Coalition Policy Perceptions*

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Abstract

How do voters form expectations about the policies of coalition governments? The literature generally assumes that voters hold beliefs consistent with Gamson's Law when making inferences about how the policy preferences of coalition parties affect government policy. Yet little is known about whether, or how, voters actually form expectations that way. In this paper we leverage a unique data set and find in contrast to what is commonly assumed that voters neither accord coalition parties equal influence nor influence proportional to party size, as suggested by Gamson's Law. While voters take account of the coalition parties' sizes and bargaining strength, voters also seem to perceive that smaller coalition parties have disproportional influence on coalition policy. In other words, voters who live under and vote for coalition governments have a somewhat different sense of policy outcomes than the literature currently suggests.

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Parliamentary systems are often seen as coming in two varieties. The first, typically associated with Westminster, is characterized by single party majority governments. In the second type, party leaders must cobble together a legislative majority by forming government coalitions. Each type is generally thought to have certain advantages over the other. Single-party governments offer clear lines of accountability and voters can easily form expectations about what the party will seek to achieve while in government. Multiparty parliamentary systems, on the other hand, are thought to be more representative — voters have a greater variety of parties to choose from and the system should, therefore, have a higher degree of ideological congruence (Golder and Stramski, 2010).

The strength of each type can be seen as the weakness of the other. In contrast to single-party governments, coalition governments are more difficult to hold accountable. In a coalition government, no single party can be expect to have its whole policy platform adopted. Instead, coalition parties negotiate about the government's agenda (Martin and Vanberg, 2011, 2014). Thus, in order to hold individual coalition parties accountable, voters must have expectations about what a given coalition party can achieve. Without developing such expectations, voters cannot assess the degree to which individual coalition parties sought to implement, or were successful in implementing, their policy platforms — and whether to reward or punish the party for its performance.[1] Whether or not voters develop expectations over coalition policy is, therefore, germane to the question of accountability. Yet, the literature is so far silent as to whether — or how — voters form such expectations, which is the questions we address in this manuscript.

The literature on coalition politics has well developed theories of government formation focused on the outcome of the bargaining over policy and office. More recently scholars have begun to examine how voters' expectations about the outcome of the government formation process shape vote choice and a growing literature on strategic voting under coalition governments depends on voters being able to develop such expectations (see, e.g., Bargsted and Kedar, 2009; Indridason, 2011; Meffert and Gschwend, 2010). This literature explicitly assumes that vote choice is affected by voter expectations about which coalitions are likely to form and which policies they will implement. Yet, whether voters do form such expectations remains an open question. To

[1] Voters could, of course, simply focus on holding the coalition as a whole — as opposed to individual parties — accountable.

date, there have been no systematic analysis of whether that is the case and whether voters' expectations respond to the factors that generally are thought to influence coalition policy. Beyond assessing whether coalition bargaining theories provide an accurate account of how voters — who live under coalition governments — see coalition politics, voters' expectations about government policy under coalition governments are also important for normative reasons. Voters need a basic understanding of how casting votes for parties influences coalition policy in order to make an efficient use of their vote.

We examine the question of what policies voters expect coalitions to implement and how they formulate those expectations. We begin by discussing several heuristics that voters may rely on in formulating their expectations about coalition policy. We then examine whether the heuristics explain voter expectations using survey data on the policy positions of parties contesting the 2009 German legislative election and the policy positions of coalitions considered possible following the election. Our findings suggest that — contrary to what the literature commonly assumes — respondents do not employ a proportional influence heuristic to arrive at their expectations about coalition policy. Instead, our results suggest that the bargaining strength of the parties matters to voters. That is, respondents expect larger and ideologically centrist parties to have greater influence on coalition policy.

Expectations about Government Coalition Policy

At election time, voters in most multi-party parliamentary systems know that no single party will obtain a majority and that a government coalition will form. The coalition will subsequently implement policies that reflect the preferences of the individual coalition parties to a greater or a smaller extent. Thus, voters that care about policy outcomes face the rather daunting task of figuring out how their votes affect the outcome of the coalition formation process and the policy that the coalition will implement.[2] In fact, voters must make some assumptions about this process and, thus, develop expectations about policy outcomes for their choices to be meaningful.[3]

[2]That these considerations influence voters is suggested by Tillman (2015) who finds that turnout is higher when parties make pre-electoral coalitions that clarify expectations about which coalitions are likely to form and what policies those coalitions will pursue.

[3]Fortunato et al. (2016) examine whether voters use heuristics to form expectations about the distribution of portfolios (but portfolios may be considered a proxy for policy influence) and find evidence that voters expect the allocation to be proportional but are

Forming expectations about what policies will be pursued by coalition governments may be a challenging task but voters are unlikely to be entirely at a loss. Voters, after all, will know a thing or two about the political parties contesting the election and taking part in the government formation process. The formal and empirical literature on coalition bargaining has shown that characteristics of parties — typically their size and ideological position — help predict which coalitions form and how the spoils of office are divided.

The idea that the size and the ideological orientation of a coalition party affects its influence on coalition policy is fairly widespread[4] and usually each party's influence is assumed to be proportional to its seat share. This assumption is widely used in empirical work.[5] The Comparative Manifesto Project, for example, reports government policy positions in its dataset where coalition policies are calculated on the basis of party policy positions as estimated from the party manifestos with the influence of each party being proportional to the coalition parties' share of seats in the legislature. Kim and Fording (2002) employ a similar approach but weigh the coalition parties' policy positions by the number of seats in the cabinet. Overall, the literature makes very strong assumptions about how the policy preferences of coalition parties affect government policy and a subset of this literature examines how government policy factors into voters' decisions. Implicitly it is assumed that voters hold beliefs consistent with those assumptions but there is little or no evidence to back up those assumptions.

A clear understanding of how voters evaluate government coalitions is important, if not essential, to explain voting behavior in multi-party systems and to accurately test theories of coalition voting.[6] In turn, it addresses

unable to reject the hypotheses that voters have direct knowledge of the actual allocation. Fortunato and Stevenson (2013) address a related question, that is, how voters form expectations about the outcome of the coalition formation process and find evidence that voters rely on heuristics such as the prime minister coming from the largest party. Also closely related to this question is the work of Plescia and Aichholzer (2015) who ask what shapes voters' coalition preferences.

[4]See, e.g., Laver and Budge (1992); Kedar (2005); Bargsted and Kedar (2009); Indridason (2011); Duch, May and Armstrong II (2010); Powell (2000); Huber and Powell (1994).

[5]See, e.g., Ferland (2016); Golder and Stramski (2010); Golder and Lloyd (2014); Indridason (2011) Others, e.g., De Sinopoli and Iannantuoni (2008) have assumed that policy outcomes equal the seat or vote share weighted average of *all* the political parties' policy positions, which amounts to cabinet membership having no value in terms of policy.

[6]Some of the literature makes specific assumptions about government policy — typically it being the weighed average of the cabinet — that has no empirical support when it

questions fundamental to the functioning of representative democracy, i.e., to what extent voters are able to exert control over the direction of government and whether voters are able to hold governments to account for their actions.

Highly sophisticated voters might be expected to form expectations about coalition policy[7] on the basis of a variety of factors that are likely have implications for the policies implemented by the governing policy. In reality, however, it is probably fair to say that policy making in parliamentary systems — even among scholars — is not very well understood. Moreover, even highly sophisticated voters may have little incentive to invest much effort in forming accurate expectations about policy — while accurate expectations may benefit voters (or subsets of voters) collectively, each voter's action is unlikely to be pivotal to the outcome. It seems, therefore, reasonable for voters to employ relatively simple heuristics to form their expectations.

Starting with one of the simplest heuristic imaginable, voters may expect the coalition parties to wield equal influence on policy and the government policy to equal the average of the parties' positions. This heuristic requires very little information on the part of voters, i.e., they only need to have beliefs about the policy positions of the coalition parties.[8]

Heuristic 1 *(**Equal Influence**) Voters expect government policy to be the (unweighted) average of the coalition parties' policy positions.*

Voters may employ more sophisticated heuristics. After all, heuristics may also reflect, or derive from, other observable political outcomes. Scholars have sought to evaluate the influence of individual coalition parties on government policy but as measuring government policy is not a trivial exercise, they have often focused on bargaining outcomes that are more easily quantifiable. In particular, the allocation of ministerial portfolios has been studied

comes to actual information about how voters evaluate coalitions. Others have made use of surveys that have included specific questions about preferences for coalitions rather than their policies.

[7]As noted above, both Fortunato and Stevenson (2013) and Plescia and Aichholzer (2015) address how voters form expectations about the outcome of the coalition formation process. On a related note, Duch, Przepiorka and Stevenson (2015) report experimental evidence that participants attribute responsibility disproportionally in collective decision-making situations such as to parties in coalition governments. Also closely related to this question is the work of who ask what shapes voters' coalition preferences.

[8]Note that the voter does not need to know the 'true' policy positions of the parties to employ the heuristic.

extensively (see, e.g., Gamson, 1961; Browne and Franklin, 1973; Warwick and Druckman, 2006; Carroll and Cox, 2007; Golder and Thomas, 2014). Parties and candidates clearly care about holding ministerial portfolios and the control of ministerial portfolios is considered to confer some advantage in policy making within the portfolio's remit.[9] The study of portfolio allocation revealed one of the strongest empirical relationships in political science — possibly the one that comes closest to deserving being termed a law, i.e., Gamson's Law. According to Gamson's Law, the allocation of ministerial portfolios is proportional to the legislative strength of the coalition parties. Voters may similarly expect the policy influence of coalition parties to be proportional to their size. Apart from the allocation of ministerial portfolios being highly visible, proportionality is sometimes seen as conforming to norms of fairness (see, e.g., Verzichelli, 2008), which may further support voters' beliefs regarding the influence of individual coalition parties. Moreover, the heuristic can be deployed with relative ease as employing it only requires two pieces of information; the size of the coalition parties and their ideological positions. Thus, the second heuristic focuses on proportional influence of the parties.

Heuristic 2 ***(Proportional Influence/Gamson's Law)*** *Voters expect government policy to be the seat share weighted average of the coalition parties' policy positions.*

It is also possible that voters are more sophisticated and consider how the coalition bargaining process favors some parties over others in determining government policy. Formal theories of coalition formation tend to offer somewhat different predictions about the balance of power within coalition governments that emphasize the bargaining strength of the parties (see, e.g., Austen-Smith and Banks, 1988; Baron and Ferejohn, 1989; Laver and Shepsle, 1998).[10] In these models bargaining strength is typically seen to derive from

[9] See, e.g., Laver and Shepsle (1996), who model ministers as portfolio dictators.

[10] The proportional influence heuristic and those based on the bargaining context are not necessarily mutually exclusive as, e.g., Morelli's (1999) demand bargaining model, which relaxes the assumption that only one offer can be on the table at any given time, shows that bargaining outcomes resembling Gamson's Law can occur. Morelli's (1999) model considers bargaining over office and policy benefits and Gamson's Law-like results occur as long as the parties' preferences over policy are not too strong. However, if the parties care enough about policy then the policy outcome is the median party's policy. Baron and Diermeier (2001) similarly model bargaining over offices and policy in an alternating offers framework

two sources; the size of the party and its ideological position. Larger parties enjoy greater bargaining strength for at least two reasons. First, they tend to have more opportunities to form coalitions and to be pivotal to a larger number of majority coalitions. This increases the parties' bargaining strength as it makes the party's threats to walk away from the bargaining table more credible. Second, larger parties are more likely to take a leading role in the coalition bargaining and to occupy the formateur role (Diermeier and Merlo, 2004). One of the key findings in the coalition bargaining literature is that the formateur party is expected to reap a disproportionally large share of the spoils of office (see, e.g., Baron and Ferejohn, 1989).[11] Ideological position influences bargaining strength for similar reasons, i.e., it affects the desirability of alternative coalition formation possibilities and, therefore, the credibility of threats to terminate coalition negotiations. A centrist party will generally have more options, i.e., it may be able to find coalition partners on the left or on the right, whereas parties whose ideological positions are less central may have few options than try to form a coalition with more centrally located parties.[12] Note that centrist parties do not only derive their bargaining strength from having more potential coalition partners but also from being able to credible threaten to form a coalition with a party whose preferences are opposed to that of its current bargaining partner. Whether through intuition or experience, voters may recognize that larger and more centrist parties wield greater bargaining power.

Heuristic 3 ***(Bargaining Strength)*** *Voters expect larger and more ideologically centrist parties to have a disproportionate impact on the coalition's policy.*

The three heuristics vary in terms of sophistication. The simplest of the three only requires the voter to be able to associate each coalition party with an ideological position. The most complex heuristic of the three requires some

where the policy outcome is generally the midpoint between the coalition parties' policy positions — although this depends on the particular functional forms assumed.

[11] As discussed above, not all models of coalition bargaining predict a formateur advantage and the empirical evidence for a formateur advantage, in terms of portfolio allocation, is at best mixed. However, although the allocation of portfolios appears highly proportional, much less is known about how much influence coalition parties have on government policy and whether formateur parties wield disproportional influence (see, e.g., Warwick, 2011).

[12] That is, the most extreme parties have no option other than look for more centrally located coalition partners.

sense of bargaining strength deriving from the size and ideological position of the parties. While the third heuristic may appear to ask a lot of voters, voters may still get by with fairly limited information about the bargaining process.[13] That is, it may be sufficient to recognize that the larger party is more likely to act as formateurs, to lead the eventual coalition, and to associate that status with greater influence.[14] Moreover, that association does not have to derive from an understanding of how the largest party benefits but may simply stem from empirical observation. As "members of the polity" (Lewis-Beck and Skalaban, 1989), citizens have learned to distinguish small parties from large and have experienced coalition governments (Armstrong and Duch, 2010; Gschwend, 2007; Herrmann, 2014). Coalition formation is not a rare event in multi-party systems — especially considering that coalitions often also form at lower levels of government. Regular electoral polls help citizens identify which coalitions are feasible. Parties sometimes form pre-electoral coalitions (Golder, 2005, 2006) or announce with which parties they might, or will not, form a coalition. Such coalition signals (Gschwend, Meffert and Stoetzer, 2017; Gschwend, Stoetzer and Zittlau, 2017; Meffert and Gschwend, 2011) provide voters with easy-to-use yardsticks to figure out which coalitions are likely to form. Thus, voters are generally well equipped to apply such heuristics without a deep understanding of the coalition formation process.[15]

The three heuristics can also be ranked in terms of how favorable the outcome is to the largest party. The equal influence heuristic ignores party size while the Gamson's Law heuristic rewards parties in proportion to their size. Finally, the bargaining strength heuristic awards ideological more central and larger parties — on the expectation that it is more likely to act as a formateur — an additional bonus on the basis of their ideological position and their size.

To examine whether these heuristics describe voters' expectations, we take advantage of data from the 2009 German Longitudinal Election Study

[13] The influence of bargaining strength may even be indirect, i.e., large, centrist parties may receive disproportional attention in the media that in turn colors voters' evaluations of their influence.

[14] Angelova, König and Proksch (2016) show that voters assign greater responsibility to the party of the prime minister (see also Crabtree et al., 2016; Glasgow, Golder and Golder, 2011).

[15] See, also Fortunato, Lin and Stevenson (2014), who argue that, while political knowledge can be quite limited, voters are better informed about the aspects of the political system that are relevant in a given political context.

(GLES) that included questions about the perceived policy positions of some of the coalitions likely to form after the election.[16] First, we begin by showing that voters are quite comfortable with reporting perceived policy positions of parties and coalitions. Second, we introduce a simple model to estimate the policy or coalition weight of each coalition party and compare those with the weights implied by the heuristics above. Third, we then estimate a model that allows us a direct test of the proportional influence heuristic that also takes into account heterogeneity in voters' expectations about the sizes of the coalition parties. Finally, we estimate non-linear least squares models in order to consider how additional covariates influence the party's policy weight.

Perceptions of Coalition Policy

The 2009 GLES is ideal for examining how voters evaluate coalitions. First, Germany's history of coalition governments means that voters (and, hence, survey respondents) have a great deal of experience in judging coalition possibilities. Moreover, a variety of coalitions have actually formed in Germany: Grand Coalition, CDU-FDP, SPD-FDP, SPD-Greens. Second, the GLES is the only electoral study we are aware of that includes questions about the ideological placement of both political parties and coalitions as well as items about the vote share each party was expected to win.[17] These data allow for a direct test of the heuristics above.

As is common in voter surveys, respondents were asked to place parties and coalitions on a 0-10 left/right scale. While about 82 percent report policy positions for the large parties, CDU[18] and SPD, about 80 percent report a policy position for the smaller parties, FDP and the Greens (B90).[19] In addition, respondents were asked about their policy perceptions of three

[16] In particular we use data from the Short-term Campaign Panel (wave 6) that includes all the relevant variables (Rattinger et al., 2013).

[17] For example, the Austrian survey analyzed by Meyer and Strobl (2016) only included questions about ideological positions.

[18] For simplicity we refer to the CDU/CSU pre-electoral coalition as CDU. The CSU only competes in Bavaria, while the CDU does not compete against the CSU. We use the perceived policy positions of the CSU instead of the CDU for respondents from Bavaria.

[19] Incidentally, that is about the same number of respondents that report whether or not they have developed a partisan identification for any party; an exemplar of a standard survey item. Moreover, even other studies about voter perceptions of coalitions report that 80 percent of survey respondents know which coalition parties participate in the government (see, e.g., Angelova, König and Proksch, 2016). Thus, the GLES data is not

two-party coalitions: (1) the so-called Grand Coalition consisting of the two large German parties, the CDU and the SPD, (2) the so-called black-yellow coalition of the CDU and the FDP and, (3) the red-green coalition of the SPD and the Greens (B90). About 76 percent of all respondents place those coalitions on the left/right ideological scale. Respondents seem to find it only slightly more difficult to place coalitions on the left/right scale than parties. It certainly helps, though, that respondents have gained experience with all those three coalitions.

The three potential government coalitions differed, however, in two important aspect. First, while the CDU-SPD and the CDU-FDP coalitions were realistic possibilities, public opinion polls leading up to the election indicated that the combined vote share of the SPD and B90 ranged between 34% and 37%, thus, making the SPD-B90 coalition at best only a remote possibility.[20] Survey respondents were cognizant of this fact and very few considered a SPD-B90 coalitions a likely outcome. Second, as the parties' left-right positions in table 1 make clear, the coalitions differ in terms of how ideologically proximate the coalition parties are. In particular, the CDU and the SPD are quite far apart compared to the parties in the CDU-FDP and the SPD-B90 coalitions — the mean left-right distance between the parties in the latter coalitions is less than one. In principle, this is of little consequence but it does represent some complications when it comes to evaluate voters' perceptions of partisan influence within these coalition. The questions about the party and coalition positions were asked separately, which raises concerns about how good the respondents' recall is. When answering the questions about the coalitions' policy positions, the respondents' recall of their answers about the party's policy positions may be imperfect. That appears to be the case. In examining how frequently respondents place the coalition policy to the left or to the right of both coalition parties, we find that they are more than twice as likely to do so for the ideologically compact coalitions (CDU-FDP, SPD-B90). The effect of imperfect recall can be thought of as adding noise to the measurement of our dependent variable but the amount of noise does pose some challenges for estimating party influence for these coalitions. In the next section, we introduce a simple model of how voters perceive policy positions of coalition governments.

exceptional in that regard.

[20] See e.g., http://www.wahlrecht.de/umfragen/politbarometer.htm

Table 1: Mean Placement of Parties on Left-Right Scale

Party	Position	Std. Dev.
B90	3.20	1.60
SPD	3.63	1.69
FDP	6.15	1.82
CDU	7.04	1.76

A Model of Coalition Policy Perceptions

In theoretical and empirical work, coalition policy is usually assumed to be a function of the coalition parties' policy positions — typically a convex combination of the parties' positions: $C = \alpha_A A + \alpha_B B = \alpha_A A + (1 - \alpha_A)B$, where A and B are the policy positions of two coalition parties, α_i is party i's *coalition weight*, and C is the resulting government policy.[21] When the weight of the parties is assumed to be proportional to their legislative or cabinet seat share — as Gamson's Law has been taken to suggest — α_i is simply replaced with the seat share s_i.[22]

We begin by considering a simple model to estimate the weights that voters attach to each coalition party. As voters may evaluate different coalitions, or different parties, in different ways, we consider each coalition separately. For this we can employ the simple two-party model above:

$$C = \alpha A + (1 - \alpha)B, \tag{1}$$

where A and B now represent each voters' perceived policy positions of the two parties. Rearranging equation 1 we obtain:

$$C = \alpha A + B - \alpha B \tag{2}$$
$$C - B = \alpha(A - B) \tag{3}$$

[21] More generally, the policy can be written as $C = \sum_{i \in G} \alpha_i p_i$, where G is the set of the coalition parties, p_i the policy position of party i, and α_i the weight of party i with $\sum_{i \in G} \alpha_i = 1$.

[22] When the focus is on cabinet parties, s_i is simply equals party i's share of (weighted) portfolios but when the focus is on legislative seat share then $s_i = \frac{l_i}{\sum_{i \in G} l_i}$, i.e., the share of the government's legislative majority.

Thus, for each coalition we can estimate α, the coalition weight of party A by simply regressing the respondent's perceived difference between the coalition's policy position and party B's policy position on the respondent's perceived difference between the policy positions of party A and B. Throughout we refer to the first named party of a coalition as A, the second named party as B, and the coalitions as C.

The results are shown in Table 2 and graphed in Figure 1 along with the expected values corresponding to respondents employing the equal influence heuristic and the Gamson's Law, i.e., the proportional influence, heuristic.

Table 2: Estimated Coalition Weight of First Party

	Coalition		
	CDU-SPD	CDU-FDP	SPD-B90
α	0.537^{***}	0.661^{***}	0.536^{***}
	(0.006)	(0.013)	(0.013)
Observations	1849	1825	1819

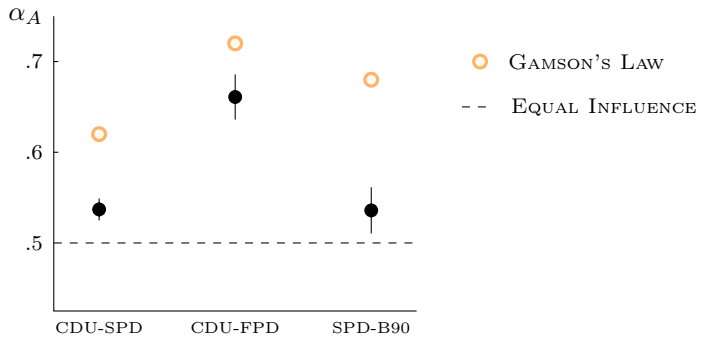
Standard errors in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01 given H_0: $\alpha = 0.5$.

A quick glance at the results reveals that voters do not employ the equal division heuristic, i.e., of coalition parties splitting the difference in terms of policy. The results for the CDU-FDP coalition indicate a highly disproportional influence of the parties with $\hat{\alpha}_{CDU} = .661$ and, consequently, $\hat{\alpha}_{FDP} = 1 - \hat{\alpha}_{CDU} = .339$. The other two coalitions come closer to parity but the null hypothesis that $\alpha = .5$ is still soundly rejected in both models.[23]

Voters do not perceive coalition policy through the lens of Gamson's Law either. Based on the result of the 2009 election — assuming that voters were able to correctly predict the outcome of the election on average — the coalition weights consistent with Gamson's Law would have been $\alpha_{CDU} = .62$ for the CDU-SPD coalition, $\alpha_{CDU} = .72$ for the CDU-FDP coalition, and $\alpha_{SPD} = .68$ for the SPD-B90 coalition. The estimated α's shown in Figure 1 are in each case systematically different from coalition weights implied by the Gamson's Law heuristic. Voters do, however, still appear to take the parties'

[23]The result of the null hypotheses tests where $\alpha = .5$, are $F_{(1,1848)} = 35.95$ ($p < .0001$) for the CDU-SPD coalition, $F_{(1,1824)} = 160.52$ ($p < .0001$) for the CDU-FDP coalition and $F_{(1,1818)} = 7.66$ ($p = .0057$) for the SPD-B90 coalition.

Figure 1: Estimated Coalition Weight of First Party



relative size, i.e., their legislative strength, into account. There are two pieces of evidence for that. First, across the three regressions the bigger coalition party is estimated to have more weight than its coalition partner. Second, the estimated coalition weight of the large party in each coalition increases with the party's relatively size, e.g., the CDU carries more weight in a coalition with the small party such as the FDP than a larger party such as the SPD. However, parties' legislative strength appears not to be the only thing that matters. The estimated weights for the CDU in the CDU-SPD coalition and SPD in the SPD-B90 coalition are highly similar while the SPD provided a larger coalition seats share in the SPD-B90 coalition than the CDU did in the CDU-SPD coalition.

To sum up, these results suggest that voters use neither the equal influence heuristic nor the proportional influence heuristic when evaluating coalition policy. The latter claim requires us to assume that respondents correctly anticipate the relative sizes of the coalition parties. That is, the lack of support for the Gamson's Law heuristic could be explained by voters having wildly different expectations about the size of the coalition parties. If expectations about party size are heterogenous, then the respective coalition weight respondents implicitly use when forming expectations about a coalition's policy position will differ — even though the respondents still use the same heuristic. In the next section we, therefore, take into account respondents' expectation about the coalition parties' size . Again, the GLES data is unique in that respondents were asked about both the coalitions' policy positions and how big they expected the parties to be.

Proportional Influence & Heterogenous Expectations

The simple model in Table 2 is a convenient first approximation for evaluating how respondents think about coalition policy and for assessing the usefulness of the equal influence and the proportional influence heuristics. However, it mostly serves an illustrative purpose as respondents have different expectations about the outcome of the election. In order to examine whether voters perceive the parties' influence on coalition policy to be proportional to their size, we rewrite equation (1) as a function of the expected vote shares and their perceived policy positions:

$$C_i \quad = \quad \alpha_A V_{Ai} A_i + \alpha_B V_{Bi} B_i \tag{4}$$

where V_{ji} denotes respondent i's expectation about party j's contribution to the coalition's legislative majority. We use the expected vote shares of the parties as the survey did not include questions about expected seat share. Thus, $V_{ji} = \frac{v_{ji}}{v_{ji}+v_{ki}}$ where v_{ji} is the expected vote share of party j and the coalition consists of parties j and k.[24] $V_{Ai}A_i$ and $V_{Bi}B_i$ are the respondent specific vote-weighted policy positions of parties A and B. If the parties' influence is proportional to their vote shares then α_A and α_B both equal one.

Table 3: Testing Gamson's Law
— Proportional Influence of Coalition Parties —

	CDU-SPD	CDU-FDP	SPD-B90
α_A	0.971**	0.946***	0.799***
	(0.012)	(0.011)	(0.015)
α_B	0.931**	1.161***	1.293***
	(0.028)	(0.034)	(0.039)
Observations	1849	1825	1819

Standard errors in parentheses. *p < 0.10, **p < 0.05, ***p < 0.01 given H_0: $\alpha = 1$.

Table 3 show the results for the three coalitions while Figure 2 displays them graphically. Most importantly, the results suggest that, so far as voters

[24] The respective survey item is formulated as follows: *"What percentage of the second votes do you think the parties will gain at the federal election on 27 September 2009?"* The predictions for each party were added-up automatically and shown to the respondents to facilitate that their predictions sum-up to 100%.

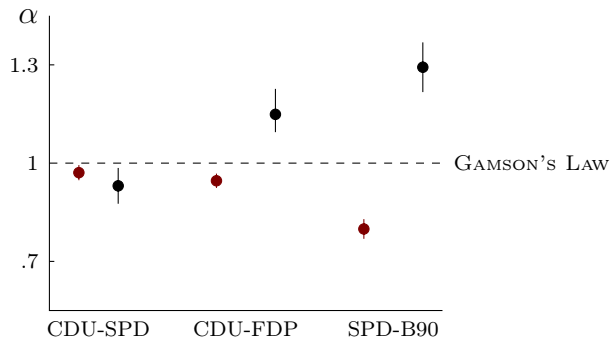


Figure 2: Estimating the Party Weight
Estimated Weights Systematically Differ From Gamson's Law ($\alpha_i = 1$).

are concerned, the parties' influence is not proportional to their vote shares. As the proportional influence heuristic implies that the coalition weights for both parties equal one, we are interested in testing the hypothesis that $\hat{\alpha}_A$ and $\hat{\alpha}_B$ simultaneously equal one. We can safely reject this null hypothesis for all three coalitions.[25] Interestingly, and in line with the literature on portfolio allocation (see, e.g., Browne and Frendreis, 1980), the results suggest that smaller coalition parties, i.e., FDP and B90, have disproportional influence on coalition policy.[26] While we have not controlled for the party of the formateur, the first named party in each coalition was expected to be the stronger party within the coalition and was, therefore, likely to act as a formateur.[27] In each case the first named party was expected to have less influence than its vote share suggested and there are, therefore, few indications that respondents perceive there to be a formateur advantage.

Overall, the analysis does not provide evidence of voters perceiving coalition policy being determined in the manner that scholars have argued or

[25]The respective F-values for the CDU-SPD coalition are $F_{2,1847} = 38.18$ ($p < .0001$), while for the CDU-FDP coalition we get $F_{2,1823} = 12.14$ ($p < .0001$) and for the SPD-B90 coalition we get $F_{2,1817} = 102.6$ ($p < .0001$).

[26]Interestingly, Fortunato et al. (2016) come to a similar conclusion in their work on voters' perceptions of portfolio allocation, i.e., that while voters' expectations tends toward proportionality, they expect smaller parties to do slightly better than their size would suggest.

[27]It bears noting that German coalitions are formed in a 'free-style' form of coalition bargaining and there is no formal formateur but, as is the case where a formateur is appointed, the leader of the largest party is likely to adopt a role as a formateur.

assumed. Taken together, however, the results in Tables 2 and 3 suggest that these theories capture some important aspects of how voters see coalitions. That is, there does appear to be a clear relationship between the vote-weighted policies of the parties and coalition policy, e.g., the estimated coefficients are in most cases not very far away from unity in Table 3. On the other hand, the deviations from proportional influence are in the direction of equal, rather than more unequal, influence.

Thus far it has been assumed that the weights respondents attach to the parties are only a function of party size. Respondents' evaluations of how much influence each party has on coalition policy may, however, vary for other reasons. We now turn to developing a model to estimate the influence of factors that systematically affect the coalition weights respondents assign to the parties.

Determining the Coalition Weight of Parties

The model in the previous section offered a simple way of evaluating whether voters adhere to the proportional influence heuristic in forming expectations about coalition policy. It is, however, interesting to consider whether other party characteristics affect voters' evaluations as the simple heuristics considered above leave some room for improvement. The estimated weights, $\hat{\alpha}_i$ were neither shown to equal one-half (Table 2) nor to reflect proportionality to party size (Tables 2 and 3). Thus, we want to allow the coalition weights to depend on additional covariates. Voters' perceptions of coalition policy may, for example, be colored by partisan affiliations (Meyer and Strobl, 2016) or their evaluations of party leaders. We start with the model described above (equation 1) where α is the weight voters assign to party A's policy when placing the coalition (C) of parties A and B on the left/right scale. We thus have a standard regression model, assuming normally and independently distributed errors (ϵ) with mean zero and constant variance:

$$C_i = \alpha A_i + (1 - \alpha) B_i + \epsilon_i$$

As the perceived coalition policy is assumed to be a convex combination of the coalition parties' policies, $\alpha \in [0, 1]$. We, therefore, re-parameterize α as $\alpha = logit^{-1}(\gamma) = \frac{exp(\gamma)}{1+exp(\gamma)}$, which ensures any value of γ maps into $\alpha \in [0, 1]$. Given this (non-linear) parameterization, we estimate γ directly for the above regression model using non-linear least squares (Davidson and MacKinnon,

1993).[28] We can recover the quantities of interests, i.e., the weights themselves, by simply transforming $\hat{\gamma}$ given the parameterization of α.

Our key covariates relate to the three heuristics we examined. Party size address the first two heuristics, *Equal Influence* and *Gamson's Law*; *Equal Influence* implies that party size has no effect on expected coalition policy while *Gamson's Law* implies that each parties' influence on coalition policy ought to be proportional to party size. The third heuristic, *Bargaining Strength*, implies that party size has an effect but voters may consider other factors affecting bargaining strength in assessing the parties' coalition weight and, consequently, their influence on policy. In order to model how the variables affect the coalition weight, we expand our parameterization above to allow α to depend on a linear combination of covariates (X) and further control variables (Z), i.e., $\alpha = logit^{-1}(X\gamma_X + Z\gamma_Z)$, where γ_X and γ_Z are vectors of coefficients. In particular, for our key covariates we have:

$$\alpha = logit^{-1}\left(\gamma_0 + \gamma_1 PartySize + \gamma_2 PartySize^2 + \gamma_3 BargainingStrength + Z\gamma_Z\right) \quad (5)$$

Note that a positive coefficients indicates that larger values of the covariate increase the weight respondents assign to the first-named coalition party while decreasing the weight of the second-named coalition party.

As above, we operationalize *Party Size* as the respondent's expectation about party A's vote share normalized by their expectation about the coalition parties' total vote share, i.e., $\frac{v_{A_i}}{v_{A_i}+v_{B_i}}$. As the normalized vote shares add up to one, only party A's vote share is needed. A limitation of modeling the coalition weight (α) using a non-linear logit transformation is that the Gamson's Law heuristic implies a linear relationship between a party's vote share and its coalition weight. To better allow the model to approximate the theorized linear relationship we, therefore, also include the squared term of *Party Size*.[29] If respondents employ the Gamson's Law heuristic and believe larger parties have an advantage in influencing government policy — in the sense that respondents place the coalition position closer to the perceived

[28] Thanks to Jeroen Weesie for pointing us to this estimation strategy.

[29] Including *Party Size* and *Party Size*^{2} is generally not a sufficient approximation of a linear relationship — it could be approximated better by including vote shares raised to higher powers — but adding additional terms doesn't improve the fit of the models appreciably.

position of the larger party than the smaller party — then the marginal effect of *Party Size* should be positive.

"Bargaining strength" is usually measured in terms of the opportunities a party has to form coalitions — the idea being that if a party has credible outside options then it has greater leverage in the coalition formation negotiations. Measures of bargaining strength are typically based on party size — bigger parties tend to have more coalition formation opportunities — or by using power indices, such as the Banzhaf index, that focus on factors such as the number of minimum winning coalitions the party is a member of.

As we have argued above, respondents' perception of a party's bargaining strength derives from two sources: the party's size and its ideological position. In order to operationalize how respondents perceive a party's bargaining strength more comprehensively, we also include a measure that accounts for the ideological aspect in addition to merely a party-size based measure of bargaining strength. We do so for two reasons. First, bargaining power indices are generally blind to ideology in that they treat a coalition of ideological proximate parties in the same way as a coalition of ideological distinct parties. But surely, in our context, forming a coalition with the B90 is a more credible threat coming from the SPD than the CDU. Second, our models already include party size, thus capturing — albeit in a rough manner — the combinatorial advantage that the larger parties enjoy. In sum, given that our model already includes a measure of numerical advantage but does not account for the fact that ideological location may also confer bargaining advantages on the parties, including a measure of ideological position is important in order to capture the parties' bargaining position.[30]

We construct a measure of a party's *ideological centrality* that provides a simple way to capture bargaining power deriving from the parties' ideological positions — centrist parties have greater opportunities to form coalitions to both the left and the right and are, on average, closer ideologically to other parties. Thus, ideological centrality is measured as the degree to which each

[30] One might consider replacing *Party Size* with a measure of bargaining power in our model. We opt, however, to focus on the results of models including *Party Size* for several reasons. First, as discussed above, the assumptions made about the influence of parties on coalition outcomes in much of the literature are generally framed in terms of party size. Second, the results turn out to be substantively similar when *Party Size* is replaced with the Banzhaf index of bargaining power. We present those results and discuss the similarities in an appendix. Third, voters are likely to rely on simpler heuristics such as the ones we identified previously.

party is perceived to be close to the center of the left/right scale (at '5') in the following way. For every respondent we take the absolute distance between her placement of a party and the center of the left/right scale (the midpoint). This generates a party-specific measure of the perceived ideological centrality of a party that ranges from 0 to 5 with higher values indicating that the party is seen as being closer to the center. We then calculate the difference between the coalition parties' ideological centrality measures, Δ*Ideological Centrality*. This measure ranges from -5 to 5 and is positively related to party A's bargaining advantage in terms of centrality.[31] We expect a larger coalition weight for the party that is perceived more central ideologically and, hence, a positive sign for the coefficient of Δ*Ideological Centrality*.

As for control variables, we consider how leader evaluations and partisanship may influence the formation of policy expectations. Voters' expectations may be influenced by the personal characteristics of the party leaders who represent the parties in the coalition negotiations and lead their parties in government. A voter's affinity for a party leader, however, is not enough for the voter to think that the party will have greater influence on the coalition's policy. The voters must also think that the leader's qualities lend themselves to achieving more favorable policy outcomes. Thus, respondents should attribute greater influence to party leaders that they think show resolve in negotiations, have deep convictions and strong principles, are hard-working, or are simply stubborn — that is, characteristics that plausibly affect the outcome of the negotiations. Controlling for leader evaluations is also warranted as many have argued that parliamentary politics have increasingly become focused on party leaders (see, e.g., Aarts, Blais and Schmitt, 2011). To operationalize leader evaluation we use the standard 11-point like/dislike scores for party leaders. We calculate a 'leader differential' as the difference between party A's leader evaluation and party B's leader evaluation. Δ*Leader Evaluation* is scaled to range from -1 to 1. If respondents perceive a leader advantage this should translate into a greater weight for the advantaged party. Thus, we expect the coefficient of Δ*Leader Evaluation* to have a positive sign.

It is also possible that voters are affected by perceptual biases in their evaluations of party influence on coalition policy (Meyer and Strobl, 2016). If a voter finds a party's argument in favor of (or against) certain policies persuasive, they may assume that others will also find them persuasive. We

[31] That is, $(5-|p_A-5|)-(5-|p_B-5|) = -|p_A-5|+|p_B-5|$, where p_i is the respondent's placement of party i.

operationalize perceptual biases in a similar manner to leader evaluations, using the 11-point like/dislike score for each party. We calculate the party preference differential, Δ*Party Preference*, as the difference between the evaluations of party A and party B and scale the results to range from -1 to 1. A positive coefficient is expected if voters' expectations about coalition policy outcome are shaped by perceptual biases.

Table 4 shows the non-linear least square estimation results for the three coalitions: CDU-SPD (grand coalition), CDU-FDP (black-yellow coalition), and SPD-B90 (red-green coalition). We find evidence supporting our hypotheses for the two coalitions that appeared most likely to form; the grand coalition consisting of the CDU and the SPD as well as a black-yellow coalition consisting of the CDU and the FDP. The particular context of the 2009 election may be responsible for why the results for the SPD-B90 coalition are not in line with any of the heuristics — respondents may have devoted little attention to the SPD-B90 coalition because the coalition was considered very unlikely to form.[32] In the remainder of this paper we will focus our discussion on the other two coalitions that were considered more likely to form[33] and we are better able to explain how respondents weigh the ideological positions of the coalition parties in order to form expectations about the coalition's policy.

The explanatory variables have a consistent effect for the two coalitions (models $1-6$) considered more likely to form. Starting with party size, *PartySize* and $PartySize^2$ are highly collinear and considering the joint hypothesis test is, therefore, more relevant for assessing the importance of party size than considering the individual coefficients. The p-values are listed in the bottom row of table 4. As $PartySize^2$ is included in the models, the marginal effect of *PartySize* is $\gamma_1 + 2\gamma_2 PartySize$. The marginal effect of *PartySize* is always positive for the CDU-SPD coalition. In contrast, the marginal effect of *PartySize* is negative for the CDU-FDP coalition when respondent's expect CDU's coalition vote share to be low. Figure 3 graphs the predicted coalition weights along with a rug plot showing the distribution of vote shares in our

[32] While the items we analyze were fielded in wave six, the respondents were asked in the previous wave (question `kp5_940`) whether the CDU-FDP and the SPD-Green coalitions would control a majority in parliament. Only seven percent of the respondents thought that a SPD-Green coalition would obtain a majority. As noted above, respondents also saw these parties as being very close ideologically — nearly half the sample placed them at the same position.

[33] The respective questions that document this are `kp5_940` and `kp5_950`.

Table 4: Determinants of Coalition Weight α

	CDU-SPD			CDU-FDP			SPD-B90		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	−0.626	−0.525	−0.450	9.600***	9.347***	9.263***	−1.078	−1.186	0.048
	(0.960)	(0.938)	(0.940)	(3.398)	(3.386)	(3.388)	(1.507)	(1.506)	(1.557)
Party Size	1.497	1.631	1.625	−26.526***	−25.606***	−25.308***	5.057	5.377	2.581
	(3.414)	(3.333)	(3.326)	(9.477)	(9.432)	(9.444)	(4.451)	(4.444)	(4.548)
Party Size^2	−0.279	−0.434	−0.662	19.238***	18.637***	18.420***	−4.695	−4.948	−3.508
	(3.051)	(2.976)	(2.976)	(6.595)	(6.558)	(6.569)	(3.268)	(3.262)	(3.318)
Δ Ideological Centrality		0.208***	0.205***		0.056*	0.057*		0.044*	0.035
		(0.020)	(0.020)		(0.031)	(0.031)		(0.025)	(0.026)
Δ Leader Evaluation			0.057			−0.126			0.455**
			(0.094)			(0.212)			(0.197)
Δ Party Preference			0.042			0.129			0.273
			(0.079)			(0.240)			(0.190)
Observations	1458	1458	1458	1449	1449	1449	1414	1414	1414
Root MSE	1.13	1.09	1.09	1.08	1.08	1.08	1.02	1.02	1.01
Pty Size Joint Hyp. Test	0.03	0.03	0.18	0.01	0.01	0.01	0.03	0.02	0.00

* p < 0.10; ** p < 0.05; *** p < 0.01.

sample. As can be seen in the figure, the coalition weight declines in *PartySize* initially but becomes positive around the point at which the CDU's coalition vote share is twice that of the FDP but 90% of the respondents expected the CDU's vote share to be larger than two-thirds.[34] Thus, for the great majority of the expected vote shares in our sample, the larger party A was expected to be, relative to party B, the more weight respondents placed on party A's position when evaluating the coalition's ideological position. This implies that respondents see the CDU (party A in both coalitions) — by virtue of being seen as the bigger party by most voters — as being more influential. Thus, the perceived coalition policy is closer to the perceived CDU position than the respective coalition partner, the SPD or the FDP.

Δ*Ideological Centrality* also has the hypothesized effect for these coalitions. Respondents that see the CDU as being closer to the ideological center, compared with their potential coalition partner, attribute greater weight to the CDU's policy position and, consequently, smaller weight to the coalition partner's position.

Finally, we find little evidence of voters being influenced by perceptual biases. While the Δ*Party Preference* coefficients have the expected sign, the size of the effect is very small in comparison with their estimated standard errors. This is an interesting — and potentially instructive — finding when compared with Meyer and Strobl (2016) who do find evidence of perceptual biases. The Austrian survey that Meyer and Strobl (2016) analyze did not ask for respondents' expectation about the parties' vote shares. Perceptual biases may work by influencing how persuasive respondents find the parties' arguments and those biases may then be reflected in the respondents' expectations about party size. That is, if a voter finds a party's platform appealing then she may assume other voters will also find the party's platform appealing and, consequently, expect more voters to cast their votes for the party. If perceptual biases operate primarily by influencing expectations about party size, the inclusion of party size in our models will capture the effects of perceptual biases. This is what our results show — Δ*Party Preference* has no independent effect in our model specification, suggesting that the causal mechanism by which perceptual biases matter primarily operate through biasing voters' expectations about electoral outcomes.[35]

[34]The tenth and ninetieth percentiles of *PartySize* for the CDU-SPD coalition model are .50 and .64 and the corresponding values for the CDU-FDP model are .66 and .80.

[35]Thus, we cannot rule out the possibility that perceptual biases matter. A more favorable opinion of a party may lead a respondent to expect a higher vote share for a

Leader evaluations only have the hypothesized effect for two of the three coalitions the respondents were asked about and the coefficient is only statistically significant for one of those (SPD-B90 coalition). There is, thus, limited evidence to suggest that respondents' evaluations of the party leaders matter — although the same caveats apply here as with the effects of party preferences. That is, much like with party preferences, perceptual biases regarding party leaders may lead respondents to overestimate the size of the parties whose leaders they consider competent. It is, therefore, not possible to rule out that leader evaluations matter, i.e., through party size, but it does suggest that if leader evaluation effects are present they are unlikely to derive from respondents' expectation that the leaders' political savvy will pay dividends in the coalition negotiations.

We are also interested in comparing the estimated effects with those implied by the heuristics discussed above. The non-linear parameterization of the coalition weight (α) implies that the substantive effects cannot immediately be inferred from the estimated coefficients but the effects can easily be examined by predicting the coalition weights for different values of the covariates. Figure 3 graphs the effects of *Party Size* and Δ*Ideological Centrality* for the two coalitions. In order to derive the average predicted weights together with their respective 95% confidence intervals, the values of the two variables, *Party Size* (on the left) and Δ*Ideological Centrality* (on the right), were varied while all other independent variables were set to their observed value for each respondent. The top panels presents the results for the CDU-SPD coalition while the bottom panels presents the results for the CDU-FDP coalition. The panels on the left shows the average predicted weights conditional on the CDU's expected size (as a ratio of the respective expected two-party coalition vote share). The graphs show clearly how respondents that expect the CDU to win more votes are more likely to think the CDU will have a bigger impact on government policy.

The expectation according to the equal division heuristic, i.e., $\alpha = .5$, is shown by horizontal lines in the figures on the left. This heuristic can quickly be dismissed as it can clearly be seen that the predicted coalition weights do depend on the parties' expected vote shares. Furthermore, the figures show that the predicted coalition weights of the CDU are almost always greater than .5 and, for the majority of the respondents, the confidence intervals do not overlap the horizontal line at $\alpha = .5$ in the graph. This suggests that

party that in turns affects its influence on coalition policy.

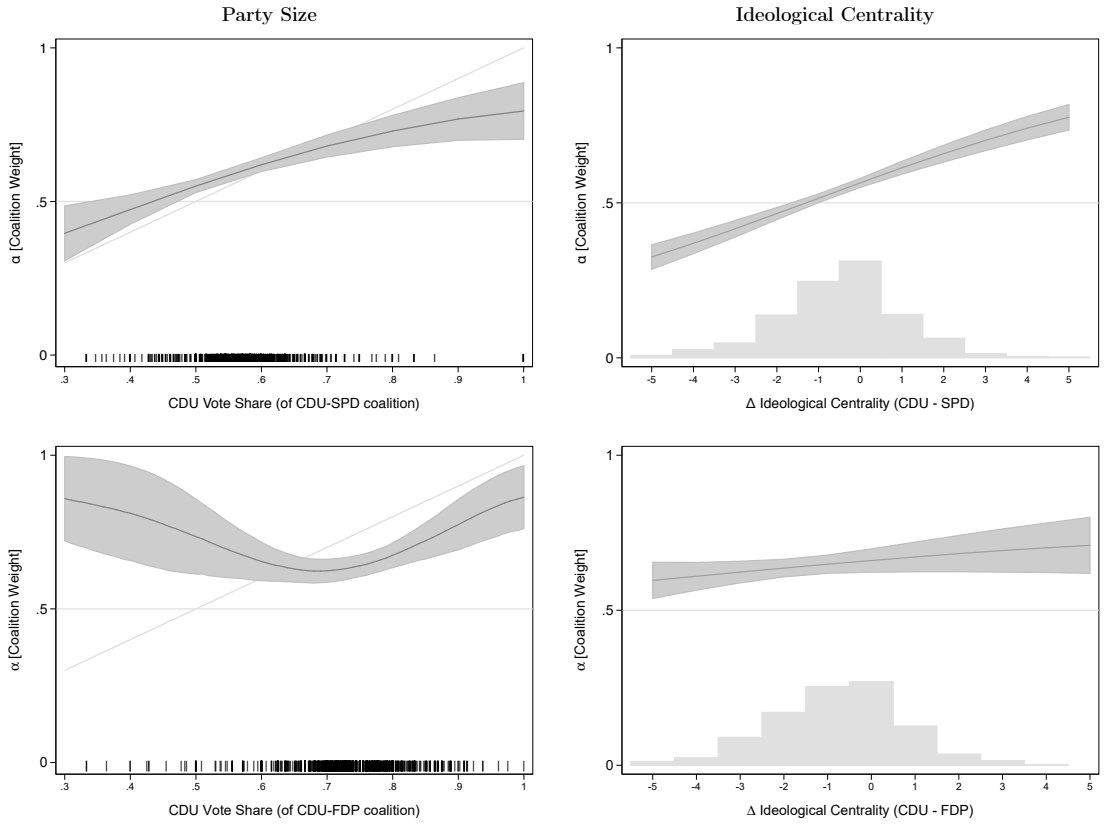


Figure 3: Impact of Party Size & Ideological Centrality on Coalition Weight (α)

The reference lines at $\alpha = .5$ indicate the predictions of the equal influence heuristic. The reference lines with slope of one in the left panels show the predictions of the proportional influence heuristic conditional on CDU's coalition vote share.

an average voter perceives the CDU to have at least a slight advantage in determining coalition policy — this is evident from the fact that the CDU's predicted coalition weight is larger than .5 for voters that expect the two coalition parties to have an equal vote share.

The second heuristic is the one identified with Gamson's Law or proportional influence. Respondents employing the proportional influence heuristic would simply assign a coalition weight to the party that is equal to its expected vote share (as a share of the coalition parties' total expected vote share). The Gamson's Law heuristic is shown in the panels on the left, i.e., an upwards-sloping line with a slope of one. While Gamson's Law implies that party size has a positive effect on coalition policy, the graph for the CDU-FDP coalition makes it clear that the effect of *Party Size* is somewhat smaller than what is implied by the Gamson's Law heuristic. Although the slope of the coalition weight is less than one, it bears noting that about half the respondents expect the CDU's vote share to fall in the range where the 95% confidence interval covers the prediction of the heuristic.

It would appear to be easy to dismiss the proportional influence heuristic in examining the graph for the CDU-FDP coalition given the non-linear shape of the predicted coalition weights. However, as discussed above, the great majority of respondents expected the CDU's vote share to fall in the range where the predicted values are upwards sloping. Focusing our attention on the range of vote shares that are more representative of the respondents' expectations, there is still little reason to conclude that Gamson's Law accurately describes voters expectation about policy influence but it is, nevertheless, worth noting that the slope of the predicted values is not far from that described by Gamson's Law although the predicted values fall short of proportional influence — perhaps suggesting that the CDU pays a fixed policy penalty when it is more than twice the size of its coalition partner.

Overall, then, neither heuristic appears to capture respondents' expectations about government policy and, instead, their expectations fall somewhere in between the two heuristics. Importantly, the standard assumption invoked in the literature — that voters hold beliefs consistent with Gamson's Law when making inferences about how the policy preferences of coalition parties affect government policy — is *not* supported by our data. Instead respondents appear to see smaller coalition parties having disproportional influence on policy, which echoes the findings in the literature that smaller parties receive a disproportionate share of cabinet portfolios (see, e.g., Browne and Frendreis, 1980). This finding also suggests that voters do not perceive a formateur

advantages — although the evidence on this point is indirect as no formateurs are formally appointed in the German system and the conclusion can, thus, only be supported if one is willing to assume that larger parties are more likely to occupy a formateur-like role. Party size clearly matters, however. Thus, respondents appear to recognize that larger parties will be better able to influence coalition policy but finding a positive effect of party size cannot tell us whether this advantage derives from the party's bargaining strength or other factors, such as greater likelihood of acting as a formateur.[36]

Ideological centrality, our second proxy for bargaining strength, suggests that voters appear to behave as if they pay attention to the bargaining context, i.e., how the parties' ideological position may affect their ability to form coalitions. The right panels of Figure 3 show how ideological centrality affects voter expectations about coalition policy. The first thing to note is that perceived ideological centrality has a positive effect on the respondents' expected weight. This suggests that voters see centrist parties as having a bargaining advantage as expected by the bargaining strength heuristic.[37] Another thing to note is that the CDU's weight, in particular in the CDU-FDP coalition model, tends to be higher ($> .5$) even when the CDU is disadvantaged in terms of perceived ideological centrality — this is true when the CDU and SPD are seen as equally central and for any difference in ideological centrality in the CDU-FDP coalition. This is explained by the fact that the predicted weights are calculated holding other covariates fixed at their actual values and the CDU is generally perceived to be the bigger party. This is interesting in light of the fact that the distribution of the difference in ideological centrality, as shown by the histograms in Figure 3, does not favor the CDU. Thus, the effect of party size seems to outweigh the effects of ideological centrality in the minds of the voters — although this is far clearer in the case of the CDU-FDP coalition than the CDU-SPD coalition.

To sum up, we find that party size and ideological centrality generally have

[36]The likelihood of being chosen formateur can, of course, be considered part of a party's bargaining strength but here we wish to distinguish between bargaining strength that derives from credible threats to pursue alternative coalitions and the advantage of having a higher probability of acting as a formateur.

[37]The finding could also be interpreted as indirect support for the McDonald and Budge's (2005) argument about the median mandate, i.e., that political parties will have a hard time moving policy away from the median legislator and voters, therefore, would assign less weight to the policy influence of parties that are further away from the middle of the policy spectrum.

a positive effect on the weight voters assign to a party's ability to influence government policy for the two coalitions that are deemed more likely to form.[38] The finding with regard to the SPD-B90 coalition, on the other hand, are more difficult to make sense of and, perhaps, have also something to do with voters' perceptions of the Greens as a niche party being disproportionally focused on the environment. A party that has a visible core issue that it is unwilling to compromise on may be perceived to have greater influence on government policy. That is, if the party is only expected to join a coalition if getting their way on that issue, then the policy influence of the party does not depend on the size of that party.

Conclusions

Taking a cue from Gamson's Law, a considerable body of work on politics and policy-making in multi-party parliamentary systems assumes that the policy positions of coalition governments are simply the weighted average of the coalition parties' positions. More recently, political behavior scholars have noted that instrumental voters in multi-party systems have an incentive to cast their votes both as to influence which coalition form as well as the policies adopted by coalition governments. 'Coalition voting' of this form requires voters to form expectations about the policies coalition governments will implement and, implicitly or explicitly, much of the literature has assumed that voters form expectations in line with Gamson's Law, i.e., that the influence of coalition parties on coalition policy is proportional to their size. Our evidence, using unique survey data on the policy positions of parties and government coalitions, suggests, however, that voters do not perceive policy influence to be proportional to party size. This result is in line with recent work on responsibility attribution in coalition governments. First, there is experimental evidence on responsibility attribution in the context of collective decision making, akin to coalition governments, where blame is neither assigned equally not proportionally to the actors' size (Duch, Przepiorka and Stevenson, 2015). Second, our finding squares nicely with recent survey evidence (Angelova, König and Proksch, 2016) showing that

[38]The qualifier is needed here as the effect of party size in the CDU-FDP coalition is estimated to be negative if respondents underestimated the relative size of the CDU significantly — only about 10% of the respondents underestimated CDU's vote share this much.

voters neither assign responsibility equally nor proportionally to the size of a coalition party.

While our results provide evidence that voters perceive parties to neither have equal nor proportional influence on coalition policy, they suggest that voters are sensitive to factors that contribute to parties' bargaining strength. That is, we find that party size matters — albeit less than Gamson's Law would suggest — but also that ideology, which acts as constraint on the parties' threats to credibly pursue alternative coalitions, influences voters' perceptions. Thus, although the findings here are cause for concern for theories that rely on the proportional influence assumption, some comfort can be taken in the fact that voters do respond to the key factors scholars have argued to determine coalition policy. That is, voters appear capable of forming expectations about coalition policy and those expectations vary in predictable manner with party size and ideological centrality.

The findings do, however, raise a number of questions that require further study. First, are voters' expectations accurate? Answering this question is a significant challenge as answering that question requires knowledge of how much influence individual coalition parties actually have on government policy but our understanding of policy making in parliamentary systems remains underdeveloped.[39] It is important to note, however, that the question of whether voters' expectations are accurate is not relevant when it comes to studying coalition voting, i.e., the question there is whether voters vote strategically in response to their perception of the political context.

Second, on a related note, we might flip the question around and ask whether scholars' expectations about coalition policy are accurate. The assumption of proportional influence is quite dominant in the literature but as we have seen it is at odds with voters' perceptions and it is possible that the voters' perceptions are more on point. While one may doubt the ability of voters to make informed inferences about the influence of coalition parties, the discrepancy is nonetheless somewhat disconcerting. One may, thus, ask why would voters develop expectations that deviate from proportional influence? It is not to clear to us, a priori, that expectations that are largely based on empirical findings about the allocation of ministerial portfolios are superior to the perceptions of survey respondents that live in a coalition system and

[39]This is not to say the question has been ignored. Warwick (2001), Laver and Budge (1992), and Debus (2008), for example, have sought to estimate the influence of coalition parties by comparing the manifestos of coalition parties with coalition agreements.

observe the policy output of coalition governments.

Third, our results are necessarily limited and preliminary. The results with regard to party size for the SPD-B90 coalitions are not in line with the other coalitions. We suggest that this may be a function of a SPD-B90 coalition having been very unlikely to form or that single-issue parties may appear to be more successful in their negotiations if they have achieved success on 'their' issue (even if at the cost of compromising on other issues).[40] Another possible source of problems is the fact that the SPD and B90 (as well as the CDU and the FDP) were generally considered to be very close on the left-right dimension. Unfortunately, no data is available to examine the veracity of these conjectures as the 2009 GLES is, so far, the only survey available that includes the necessary battery of questions to examine voters' perceptions of party influence on government policy.[41] Our hope, however, is that our findings here will encourage scholars to include questions about the policy positions of coalition governments in future surveys — and also to take steps to reduce the scope for imperfect recall, e.g., by asking respondents to place party and coalition policies on the same dimensions (for example, by making reference to the party positions) and by making it easy for respondents to consult their placement of the parties. It might also be prudent to move from an eleven point to a twenty-one (or a 101) point scale when studying political systems where there are many political parties (and many potential coalitions).

As we argue above, understanding whether and how voters form expectations about coalition policy is not only important in terms improving theoretical and empirical research on coalition politics and voting behavior — it also has quite significant implications for representation and voters' ability to hold governments accountable. The choices of voters at election time risk not being meaningful if voters lack understanding of how their votes affect policy outcomes. Thus, to make effective use of their votes, prospective voters need both a basic understanding of what to expect from the coalition

[40] Characterizing the Greens (B90) as a single-issue or niche party is potentially an overstatement and we do so for illustrative purposes. The political roots of the Greens party activists are, however, clearly connected with the environmental movement and, therefore, environmental issues have always been a disproportionally important part of its platform.

[41] The Austrian survey analyzed by Meyer and Strobl (2016) does include questions about the policy positions of potential coalitions but respondents were not asked about their expectations about party size.

formation process and how much influence individual coalition parties have on policy outcomes. Similarly, retrospective voters need to be able to evaluate the performance of individual coalition parties. Doing so requires establishing benchmarks against which to measure the performance of parties. That is, it may not be reasonable to expect a small minor coalition partner to have the same influence as a major coalition party and one might, therefore, consider a minor party to have performed well even if it has only been moderately successful in pursuing its policy agenda. The extent to which voters evaluate coalition parties on those terms is not clear. Some accounts suggest that this may not the case. For example, Strøm (1984) argues that one reason minority governments form is that they wish to avoid the electoral penalty that comes with being in government — incorrect expectations about influence on coalition policy would then potentially further dissuade small parties from joining governing coalitions. While our results necessarily fall short of showing that voters form accurate expectations about coalition policy, they do show that voters form expectations and that those expectations tend to vary in predictable ways with factors that ought to influence the bargaining strength of the parties.

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Appendix

Measuring Bargaining Strength: the Banzhaf Index

Party size is an imperfect measure of bargaining strength as many have noted (see, e.g., Ansolabehere et al., 2005; Laver, de Marchi and Mutlu, 2011). In some instances a small gain a party's seat share can significantly expand the set of majority coalition the party may be able to form while in other instances large gains may have no effect on the set of possible majority coalitions. Party size is, however, often considered a reasonable proxy for bargaining strength and, in the present context, respondents might be expected to be more likely to focus on party size, about which they generally have some expectations (e.g., through polls), than more complex concepts of bargaining strength. Exploring whether that is indeed the case is, of course, an interesting question. We re-estimate the models in table 4 replacing *Party Size* with a measure based on the Banzhaf power index (Banzhaf III, 1964). The Banzhaf Power index is constructed by examining all the possible winning (majority) coalitions. A party is pivotal to a coalition if the coalition loses its majority if the party leaves. A party's Banzhaf power equals the number of times the party is pivotal across all the coalitions divided by the total number of pivotal parties across the coalitions. As with our other independent variables, the variable Δ*Banzhaf Index* is the difference between the Banzhaf power of the first named party and the second named party in the coalition under consideration.

As table 5 shows, replacing party size with a measure based on the Banzhaf power index yields fairly similar results and does not improve the fit of the models. The one notable difference is that the coefficients for Δ*Banzhaf Index* not statistically different from zero in the models for the CDU-FDP coalition. When considering the CDU-SPD coalition, the coefficients are estimated with greater certainty. The differences across the two coalitions may be due to the differences in the bargaining partners of the CDU; the FDP, as a small party, has limited coalition formation opportunities and the variance in the FDP's Banzhaf power is, therefore, likely to stem primarily from differences in the expectations about the sizes of the other parties. In contrast, as a larger party, expectations about the size of the SPD were more likely to be seen to translate in new coalition formation opportunities.[42] Thus, the lack

[42]In the specific case considered here, whether the FDP goes from winning 5% of the vote to 10% may not influence its coalition formation opportunities much whereas the

of results for Δ*Banzhaf Index* in the models for the CDU-FDP coalition may be due to lack of variance in the Banzhaf power of the FDP. On the whole, we consider the results somewhat stronger — or more consistent — when party size is used as a proxy for bargaining power and, at minimum, there is not much evidence to suggest that voters pay much attention to bargaining power beyond party size. While it is perhaps disappointing that voters fail to grasp the finer points of bargaining strength, it is also not entirely surprising. It seems reasonable that voters — who partake in elections once or twice in a four year period and observe as many coalition governments in office — would rely on simpler heuristics, such as party size and ideological position, to form expectations about how much influence individual coalition parties have on government policy.

electoral fortunes of the CDU and the SPD may matter more for it being considered a potential coalition partner.

Table 5: Determinants of Coalition Weight α
—Banzhaf Index as Measure of Bargaining Strength—

	CDU-SPD			CDU-FDP			SPD-B90		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	0.055	0.175***	0.174***	0.662***	0.739***	0.762***	0.251***	0.239***	0.282***
	(0.034)	(0.036)	(0.039)	(0.107)	(0.116)	(0.120)	(0.078)	(0.078)	(0.085)
Δ Banzhaf Index	0.502***	0.557***	0.536***	−0.176	−0.092	−0.097	−1.052**	−1.032**	−1.360***
	(0.127)	(0.124)	(0.138)	(0.353)	(0.356)	(0.360)	(0.412)	(0.412)	(0.455)
Δ Ideological Centrality		0.211***	0.210***		0.057*	0.059*		0.036	0.027
		(0.020)	(0.020)		(0.031)	(0.031)		(0.025)	(0.026)
Δ Leader Evaluation			0.044			−0.157			0.405**
			(0.093)			(0.212)			(0.195)
Δ Party Preference			−0.005			0.187			0.250
			(0.078)			(0.238)			(0.189)
Observations	1458	1458	1458	1449	1449	1449	1414	1414	1414
Root MSE	1.13	1.08	1.08	1.08	1.08	1.08	1.02	1.02	1.01

* p < 0.10; ** p < 0.05; *** p < 0.01.

Coalition Policy outside of Parties' Policy Positions

As discussed in the body of the paper, some respondents indicated that they expected the coalition policy to lay outside the range of the policy positions of the constituent coalition parties. It is not clear why voters would form such expectations and the most plausible explanation for this is that this is a form of measurement error. In the context of this particular survey, there are two possible sources for such measurement error. First, as mentioned in the body of the manuscript, the respondents are asked about the positions of the coalition after they are asked to place the parties on the left-right dimension, which opens up the possibility that respondents have imperfect recall of their answers about the parties' positions. The fact that voters are more likely to place the coalition policy outside the range of the party policies when the parties are close ideologically, supports this view. That is, if there was some systematic factor that led respondents to believe that coalition policy is more 'extreme' then the coalition parties' preferred policies than there is not a clear reason why respondents should come to that conclusion when the coalition parties are ideologically similar. Second, as the questions about the parties (and, then, the coalitions), are grouped together, respondents may be focused on being internally consistent within each group of questions. That is, they may seek to produce a ranking of the parties on the left-right dimension and, later, to produce a ranking of the possible coalitions but in doing so they may not do so with reference to their placement of the parties.[43]

It is, however, worth exploring whether the presence of respondents who place coalition policy outside the range of the coalition parties' policy positions affect the results presented in the body of the manuscript. Table 6 presents the results of models where we assume that these respondents make a mistake because of imperfect recall, i.e., we assume that a respondent that placed the coalition policy to the right of both the coalition parties did so because s/he thought the rightmost party in the coalition would dictate coalition policy but failed to accurately recall where on the left-right dimension s/he placed the party. For example, a respondent might have placed the SPD at '3' and the CDU at '7' but then, in answering the coalition position questions, has placed the CDU-SPD coalition at '8' because s/he failed to accurately

[43]If that is the case, then we can no longer formulate coalition policy as a convex combination of the parties' policy position and our results must be interpreted along the lines of most regression type models where the dependent and independent variables are not measured on the same scale.

recall that s/he placed the CDU at '7'. This is, admittedly, a fairly strong assumption but it is worth exploring as it corresponds directly to one of the possible sources of measurement error. The results are largely in line with previous results. The effects of *Party Size* are similar to what we saw above but Δ*Ideological Centrality* now only has a positive and statistically significant effect for the CDU-SPD coalition.[44] The lack of stability in the estimated effect of Δ*Ideological Centrality* in the CDU-FDP coalition is not altogether surprising. Not only do the respondents see the two parties as having similar positions on the left-right scale, there is also a fair amount of disagreement about which party leans further to the right — only 57% of the respondents consider the CDU to be to the right of the FDP.

[44] Another option is to drop those respondents from the sample that place the coalition policy outside the parties' policy positions. Doing so is, however, akin to selecting on the dependent variable and is, thus, only (if at all) warranted if those observations reflect respondents not engaging with the question, e.g., by assigning expected coalition policy randomly, as opposed to being the result of measurement error as described above (in which case the observations contain information). While dropping the observations seems questionable, estimating the models on the subsamples of respondents that don't place the coalition policy outside of the range of the party positions yields similar results with the exception of ideological centrality reducing the parties' coalition weight in the CDU-FDP coalition.

Table 6: Determinants of Coalition Weight (α), Recoded

	CDU-SPD			CDU-FDP			SPD-B90		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	−0.576	−0.478	−0.406	8.865***	8.873***	8.795***	−0.373	−0.402	0.629
	(0.819)	(0.792)	(0.792)	(2.008)	(2.009)	(2.011)	(0.909)	(0.910)	(0.938)
Party Size	1.364	1.481	1.495	−24.370***	−24.400***	−24.090***	2.474	2.559	0.175
	(2.911)	(2.812)	(2.805)	(5.583)	(5.586)	(5.595)	(2.678)	(2.682)	(2.736)
Party Size^2	−0.233	−0.375	−0.639	17.531***	17.551***	17.307***	−2.620	−2.686	−1.421
	(2.601)	(2.511)	(2.509)	(3.874)	(3.876)	(3.883)	(1.962)	(1.965)	(1.992)
Δ Ideological Centrality		0.194***	0.191***		−0.002	−0.001		0.011	0.003
		(0.017)	(0.017)		(0.018)	(0.019)		(0.015)	(0.015)
Δ Leader Evaluation			0.083			−0.126			0.382***
			(0.079)			(0.129)			(0.118)
Δ Party Preference			0.033			0.192			0.205*
			(0.067)			(0.147)			(0.114)
Observations	1458	1458	1458	1449	1449	1449	1414	1414	1414
Root MSE	0.97	0.92	0.92	0.67	0.67	0.67	0.62	0.62	0.62
Pty Size Joint Hyp. Test	0.01	0.02	0.15	0.00	0.00	0.00	0.00	0.00	0.00

* p < 0.10; ** p < 0.05; *** p < 0.01.