Coalition Formation and Polarization

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Abstract

Party ideology plays an important role in determining which government coalitions form. Research on coalition formation generally focuses on the ideological leanings of the coalition parties. However, the distribution of preferences within legislatures can also have important implications for which government coalition forms, i.e., a party’s willingness to join a coalition depends not only on its prospective coalition partners but also the alternatives the party has. Several hypotheses about the effects of legislative polarization are offered and tested on a large data set on coalition formation in 17 parliamentary democracies in the postwar period. The paper also demonstrates how the traditional measure of ideological divisions within coalitions fails to capture certain aspects of ideological heterogeneity within the cabinet (and the opposition) and how Esteban & Ray’s (1994) measures of polarization helps addressing these deficiencies.

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1 Introduction

The study of coalition formation has long attracted the attention of scholars of parliamentary systems. Coalition formation plays an important role in how parliamentary democracies function as it determines how electoral outcomes map into governments, and subsequently, into policies. The question of which factors determine what coalition forms is, therefore, of great interest to scholars and citizens in parliamentary democracies. Scholars may be interested in coalition formation because they like to know how different institutions influence policy outcomes or because they are concerned with democratic representation. Citizens, on the other hand, benefit from understanding coalition formation because they ultimately care about the policies implemented by coalitions that forms—and not simply the vote share of the party they like the most. Recent work has shown that which coalitions are likely to form influences voters’ decisions at the polls (Aldrich, Blais, Indridason & Levine 2004, Blais, Aldrich, Indridason & Levine 2006, Bargsted & Kedar 2009).

The formation of cabinets in parliamentary systems takes place in the context of party politics. Each party advocates certain policy platforms and elections determine the size of each party. The party system will, thus, reflect underlying social cleavages to some degree. However, institutional factors, most importantly, electoral systems serve to distort the extent to which party systems mirror societal cleavage. How much of a distortion these institutional factors create has long been a matter of debate but recent research supports the idea that it is the interplay between the number of cleavages and institutions that determines what the party system will look like (Amorim Neto & Cox 1997, Clark & Golder 2006).

The structure of the party system is likely to have an impact on the formation of coalitions. While some cleavages are important, and are likely to prevent parties from cooperating, other cleavages will be less salient and unlikely to deter parties from cooperating with one another. Rather than study explicitly how cleavages influence coalition formation, scholars have generally focused on the ideological proximity of the parties on a fixed number of issue dimensions. Focusing on the ideological positions of the parties is a simple way to characterize how different, or how alienated from one another, the parties are and, consequently, how likely they are to form a coalition together (conditional on support).

Although scholars have sought to go beyond the insights provided by the literature focusing on the size of the coalition (e.g., Riker 1962), and to incorporate insights about the importance of the ideological proximity of parties, no studies have considered how the shape of the party system as a whole influences coalition formation. The polarization of the party system is, in particular, likely to influence the formation of coalitions. This is most evident in highly polarized party
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systems where one would expect a coalition to form within the bloc of parties that had a majority in the legislature. More generally, the polarization of the party systems influences the coalition formation opportunities facing the political parties. That is, the same coalition may, or may not, be an attractive option for the coalition’s members depending on the alternative coalition that can be formed. In other words, the likelihood that a coalition form is not determined solely by the characteristics of the coalition but, rather, by how it compares with other coalitions.

In this article I considers how legislative polarization affects the formation of coalitions. While our theories of coalition formation have become increasingly sophisticated and our understanding of how considerations of size and ideology influence which coalition forms, little progress has been made in explaining why patterns of coalition formation vary greatly across countries. Considering party system characteristics, such as legislative polarization, is useful in explaining these patterns as they focus our attention on factors that vary across countries and are, thus, helpful in explaining the observed patterns.

Another aim of the paper is to evaluate how ideological heterogeneity has been measured in the literature. Empirical analysis of coalition formation have generally operationalized polarization as the greatest ideological distance between any two parties (within the coalition and the opposition). I will refer to this measure as ideological division. It is clear that ideological division is at best a rough measure of polarization because it, e.g., does not take account of the fractionalization of the party system or the size of extreme parties. In order to take into account the distribution of the parties in the ideological space as well as their size, I employ Esteban & Ray’s (1994) polarization index. Esteban & Ray’s (1994) polarization indices offer a closer fit with the theoretical concept of polarization than the ‘traditional’ approach of taking the greatest ideological distance between any two parties. In this context, polarization offers a more appropriate test of existing hypotheses about the influence of party ideology on coalition formation. I discuss how the ideological division measure and the polarization measure differ in some detail below.

I begin by offering a brief review of the main insights of the literature on coalition formation has offered. I then discuss how polarization influences coalition formation and how polarization can be expected to interact with the attributes of (potential) coalitions. The hypotheses are tested by examining coalition formation in a sample of 17 countries over a sixty year period.

\[1\] There are some exceptions to this. Some, e.g., Alt & Lassen (2006), use the standard deviation of the parties’ positions.
2 Coalition Theory & Polarization

The literature on coalition formation can, with some simplification, be divided into two strands of theorizing. The first, going back to Riker (1962), takes office-seeking as its primitive assumption about the behavior of politicians. This assumption leads to some basic predictions about the form that coalitions ought to take. In particular, we should expect to observe minimal winning coalitions as the political parties have little desire to share the spoils of office (implying the minimal part) unless they need to in order to stay in the governing coalitions (implying the winning part). Thus, if politicians are office-seeking, we should neither expect minority nor surplus coalitions.

The second strand assumes, instead, that politicians are primarily motivated by concerns about policy (e.g., Axelrod 1970). The immediate implication is that we should expect to see coalitions formed by ideologically similar parties. Parties that differ greatly in their views about policy will find it difficult to settle their differences. Thus, under the assumption of policy-seeking parties, we ought to see ideologically connected coalitions but not coalitions with a large ideological range (i.e., consisting of parties with highly differing views about policy). This line of reasoning can further be extended to argue that the coalition should include the party containing the median legislator (because of its strong bargaining position) and that a coalition is more likely to form if ideological divisions within the opposition are large.

In reality, neither of these assumptions is likely to accurately describe politicians’ preferences. Rather, both assumptions capture important elements of the politicians’ concerns, i.e., that politicians care both about policy. Martin & Stevenson (2001) and Weesie & van Roozendaal (2000), e.g., take this view and test hypotheses derived from both assumptions. In short, they find support for both policy-seeking and office-seeking hypotheses.

As formal approaches to coalition formation have made clear, the outcome of the coalition bargaining process can be expected to depend on the ideological locations of the political parties as well as their legislative size. However, whether two (or more) parties eventually form a coalition does not depend solely on their policy preferences but also on the policy positions of the other parties. In particular, whether the coalition forms depends on what other coalition formation opportunities are available. In deciding to form a particular coalition, each party weighs the payoffs associated with the coalition against the benefits of forming coalition with some other party (or parties). One of the challenges to testing theories of coalition formation empirically is thus to develop measures that capture the relevant aspects of the party system. Such measures will generally have to

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2The clearest exposition that emphasizes these factors is Laver & Shepsle (1996).
take account of both the ideological positions of the parties as well as their sizes.

2.1 Measuring Polarization

The family of measures of polarization developed by Esteban & Ray (1994) appears well suited for this task. The measures were derived using an axiomatic approach that aims at capturing of the general intuition invoked by the term ‘polarization’. Generally speaking we would expect polarization to reach a maximum when society (or a party system) is divided into two groups that are at the opposite ends of the ideological spectrum (or whose members feel a high degree of alienation towards the members of the other group). Esteban & Ray’s (1994) axioms address how changes in the size or the location of group (parties) in a multi-group (multi-party) situations should influence the degree of polarization, and, to the extent that potential for conflict is related to polarization, the degree of conflict within society.

Esteban & Ray’s (1994) measures differ markedly from the commonly used measures of ideological heterogeneity used to study party politics, where polarization is often operationalized as the ideological distance between the two most extreme parties. It is, therefore, worthwhile to consider the axioms offered by Esteban & Ray and to compare the measures with the ‘ideological division’ measure so often employed in the political science literature. As we shall see, the ideological division measure satisfies none of Esteban & Ray’s axioms.

Figures 1-4 depict the four axioms. In each figure $\pi_i$ denotes party $i$’s size, which is also represented by the line (density) at the party’s ideological position. The arrows indicate transfers of members of one party to another (or to a new location). The first three axioms stipulates that polarization is strictly increasing in the change indicated by the arrows while the fourth axiom only requires that polarization is non-decreasing.

In figure 1, two parties on the right of the political spectrum “merge” at the average of their ideological position. The average distance between the members of the left party and the right parties remains the same before and after the change but now the right is more cohesive than before. Intuitively, then, polarization should increase. In contrast, the ideological divisions measure would decline as the rightmost party moves towards the center and the distance between party 1 and party 3 decreases.

In figure 2, party two, a center-right party, moves (slightly) to the right. Intuitively, polarization is seen as increasing here because the right becomes more

\[^3\text{This measure should immediately give anyone who studies multi-party systems a pause. A possible reason for the popularity of this measure may have something to do with the preponderance of research on polarization in U.S. politics where, in the context of two party competition,}\]
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![Figure 1: Axiom 1](image1)

![Figure 2: Axiom 2](image2)

cohesive and the gap between the left and the right is increasing. The ideological divisions measure remains unchanged as it only depends on the distance between the two most extreme parties changes.

In figure 3 some members of the center party join the left and the right parties (in equal numbers). The left and the right parties are assumed to be equidistant from the center party. This is the most intuitive of the axioms – polarization is clearly increasing in this example. Yet, again, the ideological divisions measure remains constant.

![Figure 3: Axiom 3](image3)

Finally, in figure 4 members are transferred from a (sufficiently) small party at one end of the policy spectrum to a larger party at the other end of the spectrum. The measure is likely to be well behaved.

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4 The figures are adopted from Esteban & Ray (1994).
5 See Esteban & Ray (1994) for a more detailed discussion of the axioms.
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spectrum. Axiom 4 states that such a transfer of members should not reduce polarization. Intuitively, the axiom concerns the insignificance of very small groups. The ideological distance measure does not satisfy this axiom if all the members of group 1 are transferred to group 3, in which case the ideological division declines.

Figure 4: Axiom 4

The four axioms in Esteban & Ray (1994) are weaker than my discussion here implies. The goal here was simply to demonstrate how the ideological divisions measure fails to capture the degree of party polarization. Indeed, the measure can be considered extremely poor as it doesn’t satisfy any of Esteban & Ray’s axioms. Thus, even if we don’t subscribe to all four of Esteban & Ray’s axioms, there can be little doubt that the ideological divisions measure is inappropriate for a variety of circumstances if the fourth axiom is dropped then $\alpha$ can lie in the range $(0, \alpha^*)$. A high value of $\alpha$ indicates a greater sensitivity to polarization whereas the measure is equivalent to the Gini inequality coefficient when $\alpha = 0$.

Esteban & Ray (1994) demonstrate that only measures satisfying the four axioms will have the following form:

$$P = K \sum_{i=1}^{n} \sum_{j=1}^{n} \pi_i^{\alpha+1} \pi_j |y_i - y_j|$$

where $n$ is the number of parties, $\pi_i$ is the size of party $i$ and $y_i$ is the ideological position of party $i$. Thus, $|y_i - y_j|$ is the absolute ideological distance between parties $i$ and $j$. There are two ‘free’ parameters. $K$ is simply a scalar whose value, in generally, does not matter. The parameter $\alpha$ can take values in the range $(1, \alpha^*)$ where $\alpha^* \approx 1.6$. If the fourth axiom is dropped then $\alpha$ can lie in the range $(0, \alpha^*)$. A high value of $\alpha$ indicates a greater sensitivity to polarization whereas the measure is equivalent to the Gini inequality coefficient when $\alpha = 0$.

6There are some additional problems with the measure that I address below.

7Esteban & Ray (1994) note that the fourth axiom is quite weak. The axiom is relevant to
Figure 5: The Esteban-Ray Polarization Measure for Four Hypothetical Party Systems

Figure 5 depicts four hypothetical party systems that highlight how the polarization measure differs from ideological division measure. The ideological division measure equals the distance (10) between the leftmost party and the rightmost party in each of the party systems even though the party systems are quite different from one another. Esteban & Ray’s polarization measure ($P_{ER}$) corresponds better with one’s intuition about the level of ideological polarization. For example, a move from the party system in the upper left corner to any of the other three party systems reflects a higher degree of polarization. Similarly, a move to the party system in the lower right corner from any of the other three party systems represents an increase in polarization. This example demonstrates that the ideological division measure masks quite significant differences between the party systems even when one avoids focusing on scenarios where the ideological division measure will clearly produce misleading measures, e.g., when small extremist parties are present.

The application of the measures to the study of coalition formation as small, extremist parties are unlikely to play an important role in the coalition formation process. I, therefore, restrict my attention to the values of $\alpha$ consistent with the axiom.

The polarization measure was calculated with $\alpha = 1.3$ and $K = 5$ so that its maximum possible value would equal the maximum possible value for the ideological division measure. To clarify how the measure is calculated consider the party system in the lower right hand panel. The polarization measure is $P_{ER} = .45^{2,3} \times .2 \times |0 - 8.5| + .45^{2,3} \times .35 \times |0 - 10| + .2^{2,3} \times .45 \times |8.5 - 0| + .2^{2,3} \times .35 \times |8.5 - 10| + .35^{2,3} \times .45 \times |10 - 0| + .35^{2,3} \times .2 \times |10 - 8.5| = 1.32.$

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2.2 The Effects of Polarization on Coalition Formation

Coalition formation is influenced by party system characteristics. I have argued that the commonly used measures of the influence of party ideology on coalition formation fails to capture how ideology influences coalition formation. In part, taking a fuller account of the party system characteristics simply requires substituting Esteban & Ray’s polarization measure for the ideological divisions measure in the standard empirical framework for estimating the effects of ideology. The effects of polarization are, however, more subtle and the remainder of this section is dedicated to deriving several hypotheses about the influence of legislative polarization on government formation.

The motivation for much of the research on polarization is that the degree of polarization has implications for the degree of conflict and cooperation within society. The basic idea rests on the notion that closely knit groups are more likely to act in unison and to perceive other clearly defined groups as a competitor or as a threat. In contrast, a society whose members belong to many small groups is less likely to experience conflict because any given group neither represent a threat to others nor considers itself capable of achieving its ends by virtue of its size or power. Naturally, the precise formulation of these arguments will depend on the subject under study. It bears noting that the focus here is on legislative polarization rather than social polarization. While legislative polarization is a function of social polarization, it is important to note that social polarization will be mediated by the representative institutions in place (see, e.g., Powell 2000, Golder & Stramski 2010).

Polarization is somewhat unlikely to lead to violent conflict in established parliamentary democracies but it may nevertheless influence coalition governance – if only to reduce the scope for consensual politics. One would, for example, expect coalition formation in highly (bi)polarized societies to take a particularly simple form. Suppose the party systems consists of two groups of parties; one clustered on the left of the political spectrum and the other on the right, with a substantial distance between the two blocs. This is a scenario that most of us would consider highly polarized. The scope for forming coalitions is highly limited in these circumstances because of the parties’ ideological preferences – a coalition including parties from both blocs is unlikely to form. The outcome would, thus, be that the bloc of parties holding the majority of the seats in the legislature forms a coalition. The coalition bargaining would, therefore, only involve parties

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I phrase my discussion in terms of parties, rather than groups, and preferences, rather than values or measures of alienation of one group from another. It is worth noting, however, that much of the literature on polarization addresses issues such as income polarization (e.g., Keefer & Knack 2002), religious polarization (e.g., Montalvo & Reynal-Querol 2003), and ethnic polarization (e.g., Montalvo & Reynal-Querol 2005).
from one side of the ideological spectrum.

It is important to note that a high degree of polarization does not imply the formation of a majority coalition. In those circumstances, the coalition bargaining will essentially revolve around the division of seats in the cabinet (a high degree of polarization implies a low degree of policy disagreement within the cluster). The parties’ bargaining strength depends in part on their outside options but they will only be marginally relevant since the parties cannot credible threaten to form a coalition with parties on the other side of the political spectrum. Thus, legislative polarization may actually increase the frequency of minority coalitions – the “opposition” parties have nowhere to go if one of the parties insists on forming a minority coalition.10

Polarization may influence coalition formation for other reasons. Jozwiak & Schneider (2006) find that cabinet duration is influenced by the degree of polarization, i.e., greater polarization leads to shorter cabinet duration. As the payoffs of forming a cabinet coalition are a stream of payoffs over the tenure of the cabinet, concerns over the durability of the cabinet should influence the parties’ decision to enter a particular coalitions, i.e., a party may prefer a coalition with a low payoff and a high life expectancy to a coalition with a high payoff but a short life expectancy.11

In the remainder of this section I consider in greater detail how polarization influences coalition formation. The characteristics of a potential coalition, such as minority status and ideological composition, are generally seen as influencing the likelihood that the coalition forms. I consider how the degree of legislative polarization conditions the effects of those coalition characteristics. That is, I ask, for example, whether minority coalitions are more or less likely to form when legislative polarization is high. Thus, each hypothesis comes in two parts. The first part states the prediction offered by existing theories of coalition formation. The second part describes how the prediction is conditioned by legislative polarization (i.e., whether polarization is expected to magnify or reduce the effect).

The simple reason the hypotheses take this form is that all coalitions face the same degree of legislative polarization at the time a coalition is formed. To clar-

10 The outcome of the bargaining, and the likelihood of a minority coalition, would depend on the parties’ expected benefits of being a part of the coalition and the cost of delaying the formation of a coalition. The formation of minority coalitions could be modeled as a war of attrition in this context.

11 Similarly, analysis of cabinet duration should take account of the fact that parties are forward looking when coalitions are formed. That is, as politicians likely try to form durable coalitions, the coalitions that we do observe is not independent of their expected durability, i.e., the estimated effects of institutional and ideological factors may suffer from selection bias. To the best of my knowledge, no formal analysis exist that consider coalition formation and duration simultaneously.
ify why the hypotheses are presented in this manner it is useful to introduce the methods used to test the hypotheses at this point (rather than postponing the discussion of the methods until the section presenting the empirical findings). The effects of the coalition characteristics and legislative polarization are estimated using a conditional logit model (McFadden 1974). The conditional logit model allows us to model the choice of a particular outcome from the set of possible outcomes. Each government formation opportunity defines a choice set which consists of all the possible governments that might form. The number of potential governments varies from country to country (and across time if new parties appear or old ones disappear) as the number of potential governments depends on the number of parties. Only one government, out of the set of all potential governments, can form each time. The dependent variable is an indicator of whether a given potential government formed or not. Each potential government has certain characteristics, e.g., it might be a minority coalition, minimal winning or a surplus coalition. The aim is to estimate how the potential government’s characteristics influence the likelihood of it, and no other potential government, forming. The conditional logit model is a fixed effects model, estimation results don’t depend on contextual factor, i.e., it is not necessary to control for country or time of formation.

The main advantage of the conditional logit model is that it models the choice of one government from the set of many possible government and allows alternative (coalition) specific variables without the problems associated with traditional regression methods. That is, the results are not sensitive to the different number of observations contributed by each country. In the conditional logit model the probability of alternative $j$ being chosen at government formation opportunity $i$ equals:

$$p_{ij} = \frac{e^{x'_{ij} \beta}}{m_i \sum_{k=1}^{m_i} e^{x'_{ik} \beta}}$$  (2)

where $x$ is a vector of the covariates, $\beta$ the vector of the coefficients to be estimated and $m_i$ the number of alternative governments in government formation opportunity $i$. The likelihood function is constructed from the probabilities of

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12For clarification, suppose there are three parties, \{A,B,C\}. The potential governments are all the possible subsets of \{A,B,C\} other than the empty set, i.e., \{A,B,C\}, \{A,B\}, \{A,C\}, \{B,C\} as well as the three potential single party governments.

13Note that the coalition formation opportunity represents an observation in the conditional logit model, i.e., only a single government can form at any given point. This distinguishes it from the standard logit model where each potential government would be treated as a separate observations. Using the standard logit model is inappropriate here because it doesn’t account for the correlation in the error terms that results from the constraint that only once government forms.
each potential coalition and the coefficients are estimated by maximizing the likelihood of observing the actual (and no other) coalition forming.

The conditional logit model is a fixed effects model, which implies that context specific effects, such as the effects of legislative polarization, cannot be estimated in a simple manner – it is easy to verify from (2) that covariates that do not vary within the choice set simply cancel out. Generally, the model can be “tricked” into considering context specific effects by interacting the variable of interest with dummy variables for each of the choices. However, since potential coalitions cannot be compared in a meaningful way across countries, “tricking” the model in this manner makes little sense. The formulation of the hypotheses concerning legislative polarization as conditioning the effects of the government characteristics allows them to modeled in a straightforward manner by interacting the polarization measure with the government characteristics. Thus, the estimated coefficients for the government characteristics represent their effect in the absence of legislative polarization while the coefficient for the interaction terms capture how the effects are conditioned by legislative polarization.

The first set of hypotheses concerns the parties’ ideological positions. Coalitions that are ideologically heterogeneous are less likely to form because they require their members to make greater compromises. Other things equal, parties should prefer to join ideologically compact coalitions. Polarization will have two kinds of effects on the likelihood of a coalition forming. For illustrative purposes consider a bi-polar multi-party system, i.e., suppose there are two blocs (or clusters) of parties. Suppose that legislative polarization increases because the two bloc of parties move further apart ideologically. First, consider a potential coalition that contains party \( L \) (from the left bloc) and party \( R \) (the right bloc). In this scenario, the ideological heterogeneity of the coalition should become more important, i.e., there is a greater incentive to form a within-bloc coalition. The second effect occurs when we consider a coalition between parties belonging to the same bloc, e.g., \( R_1 \) and \( R_2 \). In this scenario, the ideology of the coalition would matter less because the alternative, to form a coalition with a party from the other bloc, has become an even less desirable outcome. The two effects thus operate in different directions. In sum, when the degree of legislative polarization increases

\[ \text{14 As a practical matter, interpretation of the results would also be somewhat of a challenge as the number of choices is in the thousands in some cases.} \]

\[ \text{15 Brambor, Clark & Golder (2006) argue that models that include interaction terms should include all constituent variables in the model specification. As the conditional logit model is a fixed effects model, there is no need (nor is it possible) to include legislative polarization in the model specification – legislative polarization does not vary within a given coalition formation opportunity.} \]

\[ \text{16 The term ideologically heterogeneous is deliberately vague because there is more than one way to take account of the ideological composition of the parties in the coalition. These issues are discussed in greater detail below.} \]
gets increasingly greater it will come to dominate the effects of the ideological heterogeneity within the coalition.

**Hypothesis 1** Coalitions are less likely to form if they are ideologically heterogeneous. The effect of the coalition’s ideological composition will decrease as legislative polarization increases.

Laver & Schofield (1990) argue that a minority coalition is more likely to form if its opposition is ideologically divided. Laver & Schofield’s (1990) intuition was that if a minority coalition forms when its opposition is ideologically heterogeneous, toppling the coalition would requires parties that are far apart ideologically to reach a compromise over policy. Parties that face an ideologically heterogeneous opposition should be more stable and, thus, be more likely to form. Greater legislative polarization should amplify the effect of the opposition’s ideological composition because a high degree of legislative polarization will tend to dominate the coalition formation process. Figure 6 illustrates why legislative polarization would have this effect. Consider the possibility of the centrist party with the ideological position 4 forming a minority government. A higher degree of polarization implies that the parties on the left and on the right are clustered closer together as shown in the right panel of the figure, thus, making the ideological distance between any pair of parties belonging to the two ‘blocs’ greater. Intuitively, the minority government in the right panel is less likely to form then the one in the left panel. The opposition parties in the left panel appear more likely to be able to come to an agreement, due to their centrist policy positions, than the parties in the right panel where any alternative majority coalition would have to include parties from both ends of the ideological spectrum. The differences between these two scenarios are not captured by the simple ideological division measure, i.e., the opposition’s ideological division is the same in the two scenarios.

![Figure 6: Opposition Ideological Composition & Legislative Polarization](image-url)
Hypothesis 2 Minority coalitions facing an ideologically heterogeneous opposition are more likely to form. The effect of the opposition’s ideological composition will increase as legislative polarization increases.

The importance of party ideology affords certain parties favorable status. In particular, the median party in the legislature is likely to be included in the coalition as any majority coalition that excludes the median party will have to include parties to its left and its right. Indeed, according to the standard one-dimensional spatial model with policy-seeking parties, the median party should be included in any coalition that forms. A more nuanced view of coalition politics would, however, suggest that other factors might influence whether the median party is in the government coalition. For example, in addition to policy, parties may care about holding office, personal relationships between party leaders may affect the desirability of certain coalitions, smaller parties may worry about being seen as mere appendages of the median party after extended periods of governing together, and some parties may be more compatible when it comes to policy emphasis.

In short, different coalitions may offer different types of benefits and parties face a trade-off between non-policy related benefits and forming an ideologically heterogeneous coalition.

While generally in a strong position, the median party’s position should be strengthened further when there is a high degree of legislative polarization. Figure 7 illustrates why that might be the case. Any coalition that forms is likely to be formed by parties that share similar policy preferences. Coalitions that exclude the median party are more likely to form when the degree of polarization is low as in the left panel of the figure – the policy differences between the left party and the right party are moderate and, moreover, forming a coalition with a party smaller than the median party may mean a greater share of cabinet portfolios. As polarization increases, the additional cabinet portfolios may no longer be sufficient to overcome the parties’ policy differences. In the right panel of the figure, where polarization is higher, a coalition of the left party and the median party is more likely as to be the result. In short, the policy cost of forming a coalition that excludes the median party will become prohibitive as legislative polarization continues to increase. Hence, the position of the median party gets even stronger as legislative polarization increases.

\footnote{Policy compatibility may be an issue even when parties are seen as occupying similar ideological positions. For example, two parties may have a more difficult time reaching an agreement if both attach great salience to health policy than if one of the parties attaches greater salience to employment policy.}
Hypothesis 3  
*Coalitions that include the median party are more likely to form. As legislative polarization increases, the greater the likelihood that the median party is included in the coalition.*

Most legislatures are majoritarian institutions. To implement its policies, a coalition cabinet needs majority support in the legislature. Minority coalitions are, therefore, less likely to form, although it is important to note that a cabinet’s *supporting coalition* in the legislature need not correspond to the cabinet coalition, i.e., the latter may be a subset of the former. In some instances, parties outside the cabinet declare their support for the coalition while in other cases there are no such declaration and/or the cabinet may build legislative coalitions around individual legislation. In any case, minority governments must rely on parties outside the cabinet coalition to protect it from votes of no confidence. This is important when we consider what effect legislative polarization has on the likelihood of a minority government. Minority governments should be most likely to form when a non-cabinet party lends the government its support. A non-cabinet party is more likely to do so in circumstances in which it cannot benefit from bringing the government down. Those circumstances are most likely to occur when the support party is not interested in forming a coalition with other non-cabinet parties and no cabinet party has an incentive to form a coalition with the support party (which may include other parties). These conditions are more likely to be fulfilled when the party system is highly polarized and polarization will, therefore, make minority governments more likely.

Hypothesis 4  
*Majority governments are more likely than minority governments. The likelihood of minority government increases as legislative polarization increases.*

The early contributions to coalition theory suggested that coalitions should be minimal winning (Gamson 1961, Riker 1962). The reasoning is similar to why...
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minority coalitions should be unlikely to form but refines the argument further to exclude super-majority coalitions. Forming a coalition involves dividing the spoils of office and including parties that are not pivotal to the coalition’s majority in the legislature implies that the spoils will be divided, unnecessarily, between more parties. That is, excluding a superfluous party allows a division of the spoils that favor the remaining parties. When the degree of polarization is high, the incentive to form a coalition of parties within a given ‘bloc’ of parties increases. I have argued above in this scenario minority coalitions will be more likely for a lack of outside opportunities. Similar logic applies with respect to minimal winning coalitions, i.e., the incentive to shed ‘surplus’ parties may increase as polarization increases because the ‘surplus’ parties have nowhere else to go.

**Hypothesis 5** Minimal winning government coalitions are more likely to form. The likelihood of minimal winning coalitions forming increases as party polarization increases.

Coalitions containing few parties are more likely to form than coalitions containing many parties. There are two reasons why this is the case. First, the transaction cost of negotiating a coalition agreement increases as the number of parties increases. Second, large coalitions are likely to be less stable because the potential for policy disagreement increases (Leiserson 1968). Legislative polarization should reinforce this effect for the same reason that minority coalitions are more likely in highly polarized systems, i.e., in a highly polarized system the majority bloc does not have to fear defection in the legislature by the bloc’s members. Thus, there is little incentive to build a surplus (or even a majority) coalition to guard against defections.

**Hypothesis 6** Coalitions composed of few parties are more likely to form than coalitions containing many parties (Leiserson 1968). The likelihood of coalitions containing many parties decreases as legislative polarization increases.

Before turning to hypotheses testing, note that hypotheses 1 and 2 were framed in terms of the government’s ideological heterogeneity – which, as we have seen, can be defined in different ways. It is quite possible that the two measures discussed above, the ideological divisions and polarization measures, capture different aspects of how desirable parties consider certain coalitions or the obstacles that the coalition may face in forming.

First, consider why the two measures, ideological divisions and polarization, might produce different effects. Ideological divisions are likely to gauge how certain aspects of the parties’ ideologies influence coalition formation. That is, in
forming a coalition *all* the parties involved must agree to some government policy or platform. Reaching such an agreement will, other things equal, be most difficult for the coalition parties that have the most dissimilar policy preferences. The ideological divisions measure is likely to accurately capture this aspect of the bargaining and it appears reasonable that ideological divisions outperform polarization here. Polarization, however, captures other aspects of a coalition’s ideological composition that may also be relevant to the likelihood of its formation, namely, in very basic terms, the fact that coalition bargaining often involves parties other than those at the extremes of the coalition.

There are a couple of ways to think about how the size and ideological location of such ‘interior’ parties may influence the coalition formation process. First, ideology alone doesn’t determine whether a party will find a coalition feasible. Rather, as bargaining theory has made clear, the party’s bargaining position determines its willingness to accept policy compromises. ‘Interior’ parties should, therefore, not be expected to be silent partners in the bargaining between the extremes. Second, the left-right continuum considered here may perhaps best be considered a latent ideological dimension, i.e., the parties’ positions on the latent dimension may be seen as describing their general disposition (or a good predictor of behavior) towards economic policies while their actual location may vary across actual issues or policies. Thus, bargaining complexity may increase with a greater diversity of policy preferences within the coalitions and, for example, increase the likelihood of breakdown of negotiation.\(^{19}\)

Government polarization, when we control for ideological divisions (of the extreme parties), should then be expected to increase the likelihood of a coalition forming. High degrees of government polarization indicate that the potential coalition parties are divided into groups that have similar preferences, which may reduce bargaining complexity as well as reduce the potential for future conflict.\(^{20}\) A symmetric argument applies to opposition polarization. Higher opposition polarization, controlling, again, for ideological divisions, suggests that there is less variety of different policy preferences within the opposition and, therefore, it may be feasible to form an alternative coalition with the opposition parties (or a subset of them). The more the opposition parties offer attractive alternative coalition formation opportunities, the smaller the likelihood that the potential government forms.

\(^{19}\)This discussion is framed in terms of the potential governments but since the opposition is seen here as a potential alternative government (or subset of one) an analogous argument can be applied to opposition polarization.

\(^{20}\)This may sound a little odd as normally we assume that polarization increases the potential for conflict. Suppose that the coalition parties experience policy shocks or some random events. Parties that are ideologically similar may respond to these shocks in a similar manner whereas ideologically dissimilar parties may have different views.
3 Empirical Test

Data

I test the hypotheses using data on coalition formation in 17 parliamentary democracies between 1945 and 2006.\footnote{The countries are Austria, Belgium, Denmark, Finland, (West) Germany, Greece, Iceland, Ireland, Italy, Luxembourg, The Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, and the UK. Single party majority situations are excluded from the analysis.} The majority of the data on coalition formation and the composition of the legislature comes from Müller & Strøm (2001). The data in Müller & Strøm (2001) covers the Western European parliamentary system from the end of the second World War until the late 1990s. The dataset was augmented with data gathered by the author to bring the dataset up to date.\footnote{In addition, the augmented dataset contains information on coalition formation in New Zealand since 1996.} There were a total of 394 coalition formation opportunities, i.e., all instances of a coalition being formed or renewed. Each coalition formation opportunity gives rise to a number of potential coalitions. The set of potential coalitions represents all the possible permutations of party coalitions. The total number of potential coalitions in the dataset is 200566. Each observation contains information on the independent variables identified in the six hypotheses, all of which have a fairly straightforward operationalization.

The variables Minority Coalition and Minimal Winning are dichotomous variables indicating whether the potential coalition was, respectively, a minority coalition or a minimal winning coalition. The baseline category, i.e., if Minority Coalition and Minimal Winning take the value zero, is a surplus coalition. Largest Party is also a dichotomous variable indicating whether the potential coalition contained the largest legislative party. The Number of Parties is simply the number of parties in the potential coalition.

The independent variables measuring the ideological heterogeneity within the potential government and the potential opposition were constructed using several expert surveys on party positions (Laver & Hunt 1992, Benoit & Laver 2006, Warwick 2006) and the rank ordering of parties provided in Müller & Strøm (2001). Using expert surveys as estimates of the parties’ ideological positions is not without problems. Each survey contains only a subset of the parties that have been elected to the countries’ legislatures because they have generally focused on the parties that existed at the time the survey was administered. However, taken together, the surveys cited above provide a much improved coverage of the set of

\footnote{Suppose there are three parties, \{A, B, C\}. The potential coalitions are all the possible subsets of \{A, B, C\} other than the empty set, i.e., \{A, B, C\}, \{A, B\}, \{A, C\}, \{B, C\} as well as the three potential single party coalition. Each of these coalitions contributes one ‘observation’ to the data set.}
parties represented in the legislatures. Benoit & Laver’s (2006) survey is taken as the baseline – if their survey contains an estimate of a party ideology it is used. Because the measures are not necessarily on the same scale, I obtain ideological estimates for the parties missing in Benoit & Laver (2006) in two steps. First, I regress Benoit & Laver’s measures on Laver & Hunt (1992) and Warwick’s (2006) measures for the parties that were included in all the surveys. The regression coefficients obtained from the regression are then used to predict the ideological position of the parties missing in Benoit & Laver’s (2006).

Combining the expert surveys in the manner solves most of the problems but there still remain several, usually minor, parties that do not appear in any of the surveys. However, Müller & Strøm (2001) provide an ordering of the parties along the left-right spectrum. This ordering can be used to estimate the parties’ ideological position in a simple manner. To do so I simply assume that the parties’ position is the average of the ideological positions of the adjacent parties in the ordering given by Müller & Strøm (2001). These measures are not perfect but they make use of the available information.

The information on the parties’ policy positions is then used, along with information on the parties’ seat shares, to identify the median party in the legislature. The median party is defined as the party that can form a majority coalition with either the parties on its left or its right. The variable MEDIAN PARTY is an indicator variable that takes the value one when the potential coalition includes the median party.

As discussed above, we consider two measures of ideological heterogeneity. Traditionally, the literature has simply focused on ideological divisions within the coalition or the opposition, i.e., the ideological distance between the most dissimilar parties in the coalition. The variables GOVERNMENT DIVISION and

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24 The correlation between the three measures is high and ranges from .86 to .94.
25 The first step is to run the regression $p_{BL} = \alpha + \beta_{LHP} p_{LH} + \beta_{WP} p_{W}$, where $p_i$ is the measure of the party ideology in $i$’s survey, using the set of parties that are included in all the surveys. The ideological positions of parties that only exist in Laver & Hunt (1992) and Warwick’s (2006) surveys are then put on the same scale as the Benoit & Laver’s (2006) by using the regression coefficients obtained from the regression, i.e., $\hat{p}_{BL} = \alpha + \beta_{LHP} \hat{p}_{LH} + \beta_{WP} \hat{p}_{W}$. An analogous method is used when only one measure of a party’s ideological position exists.
26 If two or more adjacent parties were not included in any of the surveys I assume that the parties are evenly spaced across the distance between the closest parties for which ideological estimates exist. If a party is at the beginning or the end of the ordering their ideological position is assumed to equal the ideological position of the most extreme party included in the surveys.
27 The alternative is to leave the parties out of the analysis, which can hardly be considered a good option.
28 The procedure for identifying the median party simply involves ordering the parties along the ideological dimension and adding up the parties’ seat shares (starting at either end of the ideological spectrum) until a majority is reached. The party that contributes the last seats needed for a majority is the median party.
**Opposition Division** are defined as the absolute policy distance between the most distant pair of parties in the potential government and potential opposition. There are reasons to believe that these measures fail to capture some of the relevant effects of the distributions of the parties’ ideological positions and size. First, they only consider the parties at the extremes of a given coalition (or opposition). It is likely that it are not only the extremes that matter but also what the preferences of the other parties in the coalition (or the opposition) are. Second, the measure may be too sensitive to the decision which parties are included in the analysis. Smaller extremist parties that play little or no role in the coalition formation process may bias estimates of the influence of ideology.

These deficiencies of ideological divisions as a measure suggest that Esteban & Ray’s (1994) measure of polarization may be useful to account for the ideological heterogeneity of the coalition and its opposition. That is, intra-coalition polarization (Government Polarization) can be calculated using the seat shares of the coalition parties (as a percentage of the coalition’s total) and their ideological positions. Intra-opposition polarization (Opposition Polarization) is calculated in the same way. Legislative polarization ($P_{ER}$) is calculated using information on all the parties in the legislature. In calculating the Esteban-Ray polarization measure, I assume that the degree of polarization sensitivity is in the center of the permissible values of $\alpha$ (1.3). In principle, the polarization measure provides a solution to the two problems with ideological divisions. First, the polarization measure takes account of the distribution of all the parties in each potential coalition (potential opposition/legislature). Second, smaller parties have relatively little effect on the measure.

A priori, the Esteban-Ray polarization measures provides a more nuanced picture of ideological heterogeneity and it is, therefore, worthwhile exploring whether the measure adds to our ability to explain patterns of coalition formation. The deficiencies of the ideological division measure provide one reason for exploring alternative measures but there are also compelling reasons for considering polarization measures. Consider the potential majority coalition composed of the three centrally located parties in each panel of figure 8 (indicated by solid lines). The potential coalition in the right panel might be considered less likely to form as the small centrist party’s move to the right makes the formation of fairly ideologically homogeneous coalition of the parties on the right possible. The ideological

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29Minor parties have often been excluded in empirical studies. Martin & Stevenson’s (2001) analysis, e.g., considers 220 formation opportunities that constitute about 33 thousand potential coalitions. In contrast, the present study includes 394 formation opportunities and over 200 thousand potential coalitions. The higher ratio of potential coalitions to formation opportunities is due to the inclusion of more minor parties.

30Choosing different levels of polarization sensitivity ($\alpha$) does not substantively alter the results.
Coalition Formation & Polarization

divisions measure for the coalition is the same in both the party systems whereas polarization is higher in the panel on the right. This example, however, doesn’t conclusively rule out the possibility that the ideological division measure does an adequate job, i.e., the coalition of the centrist parties can be seen to become less likely because the ideological division of the three rightmost parties decreases. In scenarios such as this it is really an empirical question whether the polarization measure has additional explanatory value.

![Figure 8: Polarization or Ideological Division](image)

Figure 8 provides an example that the ideological division measure has a harder time accommodating. Again, the potential coalitions are indicated using solid lines. Intuitively, the potential coalition in the left panel may seem more likely form. The two larger parties are more likely to be able to come to an agreement about forming a coalition when the third party in the coalition is located midway between them than when it is located close to one of them. Here the ideological division measure neither distinguishes between the two potential coalitions nor affects the value of alternative ideological coalitions (since the party positions are the same). However, the polarization measure shows that polarization is higher in the panel on the right.

![Figure 9: Polarization or Ideological Division](image)

Before examining the effects of legislative polarization, I examine in a simple
manner whether the polarization measures are a reasonable substitutes for the traditional ideological division measures – or, as discussed above, whether the two measures of ideological heterogeneity capture different aspects of the bargaining obstacle different potential coalitions face.

Results

Table 1 presents the result of three basic models of government formation that include the primary covariates (i.e., they exclude the interactions with legislative polarization). Each of the models confirms what previous studies of coalition formation have shown about the effects of coalition characteristics that have to do with size (e.g., majority status, number of parties, etc.). Models 1 and 2 allow us to compare how the different measures of ideological heterogeneity fare. The results are largely in line with expectations, i.e., greater Government Division and Government Polarization translate into a lower likelihood of the potential government forming. The coefficients of Opposition Division and Opposition Polarization have different signs. This finding may appear counterintuitive at first but the differences in the two measures offer an explanation. Note that the Opposition Division is constant for all the potential governments that don’t exclude the two most extreme parties at each end of the policy spectrum. A priori, these two parties are unlikely to be in the governing coalition because of their extreme ideological stances. The effect of the ideological division measure is in large part driven by the fact that extremist parties are rarely in government, thus casting a doubt on to whether Opposition Division measure is really addressing Laver & Schofield’s (1990) hypothesis. In contrast, small parties, which extremist parties tend to be, have limited impact on the polarization measure. Interestingly, greater Opposition Polarization reduces the likelihood that the potential government forms, which runs counter to Laver & Schofield’s (1990) hypothesis. Note, however, that the Minority Coalition, which has been shown to have a robust effect in numerous studies, fails to reach significance in this specification of the model. The reason is that Opposition Polarization is picking up the effects of the variable – minority governments appear less likely to form in the presence of a highly polarized opposition.

The fit of the model using the polarization measures is slightly worse. The third model includes both methods of operationalizing ideological heterogeneity and serves as a rough guide as to whether the two variables are capturing the same variation in the data. In line with our expectations, the sign of Government Polarization is now reversed. These findings suggest that Government Division does capture an important aspect of coalition bargaining – the most ideologically dissimilar parties in the coalition must be able to forge an agreement. When ideological divisions are controlled for, polarization picks up on
Table 1: Polarization vs. Ideological Division

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minority Coalition</strong></td>
<td>-2.027***</td>
<td>-0.503</td>
<td>-1.293**</td>
</tr>
<tr>
<td></td>
<td>(0.000)</td>
<td>(0.200)</td>
<td>(0.018)</td>
</tr>
<tr>
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<td>0.870***</td>
<td>0.986***</td>
<td>0.886***</td>
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<tr>
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<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
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<td><strong>Median Party</strong></td>
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<td>1.088***</td>
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<td>(0.000)</td>
</tr>
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<td>-1.074***</td>
<td>-0.430***</td>
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<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
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<td>1.249***</td>
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<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td><strong>Government Division</strong></td>
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<td>-0.388***</td>
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<tr>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
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<tr>
<td><strong>Opposition Division</strong></td>
<td>0.0876**</td>
<td>0.104***</td>
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<tr>
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<td>(0.014)</td>
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<td>200566</td>
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<td><strong>Log Likelihood</strong></td>
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<td>-1253.5</td>
<td>-1198.2</td>
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</tbody>
</table>

*p*-values in parentheses
* *p < 0.10, ** *p < 0.05, *** *p < 0.01

the bargaining complexity within the coalition where low degree of polarization indicates a higher number of bargaining partners and a wider variety of ideological preferences. Note also that the polarization measures have a significant effect even though the models control for the number of parties in the coalition, which suggests that government (or opposition) division and the number of parties in the coalition are only rough measures of the relevant aspects of the ideological heterogeneity within coalitions. For these reason, I proceed by testing hypotheses using both measures.

Table 2 presents the results of the conditional logit model when legislative polarization ($P_{ER}$) is included as a covariate (as an interaction). For comparison, the first model does not contain the legislative polarization interactions. The second model, interacts legislative polarization with the size characteristics of the
Table 2: Effects of Legislative Polarization

<table>
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<th>(3)</th>
<th>(4)</th>
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<tbody>
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<td>Minority Coalition</td>
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<td>-2.048**</td>
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<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.75)</td>
<td>(0.09)</td>
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<tr>
<td>$P_{ER}$*Minority</td>
<td></td>
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<tr>
<td></td>
<td>1.761</td>
<td>-2.328</td>
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</tr>
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<td></td>
<td>(0.14)</td>
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<td>(0.00)</td>
<td>(0.72)</td>
<td>(0.63)</td>
<td>(0.45)</td>
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<td>$P_{ER}$*Minimal Winning</td>
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<td>1.598*</td>
<td>1.849**</td>
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<td>(0.57)</td>
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*p-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
potential governments. The third column contains the full model. As legislative polarization is interacted with quite a large number of variables a high degree of multicollinearity is unavoidable. Multicollinearity makes it difficult to draw inferences about the effects of the variables. In the final model I thus strip the model of some of the interactions that appeared statistically insignificant in the full model. Note that although many of the coefficients for the variables interacted with legislative polarization in models 2-4 are not statistically significant different from zero, the joint t-tests for each constituent term and its interaction with legislative polarization is statistically significant at the 99% level throughout.

Starting with the size variables, in most instances only the coefficients of the constituent variable or the interaction reaches statistical significant. In most cases, however, it is the interaction term that appears to provide a better fit with the data suggesting that legislative polarization does condition the literature’s standard predictions about the effects of coalition characteristics.

While minority coalitions are less likely to form, the evidenced with respect to legislative polarization influencing the likelihood of minority coalitions forming appears mixed at first sight. However, it is important to keep in mind that the potential governments are classified as minority, minimal winning, or surplus coalitions, and that surplus coalitions represent the baseline category. Hence, there are no statistically significant differences in how legislative polarization affects the likelihood of a minority and surplus coalitions. If, on the other hand, minority coalitions are compared with minimal winning coalitions then legislative polarization has different effects on the likelihood of a minority coalition forming – the p-values for the interaction term in models 2 and 3 are, respectively, .068 and .063.

Minimal winning coalitions are generally more likely to form than minority and surplus coalitions, and even more so in polarized legislatures. Legislative polarization has a substantial conditional effect, which can be seen by the fact that minimal winning coalitions are no more likely to form than surplus coalitions at low levels of legislative polarization. Indeed, the effect of being a minimal winning coalition is not statistically significant for a fairly large share, about 12%, of the coalition formation opportunities in the sample. In other words, the effect of being a minimal winning coalition does not kick in until legislative polarization reaches a certain threshold.

A potential coalition is generally less likely to form the more parties it contains. The effect is consistently estimated to be conditional on the degree of legislative polarization. Again, the marginal effect of the number of parties in the potential coalition depends is not significant (at the 95% level) when polar-

\[31\] This should not be interpreted as an attempt to solve the multicollinearity problem. Only additional observations can help solve that problem.
Coalition Formation & Polarization

ization is low – this applies to about 9% of the coalition formation opportunities in the sample. As legislative polarization increases, so does the magnitude of the effect the number of parties in the coalition.

Overall, the coalition characteristics that have to do with its size do appear to influence the likelihood of the coalition forming. Moreover, as we have seen, these effects are generally contingent on the degree of legislative polarization in line with the hypotheses. The one exception is the potential coalition’s minority status but, as discussed above, the lack of support for the minority status being conditional on legislative polarization only applies when minority coalitions are compared with surplus coalitions. When compared with potential minimal winning coalitions, minority status and legislative polarization have the hypothesized effects. In sum, the effects of legislative polarization appear to be similar for minority governments and surplus coalitions but different for minimal winning coalitions.

Turning to the ideological factors, coalitions that include the median party are generally more likely to form. Legislative polarization is consistently estimated to have the hypothesized effect on the likelihood of the median party being included in the governing coalition although the interaction term fails to reach statistical level of significance in the full model (model 3). The marginal effect of the coalition including the median party is small at low level of legislative polarization and is not statistically significant (at the 95% level) for about 7% of the coalition formation opportunities with the lowest levels of legislative polarization. The median party is increasingly more likely to be included in the government coalition as legislative polarization increases.

Ideological divisions within the potential coalition are shown to be an important determinant of the likelihood that the coalition forms but legislative polarization appears to have little effect on the importance of the potential government’s ideological characteristics. Legislative polarization is estimated to reduce the impact of ideological divisions within the potential coalition but the coefficient fails to reach levels of statistical significance.

In contrast, and in line with the hypothesis advanced above, a high degree of Opposition Division increases the likelihood of a potential government forming but the importance of the ideological divisions declines as legislative polarization increases. This stands to reason as the parties are clustered closer together at the opposite ends of the ideological spectrum when legislative polarization is high, which means that all the parties within each bloc are further apart and, thus, less likely to coalesce. The ideological division measure fails to capture this variation as it only focuses on the two most extreme parties and ignores the ideological positions of other opposition parties. The marginal effect of opposition division varies substantial across different values of legislative polarization and,
for example, the marginal effect is not statistically significant (at the 95% level) for the 15% of the coalition formation opportunities with the lowest degree of legislative polarization.

Finally, Government Polarization and Opposition Polarization have the hypothesized effects and are highly statistically significant. This suggests that there is more to ideological heterogeneity than simply how far apart the least similar parties in the potential government and opposition are. The effects of the two variables run counter to the effects of the ideological division measures. As I argue above, that stands to reason as the effects are estimated while controlling for ideological divisions, leaving the polarization measures to capture the clustering of parties within the potential government/opposition (but not how far apart the clusters are). The clustering of the parties may affect the complexity of the bargaining process, which has implications for which coalitions are likely to form. For example, as opposition polarization increases (controlling for ideological divisions) the opposition becomes better able to act cohesively and the potential government becomes less likely.

To summarize the findings with regard to the role of ideology, the results indicate that accounting for polarization adds to our ability to explain which coalitions form. With the exception of the effects of Government Division not being conditioned on legislative polarization, the results are consistent with the hypotheses. In terms of measuring the ideological heterogeneity within governments and oppositions, the results do not suggest that polarization measures should supplant the simpler ideological division measure. However, the results clearly highlight the fact that ideological division measures do not capture everything that is important about ideological heterogeneity within coalitions and that the polarization measures improve our ability to predict which coalitions form. Both Government Polarization and Opposition Polarization are statistically significant at the 99% significance level. The more general lesson to be taken from the findings regarding the ideological heterogeneity of coalitions is that it is important to think carefully about how theoretical concepts are operationalized.

In sum, the results support the argument that the context in which coalitions form is important in accounting for patterns of coalition formation. Previous research on coalition formation has to a large extent ignored this question and generally views the likelihood of a particular coalition forming to be primarily determined by the coalition’s characteristics. While it is true that conditional logit framework does capture certain aspects of the context in which a coalition form – as it involves estimating the likelihood of the different potential coalitions forming – the findings here make it clear that legislative polarization captures the contextual factors better and, in addition, they speak to a theoretical account of
how legislative polarization influences coalition formation. Overall, the findings offer a general support for the hypotheses derived from the theoretical argument about legislative polarization and coalition formation.

4 Conclusions

The formation of government coalitions is an important link in the democratic chain of delegation in parliamentary systems and an understanding the process of how (and which) government coalitions come into being is crucial to our understanding of parliamentary democracy. The literature on coalition formation is particularly impressive and has developed consistently over the years, improving our understanding of the factors that shape the coalition formation process. Today, it is well understood that the determinants of which coalitions form include both factors doing with their size and their ideological compositions. However, some challenges remain. While existing theories have provided important insights when it comes to predicting which coalition forms in a particular situation, they have been far less successful in explaining the persistent differences in the patterns of coalition formation across countries. This paper contributes to solving this puzzle.

Party systems may help explain cross-national difference in coalition formation. The legislative party system influences coalition formation for the simple fact that they define the set of coalition that can form and how desirable the parties may consider the different coalitions. In particular, I argue that the polarization of the legislature plays an important role in shaping patterns of coalition formation. While legislative party systems do change, they also exhibit a considerable amount of persistence, which means that focusing on party systems is helpful in explaining cross-national differences. That is, coalition formation in countries with polarized legislatures should follow different patterns than in countries where the legislature is not polarized.

In this paper I have examined whether legislative polarization influences the formation of government coalitions. The opportunities to form coalitions open to political parties in highly polarized party systems are far narrower than in system where the degree of polarization is low. Importantly, these constraints on the parties' opportunities are not captured entirely by focusing on how distant from each other the parties are ideologically as they have, e.g., implications for the decision whether to form a minority or a minimal winning coalition. Several hypotheses about how legislative polarization condition the effects of coalition characteristics are offered and tested against data on coalition cabinets in Western Europe. The results demonstrate that legislative polarization does condition the effects of the various coalition characteristics on the likelihood that a coalition
forms. In particular, the results show that coalitions are more likely to be minimal winning, to include fewer parties, and to include the median party if the degree of legislative polarization is high.

Another aim of this paper was advocate a more theoretically motivated approach to the choice of measures of ideological heterogeneity. This is not to say that the commonly used ideological division measure is necessarily a bad one. Indeed, one can make a strong theoretical argument for it being appropriate for the study of coalition formation, which is backed up by the findings presented here – ideological divisions clearly matter. However, the results also show that the measure does not fully capture the effects of the distribution of preferences in the legislature.

The inadequacy of the ideological division measure is perhaps best demonstrated by how we tend to describe party systems. One rarely describes party systems simply in terms of the largest ideological disagreements. One may certainly note the presence of extremist party but focusing on their presence provides at best a highly incomplete picture of the party system. In contrast, describing a party system as highly polarized conveys far more information about the party system. A highly polarized party system evokes a picture of two groups of parties that are odds with one another ideologically. On the other hand, if polarization is noted to be absent, the parties are assumed to be spread out across the political spectrum. More generally, polarization tells us something about the distribution of all the political parties rather than just those at the extremes of the ideological spectrum.

The paper also examines whether Esteban & Ray’s (1994) measure of polarization is a suitable substitute for the commonly used measure of ideological division. While it is shown that logically the ideological divisions measure fails to capture various changes that one may associate with a higher degree of ideological conflict, the answer to this question is no. Ideological division captures a crucial element of the bargaining situation, i.e., the fact that if the parties on the extremes of the coalition cannot agree then the coalition will not form. In contrast, government polarization may discount this fact too much if the ‘extreme’ parties within the coalition are small. However, polarization does appear to capture aspects of the bargaining situation that ideological divisions do not capture and Esteban & Ray’s (1994) measure should, therefore, be seen as a complement to the traditional measure of ideological division.

32 Admittedly, one might also suppose that all the parties are relatively centrist.


