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# Pre-electoral coalitions in comparative perspective: A test of existing hypotheses

Sona N. Golder\*

*Florida State University, Department of Political Science, 531 Bellamy Building,  
Tallahassee, Florida 32306, USA*

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## Abstract

Despite the vast coalition literature, pre-electoral coalitions have never been at the center of any systematic, cross-national research. Given their prevalence and potential impact on government composition and policies, this represents a serious omission in our knowledge of coalitions. I begin to remedy this situation by testing two hypotheses found in the literature on party coalitions. The first is that pre-electoral coalitions are more likely to form in disproportional systems if there are a sufficiently large number of parties. The second is that pre-electoral coalitions are more likely to form if voters face high uncertainty about the identity of future governments. These hypotheses are tested using a new dataset comprising legislative elections in 22 advanced industrialized countries between 1946 and 1998. The results of the statistical analysis support the first hypothesis, but not the second.

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## 1. Introduction

Prior to the 2002 German legislative election, the Social Democrats and the Greens announced that they intended to form a government together if they received

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\* Tel.: +1 850 644 5727; fax: +1 850 644 1367.

sufficient votes to do so and encouraged voters to support this coalition. In many cases this meant that left-wing voters would cast their first vote for the Social Democratic candidate in their district and their second vote for the Green party list. In the French legislative elections a few months earlier, the major parties on the mainstream right had been largely successful in fielding a single right-wing candidate for the first round in most electoral districts. While pre-electoral coalitions were successfully formed in these two countries, all parties ran independently in the 2002 elections in the Netherlands. In fact, there was a great deal of uncertainty as to the identity of the future coalition government immediately following the Dutch elections. These empirical observations raise the question as to why pre-electoral coalitions formed in Germany and France, but not in the Netherlands. More generally, why do some parties coordinate their electoral strategies as part of a pre-electoral coalition, while others choose to compete independently at election time?

Existing theoretical and empirical analyses of party coalitions provide little information about the factors that influence pre-electoral coalition formation. Instead, they focus almost exclusively on government coalitions that form after an election. For example, virtually all formal models of coalition behavior fail to incorporate the possibility of pre-electoral coalitions of parties (Baron and Ferejohn, 1989; Laver and Shepsle, 1990; Austen-Smith and Banks, 1990; Diermeier et al., 2003).<sup>1</sup> With few exceptions, the quantitative coalition literature focuses predominantly on government coalitions as well (Warwick, 1999; Diermeier and Stevenson, 1999; Martin and Stevenson, 2001; Martin and Vanberg, 2003). Only in the case-study literature do references to pre-electoral coalitions crop up with any semblance of regularity (Mitchell, 1999; Hanley, 1999; Saalfeld, 2000). In sum, there has been no systematic, cross-national research ever conducted on pre-electoral coalitions. This state of affairs has led G. Bingham Powell to claim that

‘one area that cries out for more serious theoretical and empirical work is the appearance of announced preelectoral coalitions between political parties. We know too little about the origins of such coalitions and about the great variety of forms (shared manifestos, withdrawal of coalition partners, recommendations to voters) that they can take’ (Powell, 2000, 247).

In this article, I begin to answer Powell’s appeal by carefully testing two hypotheses that can be found in the existing coalition literature. The disproportionality hypothesis states that pre-electoral coalitions are more likely to form in disproportional electoral systems if there are many parties. The signalling hypothesis states that pre-electoral coalitions are more likely to form when voters face high uncertainty about the identity of future governments. While the disproportionality hypothesis is predominant in the literature, the signalling hypothesis tends to be

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<sup>1</sup> The only formal model to my knowledge that allows for pre-electoral coalitions is Marek Kaminski’s cooperative game-theoretic model of coalitions in Poland (Kaminski, 2001).

called upon to explain why pre-electoral coalitions sometimes form in highly proportional electoral systems.

Before outlining the theoretical arguments that generate the disproportionality and signalling hypotheses in Section 3, I briefly examine the practical significance of pre-electoral coalitions. After all, why is it necessary to study pre-electoral coalitions? In Section 4, I provide the statistical model used to test the disproportionality and signalling hypotheses. The model draws on a new dataset comprising all legislative elections in 22 countries between 1946 and 1998. I present and discuss the results in Section 5, before concluding with suggestions of areas for future research.

## 2. The significance of pre-electoral coalitions

There has been little theoretical or empirical research on pre-electoral coalitions since Duverger mentioned them in passing during the 1950s (Duverger, 1959). One reason for this might be that they are not very important. In this section, I argue that this is not the case. Pre-electoral coalitions are significant because (i) they can have an important impact on government composition and policies, (ii) they have normative implications for the representative nature of government, and (iii) they are quite common.

Consider the following simple example. Imagine a legislative election with single-member districts in which there are two blocs of parties, one on the left and one on the right. The right-wing bloc has more electoral support than the left. Suppose the parties on the left form an electoral coalition and field a common candidate in each district, but the parties on the right compete independently. The right would most likely lose in this situation. In this example, the possibility arises that a majority of voters could vote for a group of politicians who support similar policies and that these politicians might still lose the election by failing to coordinate sufficiently.<sup>2</sup> The result is that the left party is elected to implement policies that a majority of the voters do not want. In other words, the absence of a pre-electoral coalition on the right has a significant impact on the government that forms and the policies that it is likely to implement.

Coalition strategies employed by political parties also have important normative implications for the representative nature of governments. In his recent book, Powell distinguishes between majoritarian and proportional representation ‘visions’ of democratic government (Powell, 2000). In the majoritarian vision, a party with a majority (or plurality) of the vote wins the election and governs the country until the next election. In this situation, the members of the electorate know that their votes

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<sup>2</sup> In a country with more proportional electoral rules, electoral coalitions can still play a role in determining the identity of the government. An electoral coalition may affect the choice of government *formateur*, or allow a small party that is a potential government member to surpass an electoral threshold. Control over government policy may well go to the political parties who are most effective at coordinating electoral strategies to win a plurality of the votes. Martin and Stevenson (2001) have found that pre-electoral coalition agreements increase the likelihood that a particular coalition of parties will form a government after the election.

directly influence which party exerts executive power and implements policy. In the proportional representation vision this is not necessarily true since government coalitions often form after votes have been counted, beyond the scrutiny of the electorate. As a result, the lines of accountability are blurred and it is unclear how well voter preferences are reflected in the government that is ultimately formed. Pre-electoral coalitions can help identify the possible government alternatives, thereby allowing the electorate to register their support for one of them. Arguably, this provides the government with added legitimacy and a stronger policy mandate. Pre-electoral coalitions simply make the government formation process more transparent.

Finally, pre-electoral coalitions are not rare. There were 186 pre-electoral coalitions in 19 West European countries between 1946 and 2002.<sup>3</sup> Fig. 1 provides summary information about these pre-electoral coalitions by illustrating the number of electoral coalitions per year, the average number of parties participating in each coalition per election, and the number of electoral coalitions that enter government per election. The sharp increase in the number of pre-electoral coalitions in the late 1970s is due in part to the addition of Portugal and Spain to the ranks of democratic countries in 1975 and 1977, respectively. At any one point in time during this period, one could expect to see an average of 11 electoral coalitions across these countries. The average number of parties participating in a pre-electoral coalition was 2.8. Although most electoral coalitions comprised two parties, the Union of the Democratic Center comprised 14 parties in the 1977 Spanish elections. Perhaps a more significant point is that of the 186 pre-electoral coalitions that formed in this period, 22% actually formed the government following the election. This percentage would be even higher if governments that contained pre-electoral coalitions along with additional government partners were also considered. A recent study on the types of formal coalitions in Western Europe concluded that one third of written government coalition agreements were actually based on pre-electoral agreements (Strom and Müller, 2000). Taken together, these last points suggest that if we think that the study of government coalitions is important, then it logically follows that the study of pre-electoral coalitions must be as well.

### 3. Theories of pre-electoral coalition formation

While there has been little systematic investigation of pre-electoral coalitions, it would be misleading to imply that they are never mentioned in the coalition literature. In fact, if one looks carefully enough one can see that two hypotheses are implicitly made regarding pre-electoral coalitions. The first states that pre-electoral coalitions should be more common in disproportional electoral systems. In this case,

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<sup>3</sup> The specific European countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece (1946–1964, 1974–2002), Iceland, Ireland, Italy, Luxembourg, Malta (1966–2002), the Netherlands, Norway, Portugal (1975–2002), Spain (1977–2002), Sweden, Switzerland, and the United Kingdom. The 186 pre-electoral coalitions do not include regional coalitions that form in only one or two districts or regions. For example, the number does not include coalitions that sometimes form between small parties in the Catalan region of Spain.

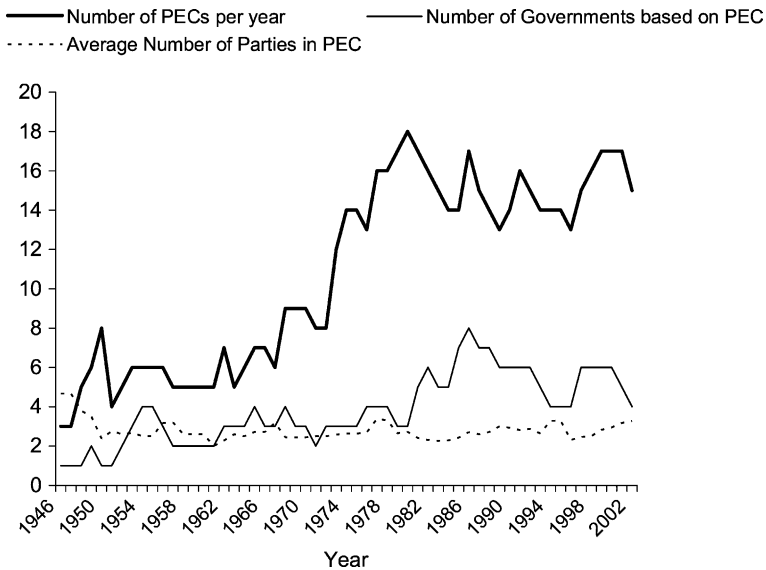


Fig. 1. Pre-electoral coalitions (PECs) in Western Europe, 1946–2002.

electoral coalitions are formed as a means of overcoming some barrier of representation. The second hypothesis focuses on the electorate's desire to be able to identify the nature of future governments. In this case, electoral coalitions act as a signalling device, indicating the likely shape of the post-election government coalition. To date, neither hypothesis has been carefully analysed or tested. In this section, I examine the theoretical underpinning of each argument in turn and generate testable hypotheses.

### 3.1. Disproportionality and electoral coalitions

By far the predominant argument in the literature is that disproportional electoral systems encourage pre-electoral coalition formation (Shepsle and Bonchek, 1997). Strom, Budge and Laver state that, 'Systems not based on PR lists tend to force parties to coalesce before elections in order to exploit electoral economies of scale. The more disproportional the electoral system, the greater the incentives for pre-electoral alliances' (Strom et al., 1994, 316). The argument is fairly straightforward. Electoral rules that consistently benefit larger parties should encourage party leaders to forge pre-electoral alliances. While the implicit goal of pre-electoral coalition formation in this argument appears to be to gain more seats, this need not be the main objective of party leaders. If the size of a party in terms of legislative seats is highly correlated with being part of a government coalition (or being chosen as *formateur*), then party leaders in parliamentary systems could increase their chances of being in government by joining an electoral coalition (Laver, 1998).

While this argument has a great deal of intuitive appeal, it needs to be qualified. Imagine a country with a highly disproportional electoral system in which there is only one seat being contested (or one seat per district, the extreme case being a presidential election). The argument as stated above, and in the literature, suggests that pre-electoral coalitions should be quite common in this country. However, if there are only two parties with reasonable expectations of winning office, then there is clearly no reason for the two parties to form an electoral coalition. Except for periods of war or political crisis when political elites may want to form a government of national unity, one would not expect to see electoral alliances in a two-party system. In other words, the incentives to form a pre-electoral coalition only really exist when there are more than two parties. Adding parties to the party system would increase the incentives to form pre-electoral coalitions, though one cannot determine a priori the point at which the party system would be large enough for disproportional electoral rules to significantly affect parties' incentives to form pre-electoral coalitions. The intuition from this example can be stated more generally: disproportionality encourages pre-electoral coalition formation, but only when the number of parties is sufficiently large. In fact, [Duverger \(1959\)](#) made this exact same point when he first discussed electoral coalitions in the 1950s. The fact that the conditional part of this hypothesis was dropped in the subsequent literature is most likely a reflection of the lack of attention paid to pre-electoral coalitions.

A vast literature exists investigating the factors that determine the number of parties in a particular country ([Duverger, 1959](#); [Lijphart, 1994](#); [Amorim Neto and Cox, 1997](#); [Clark and Golder, 2004](#)). There is strong theoretical and empirical evidence that more disproportional electoral systems are associated with fewer political parties. Disproportional systems clearly advantage larger parties. It is the existence of a 'mechanical effect' in favor of large parties that creates incentives for strategic voting on the part of voters and for strategic withdrawal on the part of political entrepreneurs. The end result is that parties typically merge and coalesce so as to exploit electoral economies of scale in disproportional systems. This is precisely the same argument presented in the coalition literature for why pre-electoral coalitions form in disproportional systems. Note that this raises an interesting puzzle. If the incentives to coalesce are so great in disproportional systems, then one should not actually observe pre-electoral coalitions in these countries; there simply will not be a sufficiently large number of independent parties. It is only when there are 'surplus' or 'excess' parties that choose to retain their party identity in spite of the incentives to merge created by disproportional systems that one would expect to observe electoral coalitions.

Determining when and why some political parties will retain their separate identities rather than merge or coalesce into a larger party is a complex question and beyond the scope of this article. However, several institutions are already known to influence how likely parties are to retain their identities. One such institution is the use of fusion candidacies where multiple parties can nominate the same candidate. Fusion candidacies were employed in many US states in the nineteenth century and it is interesting to note that electoral alliances were quite common between the Democratic Party and various other parties (depending on the state) at this time.

Although this practice continues in New York state, it was stopped in most other states more than a century ago. It is thought that the end of fusion candidacies (outside New York state) contributed quite markedly to the evolution of a party system in which the Democratic and Republican parties were the only viable parties (Argersinger, 1980). Majority requirements are also thought to encourage parties to retain their separate identities (Duverger, 1959). Although various institutions obviously influence whether there will be a ‘surplus’ or ‘excess’ number of parties, these institutions are not themselves directly relevant to the analysis here. The principal point here is simply that the disproportionality hypothesis regarding pre-electoral coalitions must be conditional in nature:

Disproportionality hypothesis: Disproportionality only increases the likelihood of pre-electoral coalition formation when there are a sufficiently large number of parties.

### *3.2. Pre-electoral coalitions as signalling devices*

While the disproportionality hypothesis is predominant, a second explanation for pre-electoral coalition formation can be discerned in the literature. In this alternative argument, pre-electoral coalitions are treated as signalling devices with respect to voters. There appear to be at least three separate motives behind forming an electoral coalition as a signalling device: (i) to signal that member parties would be able to form an effective government coalition, (ii) to signal the identity of a potential future government as clearly as possible, and (iii) to signal the desire of political parties to give voters a more direct role in choosing government coalitions. These variants of the signalling argument are typically found in the case-study literature dealing with coalitions. They are often used to explain what appear to be anomalous cases of electoral coalition formation in highly proportional electoral systems.

The argument that electoral coalitions send a signal to voters that member parties can form an effective government coalition has been made in the cases of Ireland, Sweden and India. Each of these countries has experienced long periods in which a single party has dominated the executive (Fianna Fail in Ireland, the Social Democrats in Sweden, the Congress Party in India). Those voters who preferred one of the opposition parties in these countries risked ‘wasting’ their vote if they voted for this party. Opposition parties formed electoral coalitions in these countries to signal their ability to compete effectively with the ruling party and encourage the electorate to vote for them. In Sweden, the Social Democrats were dominant for decades because the various opposition parties were so ideologically distant from one another that they were not seen as a credible government alternative. Eventually, the three ‘bourgeois’ parties formed electoral coalitions in the 1970s as a signal to voters that their policy positions had sufficiently converged that they could offer a viable governing alternative (Hancock, 1998). Likewise, the opposition parties in India managed to form an electoral coalition based on a common anti-corruption platform to bring down the long-dominant Congress Party (Andersen, 1990).

The argument that electoral coalitions are a device to signal the identity of potential future government coalitions is perhaps more common. These coalitions can be used to signal both with whom member parties will try to form a government if elected and with whom they will not.<sup>4</sup> As a result, pre-electoral coalitions can be expected to offer benefits to risk averse voters who would rather know the identity of the post-election coalition for sure rather than wait for the lottery that occurs during a government coalition bargaining process. These benefits are likely to be quite significant in those countries where the post-election bargaining process is very uncertain. Some of the parties in Germany are quite explicit in their campaign messages about the coalition government that they will form if elected. They often tell voters to support a particular coalition by splitting their votes in the constituency and party-list portions of the ballot precisely because this can affect the identity of the post-election government coalition (Roberts, 1988). Pappi and Thurner (2002, pp. 213) note that in ‘the German system, voters recognize the realistic options for a new coalition government and the German two-vote system offers voters an opportunity to support not only their party, but also the specific coalition advocated by their party.’

The final variant of the signalling argument is that party leaders form electoral coalitions to signal their desire to have voters play a larger role in determining government coalitions. At least, this was the public justification behind the electoral coalitions that formed in the Netherlands in the early 1970s (De Jong and Pijenburg, 1986; Andeweg, 1989; Hillebrand and Irwin, 1999). Coalition parties claimed that voters would feel that the future government coalition was more legitimate if they knew ahead of time what they were voting for.<sup>5</sup> Some analysts have argued that this motivation has been important in Germany as well. For example, Klingemann et al. (1994) state that the FDP and whichever of the major parties was its partner at the time benefited from forming an electoral alliance since they could claim to have a direct popular mandate once in office.

If pre-electoral coalitions are to be useful as signalling devices, it must be the case that they translate fairly accurately into the government coalitions that eventually form after elections. If this is not the case, then the electorate is unlikely to continue voting for them in the future. In other words, one would expect that public commitments to form a government coalition with another party if successful will

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<sup>4</sup> For example, party leaders in Germany, Austria, Norway, and the Netherlands sometimes announce the parties they will refuse to govern alongside under any circumstances, effectively ruling out certain government cabinet configurations. A recent empirical study shows that ‘anti-coalition pacts’ make it more unlikely that a potential government including those parties would form (Martin and Stevenson, 2001). For specific country examples, see Müller (2000), Müller and Strom (2000), Narud and Strom (2000), Hillebrand and Irwin (1999), and Strom et al. (1994).

<sup>5</sup> Some commentators analysing Dutch politics have suggested that electoral coalitions have not been very effective in giving Dutch voters more say over the composition of their governments. For example, De Jong and Pijenburg (1986) state that, “the making of a [government] coalition remains the crucial moment despite the efforts ... towards more ‘political clarity’ and pre-electoral agreements ... Dutch voters will never decide on the composition of their government.”



actually be implemented. The empirical evidence seems to support this (Laver and Schofield, 1998; Strom, 1994; Martin and Stevenson, 2001).

These variants of the signalling hypothesis have often been developed in a case-specific and ad hoc manner. As a result, it is difficult to delineate shared features and generate testable claims that can easily be evaluated across different cases. The variant of the signalling hypothesis that can most easily be generalized is the one that focuses on the identifiability of potential future governments. The basic claim is that pre-electoral coalitions are more likely to form when the identifiability of future governments is uncertain. One only needs a measure of identifiability to be able to test this. Although measures of identifiability do exist in the literature, the creators themselves acknowledge that the measurement criteria are very ‘impressionistic’ (Strom, 1990; Shugart, 2001). One alternative to these impressionistic measures is to assume that uncertainty about the identity of future governments is correlated with the number of potential governments that could form. If we accept this assumption, then it follows that those countries with a large number of parties should also have a high level of uncertainty as to who will be in the next government. This line of reasoning generates the following testable hypothesis:

Signalling hypothesis: Pre-electoral coalitions are more likely to form when there are a large number of parties.

#### 4. Data and model

The dataset that is used to test these hypotheses is new and comprises all legislative elections in 22 advanced industrialized democracies between 1946 and 1998.<sup>6</sup> It is worth briefly discussing some of the practical problems that confront any analyst collecting data on pre-electoral coalitions. First, the fact that electoral coalitions are rarely listed in official election results means that it is extremely difficult to get completely accurate information on how many electoral coalitions formed in a particular period, which parties were members of particular coalitions, and how successful they were at the polls. The analyst is forced to rely on the accounts of country experts dealing with elections and party competition in the vast case-study literature. However, even this is problematic since pre-electoral coalitions are rarely the focus of scholarly attention in these studies. The practical issues associated with identifying pre-electoral coalitions may explain why I have failed to

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<sup>6</sup> The 22 advanced industrialized democracies are listed in Table A1 in the Appendix. Aside from the omission of Greece, Israel and Malta, these countries correspond to the 25 countries most commonly included in coalition datasets (Mershon, 2002). I was forced to omit Greece and Israel because the dataset used to create the party dyads necessary for this analysis included all of the pre-electoral coalitions in these countries as single parties (Budge et al., 2001). The same dataset did not include information on Malta. My sample includes only those parties that won more than 1% of the national vote. This criterion is forced on me by the fact that official electoral statistics tend not to report vote totals for all of the parties that win fewer votes than this.

locate a detailed database on these coalitions and why there have been no statistical analyses of electoral coalitions prior to this study.<sup>7</sup>

A second practical issue relates to the definition of pre-electoral coalitions. How do you know a pre-electoral coalition when you see one? As far as I can tell, there is as yet no accepted definition for pre-electoral coalitions in the literature. For the purposes of this analysis, I define pre-electoral coalitions as a collection of parties that do not compete independently in an election either because they publicly agree to coordinate their campaigns, run joint candidates or joint lists, or govern together following the election. In effect, I employ two criteria for identifying pre-electoral coalitions that are both objective and observable. First, the electoral coalition must be publicly stated. This is important since one of the primary reasons for forming a coalition prior to an election rather than afterwards is to affect voter behavior. The requirement that electoral coalitions be publicly stated does not necessarily entail that there is an explicit, written agreement between the member parties. However, it does rule out what might be considered ‘implicit’ coalitions. For example, an outgoing coalition government that is expected to reconstitute itself if given the opportunity might be considered an implicit electoral coalition. The principal problem with including implicit coalitions such as this in a systematic analysis is that it relies on the subjective evaluation of the analyst as to whether the relevant parties really are coordinating their campaign strategies or not. Moreover, there is no way of knowing if these implicit coalitions would actually have formed the expected government coalitions if they were unsuccessful at the polls. By ruling out these ‘implicit’ coalitions, I minimize the probability of committing a Type II error when classifying pre-electoral coalitions.

The second criterion is that member parties cannot compete in elections as truly independent entities. This is a fairly inclusive requirement and recognizes that parties can coordinate their electoral strategies in a variety of ways. For example, a coalition strategy might entail merely announcing an intention to govern together if the coalition is successful at the polls (as might be the case in the Netherlands) or might involve choosing a single coalition candidate to run in each district (as might be the case in France). The particular form that a pre-electoral coalition takes is likely to be a function of the electoral rules in a given country.

On the whole, it was easy to identify pre-electoral coalitions using these two criteria. As always, though, there were a few problematic cases. In virtually every pre-electoral coalition that I found, all of the member parties explicitly endorsed the coalition. However, there were two Austrian elections where the Socialist Party

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<sup>7</sup> While some scholars have collected information on pre-electoral coalitions, these coalitions have never been their primary focus (Powell, 2000; Martin and Stevenson, 2001). Moreover, the information on various aspects of these coalitions is quite limited. For example, Martin and Stevenson (2001) identify only 14 (8%) elections out of the 170 in their sample as having a pre-electoral coalition. Their figures are based on a single edited volume on government coalitions by Laver and Budge (1992). Based on a more extensive reading of the case-study literature, I found that nearly 40% of the elections in their sample had a pre-electoral coalition. A full list of the sources that I consulted when collecting my dataset can be found in the codebook that accompanies this article.

announced an intention to govern together with the People's Party but where the People's Party did not reciprocate (although they did not reject the coalition). I coded these Austrian cases as pre-electoral coalitions. Swiss elections are also problematic. This is because there has been a 'magic formula' since 1959 that mandates the four parties that will be in government as well as their respective number of portfolios (Kerr, 1987). I do not code this arrangement as an electoral coalition because there is no sense in which the parties in question coordinate their campaign strategies. Nor does it seem to be responsive to poll results. It turns out that my coding decision in these two cases does not affect the inferences that I draw in the upcoming analyses.<sup>8</sup> Using my definition of pre-electoral coalitions, I found evidence of pre-electoral coalitions in 134 of the 339 legislative elections in my dataset. In those elections with pre-electoral coalitions, I found a total of 169 coalitions.

Before describing the statistical model used to test the disproportionality and signalling hypotheses, it is useful to first examine the unconditional disproportionality hypothesis that is predominant in the contemporary coalition literature. Remember that this hypothesis states that electoral coalitions will be common and successful in disproportional systems such as those that employ a majoritarian electoral formula; they should be absent or infrequent in systems that employ a proportional formula (Laver and Schofield, 1998; Shepsle and Bonchek, 1997; Strom et al., 1994). In Table 1, I present information on the number of electoral coalitions that have formed in elections using majoritarian formulas as opposed to those that have formed in elections using some form of proportional representation.<sup>9</sup> I also provide information on the percentage of elections with pre-electoral coalitions, the average percentage of the vote received by these coalitions, and the average effective number of electoral parties by electoral formula.<sup>10</sup> If the unconditional hypothesis is correct, pre-electoral coalitions should be both significantly more frequent and more successful in countries that employ majoritarian systems than in those using proportional systems.

The evidence in Table 1 is quite clear. Pre-electoral coalitions seem just as likely to form in proportional systems as in majoritarian ones. Indeed, the percentage of elections with pre-electoral coalitions is higher in proportional systems than that in

<sup>8</sup> I recognize that other scholars may have a preference for different coding criteria. However, I feel that the fairly inclusive definition of pre-electoral coalitions that I use based on the public coordination of electoral strategies is a useful starting point for studying pre-electoral coalitions. Analysts can of course use my dataset and codebook to further examine the robustness of my results and to begin considering the distinction between different types of electoral coalitions.

<sup>9</sup> For the classification of each election by electoral formula see Golder (2005). Majoritarian systems include plurality rule, absolute majority rule, the alternative vote, and the single non-transferable vote (SNTV). Although it is possible to distinguish between proportional, multi-tier, and mixed electoral systems, I do not do so here. They are all classified as proportional systems because they employ a proportional formula in at least one electoral tier. Results do not change noticeably if systems using SNTV are classified as proportional.

<sup>10</sup> The effective number of electoral parties is calculated as  $1/\sum v_i^2$ , where  $v_i$  is the percentage of votes won by the  $i^{\text{th}}$  party (Laakso and Taagepera, 1979).

Table 1

Pre-electoral coalitions (PECs) by electoral formula in 22 countries, 1946–1998

Electoral formula	Number of elections		Percentage of elections with PECs	Percentage of vote for PECs	Effective number of electoral parties
	With PECs	Without PECs			
Majoritarian	34	90	27%	14.9	2.9
Proportional	98	117	46%	18.8	4.3

majoritarian systems. Moreover, the average percentage of the vote won by pre-electoral coalitions is also higher in proportional systems than that in majoritarian systems. In sum, there is very little evidence in favor of the unconditional disproportionality hypothesis found in the literature. This is exactly as I predicted earlier. Note that the average number of effective electoral parties is significantly lower in majoritarian systems than in proportional ones. By encouraging political parties to coalesce and merge, disproportional systems have fewer parties and, hence, fewer opportunities for electoral coalitions to form. Making the disproportionality hypothesis conditional on the number of parties was motivated precisely by the need to take account of the opportunity structure facing individual parties. The question now is whether there is evidence in favor of the conditional disproportionality hypothesis.

Does the disproportionality of the electoral system and the number of parties affect the probability of electoral coalition formation? One might think to treat each election as an observation and distinguish between elections in which pre-electoral coalitions form and those in which they do not. The problem with this is that such an approach treats all elections with at least one pre-electoral coalition as the same regardless of the number of electoral coalitions that form, the electoral significance of these coalitions, and the number of parties involved in these coalitions. To avoid this problem and take account of the number of coalition opportunities in a given election, I use dyadic data where each observation is a potential two-party electoral coalition. If the two parties in the dyad form an electoral coalition, then the dependent variable is coded 1. Obviously, if no coalition forms, then the dependent variable is coded 0. It is important to note that the dyadic nature of the data does not rule out coalitions between more than two parties. If more than two parties form an electoral coalition, then each of the dyads in that coalition is coded as a 1.<sup>11</sup> Of the 4739 potential two-party electoral coalitions in the dataset that could have formed, only 237 actually did. Although this figure makes it appear that pre-electoral

<sup>11</sup> The disproportionality and signalling arguments as stated in the literature are somewhat ambiguous in that they often refer to the electoral success of pre-electoral coalitions and the number of coalitions in addition to the likelihood that an electoral coalition forms. Given space constraints, I focus here solely on the probability of electoral coalition formation. However, analyses in which the dependent variable is the percentage of the vote received by pre-electoral coalitions in each election or the percentage of parties involved in a pre-electoral coalition in each election produce identical inferences to those presented here (Golder, forthcoming).

coalitions are rare, this is an artifact of the dyadic nature of the data. It is worth remembering that pre-electoral coalitions did compete in nearly 40% of the elections in the dataset.

Given the dichotomous nature of my dependent variable, I use a probit model to test the disproportionality and signalling hypotheses. In this model, the latent variable PEC\* measures the underlying propensity of parties in a dyad to form a pre-electoral coalition. PEC\* is modelled using the following multiplicative interaction model:

$$\text{PEC}^* = \beta_0 + \beta_1 \text{Electoral Parties} + \beta_2 \text{Effective Threshold} + \beta_3 \text{Electoral Parties} * \text{Effective Threshold} + \varepsilon \quad (1)$$

*Electoral Parties* is the effective number of electoral parties. The lowest effective number of electoral parties was 1.97 in the 1964 US elections, while the highest was 9.81 in the 1991 Belgian elections. *Effective Threshold* captures electoral system disproportionality and is measured using Lijphart's effective threshold.<sup>12</sup> The higher the effective threshold, the more disproportional the electoral system. Effective thresholds range from a low of 0.7% in the Netherlands to a high of 35% in countries with single-member districts such as the United Kingdom.<sup>13</sup> The interaction term is required to test the conditional nature of the disproportionality hypothesis.

The marginal effect of *Electoral Parties* is  $(\partial \text{PEC}^* / \partial \text{Electoral Parties}) = \beta_1 + \beta_3 \text{Effective Threshold}$ . According to the signalling hypothesis, this quantity should always be positive since an increase in the number of electoral parties is expected to increase the probability of electoral coalition formation irrespective of the size of the effective threshold. It follows from this that  $\beta_1$  should be positive. The signalling hypothesis does not make a precise prediction about  $\beta_3$  because it says nothing about the modifying effect of electoral system disproportionality.

The marginal effect of *Effective Threshold* is  $(\partial \text{PEC}^* / \partial \text{Effective Threshold}) = \beta_2 + \beta_3 \text{Electoral Parties}$ . The disproportionality hypothesis predicts that this quantity should only be positive when the number of electoral parties is sufficiently large. Since  $\beta_2$  indicates the marginal effect of effective thresholds when there are no electoral parties, this coefficient should be zero (or negative). Given that the marginal effect of effective thresholds should be increasing as the number of parties grows,  $\beta_3$

<sup>12</sup> The effective threshold is the mean of the threshold of representation and exclusion. It is calculated as  $(50\% / (M + 1)) + (50\% / 2M)$ , where  $M$  is the district magnitude. If there are legal thresholds and/or upper tier seats, the calculation is slightly more complicated (Lijphart, 1994, 25–30). For more information on electoral thresholds, see Taagepera (1998a, 1998b).

<sup>13</sup> An alternative measure of electoral system disproportionality is the district magnitude. While district magnitude has long been considered the decisive factor in determining the proportionality of an electoral system, it only captures one element of it (Rae, 1967; Taagepera and Shugart, 1989; Cox, 1997). In contrast, the effective threshold takes account of several aspects of the electoral system — the district magnitude, legal thresholds, and upper tier seats. It is for this reason that I prefer to use the effective threshold. It turns out that qualitatively similar results to those presented here are found if the log of average district magnitude is used instead of effective thresholds. These results are available from the author on request.

should be positive. While theory does not provide us with a clear expectation as to when the marginal effect of effective thresholds will become positive and significant, the disproportionality hypothesis will have found little support if this never occurs across the observed range for the number of electoral parties.

The flip side of the disproportionality hypothesis is that the marginal effect of electoral parties should only increase the probability of pre-electoral coalition formation when the electoral system is sufficiently disproportional. This means that  $\beta_1$  should be zero (or negative) since this coefficient indicates the marginal effect of electoral parties in highly proportional systems (*Effective Threshold* = 0). This prediction is in direct contrast to the signalling hypothesis where  $\beta_1$  was expected to be positive.

## 5. Results and interpretation

I tested the disproportionality and signalling hypotheses using a pooled analysis. The first four models report results from a straightforward probit model with robust standard errors. The first two columns provide a direct test of the signalling hypothesis because the effective number of electoral parties is the only variable included. Since it is arguable that the signalling hypothesis only really applies to parliamentary regimes, Model 2 presents results when presidential systems are excluded.<sup>14</sup> By including *Effective Threshold* without an interaction term, the third column provides a further test of the unconditional disproportionality hypothesis common in the coalition literature. Finally, the last two columns (Models 4 and 5) provide a test of the conditional disproportionality hypothesis by presenting results from the full specification outlined in Eq. (1). Model 5 differs from Model 4 in that it uses random effects where observations are clustered by election to account for any unobserved election-specific factors that might affect pre-electoral coalition formation.

The first two columns provide no support for the signalling hypothesis. It appears that increasing the number of parties in a country actually has a negative impact on pre-electoral coalition formation. This is true whether one analyses the full sample (Model 1) or the sample restricted to parliamentary regimes (Model 2). When I control for electoral system disproportionality in Model 3, I find no evidence that an increase in the number of parties will have any effect on the likelihood of pre-electoral coalition formation. The results from the fully-specified models also provide no support for the signalling hypothesis (Models 4 and 5). The marginal effect of an increase in electoral parties on the latent propensity to form electoral coalitions is negative in highly proportional systems i.e. when *Effective Threshold* = 0. This is in direct contrast to the signalling hypothesis, which predicted that this marginal effect should always be positive.<sup>15</sup>

<sup>14</sup> This means dropping the United States and Switzerland from the analysis.

<sup>15</sup> The positive sign on the interaction coefficient does indicate that this reductive effect declines as the effective electoral threshold increases.

There is some evidence in support of the unconditional disproportionality hypothesis once we control for the number of electoral parties (Model 3). For example, an increase in the effective threshold appears to lead to more pre-electoral coalitions on average. More importantly, though, there is considerable support for the conditional disproportionality hypothesis. The results from Models 4 and 5 indicate that all of the coefficients have the predicted signs and are statistically significant where expected. For example, the coefficient on the interaction term *Effective Threshold \* Electoral Parties* is positive and significant, while the coefficients on *Effective Threshold* and *Electoral Parties* are either negative or indistinguishable from zero. However, the interpretation of these coefficients is complicated by the use of the interaction term and the fact that the coefficients relate to the latent propensity to form pre-electoral coalitions rather than the actual quantity of interest – the probability of forming a pre-electoral coalition.

Much more revealing and substantively meaningful information can be gleaned if we examine the marginal effect of effective thresholds on the probability of electoral coalition formation. A good way to do this is graphically (Brambor et al., 2005). In Fig. 2, I plot the marginal effect of a one unit increase in the effective threshold from its mean on the probability that a pre-electoral coalition forms across the observed range for the number of electoral parties. Fig. 2 is based on the probit model with random effects (Model 5) because a likelihood ratio test indicates that this is superior to the straightforward probit model (Model 4).<sup>16</sup> The solid black line indicates how this marginal effect changes with the number of parties. The two-tailed 95% confidence intervals around the line allow us to determine the conditions under which effective thresholds have a statistically significant effect on the likelihood of pre-electoral coalition formation. The marginal effect is statistically significant whenever the upper and lower bounds of the confidence interval are both above (or below) the zero line.

As predicted, effective thresholds only have a positive and statistically significant effect on pre-electoral coalitions when the number of parties is sufficiently large. Specifically, the marginal effect of effective thresholds will only increase the probability that an electoral coalition forms when the effective number of electoral parties is greater than 2.7. Roughly 86% of the elections in the sample have more electoral parties than this.<sup>17</sup>

It is clear that effective thresholds affect the probability of electoral coalitions in the expected manner. But is this effect substantively meaningful? If I increase the

<sup>16</sup> The log likelihood from the model with random effects is  $-804.4$ , while the log likelihood from the model without them is  $-888.8$ . This gives a  $\chi^2$  statistic of 168.8, i.e.  $2(-804.4 + 888.8) = 168.8$ . The p-value of obtaining a  $\chi^2$  statistic of this magnitude or larger if the random effects are not required is less than 0.0001 with one degree of freedom. This strongly suggests that random effects should be retained.

<sup>17</sup> The fact that roughly 86% of the elections in the sample have more than 2.7 effective electoral parties explains why the unconditional linear-additive Model 3 found that an increase in effective thresholds leads to more pre-electoral coalitions on average. This is because the coefficient on *Effective Threshold* in Model 3 is the weighted-average of the conditional marginal effects in the interaction Models 4 and 5 (Brambor et al., 2005).

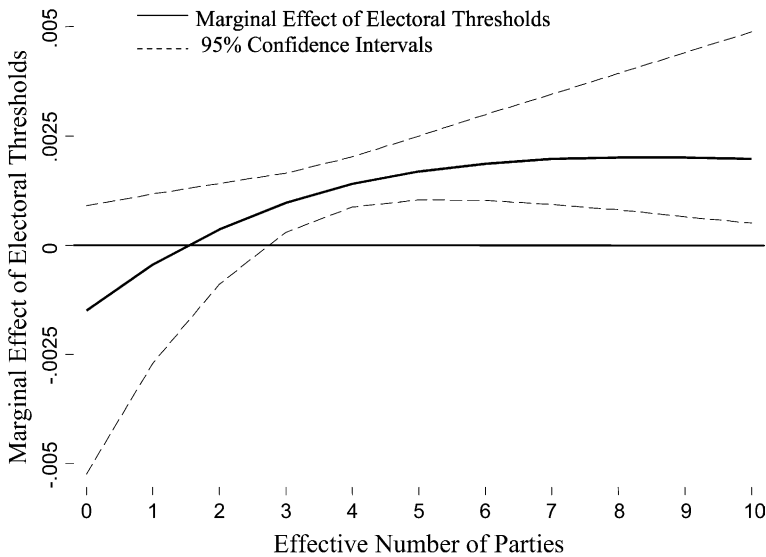


Fig. 2. The marginal effect of a one unit increase in the effective electoral threshold (from its mean) on the probability of pre-electoral coalition formation.

effective threshold from its mean to one standard deviation higher when holding the effective number of electoral parties at its mean (around 3.8 effective parties), then electoral coalitions are 192% (147–246%) more likely to form. (95% confidence intervals are shown in parentheses.) In rare events data such as those used here, a change of more than 20% in the predicted probability when one independent variable is increased from one standard deviation below its mean to one standard deviation above its mean is considered substantively meaningful (King and Zeng, 2001, 711). Note that here, the electoral threshold was only increased half that distance and yet the percentage change is much greater than 20%. In a sample the size of that analysed here, an increase of effective thresholds from its mean to one standard deviation higher would be expected to produce an additional 154 electoral coalitions. This is quite a significant amount given that there were only 237 observed coalitions in the dyadic dataset. Thus, the evidence clearly supports the conditional disproportionality hypothesis that parties are more likely to form pre-electoral coalitions in disproportional electoral systems so long as there are sufficiently many parties.

## 6. Conclusion

To this point, there has been little theoretical or empirical research addressing pre-electoral coalitions. This is despite the fact that pre-electoral coalitions are quite common, have important normative implications, and can significantly influence both election and policy outcomes. This brief analysis represents the first attempt to



formulate and test hypotheses relating to pre-electoral coalitions. Specifically, it tests the two hypotheses most commonly made (often implicitly) about pre-electoral coalitions in the literature – the disproportionality and signalling hypotheses. The results from a pooled analysis of pre-electoral coalitions in 22 countries from 1946–1998 clearly support the disproportionality hypothesis – pre-electoral coalitions are more likely to form and be successful in countries that have a disproportional electoral system and a large number of parties (Table 2). Although the number of parties in a country was taken as given in this analysis, I did indicate several institutions that might encourage political parties to retain their separate identities in disproportional electoral systems despite electoral incentives to merge or coalesce.

In contrast, there was little evidence to suggest that electoral coalitions are more likely to form when there are many parties so as to signal the identity of future governments to voters (signalling hypothesis). While the evidence in support of the disproportionality hypothesis seems clear, I believe that one should be cautious in rejecting the signalling hypothesis on the basis of this analysis alone. As my earlier discussion indicated, there are several versions of the signalling hypothesis and only one variant was tested here. Moreover, the proxy for the identifiability of future governments used in this analysis was the effective number of electoral parties. It may simply be the case that this is not a particularly good proxy. The fact that countries such as the Netherlands and Israel do have a number of successful pre-electoral coalitions despite their highly proportional electoral institutions should make one wary of rejecting the signalling hypothesis too hastily.

The evidence presented here shows that electoral institutions play an important role in explaining pre-electoral coalition formation. Though the link between electoral rules and pre-electoral coalitions has long been suspected, this article is the first to systematically analyse and find evidence for such a relationship. Although this is an important step, the implication common in the coalition literature that pre-electoral coalitions are simply a function of electoral rules is probably too reductionist. After all, there are costs to forming pre-electoral coalitions. Just as government coalitions emerge out of a bargaining process between party leaders, so do pre-electoral coalitions. Political parties who are thinking about forming a coalition must reach an agreement as to how they would distribute office benefits if they come to power. For example, party leaders have to decide which party will get to run the more powerful ministries and who is to become prime minister or president. They may also have to decide which party should step down in favor of the other at the district level. It is likely that these distributional issues will be hard to resolve in some circumstances. Political parties also have to reach agreement on a coalition policy that they would implement if successful at the polls. The fact that parties must make concessions on office and policy may explain why pre-electoral coalitions often fail to form when there are clear electoral incentives to do so. Thus, while this article breaks new ground it provides far from the last word on pre-electoral coalition formation. Future work should concentrate on incorporating the costs, as well as the benefits, of pre-electoral coalition formation. By doing this we can provide a more complete explanation as to why pre-electoral coalitions form in some countries and at some points in time but not others.

Table 2  
Pre-electoral coalitions, 1946–1998

Regressor	Signalling		Unconditional disproportionality	Conditional disproportionality	
	Full sample	Parliamentary		Random effects	
	(Model 1)	(Model 2)	(Model 3)	(Model 4)	(Model 5)
Electoral Parties	−0.06*** (0.02)	−0.05** (0.02)	0.01 (0.02)	−0.04 (0.03)	−0.16*** (0.05)
Effective Threshold			0.02*** (0.003)	0.01 (0.01)	−0.01 (0.01)
Effective Threshold * Electoral Parties				0.004** (0.002)	0.01*** (0.003)
Constant	−1.36*** (0.11)	−1.39*** (0.10)	−1.92*** (0.13)	−1.70*** (0.17)	−1.56*** (0.25)
Observations	4739	4460	4674	4674	4674
Log likelihood	−936.2	−923.2	−892.0	−888.8	−804.4

Dependent variable is 1 if two parties formed a pre-electoral coalition, 0 otherwise. \*\* $p < 0.05$ ; \*\*\* $p < 0.01$  (two-tailed). Robust standard errors in parentheses for Models 1–4. In Model 5, the observations are clustered by election. Effective threshold data are missing for Austria after 1994 and Belgium after 1995.

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## Appendix

Table A1  
Elections and pre-electoral coalitions (PECs) by country

Country	Number of elections	
	Total	With PECs
Australia 1946–1998	22	22
Austria 1946–1998	14	10
Belgium 1946–1998	17	10
Canada 1946–1998	16	0
Denmark 1946–1998	21	7
Finland 1946–1998	14	2
France 1946–1998	14	10
Germany 1949–1998	14	13
Iceland 1946–1998	16	7
Ireland 1946–1998	16	8
Italy 1946–1998	13	4
Japan 1946–1998	19	0
Luxembourg 1954–1998	9	3
Netherlands 1946–1998	16	6
New Zealand 1946–1998	19	1
Norway 1946–1998	13	8
Portugal 1975–1998	9	7
Spain 1977–1998	7	7
Sweden 1946–1998	17	7
Switzerland 1946–1998	13	0
UK 1946–1998	14	2
USA 1946–1998	26	0
Total	339	134

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