

Notes and Comments

Wasting Time? The Impact of Ideology and Size on Delay in Coalition Formation

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Coalition theory has a distinguished tradition in comparative politics. Beginning with William Riker's *The Theory of Political Coalitions*,¹ comparativists have made considerable theoretical and empirical progress in understanding the complexities of coalition politics, most significantly with respect to government formation and termination. Other important dimensions of coalition politics, however, remain virtually unexplored. We focus on one such neglected feature of coalition bargaining – the duration of negotiations preceding the establishment of a new cabinet. As Table 1 shows, there is significant variation in the amount of time required to establish coalitions across and within West European democracies. In Denmark and Sweden, for example, coalition negotiations usually conclude in about a week. In Austria, Belgium and Italy, establishing a new government takes on average more than a month. In the Netherlands, almost three months pass before a new coalition takes office.

Several considerations suggest that understanding bargaining delay is an interesting task for political scientists. At one level, delay has important implications for governance. The caretaker cabinets that administer the affairs of state while negotiations proceed generally have no authority to take major policy initiatives. In addition, delay in government formation creates uncertainty. The identity of government parties, the allocation of portfolios to particular politicians and the content of policy compromises among coalition members have yet to be determined. Consequently, the future direction of government policy is uncertain, which may have important implications for

TABLE 1 *Bargaining Duration in West European Democracies, 1950–95**

Country	Min.	Max.	Mean	<i>N</i>
Austria	1	129	41	15
Belgium	1	148	40	23
Denmark	1	35	9	26
Germany	1	58	25	19
Ireland	2	27	14	15
Italy	1	166	34	41
Luxembourg	1	46	28	12
Netherlands	45	205	92	12
Norway	1	37	11	20
Sweden	1	26	9	20
ALL	1	205	28	203

* Duration is expressed in days.

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¹ William H. Riker, *The Theory of Political Coalitions* (New Haven, Conn.: Yale University Press, 1962).

domestic and international economic and political actors. Most important for our purposes is the possibility that understanding the duration of coalition bargaining may provide valuable insights into later stages of coalition governance. For example, delay in agreeing on a cabinet may be an indicator of the internal difficulties a coalition will encounter in policy making. In fact, comparativists have relied on this logic to use the length of coalition negotiations as an indicator of ‘policy discrepancy’ within a coalition.² The logic of interpreting formation duration as an indicator of policy discrepancy is appealing and intuitive, but ultimately reduces to an empirical question: does ideology explain difficulties in coalition negotiations? Are there other factors that matter?

To date, only one other cross-national study has examined the duration of coalition negotiations. Departing from the insights supplied by game-theoretic bargaining models, Diermeier and van Roozendaal [DvR hereafter] focus on the importance of asymmetric information in explaining delay in coalition formation.³ Perfect information bargaining models predict that agreement on a coalition will be reached without delay. Given perfect information about preferences, the designated *formateur* party (the party responsible for forming a government) can craft an optimal offer that is acceptable to the members of a proposed coalition, thus ending the game immediately.⁴ Game-theoretic models no longer predict immediate agreement, however, if actors are imperfectly informed about the preferences of other players. If some actors possess private information, bargaining delays are possible.⁵ The intuition underlying this result is that uncertainty about preferences implies that a *formateur* is unsure about which offers will be acceptable to other parties involved in the negotiations. As a result, making an offer that will be accepted immediately while not giving away ‘too much’ becomes much more difficult. A *formateur* may try to offer a small concession hoping that it will be accepted and work up to larger concessions if initial offers are rejected. Because delay in forming a cabinet is costly, other parties can exploit this fact to use delay as a credible signal about their preferences. Parties with more extreme preferences can more easily bear the cost of delay in holding out for a more favourable proposal while those whose preferences are not as extreme are willing to accept a less favourable proposal immediately in order to avoid costly delay.

DvR employ these insights in an empirical investigation of the duration of coalition bargaining. They focus on factors that reduce the uncertainty of party leaders about the preferences of other actors, thereby shortening the time required to conclude negotiations. The central features they identify are:

- *Post-election situation*: Negotiations that commence immediately after an election should require more time than negotiations that begin during a legislative period because uncertainty in the former situation is higher.⁶
- *Previous defeat*: A government defeat in parliament may give rise to leadership battles within a party, thereby creating uncertainty. As a result, those governments following a parliamentary defeat should take longer to form.

² See Bernard Grofman and Peter van Roozendaal, ‘Toward a Theoretical Explanation of Premature Cabinet Termination with Application to Post War Cabinets in the Netherlands’, *European Journal of Political Research*, 26 (1994), 155–170, p. 159; Jaakko Nousiainen, ‘Finland: The Consolidation of Parliamentary Governance’, in Wolfgang Müller and Kaare Strom, eds, *Coalition Governments in Western Europe* (Oxford: Oxford University Press, 2000), 264–99, p. 273.

³ Daniel Diermeier and Peter van Roozendaal, ‘The Duration of Cabinet Formation Processes in Western Multi-Party Democracies’, *British Journal of Political Science*, 28 (1998), 609–26.

⁴ David Austen-Smith and Jeffrey Banks, ‘Elections, Coalitions, and Legislative Outcomes’, *American Political Science Review*, 82 (1988), 405–22; David Baron and John Ferejohn, ‘Bargaining in Legislatures’, *American Political Science Review*, 83 (1989), 1181–206; David Baron, ‘A Spatial Bargaining Theory of Government Formation in a Parliamentary System’, *American Political Science Review*, 85 (1991), 891–906; David Baron, ‘Government Formation and Endogenous Parties’, *American Political Science Review*, 87 (1993), 34–47.

⁵ John Kennan and Robert Wilson, ‘Bargaining with Private Information’, *Journal of Economic Literature*, 31 (1993), 45–104.

⁶ As Diermeier and van Roozendaal, ‘The Duration of Cabinet Formation Processes’, p. 620, argue, ‘[because of] membership turnover as well as changes in the party composition of legislatures[,] party leaders will be less certain which proposals are acceptable to the other parties right after an election than after an extended period of interaction.’

Using a Cox proportional hazard model and data on formation duration in thirteen countries between 1945 and 1990, they find support for these hypotheses. In addition, they find that negotiations are concluded more quickly when the outgoing government can make the first formation attempt (i.e., where a *continuation* rule is present) and when voters can easily identify alternative coalitions.

Our purpose in this Note is twofold. First, we argue that the empirical operationalization of uncertainty chosen by DvR (which focuses only on factors unrelated to any characteristics of the parties engaged in negotiations) is incomplete. We expand upon their approach by including two additional factors that are likely to affect uncertainty over acceptable offers: the number of parties engaged in coalition negotiations and the ideological divergence between these parties. Secondly, we argue that both factors are not only compatible with the DvR emphasis on uncertainty, but also consistent with several competing explanations of delay in coalition negotiations. After presenting our empirical analysis, we return to this issue. Specifically, we explain why our analysis suggests that the DvR account of bargaining delay as a function of uncertainty should be treated with a certain degree of caution. Once we control for the number of parties and ideology, variables that clearly favour the DvR approach become statistically insignificant, while the variables that remain significant are all consistent with alternative explanations. Thus, our analysis strongly suggests that additional theoretical and empirical research on the duration of coalition negotiations is warranted.

IDEOLOGY, SIZE AND BARGAINING DELAY

Parties are not unitary actors. Within a party, various factions and interests compete for power and influence. Naturally, these actors will tend (broadly) to agree on policy positions. Despite such basic conformity, however, disagreement over particulars as well as over the importance of specific commitments is common. As a result of this heterogeneity of intra-party preferences, it is not sufficient that party leaders (usually directly involved in negotiations) agree to participate in government. They must have sufficient support within their party to sustain such a decision. In some countries, such as Belgium and Luxembourg, this condition is made explicit and formal by the requirement that party conventions approve the bargain struck by party leaders before a government can take office. While such formal approval is generally not necessary in other countries, party leaders must have implicit support to enter government in any parliamentary system. In short, party leaders who sit around a bargaining table are not the only decision makers whose preferences are central to successful coalition bargaining.

This has an important implication for coalition negotiations. In trying to fashion a bargain that will be successful, the *formateur* party must anticipate whether a particular proposal will enjoy sufficient support within all the parties targeted for inclusion in the coalition. Putting it slightly differently, it must have information about what kinds of proposals will be unacceptable to groups that enjoy 'veto power' within those parties that are supposed to enter the cabinet. As the ideological distance between parties grows, assessing which offers will be acceptable becomes more difficult. First, party leaders are more likely to have worked closely with parties that are ideologically close (for example, by sponsoring legislation or by working together in election campaigns). Such interactions provide insight into the internal dynamics of these parties. Moreover, parties that are ideologically proximate are more likely to share overlapping constituencies (for example, different parties on the left usually draw consistent support from the working class). Such overlap provides party leaders with familiarity about the pressures other party leaders are likely to face from their constituencies. In short, there are strong reasons to suppose that party leaders will be better able to judge which kinds of proposals are acceptable to parties that are ideologically close to their own than for parties that are ideologically distant. This insight is captured in our first hypothesis:

Hypothesis 1: Coalition negotiations conclude more quickly when bargaining parties are ideologically close than when they are ideologically distant.

While the preceding argument approaches the impact of ideological distance within the 'uncertainty framework' of DvR, several alternative explanations that do not focus on uncertainty

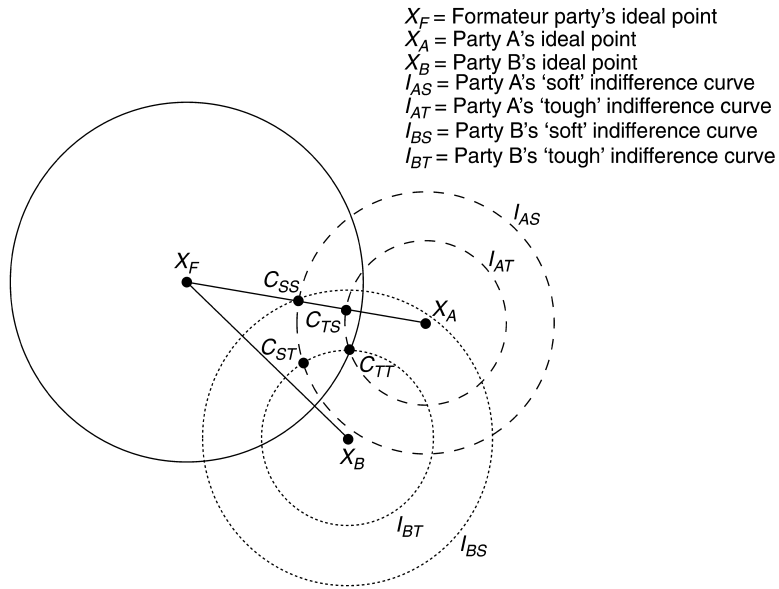


Fig. 1. Coalition bargaining under uncertainty

over preferences also predict that ideological distance is an important factor in creating delay in coalition negotiations. For example, the 'veto players' framework of Tsebelis suggests that greater ideological distance may induce longer negotiations because it shrinks the 'winset' and therefore may require a more detailed policy agreement to ensure that all coalition partners are willing to join a coalition.⁷ Another explanation, suggested by Luebbert, argues that party leaders engaged in negotiations make use of delay to convince their backbenchers and constituents that they are working hard for the party's interests in negotiations.⁸ Since sending such a 'signal' is more important when coalition partners are ideologically distant and substantial compromises are necessary, this account also suggests that ideological distance will predict formation delay.⁹

A second feature that is likely to influence the length of coalition negotiations is the number of parties engaged in bargaining. Under perfect information, the number of parties does not affect bargaining duration – negotiations conclude immediately. In a world of imperfect information, however, it is likely to be more difficult to craft an agreement that is acceptable to a larger number of parties about whose preferences a *formateur* is uncertain than for a smaller number of parties. Figure 1 illustrates this logic in a hypothetical example of bargaining in a two-dimensional space. Consider first the case in which a *formateur* must bargain with only one other party (Party A) over the formation of a coalition. The *formateur* party's ideal point is indicated by X_F , while X_A denotes the ideal point of party A. Importantly, suppose the *formateur* is uncertain about A's preferences. If party A is 'tough', A's leaders face internal pressures that prevent them from accepting any coalition agreement that is further from the party's ideal point than indicated by the indifference

⁷ George Tsebelis, *Veto Players: How Political Institutions Work* (Princeton, N.J.: Princeton University Press, 2002).

⁸ Gregory Luebbert, *Comparative Democracy: Policy-making and Governing Coalitions in Europe and Israel* (New York: Columbia University Press, 1986), p. 52.

⁹ In addition, ideological distance is likely to lead to bargaining delay in the presence of imperfect information if actors' utility functions are concave, i.e., $U''(x) \leq 0$ and delay imposes a fixed cost. Under these conditions, the concessions a *formateur* is willing to make in each round decrease in size as one moves further away from the *formateur*'s ideal point. We would like to thank Indridi Indridason for alerting us to this point.

curve I_{AT} .¹⁰ If this is the case, the best acceptable offer the *formateur* can make is C_{TS} . However, if party A is 'soft,' it is willing to join any government whose coalition agreement lies inside the indifference curve I_{AS} . The best offer the *formateur* can make to a soft party is C_{SS} . Since C_{SS} is closer to the *formateur*'s ideal point than C_{TS} , the *formateur* prefers to craft an agreement that implements C_{SS} . Provided that the *formateur* (a) believes there is a sufficient probability that Party A is soft, and (b) cares sufficiently (relative to the cost of delay) about the difference between C_{SS} and C_{TS} , it may decide to make an initial offer of C_{SS} . If that offer is rejected, it will then offer C_{TS} . Thus, we could observe a round of delay.

Now imagine that the *formateur* must bargain with two parties. Party B's ideal point is denoted by X_B . Just as the *formateur* is uncertain about A's preferences, it is uncertain whether party B is 'tough' or 'soft'. As the figure makes clear, the addition of a second party increases the complexity of the situation considerably. There are now four possible coalition agreements the *formateur* must consider. If A and B are both tough, the best the *formateur* can do is to propose C_{TT} . If A is tough but B is soft, the best proposal is C_{TS} . If A is soft but B is tough, the best proposal is C_{ST} . If both are soft, the *formateur* will propose C_{SS} . In this particular example, the *formateur*'s preferences over these possible agreements are given by $C_{SS} > C_{ST} > C_{TS} > C_{TT}$. Depending on the *formateur* party's beliefs about how likely it is that the other parties are soft or tough, and depending on the intensity of its preferences over the various outcomes relative to the cost of delay, it may begin negotiations by offering C_{SS} . If that offer is rejected, it may try C_{ST} or C_{TS} , etc. In other words, with more parties engaged in negotiations, there are more possibilities for delay as the *formateur* party explores the best offer it can 'get away with'. Consequently, successful bargaining is likely to require more time. These insights are captured in our second hypothesis:

Hypothesis 2: Coalition negotiations conclude more quickly the fewer the number of bargaining parties.

While it is possible (as we have just done) to interpret the impact of the number of parties in the 'uncertainty' framework, alternative explanations (as in the case of ideological distance) also suggest that a higher number of negotiating parties should induce delay, independent of uncertainty over preferences. Thus, within Tsebelis's veto players framework, a higher number of parties again reduces the winset and may therefore demand more detailed coalition agreements. Because crafting more detailed agreements will require more time, this creates the potential for delay. Similarly, in Luebbert's approach, the higher the number of parties, the more likely the negotiations are to include party leaders who need to signal to their constituents that they are 'working hard'. Finally, the presence of a larger number of parties implies that the number of alternative allocations of portfolios expands exponentially, which may also induce delay. The point here is not to argue that any of these alternative hypotheses are more or less plausible, but simply to note that uncertainty over preferences provides only one reason why an increasing number of parties may induce delay.

THE DATA

Our data consist of 203 bargaining situations in the following countries and years: Austria (1953–90), Belgium (1950–87), Denmark (1950–93), Germany (1953–90), Ireland (1951–89), Italy (1953–92), Luxembourg (1951–89), the Netherlands (1956–89), Norway (1953–90) and Sweden (1952–91). We mark the beginning of the coalition bargaining process as either the day on which national legislative elections took place or (if no elections were held) the day on which the previous government resigned.¹¹ We mark the end of the coalition bargaining process as the day on which

¹⁰ Alternatively, of course, Party A's leaders themselves may be committed to making no concession past I_{AT} .

¹¹ Our selection of this particular starting date may be problematic to the extent that coalition bargaining over the next government may begin while the current government is in office. Unfortunately, in such a case we usually cannot observe the actual beginning date of negotiations – we can only know that they began *at least* by the starting date we can observe. In the parlance of event history analysis (discussed in the next section), this amounts to a problem of 'left censoring'. Although we can easily correct for problems of 'right censoring', left censoring

the government was formally announced.¹² Our dependent variable, *bargaining duration*, is simply the number of days between the beginning and end of the bargaining process. For all these dates, we relied primarily on the countries surveys in Müller and Strom and the data from Warwick; where conflicts over dates arose between these sources, we resolved them by consulting *Keesings Contemporary Archives*.¹³ For data on the distribution of party seats, we relied on the information in Mackie and Rose, the corrections to these results from Appendix C of Lijphart, and for later elections, the results reported in special issues of the *European Journal of Political Research*.¹⁴ All independent variables constructed from left–right ideology scores, as we discuss below, derive from the party ideological positions provided in the manifestos project of the European Consortium for Political Research.

Testing our hypotheses requires a measure of ideological divergence as well as a ‘count’ of the number of parties engaged in coalition bargaining. Luckily, a useful tool for measuring ideological divergence is readily available. Citizens and scholars are accustomed to speaking about politics in terms of a ‘left–right’ spectrum, which is typically interpreted as a kind of ‘super-issue’ dimension that subsumes the various policy dimensions underlying party competition (such as economic policy, secular–religious policy, foreign policy, etc.). Naturally, the degree to which the left–right dimension adequately captures political reality in various countries and at various times is open to debate, but considerable work suggests that it is a useful conceptual tool in many contexts.¹⁵ Accordingly, scholars have estimated the ideological constellation of various party systems by placing parties on a left–right scale. One method for doing this is through the use of expert surveys; another is to transform scores derived from the coding of election manifestos into an estimated position for parties on the left–right scale.¹⁶

(*F* note continued)

is much more complex, and few readily accessible methods exist to account for this problem (see Janet Box-Steffensmeier and Bradford Jones, ‘Time is of the Essence: Event History Models in Political Science’, *American Journal of Political Science*, 41 (1997), 1414–61). Furthermore, the techniques used most often to correct for (right) censoring are only appropriate if the rule by which the observation is censored is *stochastically unrelated* to the process in which we are interested (Gary King, *Unifying Political Methodology* (Cambridge: Cambridge University Press, 1989)). In the current study, this assumption means that those unobserved factors related to the failure of the previous government (and therefore to the starting date of the ensuing bargaining process) are unrelated to the unobserved factors affecting the length of the new bargaining process. One can easily imagine how this assumption may be violated – e.g., when personality conflicts between party leaders are important to both government termination and subsequent bargaining delay. To account for this, we would have to move away from standard censoring techniques and examine these processes jointly using a model of stochastic censoring (which would be interesting but beyond the scope of the present study).

¹² In several countries, even after a government has been announced, it must be approved (invested) by a legislative majority in a formal vote. Where available, we use the earlier announcement date to signify the end of formation bargaining, rather than the later investiture date, because all the important negotiations regarding the government policy programme and the distribution of cabinet portfolios are decided by the time of the announcement. In cases where the announcement could not be discerned with confidence, we use the investiture date.

¹³ Müller and Strom, eds, *Coalition Governments in Western Europe*; and Paul Warwick, *Government Survival in Parliamentary Democracies* (Cambridge: Cambridge University Press, 1994).

¹⁴ Thomas T. Mackie and Richard Rose, 3rd edn, *The International Almanac of Electoral History* (London: Macmillan, 1991); and Arend Lijphart, *Electoral Systems and Party Systems* (Oxford: Oxford University Press, 1994).

¹⁵ John Huber, ‘Values and Partisanship in Left–Right Orientations: Measuring Ideology’, *European Journal of Political Research*, 17 (1989), 599–621; John Huber and Matthew Gabel, ‘Putting Parties in Their Place: Inferring Party Left–Right Ideological Positions from Party Manifestos Data’, *American Journal of Political Science*, 44 (2000), 94–103; Ronald Inglehart and Hans-Dieter Klingemann, ‘Party Identification, Ideological Preference, and the Left–Right Dimension among Western Mass Publics’, in Ian Budge, Ivor Crewe and Dennis Farlie, eds, *Party Identification and Beyond* (London: John Wiley, 1976), pp. 277–84.

¹⁶ Francis Castles and Peter Mair, ‘Left–Right Political Scales: Some Expert Judgements’, *European Journal of Political Research*, 29 (1984), 73–88; John Huber and Ronald Inglehart, ‘Expert Interpretations of Party Space

For our analysis, we rely on the Huber–Gabel manifesto scores, which are based on an eleven-point scale running from 0 (extreme left) to 10 (extreme right). Because these data are available from the late 1940s through the mid-1990s, they provide a dynamic picture of party ideology over time. In contrast, the expert scores consist of two snapshots taken in 1982 and 1992, which raises questions about the time frame to which they can be applied usefully.¹⁷ Relying on the manifesto scores circumvents these problems and maximizes the time period and the number of cases that can be included. Moreover, as Huber and Gabel show, the manifesto-based scores are highly correlated with the expert placements.¹⁸

We measure ideological divergence as the distance between the extreme members of the governing coalition resulting from negotiations (the ‘range’ of the coalition). The number of parties in the government coalition reflects the number of parties ultimately engaged in the bargaining process. In addition, we also include several control variables. Most obviously, we include all applicable variables from Diermeier and van Roozendaal’s final model.¹⁹ In addition, our model includes an indicator variable for minority governments. There are two reasons for doing this. First, minority governments often emerge in situations in which, after protracted negotiations, attempts to construct a majority coalition have failed. Secondly, minority governments must usually rely on *ad hoc* policy agreements with shifting majorities. To the extent that parties in a minority government must therefore negotiate with numerous ‘support parties’ before taking office, negotiations may be delayed.

ANALYSIS AND FINDINGS

Our empirical approach involves the use of a class of statistical models known collectively as event history (or survival) analysis, which has become the standard approach in political science applications where the question of interest concerns the timing of a specific event.²⁰ A fundamental concept in survival analysis is the *hazard function* or *hazard rate*, defined as the probability that an event will occur at a particular point in time, given that it has not yet occurred. The hazard rate has two components. The first is a set of covariates that are believed to have some systematic impact on the timing of an event. Parameter estimates for these covariates denote the degree to which they increase or decrease the risk of event occurrence. The second component is an underlying baseline function that represents the rate of event occurrence if the effects of all the covariates are zero. In other words, the baseline hazard rate reflects how the rate of event occurrence changes only with respect to time.

One of the major issues involved in choosing between survival models concerns how exactly to characterize this time dependence (i.e., how to parameterize the baseline hazard rate). The reason this question is important is that the choice of an incorrect parameterization of the hazard rate can lead to biased estimates of the covariates in the model. Moreover, the interpretation of independent variables in any event history model that makes assumptions about time dependence is necessarily contingent on the shape of the hazard function specified by the researcher. Because of these concerns,

(Footnote continued)

and Party Locations in 42 Societies’, *Party Politics*, 1 (1995), 73–111; Ian Budge, David Robertson and Derek Hearl, eds, *Ideology, Strategy and Party Change: Spatial Analyses of Post-War Election Programmes in 19 Democracies* (Cambridge: Cambridge University Press, 1987); Huber and Gabel, ‘Putting Parties in Their Place’.

¹⁷ See G. Bingham Powell and Georg Vanberg, ‘Election Laws, Disproportionality and Median Correspondence: Implications for Two Visions of Democracy’, *British Journal of Political Science* 30 (2000), 383–411.

¹⁸ For a general discussion of the reliability of using manifesto-based scores to estimate party positions, see Ian Budge, ‘Validating Party Policy Placements’, *British Journal of Political Science*, 31 (2001), 210–23.

¹⁹ Unlike DvR, who include an indicator variable for caretaker status, we have eliminated caretaker governments from our dataset altogether. Because caretaker governments have no authority to take major policy initiatives, our theoretical hypotheses, both of which emphasize policy uncertainty, do not apply to them.

²⁰ Gary King, James Alt, Nancy Burns and Michael Laver, ‘A Unified Model of Cabinet Dissolution in Parliamentary Democracies’, *American Journal of Political Science*, 34 (1990), 846–71; Janet Box-Steffensmeier, Laura Arnold and Christopher Zorn, ‘The Strategic Timing of Position Taking in Congress: A Study of the North American Free Trade Agreement’, *American Political Science Review*, 91 (1997), 324–38; Warwick, *Government Survival in Parliamentary Democracies*.

TABLE 2 *Effects of Size and Ideology on Bargaining Duration*

Independent variables	DvR variables Only		
	Model 1 (Full sample)	Model 2 (Reduced sample)	DvR variables with size and ideology Model 3
Post-election	- 0.85***	- 0.84*** (0.16)	- 0.58*** (0.17)
Previous defeat	- 0.31**	- 0.54*** (0.21)	- 0.10 (0.23)
Continuation	1.03***	1.12*** (0.21)	1.10*** (0.24)
Identifiability	0.32***	0.46*** (0.10)	0.15 (0.12)
Range of government			- 0.21** (0.12)
Number of government parties			1.19*** (0.12)
Number of government parties * ln(<i>T</i>)			- 0.43*** (0.03)
Minority government			- 0.43** (0.21)
Log-likelihood		- 827	- 745
<i>N</i>	304	203	203

Note: In their reduced model (shown as Model 1 above), Diemeier and van Roozendaal do not report standard errors or *t*-ratios. Their reduced model also includes an indicator variable for caretaker, which we have eliminated for reasons discussed in the text. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$ (one-tailed).

many scholars have opted for the semi-parametric approach devised by Cox, which makes only minimal assumptions about the hazard function.²¹ One of the most important of these assumptions is that the effect of each independent variable in the model is proportional and time invariant.²² This assumption is not trivial. If the proportionality assumption does not hold, then biased parameter estimates, incorrect standard errors and misleading inferences may result.²³ To check the validity of the proportional hazards assumption, we performed statistical tests for non-proportionality based on the weighted residuals from our estimates plotted over time. For one of our variables, the *number of parties in the government*, the simple correlation between these weighted residuals and the rank of survival time indicates the violation of proportionality (significant at the $p < 0.05$ level). Consequently, we estimate the Cox model without the assumption of proportional hazards by interacting the *number of parties in the government* with a log-linear function of time. This is the best-known and most widely accepted approach for dealing with possible non-proportionality, and it represents the most direct test available for time dependence of the covariates.²⁴

Before testing our hypotheses, we replicate the DvR results to establish that any differences in our findings are not a product of the change in sample. Model 1 in Table 2 displays the results of the reduced model of the Diemeier and van Roozendaal study. Again, their findings demonstrate

²¹ D. R. Cox, 'Regression Models and Life Tables', *Journal of the Royal Statistical Society, B*, 34 (1972), 187–220.

²² Models that do make parametric assumptions about the hazard rate, such as the widely used Weibull and exponential specifications, also imply proportionality of the hazard rate.

²³ J. D. Kalbfleisch and R. L. Prentice, *The Statistical Analysis of Failure Time Data* (New York: Wiley, 1980); Janet Box-Steffensmeier and Christopher Zorn, 'Duration Models and Proportional Hazards in Political Science', *American Journal of Political Science*, 45 (2001), 972–88.

²⁴ Box-Steffensmeier and Zorn, 'Duration Models and Proportional Hazards in Political Science'; Box-Steffensmeier and Jones, 'Time is of the Essence'.

that negotiations over government formation should last longer, all else equal, if they begin immediately after an election, if they occur in the wake of a previous government defeat, if they are held in countries where the outgoing administration enjoys no recognition privileges or if they take place in an environment in which viable coalition alternatives are not clearly identifiable to voters. In Model 2, we replicate their model on our sample of cases, which is smaller due to the exclusion of countries and/or election years not covered by the manifestos project.²⁵ As a simple comparison makes clear, the change in sample does not result in a substantial departure from their central findings, although we do find slightly larger effects for both the *previous defeat* and *identifiability* variables.

Model 3 presents tests of our two hypotheses. Using the parameter estimates from this model, it is possible to gauge the degree to which the earlier hypotheses are confirmed and to assess the nature of the temporal dependency in the data. These estimates are expressed in terms of their relationship to the baseline hazard rate. Thus, a positive coefficient implies that an increase in the level of the corresponding independent variable will increase the likelihood of a successful conclusion of negotiations (relative to the baseline probability of successful conclusion), while a negative coefficient implies a decrease in the probability of a successful conclusion. One particularly informative way to interpret these coefficients is to consider the proportionate change in the probability of an end to negotiations for substantively interesting changes in the values of the relevant covariates. For a time-invariant variable, such as the *policy range of the government*, the proportionate change in the hazard rate is calculated as:

$$\frac{(e^{[\beta_k^*(x + \delta)]} - e^{(\beta_k^*x)})}{e^{(\beta_k^*x)}} \quad (1)$$

for a change in δ units in the independent variable, x , where β_k is the corresponding time-independent coefficient. This is analogous to a direct effect. For a time-dependent variable, such as the *number of parties in government*, the proportionate change in the hazard rate is calculated as:

$$\frac{(e^{[(\beta_k^*(x + \delta)) + (\beta_i^*(x + \delta) * \ln(T))]} - e^{[(\beta_k^*x) + (\beta_i^*x * \ln(T))]})}{e^{[(\beta_k^*x) + (\beta_i^*x * \ln(T))]} } \quad (2)$$

where β_i is the corresponding time-dependent coefficient and T is a specific time until government formation. This is analogous to an interaction effect.

Our first important finding is that the ideological divisions of the incoming administration serve to lengthen the process of cabinet negotiations, consistent with our theoretical expectations. Specifically, using Equation 1 above, we find that an increase in the ideological range of the government from zero (the case of a single-party government) to 1.24 (the average range for coalition governments in our sample) decreases the odds of government formation on any given day in the bargaining process by approximately 23 per cent. Looking at coalition governments separately, we find that when governing parties are highly divided ideologically (defined as a range of 2.09, one standard deviation above the mean), the odds of government formation on any given day of negotiations are over 30 per cent lower than when these parties are ideologically compatible (defined as a range of 0.39, one standard deviation below the mean).

We also show that the number of parties that end up in government has an effect on the duration of negotiations. Although this effect is initially positive, it becomes negative, in line with our expectations, after approximately sixteen days of bargaining. (Bargaining goes on at least this long for nearly 60 per cent of governments in our sample. For coalition governments only, bargaining requires more than two weeks in 70 per cent of all cases.) Using Equation 2, we find that, for all governments that formed after two weeks of bargaining, negotiations leading to three-party coalitions were on average over 50 per cent less likely to end on any particular day than negotiations leading to two-party coalitions. This effect changes to approximately a 75 per cent decrease when

²⁵ To maintain consistency with the DvR study, we include those situations in which a single party wins a majority of legislative seats; however, the exclusion of such cases does not alter our conclusions about the effects of coalition size and ideological divergence.

four-party coalitions are compared to two-party coalitions. Furthermore, we find that minority governments must endure a longer bargaining process than majority governments. Specifically, at any point during negotiations, the process is 53 per cent more likely to be concluded if the government formed controls a majority of legislative seats. Importantly, once we control for the ideological diversity of a coalition and its size, we find that two of the variables from the Diermeier and van Roozendaal study are no longer statistically significant. The coefficient estimates for both *identifiability* and *previous defeat* slip dramatically in magnitude. It should also be noted from a formal comparison of log-likelihood statistics that the current model improves significantly upon the DvR specification.

Taken together, these findings provide some justification for the common assumption among coalition scholars that the duration of coalition negotiations can serve as a useful proxy for policy divergence within coalitions. Perhaps more importantly, our findings suggest that additional theoretical exploration of the nature of coalition negotiations may be warranted. On the one hand, our expanded model is compatible with Diermeier and van Roozendaal's theoretical approach, which places emphasis on uncertainty in coalition negotiations. On the other hand, our findings also give us some pause to reconsider this stress on uncertainty. As we noted above, several alternative hypotheses predict that the number of negotiating parties as well as ideological divergence should induce bargaining delay. Thus, our findings with respect to these variables are consistent with an uncertainty story, but do not differentiate this account from alternative explanations. At the same time, variables that clearly favour the DvR emphasis on uncertainty are called into question. Most obviously, *previous defeat*, which is a major indicator of uncertainty in DvR's framework, no longer attains statistical significance. Clearly, additional theoretical and empirical work is necessary to explore more fully the analytic foundations underlying the dynamics of coalition negotiations.

Party Identification in Britain: Does Length of Time in the Electorate Affect Strength of Partisanship?

JAMES R. TILLEY*

The classic party identification model originally derives from the work of Campbell *et al.* in the 1960s.¹ In *The American Voter* Campbell *et al.* noted that there was a large disparity by age between, first, the number of voters claiming an Independent identification in the United States and, secondly, the numbers claiming a strong identification with one of the two parties. They interpreted these differences as representing an increasing level of partisanship as voters increased in age. More precisely, they argued partisan strength increased the longer one had held an identification, and older people had generally held identifications for much longer than younger people. Campbell *et al.* gave as evidence for this linkage the fact that when one controlled for length of party attachment there was little difference between the young and old.²

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¹ Angus Campbell, Phillip E. Converse, Warren E. Miller and Donald E. Stokes, *The American Voter* (New York: Wiley, 1960).

² This result is perhaps not as conclusive as it seems for two reasons; first, very few older people had actually held their party attachment for short periods of time. Secondly, conceptually one could argue that weak party loyalties were the cause of short party attachment. Weakly identifying people are those who are willing to change party allegiance; they do not have weak party allegiance due to their short-term partisan identification. Cf. Paul R. Abramson, 'Generational Change and the Decline of Party Identification in America: 1952–1974', *American Political Science Review*, 70 (1976), 469–78.