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Review Article: Modelling Cabinet Durability and Termination

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In this article we will review the literature on cabinet durability and cabinet termination.[1] The fact that many cabinets in Western multi-party democracies do not serve out their full potential legal term in office has given rise to an important and growing body of research in political science. Cabinet durability is one of the three main features of cabinets, the others being cabinet party composition and allocation of portfolios.[2] Each is of theoretical interest in itself,

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[1] Our initial aim was to update the excellent review of cabinet durability done over a decade ago by Lawrence C. Dodd, 'The Study of Cabinet Durability: Introduction and Commentary', *Comparative Political Studies*, 17 (1984), 155–62, which became badly out of date because of the considerable volume of recent empirical and theoretical work. Subsequent to the initial submission of this article, we discovered that Paul Warwick, *Government Survival in Parliamentary Democracies* (New York: Cambridge University Press, 1994), had provided a substantial review of this literature in the course of elaborating his own model of government survival. We have incorporated references to that work here. However, while we agree with much of what Warwick has written, our perspective on the extent of progress in understanding the determinants of cabinet termination and on what remains to be done and how best to proceed is rather different from his.

[2] There is a voluminous literature attempting to predict the party composition of cabinets from the party breakdown in the legislature and other factors, such as the ideological propinquity of the various parties. An excellent recent review is Michael Laver and Norman Schofield, *Multiparty Government: The Politics of Coalition in Western Europe* (Oxford: Oxford University Press, 1990), which also contains important new theoretical contributions of their own. The literature on portfolio allocations had been relatively dormant since the work of Eric Browne and his colleagues, e.g., Eric C. Browne and Mark Franklin, 'Aspects of Coalition Payoffs in European Parliamentary Democracies', *American Political Science Review*, 67 (1973), 453–69; Eric C. Browne and Karen Feste, 'Qualitative Dimensions of Coalition Payoffs: Evidence for European Party Governments, 1945–1970', *American Behavioral Scientist*, 18 (1975), 530–56; Eric C. Browne and James Frendreis, 'Allocating Coalition Payoffs by Conventional Norm: An Assessment of the Evidence for Cabinet Coalition Situations,' *American Journal of Political Science*, 24 (1980); 753–68, until reinvigorated by the innovative work of Michael Laver and Kenneth Shepsle, 'Coalitions and Cabinet Government', *American Political Science Review*, 84 (1990), 873–89; Michael Laver and Kenneth Shepsle, *Making and Breaking Governments: Cabinets and Legislatures in Parliamentary Democracies* (New York: Cambridge University Press, 1996) which provides a new model of the relationship between party composition, portfolio allocations and policy outcomes (see also David

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but of even greater interest for what it might tell us about broader questions of representation and governance. Each is also important as a development and testing ground for new methodologies.

Cabinets provide quantitative data that is directly comparable across national settings on the outcomes of a rule-constrained bargaining environment. As such, for decades, cabinets have been a natural arena to refine and test game-theoretic models; more recently, the stochastic nature of cabinet duration processes has permitted applications of powerful statistical tools of analysis such as hazard models (also known as events-history modelling).[3] Cabinet duration is often regarded as substantively important insofar as it is an indicator of the stability of governments, which in turn is taken to reflect government performance and to affect the legitimacy of the political system.[4] Cabinet composition and portfolio assignments are linked both to the development of party systems and to policy outcomes.[5]

We may view the evolution of the literature on cabinet duration and termination in various ways.

Authors such as Paul Warwick[6] see a kind of Hegelian progression, in which the 'thesis' is the 'structural factors' approach and its 'antithesis' is the 'events' approach, with the synthesis being provided by the stochastic 'hazard model' approach first offered by Gary King and his colleagues,[7] and then further

(F'note continued)
Austen-Smith and Jeffrey Banks, 'Stable Governments and the Allocations of Policy Portfolios,' *American Political Science Review*, 84 (1990), 891–906.

[3] See, for example, Tony Lancaster, *The Econometric Analysis of Transition Data* (New York: Cambridge University Press, 1990); Henry Bienen and Nicholas van de Walle, *Of Time and Power: Leadership Duration in the Modern World* (Stanford, Calif.: Stanford University Press, 1991); Henry Bienen and Nicholas van de Walle, 'A Proportional Hazard Model of Leadership Duration', *Journal of Politics*, 54 (1992), 685–717; and Christopher J. Zorn and Steven R. Van Winkle, 'An Independent Competing Risks Model of Supreme Court Tenure' (prepared for delivery at the Annual Meeting of the Southern Political Science Association, Atlanta, Georgia, 1994), for other uses of this methodology.

[4] For a critique of the notion that long duration is the same as stability, see Arend Lijphart, 'A Note on the Meaning of Cabinet Durability', *Comparative Political Studies* (1984), 163–6.

[5] See esp. Ian Budge and Hans Keman, *Parties and Democracy: Coalition Formation and Government Functioning in Twenty States* (Oxford: Oxford University Press, 1990); Laver and Shepsle, *Making and Breaking Governments*; Hans-Dieter Klingemann, Richard I. Hofferbert and Ian Budge, *Parties, Policies and Democracies* (Boulder, Colo.: Westview Press, 1994).

[6] For example, Warwick, *Government Survival in Parliamentary Democracies*; see also Kaare Strom, 'Contending Models of Cabinet Stability', *American Political Science Review*, 82 (1988), 923–41.

[7] See Gary King, James E. Alt, Nancy E. Burns and Michael Laver, 'A Unified Model of Cabinet Dissolution in Parliamentary Democracies', *American Journal of Political Science*, 34 (1990), 846–71; James Alt and Gary King, 'Transfers of Governmental Power: The Meaning of Time Dependence', *Comparative Political Studies*, 27 (1994) 190–210; David Austen-Smith and Jeffrey Banks, 'Elections, Coalitions, and Legislative Outcomes', *American Political Science Review*, 82 (1988), 405–22.

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refined in important ways by Warwick[8] and Warwick and Easton,[9] among others.[10]

Browne and his colleagues,[11] along with Cioffi-Revilla,[12] proposed an 'events' approach to study cabinet duration that eschews attempting to identify factors that explain cabinet durability. They offered a 'mathematical model of governmental dissolution in which duration is solely a function of the appearance of [unpredictable] events which trigger governmental collapse.'[13] Browne *et al*. claim that stochastic elements are 'important, if not dominant, in determining the downfall of cabinet governments.'[14] In contrast, most other scholars who had studied cabinet dissolution sought to identify structural factors, such as characteristics of the cabinet or of the overall party system, that could be expected to lead to greater or lesser cabinet durability. The hazard approach offered by King *et al*.[15] attempts to settle the ongoing controversy between advocates of an events approach and advocates of a structural factors approach,[16] by reconciling the two approaches in a synthesis that introduces a statistical model embedding structural factors within the context of a stochastic process. Their unifying perspective combines recognition of a stochastic element to dissolution with a recognition that 'certain types of cabinets are predictably more durable than others'.[17] It permits a search through standard statistical techniques for those factors that best account for variation in cabinet duration.[18]

[8] Paul Warwick, 'Rising Hazards: An Underlying Dynamic of Parliamentary Government', *American Journal of Political Science*, 36 (1992), 857–76; Warwick, *Government Survival*.

[9] Paul Warwick and Steven Easton, 'The Cabinet Stability Controversy: New Perspectives on a Classic Problem', *American Journal of Political Science*, 36 (1992), 122–46; Warwick, *Government Survival*.

[10] See also Daniel Diermeier and Randy T. Stevenson, 'A Competing Risk Analysis of Cabinet Duration' (presented at the Annual Meeting of the Midwest Political Science Association, Chicago, 1994); Daniel Diermeier and Peter Van Roozendaal, 'Government Formation Processes in Multiparty Democracies' (unpublished manuscript, Stanford University Graduate School of Business, 1995).

[11] Eric C. Browne, Dennis W. Gleiber and C. S. Mashoba, 'Evaluating Conflict of Interest Theory: Western European Coalitions 1945–80', *British Journal of Political Science*, 14 (1984), 1–32; Eric C. Browne, John P. Frendreis and D. W. Gleiber, 'The Process of Cabinet Dissolution: An Exponential Model of Duration and Stability in Western Democracies', *American Journal of Political Science*, 30 (1986), 628–50; Eric C. Browne, John P. Frendreis and Dennis W. Gleiber, 'Contending Models of Cabinet Stability', *American Political Science Review*, 82 (1988), 930–41; John P. Frendreis, Dennis W. Gleiber and Eric C. Browne, 'The Study of Cabinet Dissolutions in Parliamentary Democracies', *Legislative Studies Quarterly*, 11 (1986), 619–28.

[12] Claudio Cioffi–Revilla, 'The Political Reliability of Italian Governments', *American Political Science Review*, 78 (1984), 318–37.

[13] Frendreis, Gleiber and Browne, 'The Study of Cabinet Dissolutions'.

[14] Browne, Frendreis and Gleiber, 'The Process of Cabinet Dissolution'.

[15] King *et al.*, 'A Unified Model of Cabinet Dissolution'.

[16] For example, Strom, 'Contending Models of Cabinet Stability', offers a particularly forceful defence of the structural factors approach.

[17] King *et al*. 'A Unified Model of Cabinet Dissolution'.

[18] There remain important technical issues in estimation that are largely beyond the scope of this review: see Warwick and Easton, 'The Cabinet Stability Controversy', and rejoinder in Alt and King,

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Our deep admiration for the methodological sophistication and empirical rigour of the 1990 article by Gary King and his associates[19] and our view that the hazard model approach is virtually certain to provide the statistical basis for most further empirical work on modelling cabinet duration, as already exemplified by the subsequent contributions of Alt and King,[20] Paul Warwick[21] and Daniel Diermeier,[22] lead us to agree with Warwick in regarding the introduction of the hazard model by King *et al*. as a watershed event in the literature on coalition duration. None the less, we are reluctant to overstate the importance of the view that cabinet duration should be regarded as essentially random in character.

We have been quite sceptical of the critical events approach in its original and most categorical formulation.[23] The fact that events have a normal or Poisson distribution does not mean that we cannot explain them. For instance, if we observe a stream of children arriving at a school, their heights might be perfectly fit by a Poisson distribution. That does not mean that we could not predict with some reasonable accuracy how tall a given child might be expected to be if we knew, for example, what grade he or she was in!

Moreover, important as the hazard model is in improving statistical estimation, we should not confuse it with theory-building. Replacing ordinary regression with a hazard approach when studying processes with a time component has much the same value as replacing ordinary least squares (OLS) with logit or probit regression in situations where there is a dichotomous independent variable.[24] The hazard model offers a good way to facilitate the integration of time-dependent and time-independent factors in the same model, but this can also be done within the standard regression framework. The hazard model in no way represents an explicit theory of cabinet dissolution. Indeed, it

(F'note continued)
'Transfers of Governmental Power'; Austen-Smith and Banks, 'Elections, Coalitions, and Legislative Outcomes'; cf. Warwick, *Government Survival in Parliamentary Democracies*; Diermeier and Stevenson, 'A Competing Risk Analysis'; Bernard Grofman and Peter Van Roozendaal, 'Exit Models, Hazard Rates and Government Duration with Empirical Application to Government Duration in the Benelux Countries, 1945–94' (ISCORE Research Paper, University of Utrecht, 1995).

[19] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[20] Alt and King, 'Transfers of Governmental Power'.

[21] Warwick, 'Rising Hazards'; Warwick and Easton, 'The Cabinet Stability Controversy'; King *et al*., 'A Unified Model of Cabinet Dissolution'; Warwick, *Government Survival in Parliamentary Democracies*.

[22] Diermeier and Stevenson, 'A Competing Risk Analysis'; Diermeier and Van Roozendaal, 'Government Formation Processes in Multiparty Democracies'.

[23] See esp. Peter Van Roozendaal, 'Cabinets in Multiparty Democracies' (doctoral thesis, Amsterdam, 1992); 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), 155–70.

[24] For example, the hazard model avoids the potential problem of OLS estimates giving rise to negative estimates of duration.

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can best be thought of as neutral with respect to specific causal mechanisms, all of which can be embedded within its statistical framework and comparatively evaluated.[25]

Here it is useful to distinguish proximate from more distant causes. The events approach leads us to think about factors external to the legislature that may be triggers (precipitating causes) for termination decisions, such as economic or other types of crises; the structural factors approach leads us to look at conditioning factors that may affect the likelihood that cabinets will be unstable, such as the structural characteristics of different types of cabinets. Both types of factors may be important, but in different ways. While the King *et al*. article is important because of its introduction of the hazard model, it is also important simply for its conceptual clarity in distinguishing between structural factors, here defined in terms of what can be known *ex ante*, and factors that operate in stochastic terms whose exact timing and magnitude cannot be anticipated in advance.[26]

In line with the discussion above, it is apparent that one useful way to think about the evolution of the cabinet duration literature is in terms of a shift from models that involve exclusively time-independent covariates, to models that incorporate both time-dependent and time-independent covariates. However, we would argue that it is at least as useful to describe the evolution of this literature in terms of a shift in emphasis from the study of determinants of cabinet duration to the study of the determinants of cabinet termination. Calling the object of study 'cabinet duration' emphasizes that which happens; calling it 'cabinet termination' emphasizes those who are making things happen and invites a concern for why they are choosing to act.

In line with our own earlier work,[27] and that of other recent scholarship,[28] we suggest that it is highly desirable to think about cabinet termination as a conscious act of choice by political actors who consider dissolution with respect

[25] This is exactly how King *et al*., 'A Unified Model of Cabinet Dissolution', view their work.

[26] King *et al*., 'A Unified Model of Cabinet Dissolution,' p. 848, assert that a good answer to the question, 'How long should we expect a given cabinet to last?' has two parts: 'One part would systematically incorporate all relevant information available at the moment the new government formed (in economics this would be the "rational expectation"). The other part, a stochastic model measuring confidence in this expectation, describes any relevant information which cannot be anticipated at the time of cabinet formation. The relevant information which is known *ex ante*, contains those measurable attributes of the political system, party system, particular cabinets and the context of [cabinet] formation that affect cabinet stability.' See also Laver and Shepsle, *Making and Breaking Governments*; Arthur Lupia and Kaare Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections', *American Political Science Review*, 89 (1995), 648–65.

[27] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'.

[28] For example, Carole Mershon, 'Expectations and Informal Rules in Coalition Formation', *Comparative Political Studies*, 27 (1994), 40–79; Lupia and Strom 'Coalition Termination and the Strategic Timing of Parliamentary Elections'; Laver and Shepsle, *Making and Breaking Governments*, chap. 10.

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to expectations about the future. External events may provide reasons why actors may choose to dissolve cabinets, but the reaction to events (and even the meaning given to them) is at least partly under the control of the actors themselves. In our view, the continuing challenge for the cabinet duration literature is to develop a genuine theory of cabinet termination with an explicit set of mechanisms and dynamics.

After offering a descriptive account of the circumstances wherein cabinets change in Western multi-party democracies, in the next section we identify the most important variables used in research on cabinet duration over the last two decades, what their link with cabinet duration might be expected to be, and what the empirical evidence shows. In order to present this review in a manageable fashion and in a way that is directly linked to our theoretical concerns, we offer a new typology with which to classify the variables that have been used in previous models. Our typology is based on five groupings: (1) characteristics of party strength in the legislature and attributes of the cabinet related to party balance; (2) features of the ideological structure of party competition and cabinet composition; (3) institutional features of the political process; (4) time-dependent factors external to the legislature and cabinet; and (5) factors related to the anticipated consequences of dissolution.[29]

In our discussion we emphasize the need to distinguish between factors that will be useful in accounting for variations between countries and those that will be able to help account for within-country variations, and the need for theory that explicitly offers mechanisms linking variables to causes of dissolution rather than relying exclusively on variance explained as the measure of theoretical usefulness.

CABINET DISSOLUTION

Since our focus is on cabinet duration and termination is it necessary to establish what we mean by a cabinet. This might appear to be a trivial question, but it is not; and how we answer it has implications for the structure of theory. The first issue is whether to count support parties as members of the cabinet for purposes of defining cabinet termination.[30] The second issue is whether a change in cabinet membership is necessary for there to be a termination. For example, do we count a cabinet as having been terminated if there is a change in its portfolio

[29] Our typology is more detailed than that in King *et al*., 'A Unified Model of Cabinet Dissolution', as well as cross-cutting theirs. They categorize variables into four types: cabinet attributes, country attributes, attributes of the party system and controls. The King *et al*. typology is also used by James N. Druckman, 'Coalition Politics: Formation and Duration' (honours thesis, Northwestern University, Evanston, Ill., 1993), who reviews literature on the empirical strength of variables in each of the four categories.

[30] This question is especially salient if, without their support, the government would no longer command a working majority.

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allocations without a change in its membership or, if after bargaining, the same cabinet is reconstituted? A third issue is about the extent to which we distinguish between cabinet types: for example, those formed after an election and those not, caretaker governments and other governments, cabinets formed due to deaths of prime ministers, cabinets dissolved because of mandatory elections, and so on.

The literature we review is not in accord as to how the questions above are best answered. Thus, of necessity some methodological subtleties are ignored in our discussion when we compare the duration results reported by different authors.[31] However, most authors regard a cabinet as terminated once either new elections have to be held or a new cabinet formation is necessary, i.e., it does not matter whether or not the cabinet formation results in a reinstatement of the same cabinet – the important fact is that new negotiations are necessary before a cabinet can be reconstituted. Also, most authors we review distinguish caretaker and non-caretaker governments by use of a dummy variable. With respect to cabinets triggered by mandatory elections, most recent authors have distinguished coalitions ended within a year of a mandatory new election from other cabinets and introduced one or another type of statistical control for the (potentially) truncated existence of such cabinets.[32]

Why do cabinets come to an end? A cabinet crisis (for example, over a policy issue) is not the only route to downfall of a cabinet. In a primarily descriptive sense we can say that cabinets come to an end because of one of the events on the following list:

—New general elections have to be held because of limitations on how long a time can elapse without a general election (or because of other statutory constraints).
—Death or serious illness of top cabinet members.
—A parliamentary vote of no-confidence.
—A coalition breakdown because of internal policy disagreements such that one or more parties leave the cabinet.
—Voluntary resignation of the cabinet.
—Conflict between the cabinet and the head of state.

[31] For a discussion of measurement issues and alternative ways to define cabinet duration, see Arend Lijphart, 'Measures of Cabinet Durability: A Conceptual and Empirical Evaluation', *Comparative Political Studies*, 17 (1984), 265–79; Warwick, *Government Survival in Parliamentary Democracies*, contains the most thorough discussion of which we are aware on how alternative definitions affect results on covariates of durability.

[32] We have views on each of these questions that do not always coincide with common practices. For example, while there appear to be good statistical reasons for not 'throwing away data', and Occam's razor might dictate using data unless and until it is demonstrated to be inappropriate to do so, in our view there is simply no reason to think that the same model governs both the duration of caretaker governments and other cabinets (see Grofman and Van Roozendaal, 'Exit Models, Hazard Rates and Government Duration').

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Von Beyme[33] examined the occurrence of cabinet dissolution in 289 cabinets in seventeen Western democracies (1947–83). Of these 289 cabinets, von Beyme found that 143 stepped down because general elections had to be held, and five other cabinets were dissolved for statutory reasons such as the need for the prime minister to step down when a new president is elected or when a new monarch comes to the throne.[34] An additional fifteen cabinets came to an end because of illness or death of the prime minister. Thus, well over half of the cabinets came to an end for 'natural causes' not tied to specific voluntary choices made by parties or cabinet members. Of the remaining 126 cabinets, twenty were terminated because of a parliamentary vote of no-confidence, sixty-one because of cabinet disintegration (breakdown), twenty because of voluntary resignation, five because of a conflict with the head of state, while twenty were formally dissolved because they were enlarged by the addition of one or some parties to the cabinet.

Cabinet dissolution because new general elections are dictated by the length of time the government has been in power, or termination as a result of other statutorily mandated factors, is primarily of interest as it sets constraints on cabinet lengths that must be dealt with in any empirical analysis.[35] The same is true for death or illness of key actors. The other 'causes' of cabinet dissolution given above are each the result of voluntary decisions by key actors. In a parliamentary vote of no-confidence, the political parties have made the choice of forcing a cabinet to step down. If it is a majority government that is being toppled, cabinet breakdown will presumably have occurred because of internal policy disagreements within the parties making up the cabinet. Voluntary resignation of cabinets also reflects the choices made by the leaders of cabinet parties. Finally, in some countries the interaction between cabinet and head of the state may result in a conflict whose nature is such that a cabinet is effectively forced to step down.

Now we turn to identifying the variables that have been used (or might be used) to account for cabinet durability.

[33] Klaus von Beyme, *Political Parties in Western Democracies* (New York: St Martin's Press, 1985).

[34] Von Beyme, *Political Parties in Western Democracies*, refers to these as dissolution through 'protocol'. Of these five cabinets, one cabinet in Belgium was dissolved as a statutory dissolution after accession of a new monarch, one cabinet in Finland dissolved in a constitutionally required resignation when a presidential election was held, and three cabinets in the French Fifth Republic came to an end after presidential elections.

[35] Because what Browne, Frendreis and Gleiber, 'The Process of Cabinet Dissolution', refer to as the CIEP (constitutional inter-election period) is a finite (and relatively short) period, important statistical issues in testing of probabilistic models of cabinet termination processes that assume stochastic repetition arise in terms of what are called 'censored' cases (see King *et al*., 'A Unified Model of Cabinet Dissolution'; Diermeier and Stevenson, 'A Competing Risk Analysis').

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FIVE TYPES OF VARIABLES AND HYPOTHESIZED LINKAGES TO CABINET TERMINATION

The structural factors approach is orientated to what have been called time-independent covariates, such as ideological diversity of the cabinet;[36] while the stochastic aspects of cabinet duration suggest concern for time-dependent covariates of the sort emphasized by Warwick in some of his recent work, such as changing economic conditions.[37] This leads us to a two-fold classification scheme for the variables used in modelling cabinet duration: time-dependent versus time-independent. This categorization, though quite useful, is too gross for present purposes.

By analogy with Grofman's 1992 typology of theories of cabinet formation,[38] we will distinguish three different types of time-independent covariates: those tied to overall party strength or party balance within the cabinet, those linked to the ideological positions taken by the parties, and those tied to institutional features that distinguish coalition processes in different countries.[39] Finally, we will add a new category of time-dependent variable which we call expectational, i.e., intending to identify the motivations of actors who may choose to break up

[36] Paul Warwick, 'Ideological Diversity and Government Survival in Western Democracies', *Comparative Political Studies*, 25 (1992), 332–61; Warwick, *Government Survival in Parliamentary Democracies*.

[37] See, for example, Paul Warwick, 'Economic Trends and Government Survival in West European Parliamentary Democracies', *American Political Science Review*, 86 (1992), 875–87; Warwick, *Government Survival in Parliamentary Democracies*.

[38] Bernard Grofman, review of Michael Laver and Norman Schofield, *Multiparty Government*, in *Social Choice and Welfare*, 9 (1992), 265–6.

[39] Grofman, review of *Multiparty Government*, argues that, in the coalition formation literature, these three types of variables loosely formed a developmental sequence, with the type of variables used in earlier stages incorporated into later models. He identifies the minimum winning coalition model (William H. Riker, *The Theory of Political Coalitions* (New Haven, Conn.: Yale University Press, 1962) and Leiserson's fewest actor model (Michael Leiserson, 'Factions and Coalitions in One-party Japan', *American Political Science Review*, 56 (1962), 770–87, as paradigmatic examples of first-stage models; work such as that of Robert Axelrod, *Conflict of Interest: A Theory of Divergent Goals with Application to Politics* (Chicago: Markham, 1970); and A. De Swaan, *Coalition Theories and Cabinet Formations* (Amsterdam: Elsevier Scientific Publishing Company, 1973) on ideologically connected coalitions as paradigmatic of stage two models, with other examples being Richard D. McKelvey, Peter Ordeshook and Mark Winer, 'The Competitive Solution for *N*-Person Games with Transferable Utility with an Application to Committee Games', *American Political Science Review*, 72 (1978) 599–615, and Bernard Grofman, 'A Dynamic Model of Proto-Coalition Formation', *Behavioral Science*, 27 (1982), 77–90; and work on the role of formateurs and rules about which party is invited to initiate coalition bargaining as typical of the third stage of coalition formation research: Kaare Strom, Ian Budge and Michael Laver, 'Constraints on Cabinet Formation in Parliamentary Democracies', *American Journal for Political Research*, 38 (1984), 303–35; Bernard Grofman, B. N. Noviello, and P. Straffin, 'The Sequential Dynamics of Cabinet Formation, Stochastic Error, and a Test of Competing Models', in Norman Schofield, ed., *Theory of Social Choice and Political Economy* (Boston, Mass.: Kluwer–Nijhoff, 1996). However, the historical sequence of use of these three types of time-independent variables in the cabinet duration literature seems less clear-cut than in the literature on cabinet formation.

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(or agree to allow the breakup) of existing coalitions based on hopes of future gain or avoidance of present loss. This give us five categories: (1) characteristics of party strength in the legislature and attributes of the cabinet related to party balance; (2) features of the ideological structure of party competition and cabinet composition; (3) institutional features of the political process; (4) time-dependent factors external to the legislature and cabinet; and (5) factors related to the anticipated consequences of dissolution.

The first three categories involve time-independent factors; the last two categories involve time-dependent variables. The first three of these sets of variables, which include most of the variables repeatedly found in the previous literature, are the ones whose empirical linkages with cabinet duration can be pinpointed most exactly.[40] Thus, our discussion of the first three categories will be considerably more extensive than that of the last two. In the process of discussing each of these types of variables in detail, we review most of the literature on cabinet durability and termination. We will also have a few suggestions about new hypotheses that might be tested in future work.

(1) Characteristics of Party Strength in the Legislature and Attributes of the Cabinet Related to Party Balance

(a) Fractionalization/effective number of parties. One important characteristic of party strength in a parliament is 'fractionalization'. Fractionalization indicates the degree to which a party system is dominated by one or a few parties, as opposed to being more equally divided among more parties. The most commonly used measure of fractionalization was developed by Douglas Rae.[41] Rae's F gives the probability that two legislators chosen at random from a certain parliament will represent different parties. It correlates negatively with cabinet durability.[42] Another measure of fractionalization in the study of cabinet

[40] For example, the seven-variable summary model of King *et al*., 'A Unified Model of Cabinet Dissolution' (Table 2, Model 2.4), contains variables from each of the first three categories: (1) party fractionalization, majority cabinet, post-election cabinet, caretaker cabinet, number of formation attempts; (2) polarization (strength of anti-system parties); (3) investiture rules. The latter two categories have, however, been emphasized in some recent work: Paul Warwick, 'Economic Trends and Government Survival in West European Parliamentary Democracies', *American Political Science Review*, 86 (1992), 875–87, is an author who has emphasized variables from the fourth category: while variables from the fifth category are found in Carole Mershon, 'The Costs of Coalition: Coalition Theories and Italian Governments' (unpublished manuscript, Department of Political Science, Washington University, St Louis, 1993); Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'; and Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections'.

[41] Douglas W. Rae, *The Political Consequences of Electoral Laws* (New Haven, Conn.: Yale University Press, 1967). Rae's index is mathematically related to earlier indices of concentration such as the Herfindahl–Hirschman index (see review in Rein Taagepera and Bernard Grofman, 'Effective Size and Number of Components', *Sociological Methods and Research*, 10 (1981), 63–81).

[42] Michael Taylor and Valentine Herman, 'Party Systems and Government Stability', *American Political Science Review*, 65 (1971), 28–37.

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durability is the Laakso–Taagepera index of 'effective number of parties'.[43] It is inversely related to Rae's measure of fractionalization. Many subsequent studies have used one or the other of these indices.[44] The explanation given for the relationship between the number of parties and cabinet duration has varied among authors, but the most common explanation is one that suggests that, *ceteris paribus*, the greater the number of parties, the greater the number of potentially viable cabinets. In turn, the greater the number of feasible options, the more complex will the bargaining environment be, and the more likely that a minor perturbation may change the locations of each party's most preferred coalition.[45] Thus, the more parties, the less durable might any given cabinet be. Most studies have found party fractionalization strongly and negatively related to cabinet durability.[46]

(b) Electoral volatility. Volatility is a measure of electoral turnover in mass voting in parliamentary elections. Laver and Schofield[47] and King *et al*.[48] suggest that high volatility bespeaks a complex and unstable bargaining environment. They suggest that we ought to expect volatility to be negatively linked to duration. However, in most of the King *et al*.[49] data analyses of the factors affecting cabinet duration this variable is dropped due to lack of statistical significance. We believe that one reason that volatility is not found to be significant is that its effects might plausibly be argued to go in either direction. For example, in a highly risky environment, given the great uncertainty surrounding election outcomes, we might hypothesize that larger parties may be reluctant to rock the boat, but smaller parties may have an incentive to do so, since their present strength may be so low that opting for a high risk gamble may not seem that unattractive.

Thus, we would like to suggest that we ought to look at the effects of volatility not in terms of duration but rather in terms of what type of party has an incentive

[43] Markku Laakso and Rein Taagepera, 'The Effective Number of Parties: A Measure with Application to West Europe', *Comparative Political Studies*, 12 (1979), 3–27.

[44] For example, Arend Lijphart, *Democracies: Patterns of Majority and Consensus Government in Twenty-One Countries* (New Haven, Conn.: Yale University Press, 1984).

[45] King *et al*., 'A Unified Model of Cabinet Dissolution', p. 848, asserts that the 'distribution of bargaining power is less susceptible to minor perturbations in system parameters' in less fractionalized systems (see also Laver and Schofield, *Multiparty Government*).

[46] See, for example, King *et al*., 'A Unified Model of Cabinet Dissolution', Table 2. However, Bernard Grofman,' The Comparative Analysis of Coalition Formation and Duration: Distinguishing Between-Country and Within-Country Effects', *British Journal of Political Science*, 19 (1989), 291–302, suggests that party systems with many actors have cabinets with many parties and this creates high transaction costs in maintaining agreement. This in turn leads to cabinet instability, i.e., the effect of number of parties in the legislature on cabinet stability is indirect, mediated by its effect on the number of parties in the cabinet.

[47] Laver and Schofield, *Multiparty Government.*

[48] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[49] King *et al*., 'A Unified Model of Cabinet Dissolution'.

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to take the lead in breaking up a coalition. We would hypothesize that in volatile electoral systems the smaller parties are more likely to be the coalition-breakers, while in more stable electoral environments it is the larger parties that are more likely to risk alternative coalitions since they do not greatly fear a new election.[50]

(c) Size of cabinet. the number of parties in the cabinet, minimal winning status of cabinets. Taylor and Herman[51] found that the number of parties in the cabinet, as well as the fractionalization of the cabinet, has a significant (negative) impact on cabinet durability. This was further confirmed by Sanders and Herman,[52] who, using cross-national data, also confirmed Blondel's general thesis that majority cabinets last longer than minority cabinets.[53] The finding that cabinet duration is negatively linked to party fractionalization is quite robust.[54]

Dodd[55] developed a comprehensive theory of cabinet composition and durability that distinguished between minimum winning cabinets (one containing parties with voting strength sufficient to ensure a parliamentary majority, but no more), oversized cabinets (ones larger than minimum winning), and undersized cabinets (ones smaller than minimum winning). He found, as hypothesized, that (across nations) minimum winning cabinets are more durable than undersized and oversized cabinets, and that the 'durability of cabinets is a function of the degree to which cabinets deviate from minimum winning status'.[56] Numerous subsequent authors have made use of the cabinet attribute variables identified by Dodd. Virtually all subsequent studies using cross-national data support the finding that minimal winning coalitions are more durable.[57]

One problem with any approach to cabinet duration that focuses on the minimal winning status of cabinets is that this approach has not been embedded in a plausible theory of rational cabinet dissolution. Initially inspired by Riker's famous model of coalition formation as a zero-sum game,[58] the relevance of the

[50] This hypothesis has not yet been empirically investigated as far as we are aware.

[51] Taylor and Herman, 'Party Systems and Government Stability'.

[52] David Sanders and Valentine Herman, 'The Stability and Survival of Governments in Western Democracies', *Acta Politica*, 3 (1977), 346–77.

[53] Jean Blondel, 'Party Systems and Patterns of Government in Western Democracies', *Canadian Journal of Political Science*, 1 (1968), 180–203.

[54] See, for example, Warwick, 'Ideological Diversity'; King *et al*., 'A Unified Model of Cabinet Dissolution', Table 2.

[55] Lawrence C. Dodd, 'Party Coalitions in Multiparty Parliaments: A Game Theoretic Analysis', *American Political Science Review*, 68 (1974), 1093–117; Lawrence C. Dodd, *Coalitions in Parliamentary Government* (Princeton, NJ: Princeton University Press, 1976).

[56] Dodd, 'Party Coalitions in Multiparty Parliaments'.

[57] See, for example, Michael Laver, 'Dynamic Factors in Government Coalition Formation', *European Journal of Political Research*, 2 (1974), 259–70; Paul Warwick, 'The Durability of Coalition Governments in Parliamentary Democracies', *Comparative Political Studies*, 4 (1979), 465–98.

[58] Riker, *The Theory of Political Coalitions*.

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minimal winning coalition model to coalition formation/dissolution in a world where coalitional choices are inextricably intertwined with policy choices is far from clear.[59] In the data analysis in Warwick, when a full panoply of ideological diversity measures are incorporated into the model, minimum winning status of a cabinet is no longer statistically significant, although (with respect to pooled cross-national data) majority governments do last longer than minority ones.[60]

Why should minimal winning cabinets be more durable than non-minimal winning cabinets? One possible explanation centres on the bargaining threat. If cabinets are minimal then every party in the cabinet might appear to have an equally compelling threat. In contrast, a party whose votes are not critical may be allowed to leave the cabinet, thus precipitating what is technically a cabinet breakdown.[61]

Grofman has argued, however, that the relationship between minimal cabinets and cabinet durability is really spurious.[62] He shows that the minimal winning hypothesis fails to account for significant variation in cabinet durability within most countries, and argues that the relationship between cabinet duration and minimal winning coalitions that appears in cross-national pooled datasets is largely an artefact of the high average duration of cabinets in countries where there are only two or three significant political parties (where minimal winning coalitions are the norm) and the low average duration of cabinets in countries with a very large number of parties (where minimal winning coalitions are rare). Grofman's views are in many ways confirmed by the country specific analyses in Budge and Keman.[63] They find that single-party governments are clearly the longest-lived within most countries but that, in some countries, minority governments are longer-lived than minimal winning coalitions, while in other countries, surplus coalitions are longer-lived than minimal winning coalitions.

(d) Formation time/formation attempts. A number of authors have suggested a link between the time it takes to form a cabinet and its expected durability. Laver and Schofield[64] argue for a negative relationship in that a long negotiation period is taken to be an indicator of a complex bargaining environment, a view that is

[59] Cf. Bernard Grofman, 'The General Irrelevance of the Zero Sum Assumption in the Legislative Context', in Manfred Holler, ed., *Coalitions and Collective Action* (Wuerzburg: Physica-Verlag, 1984), pp. 99–112.

[60] Warwick, 'Ideological Diversity', argues (p. 354) that an office-seeking model of party motivation (and the minimum winning coalition model that derives from it) needs to be supplemented with a view of parties as policy-oriented.

[61] Peter Van Roozendaal, 'Credible Exit Threats, Dominance, and Government Durability in Western Multi-party Democracies' (Institute for the Study of Cooperative Relations, University of Utrecht, 1995), has generalized this idea of credible exit threat and has used it to provide rational choice underpinnings as to why various features of cabinets might be linked to durability.

[62] Grofman, 'The Comparative Analysis of Coalition Formation and Duration'.

[63] Budge and Keman, *Parties and Democracy*.

[64] Laver and Schofield, *Multiparty Government*.

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shared by King *et al*.[65] Strom, in contrast, argues for a positive relationship, in analogy to a house that takes a long time to build being more likely to having been well-built and thus long-lasting.[66] In their multivariate models, King *et al*. find formation time to be positively related to duration. However, when King *et al*. include a control for whether a cabinet change is electorally triggered, formation time is no longer statistically significant.[67] They note that long negotiations are more likely after an election, but this is also the time when longer-lasting cabinets are more likely to form. Grofman and Van Roozendaal also examine the link between formation time and cabinet durability, but look only at cabinets in the Netherlands after the Second World War.[68] For this limited dataset, they find a negative relationship, but not one that is statistically significant. Interestingly, however, the model that best fits their data is one where cabinet formation time is curvilinearly related to durability.

The number of unsuccessful formation attempts should also be an indicator of the complexity of the bargaining environment, and thus negatively related to cabinet durability. King *et al*. find this to be the case.[69] However, this variable is not found to be statistically significant in analyses by Warwick in which various ideological diversity measures are also incorporated into the model.[70]

(2) Features of the Ideological Structure of Party Competition and Cabinet Composition – the Number of Dimensions of the Party or Policy Space

(a) Polarization. King *et al*.[71] use Bingham Powell's[72] concept of *polarization*, a measure of support for extremist parties, as one of their key variables and find it, as they hypothesize, to be negatively correlated with duration. Earlier work had also found lower cabinet duration, on average, in countries with high levels of support for anti-system parties. Warwick also finds this variable to be statistically significant.[73]

(b) Ideological connectedness or diversity. In *Conflict of Interest* Robert Axelrod[74] developed a coalition theory that predicted that cabinets in

[65] King *et al*., 'A Unified Model of Cabinet Dissolution'.
[66] Strom, 'Contending Models of Cabinet Stability'.
[67] King *et al*., 'A Unified Model of Cabinet Dissolution'.
[68] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'.
[69] King *et al*., 'A Unified Model of Cabinet Dissolution'.
[70] Warwick, 'Rising Hazards'. Arguably, ideological diversity captures some of the same elements of bargaining environment complexity as does formation attempts.
[71] King *et al*., 'A Unified Model of Cabinet Dissolution'.
[72] G. Bingham Powell, *Contemporary Democracies* (Cambridge: Cambridge University Press, 1982).
[73] Paul Warwick, 'Ideological Diversity'.
[74] Axelrod, *Conflict of Interest*.

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multi-party democracies would be 'minimal connected winning',[75] and that minimal connected winning cabinets would be more durable than cabinets that are not minimal connected winning. He tested the theory using data on cabinet composition and cabinet durability in Italy (1953–69). Axelrod found that his conflict of interest theory was a good predictor of cabinet composition, and that minimal connected winning cabinets, once formed, lasted longer than other types of cabinets. Laver re-tested Axelrod's durability hypothesis, along with other criteria that attribute cabinet durability differences to ideological diversity, against a cross-national dataset.[76] Laver could not confirm Axelrod's results, but did find that cabinets of 'minimal ideological diversity' lasted longer than the average cabinet. Browne, Gleiber and Mashoba further confirmed Laver's results, with diversity measured in terms of lack of connectedness.[77]

In an analysis of cabinet durability using Dodd's 1976 data,[78] Warwick found that, in bivariate analyses of pooled data, fractionalization and minimal ideological diversity correlate negatively with cabinet durability and that minimal winning status and minimal connected winning status correlate positively with cabinet durability, but in multiple regression analyses that use most of the variables proposed in previous research the variables related to ideological diversity were the weakest of his four key variables in terms of statistical significance.[79] In summarizing the 1970s literature on cabinet duration, Browne, Frendreis and Gleiber suggest that, in general, 'non-ideological variables have been shown to be important determinants of cabinet duration, while ideology exerts only a slight impact, if any at all'.[80] Wright and Goldberg offer a model that incorporates risk preference to account for the fact that unconnected coalitions can also be quite durable.[81]

There are important questions involved in how best to define ideological diversity. Warwick, for example, in his early work, suggests looking at cleavage-spanning coalitions (for example, clerical–secular, socialist–bourgeois), and finds such coalitions to be less durable than coalitions that are not cleavage-spanning.[82] In subsequent work, Warwick has provided an updated and expanded analysis of the effects of the ideological diversity of cabinets on cabinet stability, using four different measures of that concept.[83] Warwick's

[75] In one dimension, a cabinet is *connected* if there are no parties excluded from the cabinet whose ideological position locates them within the line segment spanned by the governing parties.

[76] Laver, 'Dynamic Factors in Government Coalition Formation'.

[77] Browne, Gleiber and Mashoba, 'Evaluating Conflict of Interest Theory'.

[78] Dodd, *Coalitions in Parliamentary Government*.

[79] Warwick, 'The Durability of Coalition Governments'.

[80] Browne, Frendreis, and Gleiber, 'The Process of Cabinet Dissolution'.

[81] Jack R. Wright and Arthur S. Goldberg, 'Risk and Uncertainty in the Durability of Political Coalitions', *American Political Science Review*, 79 (1985), 704–18.

[82] Warwick, 'The Durability of Coalition Governments'.

[83] In identifying party differences, Warwick, 'Ideological Diversity', makes use both of expert coded left–right scales and of data from the European Manifestos Project coding of party platform issues (see Ian Budge, David Robertson and David Hearl, *European Party Manifestos Project* (Oslo:

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work is an important exception to the claim that ideological factors are generally not that significant in accounting for cabinet durability in comparison to other non-ideological factors. Of the four aspects of ideological diversity examined in his 1992 article (left–right, secular–clerical, regime support, materialist–post-materialist), all but the last are found to be statistically significant predictors of duration.[84]

(c) The presence or absence in the cabinet of dominant central parties, stable core parties and related concepts. In one dimension, parties that are median parties (i.e., centrally located parties) must be members of any winning connected majority coalition.[85] Ad van Deemen[86] has hypothesized that coalitions that contain the central party will be more stable than those that do not. In the one-dimensional case, Van Roozendaal hypothesizes that in parliamentary systems in which one party combines the strength of a dominant party[87] and a central party, cabinets that include this 'dominant central' party will be more durable than cabinets without a dominant central party. In an analysis of more than one hundred majority and minority cabinets in situations where such a dominant central party is present, Van Roozendaal finds this hypothesis confirmed.[88] In contrast, in systems in which there is no party that combines dominance with centrality, he finds that cabinets with the dominant or central parties are not more durable than cabinets without these parties.

One recent hypothesis about cabinet durability is based on the existence and stability of a 'core' party. A *core party* occupies a position that cannot be

(F'note continued)
Norwegian Social Science Data Archive,1986); Michael Laver and Ian Budge, *Party Policies and Government Coalitions* (New York: St Martins, 1992)). Combining estimates from several coding efforts, he finds a general agreement on party placements and develops his own scoring based on a principal components factor analysis of previous scaling results, with the principal component, which can be characterized as a left–right scale, accounting for nearly 90 per cent of the variance.

[84] Warwick, 'Ideological Diversity', Table 3, Model 3.6.

[85] In like manner, when we extend the definition of connectedness to more than one dimension in terms of Grofman's 1980 notion of *n-connectedness*, core parties must be part of any *n*-connected winning coalition.

[86] Ad van Deemen, 'Coalition Formation in Centralized Policy Games,' *Journal of Theoretical Politics*, 3 (1991), 139–62.

[87] A dominant party is one that will be the largest party, but not all largest parties are dominant. For a party *i* to be *dominant* there must exist two coalitions *A* and *B*, each of which exclude *i*, such that the coalition that consists of both *A* and *B* is losing while the coalition that consists of *A* and *i* and the coalition that consists of *B* and *i* are both winning (Bezalel Peleg, 'Coalition Formation in Simple Games with Dominant Players', *International Journal of Game Theory*, 10 (1982), 11–33; Peter Van Roozendaal, 'The Effect of Dominant and Central Parties on Cabinet Composition and Durability', *Legislative Studies Quarterly*, 17 (1992), 5–36. In a legislative situation under majority rule, a necessary condition for *i* to be a dominant party is that it have at least a quarter of the seats (E. Einy, 'On Connected Coalitions in Dominated Simple Games', *International Journal of Game Theory*, 2 (1985), 103–25.

[88] Van Roozendaal, 'The Effect of Dominant and Central Parties'; Peter Van Roozendaal, 'Cabinets in Multiparty Democracies' (doctoral dissertation, Amsterdam, 1992).

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defeated in a majority vote. In one dimension the party whose support coalition includes the median voter will be the core party. In multiple dimensions a core party will often not exist. Norman Schofield has hypothesized that the dynamics of party locations will be such that parties will seek to locate where they can be a core party, since this should guarantee them membership in any winning coalition.[89] Schofield and his co-authors have also suggested that the existence of a stable core party may enhance cabinet stability by giving the core party a strong bargaining position.[90]

Laver and Schofield identify Finland, Italy and the Netherlands as countries with core parties.[91] However, Warwick notes that the latter two countries have very high rates of governmental turnover,[92] and, in more recent work Warwick finds no support for the claim that countries with core parties will have more durable governments.[93]

A core party is called *stable* if minor changes in the locations of parties do not change its core status. Schofield *et al*. hypothesize that cabinets with a stable core party are more durable than cabinets without a stable core.[94] Because there will always be a stable core party in a two-party system, we can expect that, with cross-national pooled data, this hypothesis would be confirmed, since countries with a majority party *ipso facto* have long-lasting cabinets.

Laver and Shepsle assume that policy outcomes are determined by ministry portfolio allocations, such that assigning a ministry to a particular party creates an outcome that corresponds to the most preferred policy of that party on the policy dimension that corresponds to the responsibilities of that ministry.[95] Results can be thought of as occurring over a multi-dimensional lattice of possible ministry allocations,[96] where a node reflects the preferred position of the parties to which those ministries are assigned. In this model, because only points on the lattice are feasible, there may exist a multidimensional median with an empty win-set among points on the lattice.[97] In the context of this lattice game, Laver and Shepsle have developed the concept of 'strong parties', which has similarities to both the core party concept and the idea of a central party.[98] A party, *S*, is said to be *strong*, according to Laver and Shepsle, if it participates in every cabinet preferred by a majority to the cabinet in which Party *S* takes

[89] See discussion and non-technical review of theorematic results in Norman Schofield, Bernard Grofman and Scott L. Feld, 'The Core and Stability of Group Choice in Spatial Voting Games', *American Political Science Review*, 82 (1988), 196–211.

[90] See, for example, Schofield, Grofman and Feld, 'The Core and Stability of Group Choice'.

[91] Laver and Schofield, *Multiparty Government.*

[92] Warwick, 'Ideological Diversity'.

[93] Warwick, *Government Survival in Parliamentary Democracies.*

[94] Schofield, Grofman and Feld, 'The Core and Stability of Group Choice'.

[95] Michael Laver and Kenneth Shepsle, 'Coalitions and Cabinet Government', *American Political Science Review*, 84 (1990), 873–89; Laver and Shepsle, *Making and Breaking Governments.*

[96] The dimensionality of this lattice equals the number of ministries.

[97] If there are only three parties this must be true.

[98] Laver and Shepsle, 'Coalitions and Cabinet Government'.

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all portfolios.[99] However, even though a strong party has considerable bargaining power, it still may find itself excluded from the cabinet.

One hypothesis arising from the Laver and Shepsle work is that, when the multidimensional median has an empty win-set, *ceteris paribus*, cabinets which locate at the multidimensional median will be likely to be durable. Using a simulation, Laver and Shepsle find indirect support for this claim in terms of the resistance of the location of the empty win-set multidimensional median to random shocks.[100] It appears considerably more stable (in this fashion) than the identity or existence of a strong party when there are exogenous shocks in the forms of (small) changes in party location.

Another theoretical concept related to the core is the 'yolk,' the size of which, for multidimensional issue spaces, can be taken as a measure of how close we are to the existence of a core location.[101] Grofman has hypothesized that large yolks, *ceteris paribus*, imply unstable politics.[102]

(d) Number of issue dimensions. Both the likelihood of the existence of a core party and the expected size of the yolk can be linked to the dimensionality of the issue space. Norman Schofield has shown that the higher the dimensionality of the political system, the smaller the chance that the largest party is a stable core party.[103] Relatedly, Grofman has argued that, *ceteris paribus*, the greater the dimensionality of the system, the larger the expected size of the yolk.[104] Since the existence of core parties and small yolks has been hypothesized to be positively related to cabinet duration, we expect that the higher the dimensionality of the space, the less the expected duration of cabinets.

The number of issue dimensions can also be linked to the (effective) number of parties in the parliament. Here the general finding is that 'the effective number of parties in the assembly [as measured by the Laakso–Taagepera index] tends

[99] This can happen in one of two ways, either because Party *S* is the multidimensional median on the lattice, or because, even though there are some coalitions that are majority preferred to the all-*S* ministry, all such coalitions contain *S*. The former type of party is referred to as *very strong*, the latter as merely *strong*. If a strong party exists, it must be unique (Laver and Shepsle, *Making and Breaking Governments*, chap. 4.

[100] Laver and Shepsle, *Making and Breaking Governments*.

[101] The *yolk* is defined as the smallest hypersphere that intersects all median hyperplanes (John Ferejohn, Richard D. McKelvey and Edward W. Packel, 'Limiting Distributions for Continuous State Markov Models', *Social Choice and Welfare*, 1 (1984), 45–67; Richard D. McKelvey, 'Covering, Dominance, and Institution Free Properties of Social Choice', *American Journal of Political Science*, 30 (1986), 283–315. In two dimensions the yolk is the smallest circle that intersects all median lines (Scott L. Feld, Bernard Grofman and Nicholas Miller, 'Limits of Agenda Control in Spatial Voting Games', *Mathematical and Computer Modelling*, 12 (1989)), 405–16, reprinted in Paul E. Johnson, ed., *Mathematical Modelling in Political Science* (Oxford: Pergamon, 1989). When there is a core, the core is the centre of the yolk and the yolk has radius zero.

[102] Grofman, 'The Comparative Analysis of Coalition Formation and Duration'.

[103] See, for example, review of earlier results in Schofield, Grofman and Feld, 'The Core and Stability of Group Choice'.

[104] Grofman, 'The Comparative Analysis of Coalition Formation and Duration'.

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to equal the number of issue dimensions plus one'.[105] Since a large number of parties is associated with cabinet instability, the relationship between dimensionality and effective number of parties again leads us to hypothesize that multiple dimensions of party conflict will be linked to cabinet instability.

The effect of issue dimension on cabinet duration has been examined by Lijphart,[106] Taagepera and Grofman,[107] and Taagepera and Shugart[108] among others. They find (for pooled data) a relationship in the predicted direction.

(3) Institutional Features of the Political Process

(a) Ability of the party in power to call an election whenever it chooses. In most European countries the prime minister may either directly choose to dissolve the government and call new elections or request such an action from the titular head of state, who is unlikely to refuse the request.[109] For example, in Denmark, Ireland, Canada, Japan and the United Kingdom, governments may call early elections. In Italy and France (the Fifth Republic), the head of state has the discretion to call elections. Finally, in countries like Belgium, the Netherlands, the former Federal Republic of Germany, and Sweden, early elections are only caused by the parliament recording a vote of no-confidence. In most countries in Europe cabinets have a maximum term of service, usually of four or five years.

Balke shows that nations where the governments can call elections at their own discretion appear to have more frequent elections (and thus almost certainly shorter-lived cabinets) than do countries in which early elections must be preceded by a vote of no-confidence.[110] Also, it would appear to be common sense that, the longer the time till mandatory elections, the longer, on average, cabinets can be expected to serve,[111] but the limited variance in this variable does not permit a test of this hypothesis.

[105] Rein Taagepera and Matthew A. Shugart, *Seats and Votes: The Effects and Determinants of Electoral Systems* (New Haven, Conn.: Yale University Press 1989), p. 94.

[106] Lijphart, 'A Note on the Meaning of Cabinet Durability'; Lijphart, 'Measures of Cabinet Durability'.

[107] Rein Taagepera and Bernard Grofman, 'Rethinking Duverger's Law: Predicting the Effective Number of Parties in Plurality and PR Systems – Parties Minus Issues Equals One', *European Journal of Political Research*, 13 (1985), 341–52.

[108] Taagepera and Shugart, *Seats and Votes: The Effects and Determinants of Electoral Systems* (New Haven, Conn.: Yale University Press, 1989).

[109] Laver and Schofield, *Multiparty Government*, p. 64.

[110] Nathan S. Balke, 'The Timing of Parliamentary Elections' (unpublished manuscript, Southern Methodist University, 1988); see also Laver and Shepsle, *Making and Breaking Governments*, chap. 10; Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections', and the extensive comparative review of institutional rules affecting the formation of new cabinets in Strom, Budge and Laver, 'Constraints on Cabinet Formation in Parliamentary Democracies'.

[111] However, as King *et al*., 'A Unified Model of Cabinet Dissolution', note, the maximum time that a government may serve may have different effects in different countries. In countries where

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(b) Time until next mandatory election. While most of the events literature treats the time until the next mandatory election as an essentially technical question that affects the reliability of the estimates of hazard rates if the model fails to use the statistically appropriate 'censoring' techniques,[112] several authors have treated the time remaining till the next election as a component of a rational choice model of when cabinet termination may be utility maximizing for members of the current government.[113] For example, unlike the original event approach, in which the time remaining to mandatory dissolution was assumed not to affect the probability of cabinet termination, Lupia and Strom in an earlier version of their 1995 paper[114] posited that cabinet termination becomes more likely as the sands of time run down towards the certainty of a new election. They reason that the advantage of maintaining the status quo begins to unravel, i.e., they posit what is called a rising 'hazard function'.[115] A similar model has been independently proposed by Diermeier and Stevenson.[116]

Diermeier and Stevenson suggest that it is useful to seek to theoretically predict which factors will be time-invariant factors and which will not. In the statistical framework of the hazard model, time-invariant factors may be thought of as giving rise to a set of different cabinet 'types', each with a constant but different hazard rate. Arguably, most of the usual variables in the cabinet duration literature fall into this category. However, some factors might be expected to vary in their impact over time.[117] For example, we might imagine that minority governments would initially be at great risk of failure but would become more 'secure' over time.[118] In principle, the nature of the time invariance might be explicable from a rational choice perspective related to the

(F'note continued)
cabinet duration is close to the maximum permitted (such as the United Kingdom), eliminating the requirement for mandatory new elections might dramatically increase mean cabinet durations, while in a country like Italy where mean duration is only a fraction of what might be legally possible, removing a time deadline to mandatory elections would be expected to have little effect on mean cabinet duration.

[112] See, for example, the criticism in King *et al*., 'A Unified Model of Cabinet Dissolution', of the estimation techniques in Eric C. Browne, John P. Frendreis and Dennis W. Gleiber, 'An "Events" Approach to the Problem of Cabinet Stability', *Comparative Political Studies*, 17 (1984), 167–97.

[113] See esp. Balke, 'The Timing of Parliamentary Elections'; Warwick, 'Rising Hazards'; Warwick and Easton, 'The Cabinet Stability Controversy'; Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections'; Diermeier and Stevenson, 'A Competing Risk Analysis'; Van Roozendaal, 'Credible Exit Threats'; cf. Warwick, 'Ideological Diversity'.

[114] Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections'.

[115] In the game theoretic terminology we begin to experience last-period effects. Note that what they are talking about are effects different from those that statistical censoring techniques are intended to compensate for.

[116] Diermeier and Stevenson, 'A Competing Risk Analysis' (see also Balke, 'The Timing of Parliamentary Elections'; Warwick, 'Rising Hazards').

[117] The King *et al*., 'Unified Model of Cabinet Dissolution' framework permits the incorporation of both time-dependent and time-invariant factors.

[118] Cf. Strom, 'Contending Models of Cabinet Stability'.

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nature of the bargaining process when cabinet crises occur.[119] Relatedly, Browne, Frendreis and Gleiber have suggested a 'honeymoon' effect such that 'in their beginning phase, cabinets, by virtue of cultural or political norms, may experience less opposition and more solidarity in the face of crises than they do later in their tenure.'[120]

At present there is controversy as to whether observed hazard rates in European cabinets since the Second World War are rising, falling or constant. King *et al.*[121] and Alt and King[122] argue that hazard rates are indeed constant when adequate controls are introduced; Warwick[123] and Warwick and Easton[124] find support for rising hazard rates in some countries. Grofman and Van Roozendaal,[125] who look only at data for the three Benelux nations in country-specific terms, excluding data on caretaker governments, find support for constant hazard rates in one country, support for negative rates in one country, and support for positive rates in the third.[126] This empirical controversy raises statistical issues beyond the scope of this review.[127]

(c) Rules for cabinet formation. Countries differ considerably in the rules by which the cabinet formation process is organized. Until quite recently, this

[119] Van Roozendaal, 'Credible Exit Threats', makes the point that we must start paying more attention to the actual negotiation process that develops at the moment a cabinet is confronted by a potentially government-toppling crisis.

[120] Browne, Frendreis and Gleiber, 'The Process of Cabinet Dissolution'.

[121] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[122] Alt and King, 'Transfers of Governmental Power', seek to rebut Warwick and Easton, 'The Cabinet Stability Controversy'.

[123] Warwick, 'Ideological Diversity'; Warwick, 'Rising Hazards'; Warwick, *Government Survival in Parliamentary Democracies*.

[124] Warwick and Easton, 'The Cabinet Stability Controversy'.

[125] Grofman and Van Roozendaal, 'Exit Models, Hazard Rates and Government Duration'.

[126] Browne, Frendreis and Gleiber, 'The Process of Cabinet Dissolution', find that Belgium, Finland, Israel and Italy fit the random events models almost perfectly, while the fit is less good for Austria, Denmark, West Germany, Iceland, The Netherlands, Norway and Sweden. Interestingly, Browne, Frendreis and Gleiber, 'The Process of Cabinet Dissolution', find a negative correlation (-0.42) in their pooled cross-national data set between the goodness of fit of the structural attributes model and the goodness of fit of the random events model. King *et al*., 'A Unified Model of Cabinet Dissolution', observe that it is, 'no accident that the only cabinet systems in which Browne, Frendreis and Gleiber, "The Process of Cabinet Dissolution" were able to fit their original model were Belgium, Finland, Israel and Italy. These are systems with short-lived governments; these are also systems with complex party systems and hence complex bargaining environments. Cabinets in such systems appear to be especially sensitive to the impact of random events.'

[127] 'There are statistical difficulties in determining whether or not the "hazard rate" (i.e., the probability of dissolution) is indeed rising, falling, or constant because "negative duration dependency may be a statistical artifact of pooling data characterized by different rates of termination." Consider two systems, one highly unstable, the other more stable, that are combined in a sample. At low duration values the hazard estimates for the sample will reflect both the high rate of termination of the unstable system and the lower rate of the stable system. As duration values decrease, this overall hazard rate will appear to decline simply because the proportion of cases from the unstable system will have decreased (due to its higher rate of termination). The declining hazard,

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institutional reality was hardly ever recognized in the theoretical literature on cabinet formation.[128] In countries like Italy or Iceland, the president will appoint a prime-minister designate to lead the bargaining process. The prime-minister designate is the 'formateur'. In Italy the formateur will always be the leader of the largest party; in Iceland this is often but not necessarily always the case. In countries like Belgium and the Netherlands, the appointment of a formateur is often preceded by that of an 'informateur', whose task is not to form a coalition, but to explore the bargaining possibilities and come up with viable coalition possibilities. Belgium also has an institutional constraint that pertains to the division of French-speaking cabinet members and Dutch-speaking cabinet members. In Norway and Sweden, elections need not be succeeded by a real cabinet formation period. The incumbent cabinet may decide to continue after the election if it has not lost its majority status (including the weight of support parties) in parliament.

Relatively little theoretical work has been done linking variation in the nature of the institutional rules of cabinet formation to expected cabinet duration or to the likelihood of cabinet crisis other than in terms of the ability of the prime minister to call new elections. Kaare Strom has been a pioneer in this regard, positing that a legal investiture requirement (found in six European countries) should diminish average duration by causing some governments to fail quickly.[129] King *et al*. find the expected negative sign on this dummy variable.[130] Another hypothesis that suggests itself is that countries where the process of cabinet formation is relatively determinate in that, say, the largest party will get a first chance to form the cabinet, should have lower cabinet durations, *ceteris paribus*, than those where cabinet formation is more uncertain.[131] More particularly, a party that expects to have another chance to put together a cabinet presumably has less to lose from dissolution than does one that may be largely shut out of the process that results after a cabinet breakdown.

(d) A caretaker government: first versus subsequent cabinets. Strom includes in his analyses of cabinet duration a variable that measures the proportion of

(F'note continued)

in other words, is generated by the changing relative proportions of cases from the two systems that results from their different rates of termination, not by any inherent tendency toward "momentum" within either system' (Warwick, 'Ideological Diversity'). While this problem can, in principle, be coped with by introducing the appropriate statistical controls (structural factors), if the model is not perfectly specified (or if there are effects of pooling data cross-nationally), we may still get misleading conclusions about the sign of the hazard function (Diermeier and Stevenson, 'A Competing Risk Analysis').

[128] For work which does look at institutional factors, see e.g., Strom, Budge and Laver, 'Constraints on Cabinet Formation in Parliamentary Democracies'; Van Roozendaal, 'The Effect of Dominant and Central Parties on Cabinet Composition and Durability'; Grofman, Noviello and Straffin, 'The Sequential Dynamics of Cabinet Formation'.

[129] Strom, 'Contending Models of Cabinet Stability'.

[130] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[131] Here we are suggesting that an uncertain bargaining environment may actually increase stability if parties are risk averse.

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cabinets that are post-election cabinets.[132] King *et al*. criticize that variable as being contaminated in that it contains information about the duration of governments.[133] They use a dummy variable for whether or not a cabinet is formed immediately after an election. Even when other control variables are used, they find that post-election cabinets are more durable than other cabinets; they also find that a statistically significant negative effect on their dummy variable for caretaker governments.[134] Grofman and Van Roozendaal, in examining cabinet duration in the three Benelux countries, observe that the 'hazard' rates for first (i.e., post-election) cabinets appear to be different from those of second and later cabinets, and that caretaker governments are relatively short-lived even when we control for the length of time remaining until a mandatory new election.[135]

(e) Aspects of legislative organization. Strom hypothesizes that autonomous and specialized committees would make it easier for minority governments to form and this should lower duration, since minority governments can be expected to be susceptible to withdrawal of support.[136] King *et al*. find the expected influence of this variable, and the effect is statistically significant.[137]

(4) Factors or Events External to the Legislature that may Trigger Crises

One set of variables of particular interest to events theorists are factors that could not be anticipated *ex ante* that might serve as triggers for cabinet crises. Robertson assessed the impact of economic factors, such as inflation and unemployment, on cabinet durability.[138] Important related work has been done by Warwick.[139] He finds that the level of inflation and the change in unemployment rate have a significant impact on the fall of cabinets.

(5) Factors Specifically Tied to Anticipated Outcomes of Cabinet Dissolution

Grofman and Van Roozendaal have argued that if we want to understand cabinet durability, we have to start paying attention to the termination process of

[132] Kaare Strom, 'Party Goals and Government Performance in Parliamentary Democracies', *American Political Science Review*, 79 (1985), 738–54.

[133] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[134] King *et al*., 'A Unified Model of Cabinet Dissolution', Table 2. Some studies of cabinet duration exclude caretaker governments.

[135] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'.

[136] Kaare Strom, 'Minority Governments in Parliamentary Democracies: The Rationality of Nonwinning Cabinet Solutions', *Comparative Political Studies*, 17 (1984), 119–227; Strom, 'Party Goals and Government Performance in Parliamentary Democracies'.

[137] King *et al*., 'A Unified Model of Cabinet Dissolution', Table 2. They refer to this variable as 'opposition influence', a label that is a poor mnemonic for its operationalization.

[138] John D. Robertson, 'The Political Economy and the Durability of European Coalition Cabinets: New Variations on a Game Theoretic Perspective', *Journal of Politics*, 45 (1983), 932–57.

[139] Warwick, 'Economic Trends and Government Survival'; Warwick, 'Rising Hazards'.

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cabinets in terms of the volitional choices of cabinet members.[140] Drawing on King *et al*.[141] and Warwick,[142] they accept the notion that cabinet dissolution has both a patterned and a stochastic aspect. They argue that, if there is a link between particular types of events and the fall of cabinets then we need a theory that accounts for that link in terms of the motivations of the actors who are responsible for making a cabinet fall. Why do some cabinets that are faced with a certain event dissolve, while other cabinets do not? They propose that cabinet termination has to be understood as the result of rational choices made by the political actors that interact with one another in the parliamentary arena or cabinet arena. Thus, following Balke,[143] and analogous in many respects to the claims made for game theoretic equilibrium concepts in understanding cabinet formation, they argue the centrality of the calculations made by rational actors in considering what the alternatives are to a continuation of the status quo and who has an incentive to prefer which of those alternatives.

In a preliminary test of their ideas using data from coalitions in the Netherlands since the Second World War, they look at whether parties who take the lead in dissolving the cabinet do better after the next election, or whether such parties gain in cabinet portfolio terms if there is a cabinet reshuffle rather than a new election. While there is some limited support for their hypotheses about the destabilizing effects of anticipated gains, the limited data set makes it impossible to include adequate control variables and renders their results only suggestive.[144]

Lupia and Strom offer the most comprehensive expectational model of cabinet dissolution currently in the literature, albeit their formal model is limited to three parties.[145] They propose that after a potentially critical event, parties in the government evaluate their expected seat shares under new elections, their relative power within the governing coalition versus alternative coalitions in which they might be a part, taking into account their preference for coalition partners. They also introduce both election-related and negotiation-related transactions costs for toppling a cabinet. With various simplifications to make the problem tractable they establish necessary and sufficient conditions for members of the government to want to opt out.

A very similar argument for thinking about cabinet termination in

[140] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'.

[141] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[142] Warwick, 'Ideological Diversity'; Warwick, 'Economic Trends and Government Survival'; Warwick, 'Rising Hazards', Warwick and Easton, 'The Cabinet Stability Controversy'.

[143] Balke, 'The Timing of Parliamentary Elections'.

[144] Relatedly, Warwick, 'Ideological Diversity', has made use of a concept he calls 'returnability', defined as the proportion of government parties who enter the next government. However, this is treated as a system-level control variable, rather than used for *ex-post* prediction. In most of the models in Warwick, *Government Survival in Parliamentary Democracies*, returnability is statistically significant.

[145] Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections'.

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choice-theoretic terms is found in Diermeier and Stevenson.[146] They focus on choices in terms of maximizing expected time as a member of a governing coalition. This requires a party that is a member of a governing coalition to balance the potential longevity of the present coalition against gains from an early election.

At this point, the most important empirical evidence in favour of making the rational calculations of political actors central to our theories of cabinet duration is found in a few illustrative case studies; for example, Strom's discussion of one particular cabinet termination in Norway,[147] Balke's comments on the timing of British elections,[148] Laver and Shepsle's discussion of a Fianna Fáil prime minister's incentives to bring down his government at an opportune moment when it was doing well in the polls,[149] Mershon's discussion of cabinet terminations in Italy,[150] and Narud's attempts to draw insights from three cabinet terminations in Norway (Borten II in 1971, Willich III in 1986 and Syse in 1990).[151] If further empirical progress is to be made we believe it is especially important to seek to operationalize time-dependent *ex post* observable variables of the sort discussed in Grofman and Van Roozendaal[152] and Lupia and Strom.[153]

DISCUSSION

The literature on cabinet duration has made tremendous strides in identifying key variables and in terms of the synthesis of probabilistic and structural elements offered in the recent statistical modelling by Gary King and associates, Paul Warwick and associates, and Diermeier and Stevenson.[154] While there remain technical disputes in the cabinet duration literature written after King *et al*.'s seminal contribution,[155] for example, as to censoring regime and as to the appropriate functional form for hazard rates, in our view the real issues concerning cabinet termination do not hinge on these relatively esoteric

[146] Diermeier and Stevenson, 'A Competing Risk Analysis'.

[147] Kaare Strom, 'The Presthus Debacle – Intraparty Politics and Bargaining Failure in Norway', *American Political Science Review*, 88 (1994), 112–27.

[148] Balke, 'The Timing of Parliamentary Elections'.

[149] Laver and Shepsle, *Making and Breaking Governments*, chap. 10.

[150] Mershon, 'Expectations and Informal Rules in Coalition Formation'.

[151] Hanne Marthe Narud, 'Coalition Termination in Norway: Models and Cases,' *Scandinavian Political Studies*, 18 (1995), 1–29; 'Issue Saliency and Policy Coalition Bargaining', *West European Politics*, 18 (1995), 361–88.

[152] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'.

[153] Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections'.

[154] Diermeier and Stevenson, 'A Competing Risk Analysis', extend the King *et al*., 'A Unified Model of Cabinet Dissolution' 'unified' model to permit 'competing risks,' i.e., situations where termination due to one process forestalls the observability of termination due to another process (a cabinet can fall only once).

[155] King *et al*., 'A Unified Model of Cabinet Dissolution'.

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methodological disputes. Most subsequent empirical work accepts the basic framework of the King *et al*. unified model, or at least the integration to reconciliation of an events approach and a structural approach.

Because we have presented our review of the cabinet duration and termination literature in terms of lists of variables rather than in terms of competing general theories, there has been a kind of casual eclecticism in our approach that may have painted a misleading picture of the degree to which the literature in this area is concerned with theory-building. Although we do think that there has been too much emphasis on explained variance (or, in the case of events-history models, standard errors) and not quite enough concern for testing competing mechanisms,[156] we believe that, by any standard, there have been dramatic advances in our understanding of the dynamics of cabinet termination, even though there is still a long way to go. In particular there are some quite interesting theories and proto-theories in the cabinet duration and termination literature. Paralleling our earlier five-part listing of variables we will identify five such theories.

The first is the theory of bargaining environment complexity advanced by Laver and Schofield[157] that has also inspired work such as that by Alt and King.[158] Virtually all of the variables used to test this theory are Category 1 variables in the listing above. Several of the variables that this theory leads us to expect ought to be important turn out to be of high statistical significance in reduced form models such as those of King *et al*.[159] Except for findings about the link between duration and majority governments and minimal winning coalitions, in explained variance terms, this is arguably the most powerful single theory we now have of cabinet durability. However, there are simply a lot of rather different variables that have been used in support of the theory; missing is a clear statement of the mechanisms that are posited to operate. Moreover, some of the variables can also be used to support alternative theories.

A second important theory is the theory of ideological diversity and polarization, most clearly articulated by Warwick,[160] who is able to distinguish a variety of ways to operationalize diversity. This theory makes use of variables

[156] Knowing that some variables have been demonstrated to have explanatory power may be less theoretically informative than we might like because the empirical findings are compatible with more than one theory. For example, it is generally accepted that the size of anti-system parties is negatively correlated with cabinet duration, yet is this because the presence of anti-system parties shrinks the space of possible alternatives, or because the presence of anti-system parties signals a low-trust environment in which it is hard for bargains to be made to stick, or because the presence of anti-system parties signals an environment in which triggering factors for cabinet crises are prevalent, or what? Warwick, 'Ideological Diversity', looks at possible explanations for the observed link between polarization and cabinet instability. He suggests that polarization is linked to ideological diversity, by forcing all (or at least most of) the entire ideological spectrum spanned by the non-extreme parties to coalesce in order to form a majority coalition.

[157] Laver and Schofield, *Multiparty Government.*

[158] Alt and King, 'Transfers of Governmental Power'.

[159] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[160] See esp. Warwick, 'Economic Trends and Government Survival,' chap. 4.

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drawn from Category 2 above. When Warwick introduces ideological diversity variables he finds that the strength of variables associated with bargaining environment complexity are reduced and the ideological diversity and polarization variables remain significant.[161] Of course, with the exception of polarization, it might be argued that many of the measures of ideological diversity might also be treated as indices of the complexity of the bargaining environment.

A third theory, especially useful in developing hypotheses about cross-national differences in cabinet durability, is based on the existence of institutional mechanisms that make it easier or harder to topple governments, such as investiture rules or the discretionary authority of a prime minister to call new elections. This line of theoretical development is perhaps most closely associated with the work of Kaare Strom. The variables used in it come from the third category of variables in the section above.

A fourth line of theoretical argument that we regard as important comes from attempts to identify critical changes in the external environment that might trigger a rethinking of the desirability of present coalitional alignments. Here, while Warwick's work on changes in economic indicators is obviously an important source of ideas,[162] we will instead call attention to the very recent and as yet little known work of Marthe Narud, in which she argues that 'political parties change from a cooperative to a competitive strategy when issues belonging to the "heartland" of the parties concerned become salient'.[163] The simulation modelling in Grofman, Straffin and Noviello[164] and in Laver and Shepsle[165] begin with some coalition (or a coalition of some given theoretically anticipated type) and then tries to determine how resistant that coalition (coalition type) will be to changes in the initial parameters in party locations, with the view that instability to perturbation is a sign of susceptibility to exogenous shocks. Narud's work suggests attention to sensitivity to a different type of perturbation, in the relative salience of issue dimensions, that may also prove useful as an indicator of durability.

Lastly, we view the modelling work by Lupia and Strom,[166] and related empirical and conceptual work of our own[167] and that by others,[168] on the explicit calculus used by coalition members to evaluate alternative coalitions to be a very

[161] Warwick, *Government Survival in Parliamentary Democracies*.

[162] Warwick, 'Economic Trends and Government Survival'; Warwick, *Government Survival in Parliamentary Democracies*, chap. 5.

[163] Narud, 'Coalition Termination in Norway'.

[164] Grofman, Noviello and Straffin, 'The Sequential Dynamics'.

[165] Laver and Shepsle, *Making and Breaking Governments*, chap. 10.

[166] Lupia and Strom, 'Coalition Termination and the Strategic Timing of Parliamentary Elections'.

[167] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'.

[168] For example, Balke, 'The Timing of Parliamentary Elections'; Mershon, 'Expectations and Informal Rules in Coalition Formation'; Laver and Shepsle, *Making and Breaking Governments*, chap. 10.

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important theoretical complement to models of the first three types that rely on time-independent covariates, or that identify time-dependent covariates that prove of statistical significance but without a specification of how these variables impact on cost–benefit calculations that may affect termination choices.

In line with the discussion immediately above and in the previous sections, we would argue that there are three key elements that need further development if we are to have a genuine theory of cabinet durability in which premature termination is linked to the rational acts of the actors involved: (1) a greater concern for causal mechanisms, not just explained variance, (2) an integration of the three components of the coalition theory literature – formation, payoffs, and duration – and (3) the need to better distinguish between within-country and among-country effects.

Concern For Mechanism

We have partially addressed a concern for mechanism in our discussion of the theories that justify expectations about why particular variables should be positively or negatively linked to cabinet duration and cabinet termination decisions, and in our distinction between proximate and distal causal mechanisms.

If we are to develop causal theory we also need to know when and when not to exclude cases. For example, Grofman and Van Roozendaal argue for excluding caretaker governments on the grounds that we should not expect them to have the same determinants of durability as other cabinets.[169] Diermeier and Stevenson argue that some factors will be more important for some types of cabinet dissolutions than for others,[170] for example, they hypothesize that whether or not a cabinet is a post-election government will be a particularly important factor for 'voluntary terminations', while other factors that directly

[169] Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination'; 'Exit Models, Hazard Rates and Government Duration'.

[170] Diermeier and Stevenson, 'A Competing Risk Analysis', offers a typology of causes of cabinet termination similar to that in von Beyme, *Political Parties in Western Democracies*. They distinguish four types of cabinet dissolutions: voluntary, forced internal, forced external, and technical, and seek to classify the 325 cases found in the Warwick and Easton, 'The Cabinet Stability Controversy' data-set (modified slightly from one originally collected by Strom, 'Contending Models of Cabinet Stability') in terms of these four categories. Of the situations they are able to classify, they find 32 technical terminations (failures due to constitutional customs, rules and conventions, addition of coalition members with or without formal resignations, and 'non-political' resignations or electoral termination of caretaker governments); 95 voluntary resignations (ones occurring without any indication of political problems or pressures or proximity to constitutionally mandated termination times); 169 forced internal resignations (failures due to internal political difficulties, resignation of the prime minister, or actual or threatened parliamentary defeat or loss of parliamentary majority); and 29 forced external resignations (due to death or illness of the prime minister, or factors such as scandal, foreign intervention or referendum loss).

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shape the bargaining environment such as fractionalization, polarization and majority status will be more important in the case of 'forced internal' terminations.[171] Their empirical results confirm these expectations. While they find the seven key factors identified by King *et al*. (number of formation attempts, post-elections cabinets, majority status, caretaker status, legislative fractionalization, polarization and investiture rules) each to be statistically significant for forced internal terminations, they find only polarization and post-election cabinets are significant variables when working with the set of ninety-five voluntary cabinet terminations.[172]

It is also useful to think about mechanisms relevant to cabinet duration and termination in process terms. Raub and Weesie have proposed that the players in games with Prisoner's Dilemma-like incentive structures can develop a 'governance structure' that enhances durable co-operation, and thus, decreases the likelihood of premature termination.[173] Parties in coalition government will have incentives to be co-operative, i.e. jointly to produce government policies, but at the same time they might have even greater incentives to defect from the present coalition and emphasize their independent policy standpoints, as this will be important for voter recognition and re-election. The 'governance' structure of a government can be thought of as a collection of management mechanisms, such as (1) efficient partner selection, (2) making credible commitments, and (3) using credible threats. So far, only one study has been undertaken in this framework. Van Roozendaal[174] has argued that credible exit threats[175] may induce conditional co-operative behaviour in governments, and demonstrated in empirical analyses, along the lines set out by King *et al*. and Warwick, that the presence of dominant players in governments indeed enhances their duration.

In general, we might need to move beyond the usual sorts of aggregate data analyses to a more detailed and case-specific analysis to resolve questions about mechanism.[176]

[171] Diermeier and Stevenson, 'A Competing Risk Analysis'.

[172] Browne, Frendreis and Gleiber, 'The Process of Cabinet Dissolution', criticize Warwick's 1979 approach for limiting his dataset by excluding certain types of termination which, for theoretical reasons, were *a priori* thought unlikely to be explainable by degree of cabinet ideological diversity. They show that, when his variable is used with the full dataset, its explanatory power is diminished. But, in our view, if we can derive sound theoretical reasons for modelling different types of termination processes differently, then this seems to be desirable rather than undesirable.

[173] Werner Raub and Jeroen Weesie, 'The Management of Matches' (Institute for Study of Cooperative Relations, Department of Sociology, Utrecht University, 1992).

[174] Van Roozendaal, 'Credible Exit Threats'.

[175] See Albert O. Hirschman, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organization, and States* (Cambridge, Mass.: Harvard University Press, 1970); Van Roozendaal, 'Credible Exit Threats', operationalizes the presence of credible exit threats in government using Peleg's ' Coalition Formation in Simple Games' concept of player dominance.

[176] However, we would also note that which specific causal mechanism is posited to account for a given variable's link to cabinet stability may have implications for whether or not that variable will drop out when certain other variables are entered into an aggregate level multivariate model. For

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An Integration of the Three Components of the Coalition Theory Literature – Formation, Payoffs, and Duration

In the literature on coalition theory in comparative politics we can distinguish three central questions about multi-party cabinets. The first asks about the determinants of cabinet formation; the second about the payoffs to members of the winning coalition members (including policy outcomes and cabinet portfolio assignments); and the third deals with the cabinet duration. Although similar variables are often used for explanatory purposes in dealing with each of these three central questions of the cabinet coalition literature, usually each question is considered in isolation.[177] However, recent work by Michael Laver and Kenneth Shepsle[178] offers a fully integrated perspective on the first two questions, as well as a link between composition and portfolio allocations, on the one hand, and durability, on the other.[179] Other recent work that deals with at last two of the three domains has been done by David Austen-Smith and Jeffrey Banks, David Baron, and Norman Schofield.[180]

We believe it useful to take explicit note of the fact that often the same variables appear in both the literature on cabinet formation and in the literature on cabinet durability. Frendreis, Gleiber and Browne make the point that

> coalitions which are likely to form approach an equilibrium point defined by theoretically identifiable attributes of the coalition situation (as do particular payoff distributions). The fact that a particular governing coalition is close to such an equilibrium point should be linked not only to its probability of forming, but also to its probability of surviving subsequent events.[181]

(F'note continued)
example, in positing that the effects of polarization are tied to its effect on the ideological diversity of cabinets, Warwick, 'Ideological Diversity', is led to hypothesize that polarization should drop out of a model of cabinet duration in which good measures of cabinet ideological diversity are included. He finds (Table 4) that this expectation is partly confirmed in that, while polarization remains statistically significant, its effects coefficient is cut in half.

[177] For example, Browne and Franklin, 'Aspects of Coalition Payoffs', and Browne and Frendreis, 'Allocating Coalition Payoffs by Conventional Norm', are empirical investigations of the distribution of coalitional payoffs defined in terms of portfolio assignments.

[178] Laver and Shepsle, 'Coalitions and Cabinet Government'; Michael Laver and Kenneth Shepsle, *Cabinet Ministers and Parliamentary Government* (New York: Cambridge University Press, 1994); Laver and Shepsle, *Making and Breaking Governments*.

[179] Although the title of Laver and Shepsle, *Making and Breaking Governments*, suggests that cabinet termination is a central concern, in the draft we reviewed only Chapter 10 is about cabinet termination. There they specify a model to predict which coalitions should form (and with what portfolio assignments) and then look at the stability of those coalitions when stochastic shocks in the locations of the parties occur.

[180] See Austen-Smith and Banks, 'Elections, Coalitions, and Legislative Outcomes'; Austen-Smith and Banks, 'Stable Governments'; David Baron, 'A Spatial Bargaining Model of Government Formation in Parliamentary Systems', *American Political Science Review*, 85 (1991), 137–65: Norman Schofield, 'Political Competition and Multiparty Coalition Governments', *European Journal for Political Research*, 23 (1993), 1–33.

[181] See Frendreis, Gleiber and Browne, 'The Study of Cabinet Dissolutions'. However, on p. 620 they also argue that while structural factors 'may contribute substantially to some coalition processes

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Indeed, many of the hypotheses we discussed in the previous section can be characterized as taking the absence of a predicted type of coalition (such as a non-minimal winning coalition, or a coalition that excludes the core party) as giving rise to an expectation that the coalition will not be especially durable.[182]

The argument about mutual feedback between variable choice in the three different domains applies in reverse. In an analysis of cabinet duration in four countries (Denmark, Ireland, Italy, and Norway), Druckman demonstrates that some variables that have been used largely if not exclusively in the cabinet duration literature may also have explanatory power with respect to cabinet formation.[183] Relatedly, in their study of the duration of cabinet formation processes in multi-party democracies, Diermeier and Van Roozendaal[184] show that a number of variables used in the study of cabinet duration exert an influence on the length of cabinet formation, but the nature of the effects was such as to suggest that cabinet duration and the length of time it takes to form a cabinet are governed by different underlying stochastic processes.

Also, in future work it may be useful to think in terms of a simultaneous equation approach in that some variables may have both direct and indirecteffects.[185] For example, a fragmented party system both makes it unlikely that single-party majority coalitions could exist, and creates a large number of alternative coalitional structures that may make it more tempting for parties to seek to dissolve their existing coalitions in search of greener pastures.

(F'note continued)
(i.e., formation and payoff allocation), they should not be expected to contribute as strongly to the process of maintaining coalitions over time'.

[182] In like manner, when new coalition formation concepts are proposed, such as Norman Schofield's concept of the 'heart' (Norman Schofield, 'Coalition Politics: A Formal and Empirical Analysis' (Working Paper, Center in Political Economy, Washington University, St Louis School of Business, 1994); Norman Schofield, 'The Heart of a Polity', in N. Schofield, ed., *Social Choice and Political Economy* (Boston, Mass.: Kluwer Nijhoff, 1995)), then we might relate them to the duration literature in the obvious way by hypothesizing that coalitions that form that do not lie in the heart will be less stable.

[183] Druckman, 'Coalition Politics', pp. 65–7.

[184] Diermeier and Van Roozendaal, 'Government Formation Processes in Multiparty Democracies'.

[185] For example, while the black population in the United States has only a limited impact on the voting patterns of representatives once we control for party (the effect being found primarily in black majority districts in the South), in the South, the proportion of the population that is black has a strong impact on which party is likely to represent any given district. Thus, the black population has both a direct and an indirect effect on the voting behaviour of the district representative, and we misjudge its importance if we look at only direct effects (Bernard Grofman, Robert Griffin and Amihai Glazer, 'Effects of Black Population on Electing Democrats and Liberals to the House of Representatives', *Legislative Studies Quarterly*, 17 (1992), 365–79).

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Distinguishing Within-Country and Among-Country Effects

King *et al*. make the point that country-specific dummy variables are not statistically significant when entered into their final seven variable model,[186] and note that instead of 'dealing with variations between countries in an entirely atheoretical way', they do so 'on the basis of theoretically relevant substantive variables'.[187] Yet, just as Grofman[188] has shown minimal winning status to be a useful predictor of duration cross-nationally but not within-nation, so too would we expect that many of the other standard repertoire of variables that have been used to account for cabinet durability work better in accounting for cross-national variation, in so far as they represent general characteristics of a party system that would structure the decision problem or cost–benefit calculations facing parties that were members of a cabinet, than they would work in accounting for within-country variations in cabinet length.[189]

Interactions between the political actors, and the choices the actors make to deal with problematic issues once they occur, lead either to the termination ofa cabinet, or to a successful coping strategy with regard to the problems. An explanation of cabinet termination therefore has to start at the level of the individual actors who are playing the cabinet game. However, some of the calculations made by those actors will be affected by the institutional, party and policy context in which they find themselves. Thus, from a rational choice perspective, most of the structural variables identified in the first three of the five variable sets set out in the second section above should be most useful in accounting for the average length of cabinets across different countries; while time-dependent variables of the sort contained in the last two variable sets might be most useful in accounting for variations in cabinet length or likelihood of a cabinet crisis within a given country.

In sum, the long debate between advocates of a random events approach and a structural approach and the ongoing debate over the merits of the bargaining

[186] King *et al*., 'A Unified Model of Cabinet Dissolution', p. 865.

[187] King *et al*., 'A Unified Model of Cabinet Dissolution'.

[188] Grofman, 'The Comparative Analysis of Coalition Formation and Duration'. See discussion of this article in the first section of this review article.

[189] For example, Grofman and Van Roozendaal, 'Toward a Theoretical Explanation of Premature Cabinet Termination', hypothesize that the greater the number of feasible alternative coalitions, the less durable, on average, will be the present coalition. If we further assume that the effective number of parties is monotonically related to the number of feasible coalitions and thus may be used as a proxy for that variable, then we would be led to expect that number of parties is inverse to cabinet durability. However, because this proxy is not very exact, we would expect it to work better, on average, than in any specific case. That is, we would expect that there might well be a strong link between effective number of parties and cabinet durability at the aggregate level when we use cross-national pooled data, even though we might not expect there to be a very strong link between effective number of parties and cabinet durability if we confine ourselves to data from a single country, where there is limited variability in this variable and where its effects may be swamped by other factors, given the error variance in its relationship to the underlying factor 'number of feasible coalitions'.

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complexity model and various alternatives such as the ideological diversity perspective, as well as the incorporation of new types of explanatory variables including both time-dependent and time-independent variables, and recent concern for the cost–benefit calculations of rational coalition actors, show a literature on cabinet duration and termination of remarkable dynamism and growing theoretical sophistication.

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