction that, everything else equal, the electoral repercussions of cabinet participation will be larger for a party who had alternative options that voters considered to be more ideologically similar. Note also that, while it has been argued that multiparty governments reduce the clarity of responsibility and undermine retrospective voting (Powell and Whitten, 1993; Tavits, 2007), our evidence indicates that cabinet partners are at least held accountable for their coalitional choices through shifts in their ideological reputation. Such electoral consequences of coalition participation feed into the calculations of party elites. Insofar as changes in voter opinions about the party can damage the party's electoral prospects, party officials face a dilemma between obtaining office benefits now and incurring vote losses in the future (Müller and Strøm, 1999).

The robust empirical support for our general argument has implications beyond government formation processes. Our theoretical approach helps explain why voting decisions on legislation can have consequences for party reputations (Harbridge and Malhotra, 2011; Hetherington, 2001; Grynaviski, 2010). Legislators have at least two possible choices: to pass new legislation or to keep the status quo, and therefore their roll-call votes can help reveal their ideological preferences (Clinton et al., 2004; Clinton, 2012; Poole and Rosenthal, 2007). Among all roll-call votes, moreover, our argument predicts that voter opinions are more likely to change when the legislator makes a decision that is at odds with its previous image. These are the votes that, according to our logic, legislators should invest the most in explaining to their constituents (Grimmer, 2013).

The explanation we propose also helps account for the finding that government decisions can dilute the ideological brand of incumbent parties and lead to their breakdown (Lupu, 2014). The Latin American cases that Lupu studies are examples of parties that apply policies that diverge sharply from their ideological reputations, precisely the scenario where

our argument predicts that citizen opinions are most likely to change. As a counterpoint, our framework suggests that incumbent decisions are less consequential if citizens perceive that there are no viable alternative policies. This may happen, for instance, in consensus-dominated rally-round-the-flag environments such as those that often follow terrorist or military attacks (Brody, 1991; Chowanietz, 2011; Hetherington and Nelson, 2003; Mueller, 1973).

In conclusion, the broad implication of this paper is that voters are responsive to elite behavior in a consistent and predictable way. This is in line with work that has examined the consequences of incumbent actions on voter attitudes other than citizens' perceptions of party positions. The "thermostatic model" that Wlezien and Soroka propose, for instance, suggests that citizens systematically react to incumbent policy decisions by shifting their preferences in the opposite direction (Soroka and Wlezien, 2010; Wlezien, 1995). Similarly consistent reactions have been reported regarding voting behavior: the "policy balancing" literature shows how citizens tend to support parties with opposite policy positions to the incumbent in the subsequent election (Alesina and Rosenthal, 1989, 1995; Paldam and Skott, 1995). Hence, our paper contributes to the broader literature that maps the consequences of elite political behavior for mass attitudes.

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Supporting Information

A Model of Voter Updating

General elections have just been held but a new government has not been formed yet. The future cabinet must implement a policy on an issue X . Positions on this issue, x , are defined as a point on the real line. Political parties have an ideal policy on this issue x_j , where $x_j \in X \forall j \in J$, and J denotes the set of parties in the system. When a party joins the government, it obtains a policy payoff that is strictly decreasing in the distance between x_j and the overall cabinet position.

A party's ideal point is not directly observable, but voters have beliefs about it. Such prior perceptions are represented by a normal distribution with density function $f_{prior}(x_j)$.³⁰ Given their beliefs, voters' best guess about a party's issue position —the expected value of x_j — is defined by μ_j . If party j joins a coalition cabinet, voter opinions about the party are updated using Bayes' rule.

Two viable coalitions may form, A and B , with overall issue positions x_A and x_B , where without loss of generality $x_A > x_B$. Both potential governments include party j . Party j will choose coalition A if and only if its ideal point is closer to x_A than to x_B . Hence, if coalition A forms, party j 's ideal point must be such that it is to the right of the midpoint between both coalitions, i.e. $x_j \geq \frac{1}{2}(x_A + x_B)$. This means that the likelihood of observing this coalition is positive and uniform over such interval, but zero anywhere else. Given this likelihood function, once voters observe that cabinet A is appointed their opinion about where party j stands becomes a normal distribution left-truncated at the midpoint between the two coalitions $\frac{1}{2}(x_A + x_B)$. Voters now infer that the party is closer to position x_A and thus place 0 probability on issue positions that are to the left of the midpoint. The posterior

³⁰Defining prior beliefs as a normal distribution has the benefit that it assumes that voters put non-zero probability on *all* possible ideal points and, as a result, updating is not constrained to any subregion of the policy space: a party perceived as left-wing may end up developing a right-wing reputation as a result of its own behavior. Voter priors do not prevent it from happening.

best guess about where party j stands becomes:

$$E_{posterior}(x_j) = \mu_j + \sigma \frac{\phi\left(\frac{\frac{1}{2}(x_A+x_B)-\mu_j}{\sigma}\right)}{1 - \Phi\left(\frac{\frac{1}{2}(x_A+x_B)-\mu_j}{\sigma}\right)}$$

where μ_j is the initial voter best guess, σ the initial uncertainty, while $\phi(\cdot)$ and $\Phi(\cdot)$ indicate, respectively, the probability density and cumulative density function of a normal distribution.

The *shift* in citizens' best guess about where party j 's preferences lie is thus defined as

$$\begin{aligned} \text{shift}_j &= E_{posterior}(x_j) - \mu_j \\ &= \sigma \frac{\phi\left(\frac{\frac{1}{2}(x_A+x_B)-\mu_j}{\sigma}\right)}{1 - \Phi\left(\frac{\frac{1}{2}(x_A+x_B)-\mu_j}{\sigma}\right)} \end{aligned}$$

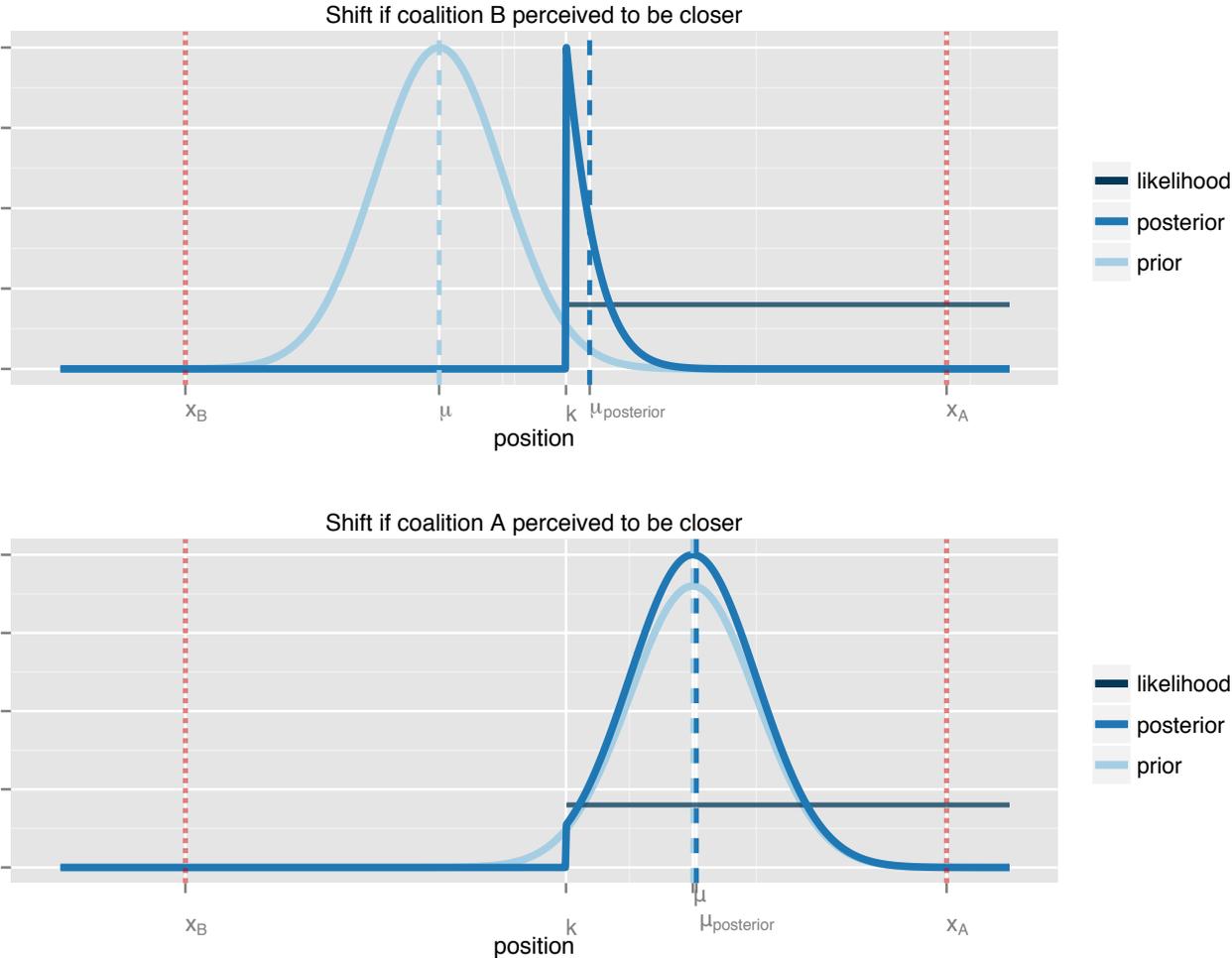
The value of shift_j is always positive, which indicates that membership in coalition A shifts perceptions to the right. The *magnitude* of the update in voter perceptions, however, depends on what they initially thought about the party. The partial derivative of the shift with respect to the initial opinion μ_j is negative for any μ_j , and therefore the magnitude of the update decreases the more to the right the initial voter guess. For any value of σ , the higher μ_j , the higher the initial voter confidence that party j was closer to coalition A , and therefore the key implication is that the more certain voters were that the party was closer to the coalition it joined, the smaller the update in perceptions.³¹

Figure 4 illustrates the logic of the model by comparing two scenarios. In the first (top panel), voters thought that the party was closer to coalition B . In the second (bottom panel), voters agreed that coalition A was the most ideologically consistent option for the party. This figure plots the prior and posterior beliefs, the initial and final best guesses about where the party stands, μ and $\mu_{posterior}$, as well as the overall coalition positions x_A , x_B with their midpoint k .

While the shift in voter perceptions of where the party stands is substantial in the first

³¹The analytic proofs for this relationship between initial priors and size of the update is offered below.

Figure 4: Illustrating the model of voter updating about a party that joins a coalition cabinet. Two alternative viable choices for this party: coalition A, with position x_A , and coalition B, with position x_B . Coalition A is the cabinet that forms. On the top panel, the focal party was initially placed closer to coalition B. On the bottom, closer to coalition A.



case, it is negligible in the second. The underlying mechanism is that choosing coalition A indicates that the party's position is to the right of the midpoint k and hence posterior beliefs place zero probability on positions to the left of it. Whereas on the top panel this forces voters to reconsider their initial opinion that the party was closer to B, on the bottom panel citizens already thought that the party was closer to A —most of the prior distribution lies to the right of the midpoint— and therefore the choice of coalition partners only confirms their priors.

In sum, the model implies that the more confident citizens were that the coalition joined is the ideologically closer, the smaller the change in perceptions. Since survey data measuring voter perceptions of party positions does not include information on respondents' uncertainty about these placements, the explanatory factor that we use is an indicator of whether the party placement —respondents' best guess— is closer to the coalition that it joins or to any of the alternatives.

Formal Proofs.

Given the overall position of coalitions A and B x_A and x_B where wlog $x_A > x_B$, observing that the focal party joins cabinet A implies that $x_j \geq \frac{1}{2}(x_A + x_B)$. Hence, the likelihood of observing this choice for each possible party ideal point is defined as the uniform distribution $unif(\frac{1}{2}(x_A + x_B), \infty)$, with probability density function

$$\begin{cases} k > 0 & \text{if } x_j \geq \frac{1}{2}(x_A + x_B) \\ 0 & \text{if } x_j < \frac{1}{2}(x_A + x_B) \end{cases}$$

Applying Bayes's rule to derive the posterior belief —where voters place the party after it joins coalition A—, the posterior density is defined as:

$$f(x_j | \text{choosing } A) \propto unif\left(\frac{1}{2}(x_A + x_B), \infty\right) \cdot f(x_j)$$

Given that the likelihood is 0 for $x_j < \frac{1}{2}(x_A + x_B)$ and $k > 0$ otherwise, the posterior dis-

tribution is a truncated normal. The expected value of a normal function left-truncated at $\frac{1}{2}(x_A + x_B)$ is:

$$E \left[x_j \mid x_j \geq \frac{1}{2}(x_A + x_B) \right] = \mu_j + \sigma \frac{\phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right)}{1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right)}$$

where μ_j is the mean of the prior belief, $\phi(\cdot)$ is the probability density function of a standard normal, and $\Phi(\cdot)$ the cumulative density function of the standard normal.

Therefore, the shift in the expected value of voter beliefs becomes

$$\sigma \frac{\phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right)}{1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right)}$$

This shift is positive for any initial best guess μ_j since $\sigma > 0$, $\phi(\cdot) \geq 0$ and $\Phi(\cdot) \leq 1$.

The magnitude of the shift depends on the initial belief. The partial derivative of the shift with respect to the initial first guess is

$$\begin{aligned} \frac{\partial shift}{\partial \mu_j} &= \sigma \frac{\partial \phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right)}{\partial \mu_j} \left[1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right) \right]^{-1} \\ &+ \sigma \phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right) \frac{\partial \left[1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right) \right]^{-1}}{\partial \mu_j} \end{aligned}$$

It can be shown that the partial derivative is negative for any μ_j . By definition, the standard deviation σ and the pdf of a normal distribution are non-negative function, hence $\sigma \phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right) \geq 0$. Since $\Phi(\cdot) \leq 1$, then $\left[1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right) \right]^{-1} \geq 0$.

We show first that the partial derivative is negative for $\mu_j < \frac{1}{2}(x_A + x_B)$.

Note that $\frac{\partial \left[1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right) \right]^{-1}}{\partial \mu_j} = \left(- \left[1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right) \right]^{-2} \right) \left(- \frac{\partial \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right)}{\partial \mu_j} \right)$. Now, since $\Phi(\cdot)$ is the cdf of the standard normal and $\frac{\partial \frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma}}{\partial \mu_j} < 0$, then $\frac{\partial \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - u_j}{\sigma} \right)}{\partial \mu_j} < 0$.

Therefore,

$$\frac{\partial \left[1 - \Phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right) \right]^{-1}}{\partial \mu_j} < 0 \quad \forall \mu_j$$

Regarding $\frac{\partial \phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right)}{\partial \mu_j}$, we know that the standard normal pdf increases monotonically as the argument approaches 0. Therefore

$$\frac{\partial \phi \left(\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{\sigma} \right)}{\partial \mu_j} = \begin{cases} > 0 & \text{if } \mu_j < \frac{1}{2}(x_A + x_B) \\ < 0 & \text{if } \mu_j > \frac{1}{2}(x_A + x_B) \\ 0 & \text{if } \mu_j = \frac{1}{2}(x_A + x_B) \end{cases}$$

Hence, we have now shown that $\frac{\partial shift}{\partial \mu_j} < 0$ for $\mu_j \leq \frac{1}{2}(x_A + x_B)$. To show that $\frac{\partial shift}{\partial \mu_j} < 0$ for $\mu_j < \frac{1}{2}(x_A + x_B)$, note that $\frac{\partial shift}{\partial \mu_j}$ can also be expressed as

$$\frac{-\left(\frac{1}{2}(x_A + x_B) - \mu_j\right)^2}{e \sigma^2} \left(\frac{-\sigma}{\pi} - \frac{e^{\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{2\sigma^2}} \left(\frac{1}{2}(x_A + x_B) - \mu_j\right) \left(-2 + \operatorname{erfc}\left(\frac{\mu_j - \frac{1}{2}(x_A + x_B)}{\sqrt{2}\sigma}\right)\right)}{\sqrt{2\pi}} \right)}{2 \left(\sigma - \frac{1}{2}\sigma \operatorname{erfc}\left(\frac{\mu_j - \frac{1}{2}(x_A + x_B)}{\sigma\sqrt{2}}\right) \right)^2}$$

where $\operatorname{erfc}(\cdot)$ is the complementary error function.³² Since the denominator and $e^{-\frac{(\frac{1}{2}(x_A + x_B) - \mu_j)^2}{\sigma^2}}$ are positive, it suffices to show that $\frac{-\sigma}{\pi} - \frac{e^{\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{2\sigma^2}} \left(\frac{1}{2}(x_A + x_B) - \mu_j\right) \left(-2 + \operatorname{erfc}\left(\frac{\mu_j - \frac{1}{2}(x_A + x_B)}{\sqrt{2}\sigma}\right)\right)}{\sqrt{2\pi}}$ is negative. Given that $\frac{-\sigma}{\pi}$ is negative, a sufficient condition is that the second term is positive. Now, since $\sqrt{2\pi}$ and $e^{\frac{\frac{1}{2}(x_A + x_B) - \mu_j}{2\sigma^2}}$ are both non-negative, what must be shown is that $\left(\frac{1}{2}(x_A + x_B) - \mu_j\right) \left(-2 + \operatorname{erfc}\left(\frac{\mu_j - \frac{1}{2}(x_A + x_B)}{\sqrt{2}\sigma}\right)\right) > 0$.

Our focus now is on situations where $\mu_j < \frac{1}{2}(x_A + x_B)$. Hence $\left(\frac{1}{2}(x_A + x_B) - \mu_j\right) > 0$ and what needs to be shown is that $\left(-2 + \operatorname{erfc}\left(\frac{\mu_j - \frac{1}{2}(x_A + x_B)}{\sqrt{2}\sigma}\right)\right) > 0$. Thus, it must be the case

³²For further information on these function, see <http://mathworld.wolfram.com/Erfc.html>.

that

$$\operatorname{erfc}\left(\frac{\mu_j - \frac{1}{2}(x_A + x_B)}{\sqrt{2}\sigma}\right) > 2$$

Using the properties of the complementary error function, that is always the case. Therefore, we have proved that

$$\frac{\partial shift}{\partial \mu_j} < 0 \quad \forall \mu_j$$

Regression Output for the Empirical Model in the Main Text

Table 8 presents the results of estimating the regression equation that analyzes the impact of coalition entry on a party’s perceived left-right placement (Equation 1).

Table 8: Regression results for the empirical model in the main text (Equation 1).

	DV: <i>Update</i>
<i>Distance_{RG}</i>	-0.07 (0.05)
<i>Party Status</i>	0.05 (0.16)
<i>Distance_{RG} * Party Status</i>	-0.05 (0.18)
<i>Alternative</i>	-0.04 (0.21)
<i>Distance_{RG} * Alternative</i>	0.09 (0.05)
<i>Distance_{RG} * Party Status</i>	-0.04 (0.20)
<i>Distance_{RG} * Party Status * Alternative</i>	0.19 (0.19)
<i>Intercept</i>	-0.04 (0.21)
Country Fixed Effects	YES
N	231
R ²	0.09

Dependent variable: The change in the party’s average left-right placement. Positive values indicate a shift to the right, and vice versa. Country fixed effects and clustered standard errors.

The estimate of the triple interaction runs in the expected positive direction, although it fails to reach conventional levels of statistical significance. However, given that our argument posits that the effect of participation in coalitions on voter perceptions is inherently conditional, our quantities of interest are better captured in the marginal effects of the main independent variable at various values of our key modifying variables, as presented in the

main text. As [Brambor et al. \(2006, p.74\)](#) argue, in fact, “[t]he analyst cannot even infer whether X has a meaningful conditional effect on Y from the magnitude and significance of the coefficient on the interaction term either. [...] It is perfectly possible for the marginal effect of X on Y to be significant for substantively relevant values of the modifying variable Z even if the coefficient on the interaction term is insignificant.”

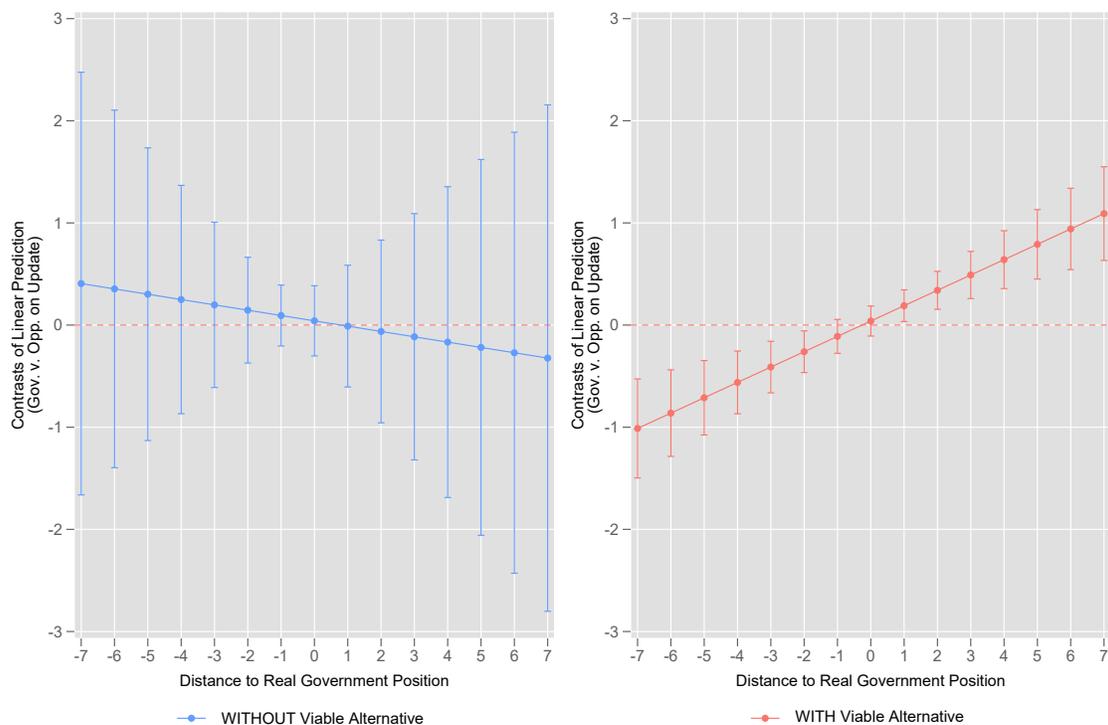
Evidence from Aggregated Data at the Party Level: Calculating the Overall Coalition Position as the Arithmetic Mean

The empirical analysis in the main text computes the ideological position of each potential government as the seat-weighted average of the position of each party in the cabinet. This application of Gamson’s Law implies that larger parties contribute more to the overall coalition position than smaller parties. Hence, using this operationalization might imply that it is more likely for smaller parties to be coded as having an ideologically closer viable alternative (*Alternative*= 1). In this regard, recent work has shown that coalition participation has a stronger effect on the image of junior partners than on senior ones ([Fortunato and Adams, 2015](#)).

To address this potential source of bias, we provide an additional test of our argument using a different coding approach: in this robustness check, the overall coalition position is defined as the *unweighted* average of the left-right placement of all coalition partners. Hence, both small and large parties contribute equally to the government’s position. With this alternative operationalization, we re-estimate the model in [Equation 1](#). [Figure 5](#) presents the predicted shifts with and without a closer viable alternative.

The results of this robustness check confirm the pattern reported in the main text. If the party does not have any ideologically closer alternative to the government that actually emerges (left plot), joining the cabinet does not significantly change the party’s left-right reputation. Voters’ perceptions of the party barely shift and, to the extent that they do, they do so in the opposite direction: joining a more conservative cabinet shifts the placement to

Figure 5: Predicted change in a party’s left-right reputation after joining the government. 95% Confidence Intervals. Robustness check: The overall government position is defined as the **unweighted mean**.



NOTE: The left plot displays the predicted shift in the average left-right placement for a party that joins the government and had no ideologically closer alternative option. The right plot refers to a party that could have chosen an ideologically closer coalition instead of the one that it actually joined. The horizontal axes indicate the left-right distance between the coalition that forms and the focal party.

the left, and vice versa. On the contrary, if there was a viable alternative that voters perceived to be a more ideologically consistent choice (right plot), then the party’s decision changes voter opinions substantially and in the expected direction.

Evidence from Aggregated Data at the Party Level: Minimal-Winning Coalitions as the Viable Alternatives

This section further expands the cross-country analysis of the impact of coalition membership on a party’s left-right image. It reports the results of a robustness test in which we adopt an alternative definition of what constitutes a viable potential government. Instead of

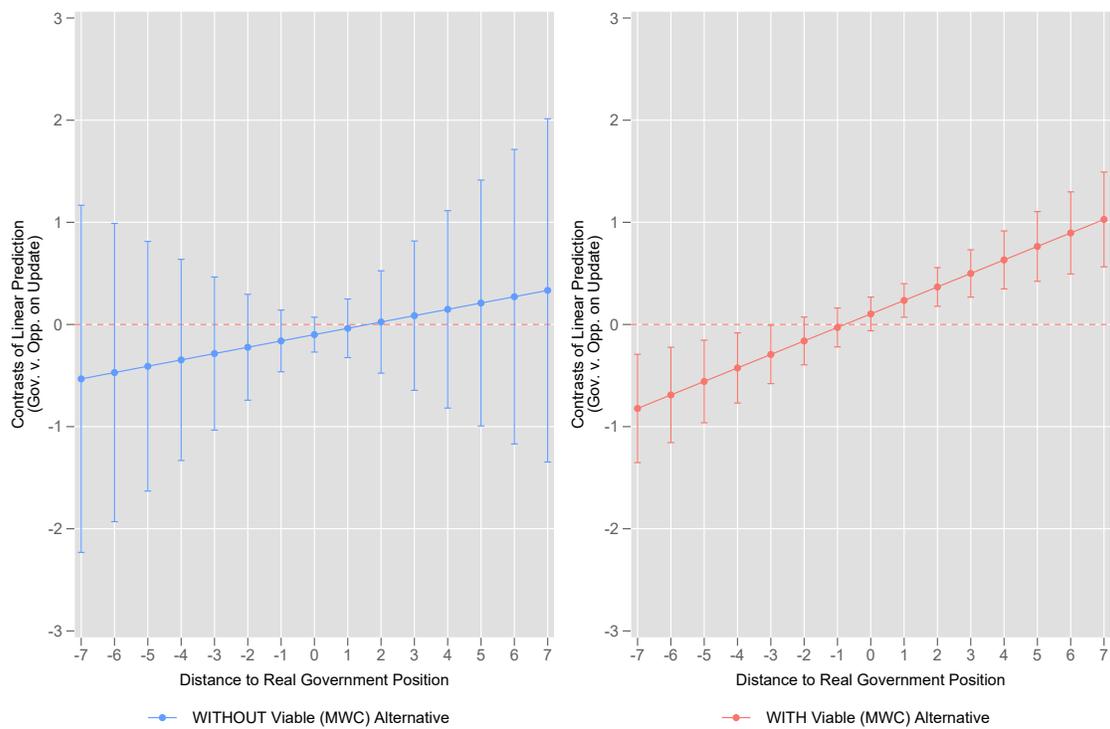
estimating a model of government formation and selecting the potential governments with the highest likelihood of materializing, here we adopt a purely arithmetic criterion: We define as viable any potential government that qualifies as a minimal winning coalition (MWC).³³ Now the variable *Alternative* takes the value of 1 if the party could have joined a minimal winning coalition that voters perceived to be ideologically closer than the government that actually formed. With this alternative operationalization we re-estimate the model in [Equation 1](#).

The results are presented in [Figure 6](#). It plots the predicted shift in the party’s left-right image as a result of entering the government, depending on whether the party could form an ideologically closer viable (minimal winning) coalition or not. The left-hand plot reports predicted changes when the party had no ideologically closer alternative. The right-hand one, in turn, refers to the scenario in which the party could have joined an ideologically closer minimal winning coalition. The horizontal axis indicates the ideological distance between the party and the government that forms, where positive values indicate that the government is perceived to be more right-wing than the party. The vertical axis, in turn, reflects the predicted shift in the party’s average left-right placement.

Using this alternative definition of viable government does not substantially affect the empirical results. Much like the evidence presented in the main text ([figure 1](#)), [Figure 6](#) suggests that, when the party has no ideologically closer alternatives, joining the government does not change voter perceptions of the party’s ideology. The predicted shift is very small and it is not statistically different from zero. In contrast, if the party had the opportunity to form an alternative government that voters considered to be more ideologically similar, the party’s decision makes voters shift their perceptions substantially.

³³ We identify the set of MWC using the following procedure. First, we take the parliamentary composition resulting from elections using the *ParlGov* dataset compiled by [Döring and Manow \(2011\)](#). We then compute all the possible Minimal Winning Coalitions that could potentially form in each parliament. For that purpose we used [Bräuninger and König’s \(2005\)](#) “Indices of Power IOP 2.0” software. [Table 9](#) lists the number of MWC in each country-year.

Figure 6: Predicted change in a party’s left-right reputation after joining the government. 95% Confidence Intervals. Robustness check: **Minimal winning coalitions** as the set of viable governments.



NOTE: The left plot displays the predicted shift in the average left-right placement for a party that joins the government and had no ideologically closer alternative options. The right plot refers to a party that could have chosen an ideologically closer coalition instead of the one that it actually joined. The horizontal axes indicate the left-right distance between the coalition that forms and the focal party.

Table 9: Descriptive Statistics on Minimal Winning Coalitions

Country	Year	N. MWC	N. Parties
Denmark	1994	33	4.45
Denmark	1998	95	5.52
Denmark	2001	24	4.38
Denmark	2005	20	4.00
Denmark	2007	23	4.17
Denmark	2011	55	5.18
Germany	1998	4	2.25
Germany	2002	3	2.00
Germany	2005	7	2.86
Germany	2009	4	2.25
Netherlands	1981	24	4.38
Netherlands	1982	3	2.00
Netherlands	1986	3	2.00
Netherlands	1989	10	4.00
Netherlands	1994	115	5.80
Netherlands	1998	17	4.00
Netherlands	2002	33	4.45
Netherlands	2003	13	3.69
Netherlands	2006	42	4.57
Netherlands	2010	40	4.53
Norway	1977	6	2.50
Norway	1981	7	3.00
Norway	1985	6	2.83
Norway	1989	8	3.13
Norway	1993	8	3.13
Norway	1997	8	3.38
Norway	2001	12	3.17
Norway	2005	14	3.50
Norway	2009	8	3.13
Sweden	1979	4	2.25
Sweden	1982	5	2.40
Sweden	1985	5	2.40
Sweden	1988	6	2.50
Sweden	1991	16	3.56
Sweden	1994	7	2.57
Sweden	1998	14	3.50
Sweden	2002	9	3.33
Sweden	2006	13	3.38

NOTE: The first column indicates the country and the second reports the year in which the parliamentary election takes place. Next, the third column refers to the number of minimal winning coalitions that result from the outcome of the parliamentary election. Lastly, the fourth column provides the effective number of parliamentary parties.

Evidence from Aggregated Data at the Party Level: Model in Levels.

We also examine whether the empirical pattern reported in the main text holds once we adopt a different definition of the outcome variable. Here we estimate a model in levels, i.e. an equation in which the dependent variable is defined as the party's average placement. Specifically, we estimate the following regression model:

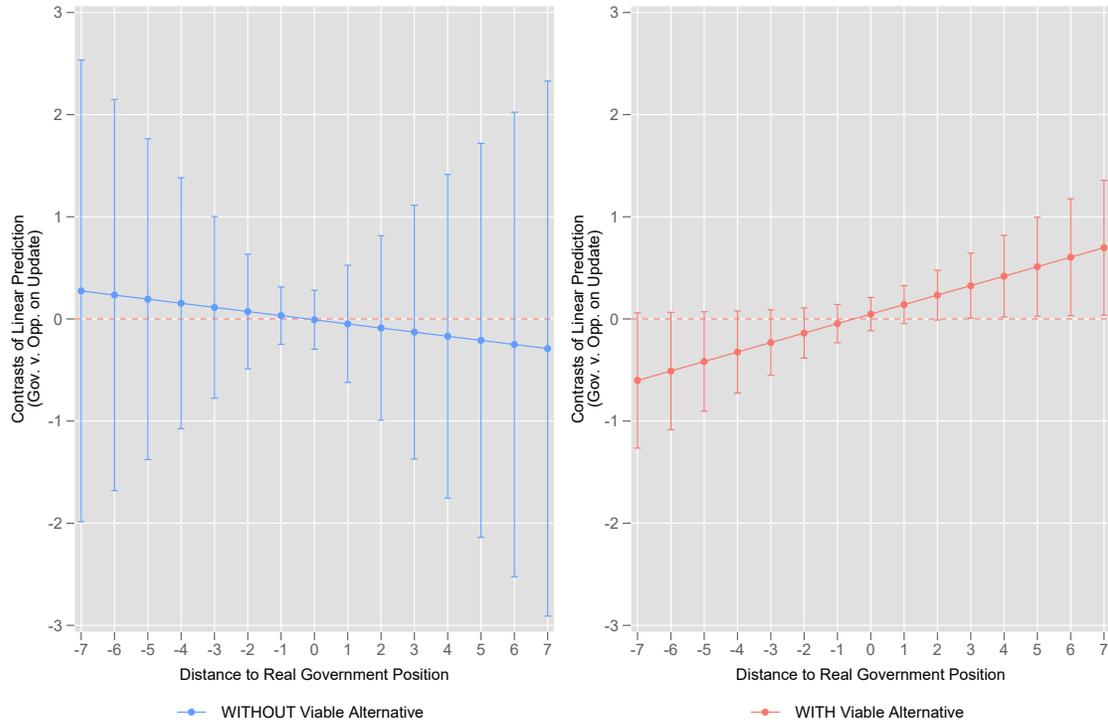
$$\begin{aligned} \widehat{Position}_{t+1} = & \alpha + \beta_1 Position_t + \beta_2 Position_{RG} + \beta_3 Party\ Status + \beta_4 Alternative \\ & + \beta_5 Party\ Status * Alternative \\ & + \beta_6 Distance_{RG} * Party\ Status \\ & + \beta_7 Distance_{RG} * Alternative \\ & + \beta_8 Distance_{RG} * Party\ Status * Alternative \\ & + \beta_9 Distance_{RG} * Party\ Status \\ & + \beta_{10} Distance_{RG} * Alternative \\ & + \beta_{11} Distance_{RG} * Party\ Status * Alternative \end{aligned}$$

This equation defines the party's perceived left-right after the government forms, $Position_{t+1}$, as a function of the previous placement, $Position_t$, and whether the party joins the cabinet or not, $Party\ Status$. To identify how the effect of joining the cabinet varies depending on the overall government position and whether the party has an ideologically closer viable alternative, both variables are interacted with $Distance_{RG}$ and $Alternative$. Two triple interactions are then specified to account for how the position of the government and the available of closer alternatives modulate the impact of each other.

Figure 7 presents the predicted effect of joining the government on the party's average left-right placement. The left plot refers to the context where the party had no ideologically closer alternative. The right-hand plot, in turn, reports results when the party could have joined another viable government that was initially considered to be a more ideologically

congruent choice.

Figure 7: Predicted change in a party's left-right reputation after joining the government. 95% Confidence Intervals. Robustness check: **Dependent variable as the average placement after the government formation.**



NOTE: The left plot displays the predicted shift in the average left-right placement for a party that joins the government and had no ideologically closer alternative options. The right plot refers to a party that could have chosen an ideologically closer coalition instead of the one that it actually joined. The horizontal axes indicate the left-right distance between the coalition that forms and the focal party.

The results of this robustness test also confirm the empirical finding reported in the main text. Coalition membership is not consequential if the party had no ideologically closer alternative. The predicted effect of joining the cabinet is very small, in the opposite direction, and it is not distinguishable from zero. In contrast, as the plot on the right indicates, when the party had a choice among several alternatives and the one it joins was not considered to be the most ideologically congruent choice, voter perceptions significantly change. Hence, we can conclude that the empirical pattern is not an artifact of choosing a model in either levels or in first differences.

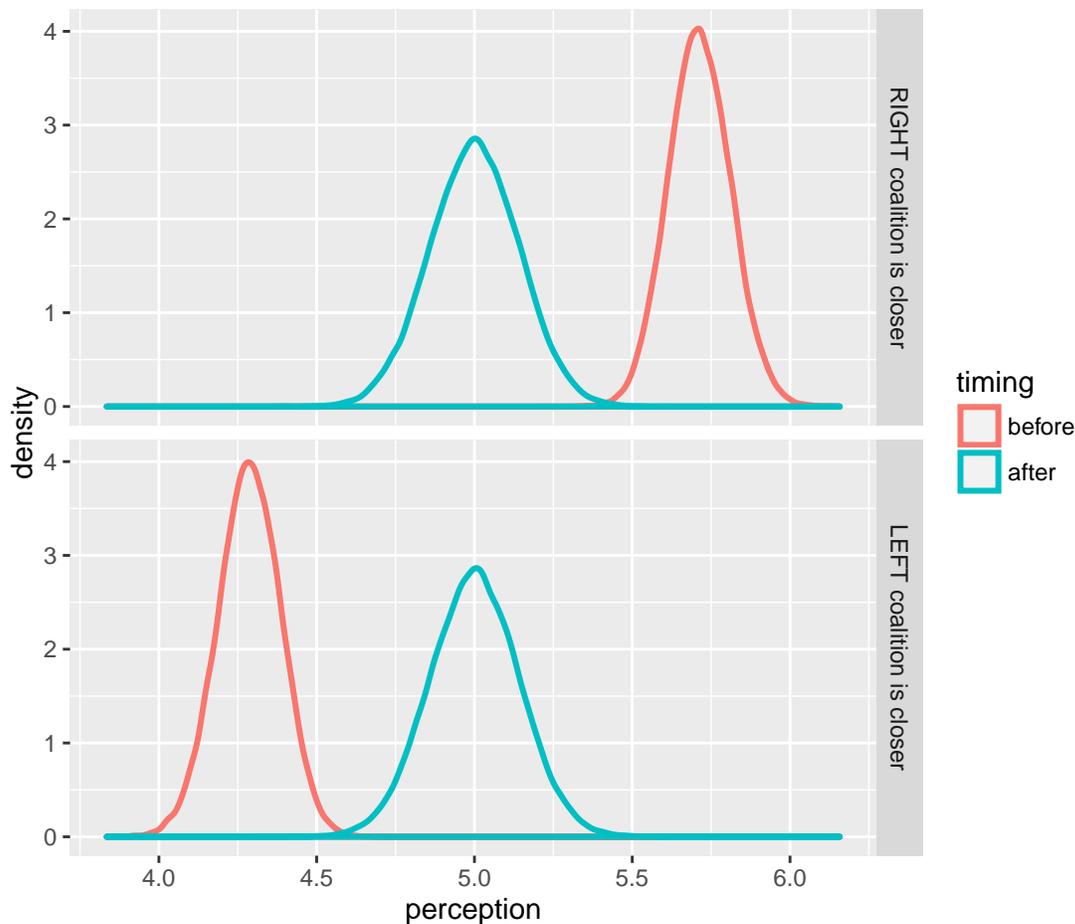
Evidence from Individual Panel Data: Robustness Checks.

We here address several alternative explanations to the evidence presented in the main text using the Norwegian panel data. First, it could be argued that the difference in updating between groups is a mechanical consequence of the fact that respondents who considered that the right-leaning coalition was the most ideologically consistent choice for the Center Party (Sp) also tended to place this party closer to conservative positions. One version of this alternative explanation posits that such difference in initial beliefs coupled with completely random updates in perceptions can yield the same pattern that we report in this paper. The following Monte Carlo simulation, however, shows that this is not likely to be the case.

This simulation is based on a stylized representation of the Norwegian party system in 2005. A set of citizens have opinions about the ideological position of 5 political parties: two on the left, two on the right, and a centrist one. Individual perceptions are random draws from five normal distributions with location parameters 2, 3, 7, 8, and 5, respectively. The centrist party is pivotal in the formation of either of two viable coalitions: one with the parties on the left, and another with the parties on the right. Citizens are split in two groups according to whether they initially perceive the centrist party to be closer to the right coalition or the left-leaning coalition. Perceptions about the centrist party after the coalition forms are a new draw from the same normal distribution with a mean of five.

We run fifty thousand simulations of this updating process. The source code is available in [Figure 9](#). [Figure 8](#) plots the distribution of average initial and final perceptions about the centrist party for each group. It shows that each group undergoes a change in opinions of the same magnitude but opposite directions. In other words, this updating process generates a regression to the mean pattern. Hence, it *cannot* account for the evidence we provide in this paper, i.e. that the formation of a left-leaning coalition only changes the perception of those respondents who thought initially that the conservative coalition was a more ideologically consistent option.

Figure 8: Monte Carlo simulation. Distribution of average perceptions about the ideological position of the centrist party before and after the coalition forms. **Main assumption:** Post coalition perceptions are an independent draw from the same normal distribution.



NOTE: The top panel refers to opinions of citizens who consider that the Sp party is closer to the right-leaning coalition. The bottom panel reports results for those who consider the left-leaning cabinet as the most ideologically consistent choice.

We now examine another version of the argument that the pattern we find in this paper is an artifact of the heterogeneity in initial perceptions about the Center Party (Sp). It contends that the larger shift in perceptions for those who perceived the conservative coalition to be ideologically closer stems from the higher distance between the initial perception about the Sp and the position of the left-leaning coalition that actually formed. Accordingly, it would be the *ex ante* opinion about the party rather than the perceived availability of ideologically closer alternatives what would be driving the variation of our dependent variable. We control

Figure 9: R code employed to run the Monte Carlo simulation.

```
##### MONTE CARLO SIMULATION

# first we create empty vectors
avperceptionclosertoright <- rep(NA, 50000)
avperceptionclosertoleft <- rep(NA, 50000)

avperceptionclosertorightPOST <- rep(NA, 50000)
avperceptionclosertoleftPOST <- rep(NA, 50000)

avshiftclosertoright <- rep(NA, 50000)
avshiftclosertoleft <- rep(NA, 50000)

# Container of seeds
seeds <- seq(1:50000)

for(i in 1:50000){
  set.seed(seeds[i])
  left1 <- rnorm(100, 2, 1)
  left2 <- rnorm(100, 3, 1)
  right1 <- rnorm(100, 8, 1)
  right2 <- rnorm(100, 7, 1)
  centre <- rnorm(100, 5, 1)

  rightCab <- (.2*right1 + .2*right2 + .1*centre) / .5
  leftCab <- (.2*left1 + .2*left2 + .1*centre) / .5

  alternative <- abs(rightCab - centre) < abs(leftCab - centre)

  avperceptionclosertoright[i] <- mean ( centre [ alternative == 1 ] )
  avperceptionclosertoleft[i] <- mean ( centre [ alternative == 0 ] )

  newcentre <- rnorm(100, 5, 1)

  avperceptionclosertorightPOST[i] <- mean( newcentre [ alternative == 1 ] )
  avperceptionclosertoleftPOST[i] <- mean ( newcentre [ alternative == 0 ] )

  outcome <- newcentre - centre

  avshiftclosertoright[i] <- mean(outcome [ alternative == 1 ])
  avshiftclosertoleft[i] <- mean(outcome [ alternative == 0 ])
}
```

for this possibility using the same strategy we followed in the aggregate analysis ([Equation 1](#)).

In [Table 10](#) we present the results of an OLS regression analysis where we estimate the change in perceptions about the Sp as a function of whether the individual perceives that the right-leaning alternative coalition was ideologically closer to the Sp. We that purpose, we specify the variable *Alternative*. We also include the variable $Distance_{RG-Sp}$ to capture the perceived ideological distance between the left-leaning coalition that forms and the Sp party. Both variables are interacted as in [Equation 1](#). Similarly, in order to take into account potential ceiling or floor effects, we control for the position attributed to the Sp at time t . Also, the model includes ideological and socio-demographic variables such as respondents' level of education and age group, which may be a proxy for political sophistication and experience.

Table 10: Update in perceptions about the Center Party as a function of whether the individual had thought that there was an ideologically closer alternative or not.

	(1)	(2)	(3)	(4)
Alternative	-0.89*	0.30*	0.25	0.27
	[0.16]	[0.14]	[0.14]	[0.14]
Distance _{RG-Sp}		-0.09	-0.07	-0.07
		[0.05]	[0.05]	[0.05]
Distance _{RG-Sp} * Alternative		0.18*	0.17*	0.17*
		[0.06]	[0.06]	[0.06]
Constant	0.09	3.47*	3.77*	3.64*
	[0.07]	[0.20]	[0.25]	[0.38]
L-R Sp Perception _t	no	yes	yes	yes
L-R Self Placement _t	no	no	yes	yes
Level of Education	no	no	no	yes
Age Group	no	no	no	yes
N	682	682	677	677
R ²	0.04	0.43	0.44	0.45

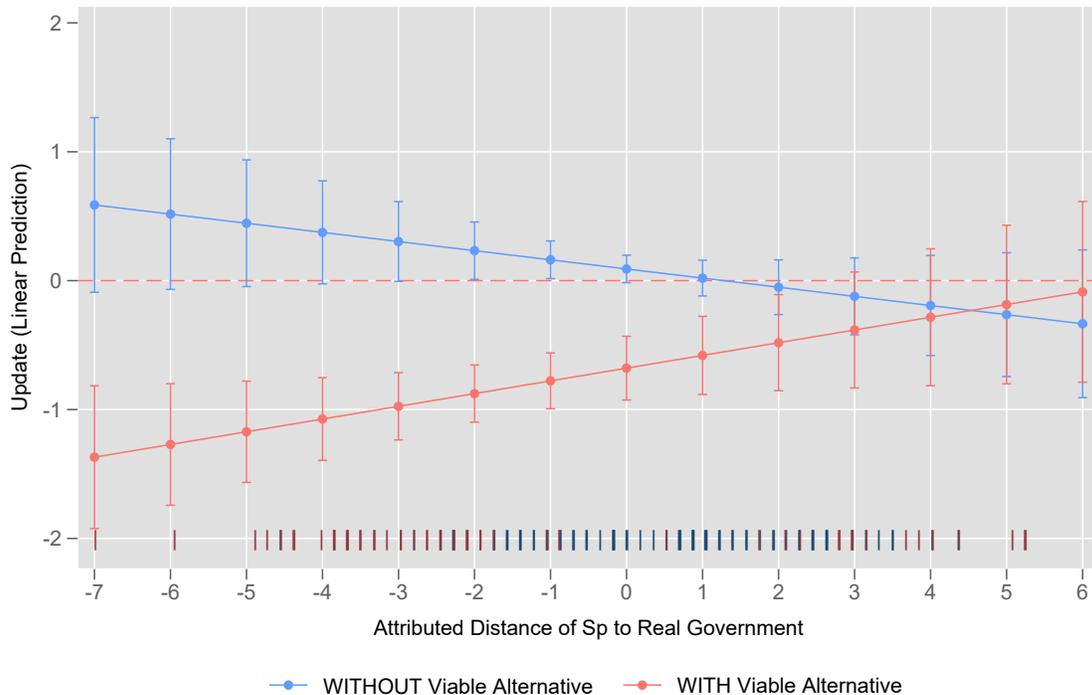
Standard errors in brackets

* p<0.05

Column 1 offers the results of a bivariate regression model that confirms our previous findings. Perceiving that the Sp had a closer alternative to its right but finally decided to form a center-left coalition leads voters to shift their perception of the Sp to the left. The interaction term in models 2 to 4 shows that the effect of joining the cabinet is *different* for those who had thought that the center-left coalition was the ideologically most congruent choice (*Alternative*= 0) and those who had thought that the Sp was closer to the center-right alternative (*Alternative*= 1). In line with our argument, the effect of *Distance* is almost zero in the former case. However, for the latter, perceptions shift to the left (i.e. negative values) for each *Distance* score.

Figure 10 graphs the linear predictions of the effect of $Distance_{RG-Sp}$ from the estimates in model 4. It is only for the few respondents who perceived the left coalition to be to the right of the Sp that the variable *Alternative* makes no difference. For the rest, the group of respondents that updates the perception of the Sp position towards the left-leaning coalition are those who had considered that the party was closer to the center-right coalition.

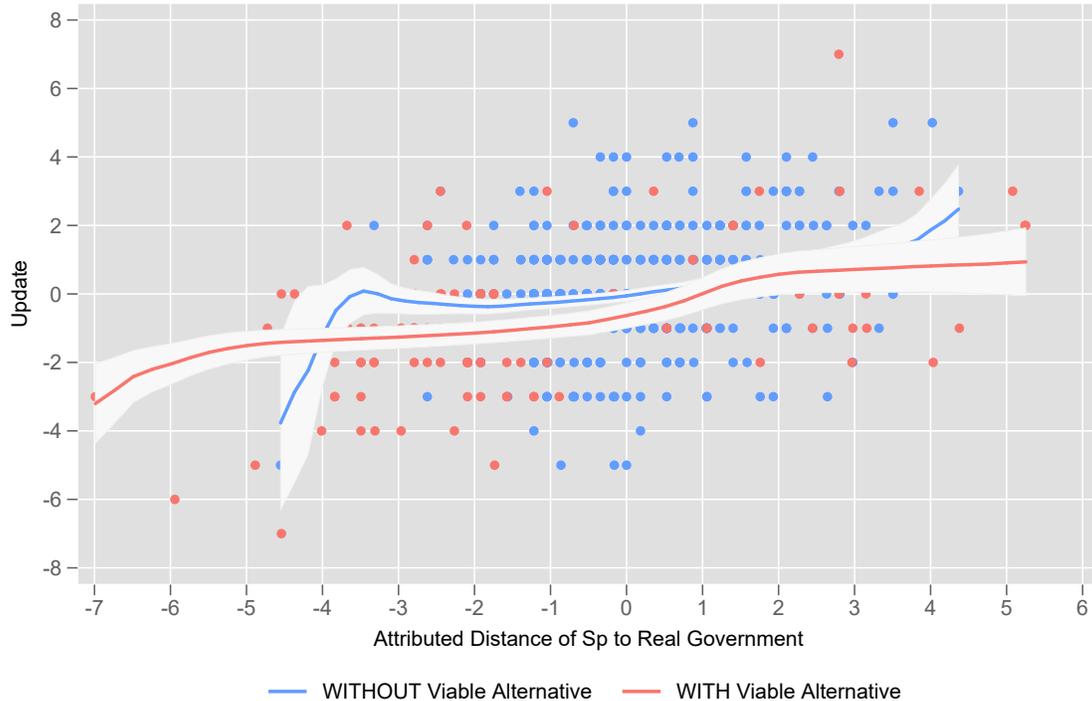
Figure 10: Adjusted Predictions at Representative Values with 95% Confidence Intervals.



As a further robustness check, we relax the linearity assumption in the previous regression model. We show the results of a local polynomial regression predicting the update in perceptions of the Sp. It is modeled as a function of the perceived distance to the left-leaning coalition for the two relevant groups of voters (with and without perceived closer *Alternative*). Figure 11 presents a kernel-weighted local polynomial smooth plot with 95% confidence intervals that shows that, for perceived distances between -4 and 0 (i.e. perception of the government being to the left of the Sp), those who thought that the center-left coalition was the closest option for the Sp do *not* update their perceptions, while those who believed that a center-right coalition was closer do, indeed, shift their beliefs about the position of

the Sp toward the left (between -0.5 and -2). Hence, even in a non-parametric setting our main hypothesis holds.

Figure 11: Local Polynomial Smooth Plot with 95% Confidence Intervals (Distance RG-Sp on Update).



The final alternative explanation argues that the reason why some voters shifted their belief about the position of the Norwegian Center Party (Sp) toward the left had nothing to do with entry in a left-leaning coalition but with the fact that the Sp had made an explicit programmatic shift to the left between 2001 and 2005. Although that would not explain the difference between the two groups of respondents, we still address this possibility. Using data from the Manifesto Project (CMP) (Volkens et al., 2014) we can see that the Center Party did *not* move its program to the left in this time period. Indeed, while the 2001 manifesto scored -27.3 in the CMP left-right scale (with a potential range from -100 to +100), the 2005 one actually moved slightly to the *right* (-17.6).³⁴ Hence, we can rule out that the change in voters' perceptions of the Sp position was driven by the party's manifesto.

³⁴Source: https://visuals.manifesto-project.wzb.eu/mpdb-shiny/cmp_dashboard_dataset/ [Accessed February 15th, 2017].

Randomization Checks for Quasi-Experimental Design:

The following analysis assesses whether the timing in which survey respondents are contacted is orthogonal to their characteristics. For each case that we consider —the British Liberal Democrats in 2010 and the German FDP in 2009—, we present balance tests that compare respondents interviewed before and after the coalition is announced along several socio-demographic traits.³⁵ If timing is indeed random, then both groups of respondents should not diverge with regard to these socio-demographic factors.

Table 11 presents such comparison for the case of Britain. The second column reports average demographic characteristics for the group of respondents who, in the post-election wave of the British Election Panel, were interviewed before the coalition formed, while the third column reports that of individuals interviewed afterwards. Results show that there are no systematic disparities in socio-demographic characteristics between both groups. Differences in average responses are small and in most cases these are not statistically distinguishable from zero. In the two instances where the difference is statistically significant —age and gender—, such divergence is substantively minimal and therefore we can attribute the statistical significance to the large sample size (over 13,000 respondents).

Table 12 compares the pre and the post coalition groups within the post-election wave of the 2009 German Longitudinal Election Study. It also shows that there are no significant demographic differences across both groups. Hence, we can be more confident that the timing of participation in the survey is random and therefore it is uncorrelated with pre-existing views about the policy positions of political parties.

³⁵These traits are exogenous to short-term political events like the formation of a new cabinet. Therefore, if there were systematic differences across both groups then it would mean that the timing of survey participation is not random.

Table 11: Balance tests. 2010 British Campaign Study.

	before coalition	after coalition	Difference
	group	group	
marital status	0.58	0.56	-0.02
gender	0.49	0.54	0.05*
education	0.14	0.13	0.01
income level	7	7.1	0.1
religious	0.47	0.46	0.1
housing	0.78	0.77	0.01
ethnicity	0.04	0.04	0
age	51	49	2*
trade union	0.19	0.20	0.01
Sample size (N)	11,231	2,125	

DATA SOURCE: 2010 pre-election wave British Election Study Internet Panel. Marital status indicates proportion of respondents that are currently married. Education reflects the proportion of participants that finished their full-time education at age 15 or earlier. Housing denotes the proportion that owns her current residence. Ethnicity is defined as the proportion of non-white respondents. Trade union indicates the proportion that declares to be a member of a trade union.

t-test: * $p < .05$

Table 12: Balance tests. 2009 German Longitudinal Election Study.

	before coalition group	after coalition group	Difference
age	50	50	0
gender	0.50	0.55	0.05*
marital status	0.49	0.52	0.03
household size	2.1	2.1	0
income level	4.9	5.1	0.2
education	0.35	0.38	0.03
employment	0.36	0.34	0.02
religious denomination	0.27	0.25	0.02
country of birth	0.06	0.06	0
from West Germany	79%	78%	0.4%
Sample size (N)	894	1121	

DATA SOURCE: 2009 German Longitudinal Election Study (GLES), post-election wave. Education indicates the proportion of respondents with intermediary secondary education. Employment denotes the proportion of respondents with full-time jobs. Religious denomination defines respondents who belong to the German Protestant Church. Country of birth indicates the proportion of respondents born outside of Germany.

t-test: * $p < .05$