

MODELS OF GOVERNMENT FORMATION

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ABSTRACT

This review deals with the making and breaking of governments in “minority legislatures” in which no political party controls a majority of seats. It looks at both a priori and empirical approaches to analyzing government formation, at the application of both cooperative and noncooperative game-theoretic models, and at the impact of both office-seeking and policy-seeking assumptions about the motivations of politicians. Substantive themes covered include the partisan composition of both minority and majority cabinets, the allocation of cabinet portfolios between parties, and the duration of cabinets in minority legislatures. The way forward in this field is identified in terms of the need for more dynamic models that see government formation as a complex system within the broader context of party competition as a whole, and for models that take fundamental account of intraparty politics in their description of the strategic behavior of political parties.

INTRODUCTION

The making and breaking of governments is one of the most basic of all political processes. Political competition is typically structured as a choice between governments, and it is thus hardly surprising that government formation is of perennial fascination to political scientists. This review concentrates on government formation in political systems in which the executive is responsible to the legislature. In particular it concentrates on the making and breaking of governments in minority legislatures in which no political party

controls a majority of seats, because the accession to power of a single majority party has typically been considered less interesting. This lack of interest is not necessarily merited, given the politics within political parties, but the literature on the intraparty coalitional politics of single-party governments is, alas, very sparse.

Before discussing specific work on government formation, this review explores three key methodological distinctions: the distinction between a priori and empirical approaches to analyzing government formation; the distinction, within the a priori approach, between cooperative and noncooperative game-theoretic modeling styles; and the nature of assumptions about the motivations of the politicians who make and break governments.

A PRIORI OR EMPIRICAL METHODOLOGICAL STYLE?

Analyses of government formation can be divided into work characterized by an empirical methodological style and work characterized by a priori logical modeling. Empiricists take observed cases of government formation as their fundamental objects of interest. They collect information on matters that are arguably of relevance to the making and breaking of governments and analyze these data for regularities that may prove illuminating. The variables for determining which data are to be collected derive, implicitly or explicitly, from some abstract model of government formation, so that in practice the theoretical distinction between empirical and a priori approaches is fuzzy. Nonetheless, the core project of the empiricists is not to build abstract models but to assemble a set of variables, however chosen, that combine to account as effectively as possible for the making and breaking of governments in the real world.

A priori theorists, in contrast, base their work on assumptions that combine to give a stylized and thus inevitably simplistic description of core features of government formation. Such assumptions derive, implicitly or explicitly, from observations of real politics, so there is some empirical basis to all abstract models. The core project of the a priori theorists, however, is not to identify the set of variables that best accounts for the formation of past governments; it is to build an explicit model of the government-formation process, using plausible starting assumptions and rigorous logical arguments, that broadens and deepens our understanding. The ultimate aim is to develop intuitions about government formation.

Crucial trade-offs must be made when deciding whether to use an empirical or an a priori approach to analyzing government formation. Among the fundamental principles of a priori modeling are parsimony and simplicity, because parsimonious and simple models are far greater aids to intuition than are large and complex ones. It is vital, furthermore, that the logical connections in

an a priori model are clear and explicit, since intuition is rarely helped by arguments that are vague and/or obscure. In contrast, it is almost inevitable that fine-tuning an empirical model to account better for real-world observations will make it more, rather than less, complex. As long as a model does not perfectly account for all observations, further refinements can account for deviant cases, adding complexity while improving the fit of the model to the data. Furthermore, models based on observations about the real world, as opposed to observations we would ideally like to make, will not necessarily form a coherent logical structure—it would be remarkable good fortune, indeed, if they did.

It is thus inevitable that the most coherent and parsimonious a priori models of the making and breaking of governments, those that most aid our intuition, are not the best at explaining the governments that have actually formed. Conversely, the models that give the most empirical bang for the buck are not the most helpful in developing theoretical intuitions about government formation. Thus it is fruitless to compare an empirical account with an a priori one based on their abilities to explain patterns in the data. We know before starting that the empirical account is likely to do better, because this is what it was designed to do. If logical coherence is our criterion, then the a priori approach is superior. Thus we need to be clear whether our primary interest is to understand the general process of government formation or to explain the formation of particular real-world governments.

COOPERATIVE OR NONCOOPERATIVE GAME THEORY?

Virtually all a priori models of government formation are game theoretic in some general sense, even if some are based more explicitly than others in the traditions of classical game theory. This means that the shift in game theory from a cooperative to a noncooperative approach has had an important effect on a priori models of the making and breaking of governments. The distinction between the two types of approach is clearly set out by Kreps (1990, p. 9):

...essentially, in non-cooperative game theory the unit of analysis is the individual participant in the game who is concerned with doing as well for himself as possible subject to clearly defined rules and possibilities. If individuals happen to undertake behaviour that in common parlance would be labelled 'co-operation'...then this is done because such cooperative behaviour is in the best interests of each individual singly; each fears retaliation from others if co-operation breaks down. In comparison, in cooperative game theory the unit of analysis is most often the group or, in the standard jargon, the coalition; when a game is specified, part of the specification is what each

group or coalition of players can achieve, without (too much) reference to how the coalition would effect a particular outcome or result.

The distinction between cooperative and noncooperative game theory is crucial to the analysis of government formation in minority legislatures, since whether or not they comprise executive coalitions in the sense that different parties control different government positions, incumbent governments are typically sustained in office by voting coalitions of legislative parties. The cooperative approach looks at the payoffs to the various possible coalitions, with the typical implication that the most valuable coalition, however defined, is likely to form. In this approach the job is to specify the value of each coalition allowed by the rules of the game. The payoff to any individual actor is deduced as some function of the values of the various coalitions of which the actor is a member and its place in the bargaining structure set out by the rules of the game.

The noncooperative approach, in contrast, looks at the behavior of individual actors within coalitions—be they parties, party factions, or even individual politicians. An equilibrium government, by this logic, is one preferred over any feasible alternative by all its members; this need not be the most “valuable” government. Conversely, an incumbent government cannot be in equilibrium if some feasible alternative is preferred by actors who have not only the incentive but also the ability to replace the incumbent with the alternative. The outcome of the government-formation process is deduced as some equilibrium that results from the playing of an optimal individual strategy by each of the participants.

In practice, noncooperative approaches to modeling government formation have developed hand in hand with an emerging “new institutionalist” approach to political modeling in general. The two trends feed off each other; the substantive argument that institutions do matter both encourages and is facilitated by the modeling of particular processes as noncooperative games closely tied to the institutional details of a particular case. The driving intuition is that the making and breaking of governments is a product of the local institutional rules of the government-formation process, encompassing such matters as the sequence in which party leaders are asked to form governments, the procedures for votes of investiture and no confidence, and the allocation of particular policy jurisdictions to particular cabinet portfolios. Each actor exploits features of the local institutional terrain within which government formation takes place to identify and deploy an optimal strategy.

In contrast, there is typically little or no local institutional description in a cooperative game-theoretic model. The driving intuition is that deep and significant patterns run through the making and breaking of governments in a range of different institutional settings. Local institutional features are of only

anecdotal interest for such theorists and are largely ignored as minor details that rational actors will find a way around en route to the best deal. While such details might deflect a particular government-formation process from its path toward equilibrium, just as a person falling from a cliff may be saved from death by a quirk of fate when his belt gets hooked by the branch of a passing tree, the main interest is in the general logic of the situation.

OFFICE-SEEKING OR POLICY-SEEKING POLITICIANS?

Analyses of government formation are also characterized by their motivational assumptions about politicians. Politicians may be assumed to be motivated above all else by the desire to get into office—the office-seeking assumption. Or they may be assumed to be fundamentally concerned with the policies of government, wanting to get into office primarily in order to influence these—the policy-seeking assumption (for a valuable set of comparative case studies reviewing the objectives motivating key decision makers within political parties, see Müller & Strom 1997). While other things might motivate politicians to get involved in the making and breaking of governments, none have been systematically put forward in the literature; political scientists implicitly assume that the motivation of any politician can be described as either office seeking or policy seeking, or some mixture of the two.

Although a politician could be acting on some complex blend of office-seeking and policy-seeking motivations, a priori models of government formation opt for one or the other. This, however, is a sign of the great difficulty of elaborating a coherent model with a plausible trade-off function linking office and policy payoffs. The choice does not reflect any denial by political scientists that real people may desire both to enjoy the trappings of office and to influence public policy. However, it is much easier to chat casually about trade-offs between office and policy motivations than to build them into a rigorous model.

A further complication derives from the interaction between electoral competition and the making and breaking of governments. Voters pay attention to whether pledges made during an election campaign are actually redeemed when the person making them goes into government. This implies that policy positions promoted by politicians during government formation may well be instrumental features of a larger political game, which encompasses party competition in the different arenas of the electorate, the legislature, and the executive. This interaction between intrinsic and instrumental policy-seeking motivations is explored in greater detail by Laver & Schofield (1990, pp. 45–60).

Most early models of government formation saw the making and breaking of governments as competition over the allocation of the rewards of office—a fixed set of cabinet positions, for example. In contrast, nearly all recent theoretical accounts are based on the assumption of policy seeking. Given these methodological and historical reasons, the following discussion is organized according to the presumed fundamental motivation of politicians—office or policy seeking. Within this broad distinction, accounts are organized according to their methodological style—more empirical or more a priori. Finally, within the discussion of a priori models, a distinction is drawn between cooperative and noncooperative approaches.

EMPIRICAL OFFICE-SEEKING APPROACHES

Government Membership

One approach to analyzing government formation has its roots in the traditional case study method. Such studies are written by country specialists with detailed “inside-the-beltway” knowledge of particular political systems. They use a methodological style now thought of as “thick description” to produce historical accounts of the cut and thrust of named individuals forming a new government or bringing down an old one (recent examples, dealing with the formation of Irish governments, can be found in Farrell 1987, 1990, 1993). Almost all journalistic accounts, as well as discussions by historians, of the formation of particular governments fall into this category.

The emergence out of this tradition of government coalitions as a general empirical theme in comparative politics was signaled by a series of edited case studies on government coalitions in “Country X” (prominent examples are books edited by Browne & Dreijmanis 1982, Bogdanor 1983, Pridham 1986). Using a similar format, Mellors & Pinjenburg (1989) discussed coalitions in local government. These collections had no discernible theoretical agenda other than a thematic concern for government coalitions and a set of section headings to force each author into broadly comparative coverage. A more recent approach within this tradition, however, focuses on what happens after a government has been formed and on decision making within coalition cabinets (best exemplified by Blondel & Müller-Rommel 1993). For those concerned with the rigorous modeling of government formation assuming rational foresight on the part of key actors, of course, it is important to have a sense of the processes that actors might actually be foreseeing when they put together a government.

Portfolio Allocation

Another empirical aspect of government formation—the allocation of cabinet portfolios—has been studied within the more quantitative “comparative

political behavior” tradition. Probably the best-known early study was by Browne & Franklin (1973), refined by Browne & Frendreis (1980), of the distribution of cabinet portfolios among members of coalition governments. Browne et al saw cabinet portfolios as the quintessential payoff for office-seeking politicians. They found strong support indeed, with what is still one of the highest nontrivial r -squared figures in political science (0.93), for the informal proposition that the allocation of cabinet portfolios among cabinet parties is directly proportional to the number of legislative seats controlled by each party. These findings were successfully replicated, using an expanded dataset, as a precursor to the testing of a more explicit model by Schofield & Laver (1985).

Government Duration

If we analyze cabinet durations across the whole of Western Europe, empirical research on cabinet stability, clearly a crucial aspect of the making and breaking of governments, shows that single-party majority cabinets do tend to last longer than others. However, this difference is largely the result of a small number of countries, such as Denmark, Finland, and Italy, with large numbers of minority and/or oversized governments. In contrast, governments tend to be relatively durable in countries such as Austria, Germany, and Luxembourg, in which majority coalitions are the norm. Evidence of this is surveyed by Laver & Schofield (1990, pp. 152–53).

The challenge for empirical researchers was thus to account for patterns of cabinet stability by identifying attributes of the political systems associated with shorter- or longer-lived governments. Several studies were conducted with this aim in mind, including work by Taylor & Herman (1971), Dodd (1976), Sanders & Herman (1977), Warwick (1979), Lijphart (1984), and Strom (1985). These studies typically analyzed both office- and policy-based attributes. Attributes related exclusively to an office-seeking approach included the majority status of the cabinet, formal investiture requirements, the fragmentation of (effective number of parties in) the party system, and the salience of election results in government formation—that is, the extent to which a new election is likely to produce a new government. Beyond clear and easily interpretable findings that majority cabinets last longer than minority ones, and that countries with fragmented party systems have less-durable governments than do others, the list of statistically significant stability-inducing attributes has tended to vary from study to study, depending on the research design and dataset used.

This research tradition has now been subsumed, however, within the methodologically more sophisticated “events” approach used by such authors as

Browne et al (1984, 1986, 1988), King et al (1990), and Warwick (1994) (see below).

A PRIORI OFFICE-SEEKING APPROACHES

Government Membership

While von Neumann & Morgenstern (1953) and Shapley & Shubik (1954) published influential early work on the subject, the person typically seen as the father of modern a priori approaches to the study of coalitions is William Riker (1962). None of these authors was especially concerned with government coalitions, however, seeing coalition as a more general phenomenon. Working from constant-sum cooperative game-theoretic premises, von Neumann & Morgenstern argued that equilibrium coalitions should be “minimal winning,” coalitions in which each member is essential to winning status. Every member of a minimal winning coalition is thus pivotal, in the sense that the member can turn a winning coalition into a losing one by leaving and can turn a losing coalition into a winning one by joining. Any nonpivotal member of a winning coalition makes no difference to winning or losing and, in terms of constant-sum game theory, has no significant strategic role.

In even slightly complicated bargaining systems there may be many different minimal winning coalitions, leading to a large set of predictions. This fact led to attempts to find a more precise concept. Riker (1962) argued for the minimal winning coalition with the smallest weight—a bare majority or minimum winning coalition. Leiserson (1966) argued for the minimal winning coalition with the smallest number of members—a conjecture called the bargaining proposition. All three approaches were subjected to comparative empirical testing in three simultaneous and independent early studies (Browne 1973, De Swaan 1973, Taylor & Laver 1973). The original minimal winning approach, derived directly from constant-sum game theory, fared best in statistical terms, and the results of these tests were synthesized and replicated by Franklin & Mackie (1984). Almost no work has been done using the bargaining proposition or the bare-majority approach since those unpromising early empirical tests. The general notion of the minimal winning coalition and in particular the concept of a pivotal party, however, have always been influential. The argument that coalitions tend to exclude nonpivotal parties has been assimilated into many subsequent models of government formation, including those primarily concerned with policy.

A related matter that can be seen most clearly when we look at office-seeking models, but which is of much more general relevance, concerns the decisive structure of a coalition game. This is the precise set of winning coalitions generated by a given seat distribution in the legislature. The strategic bot-

tom line, of course, is that the decisive structure in the legislature, not the precise seat distribution, is the key product of any election, at least as far as bargaining over government formation is concerned. In a three-party legislature, for example, either one party wins an overall majority or each of the three parties is equally important to a majority. In the latter minority legislature, the complete set of possible coalitions comprises the null coalition with no party in it; three losing single-party coalitions; three winning two-party coalitions, representing each possible pairing of the three parties; and a winning grand coalition of all three parties. There are eight possible coalitions; once we know these, we know all we need to know about the impact of the legislative seat distribution on government formation. The decisive structure remains the same regardless of the precise distribution of seats among parties as long as no party wins an overall majority. If there are more parties in the legislature, then the number of possible decisive structures increases, but it is always much lower than the number of possible seat distributions among parties.

Elaborating the decisive structure is by far the most useful way to move from an election result to the strategic complexities of government formation. This is of major substantive significance, because an election producing big changes in the seat distribution may not change the decisive structure at all—elections to three-party legislatures only change the decisive structure if they create a majority party, for example. However, another election generating only minor seat reallocations may have a huge impact on decisive structure and thus on subsequent government formation.

Within the pure office-seeking tradition, two types of ongoing research programs base their essential logic on the role of minimal winning coalitions in the decisive structure of a legislature. The first concerns the definition and use of so-called *a priori* power indices. The second has to do with the systematic identification of dominant parties that are in a particularly powerful bargaining position.

Power Indices

A priori power indices measure the bargaining power of the actors using only the decisive structure of the coalition game and ignoring any other objectives actors might have. Such indices thus encapsulate the key strategic features of a given decisive structure. Their value is to quantify the generic decision-making power of actors in a particular system, regardless of their preferences. The reason for doing this is that the distribution of bargaining power between actors can differ starkly from the distribution of their formal weights. The classic example is a 99-seat legislature in which two parties have 49 seats each and a third party has one seat. The one-seat party is just as pivotal in the decisive structure as either of the large ones and arguably has as much

bargaining power as they do. No one party can win on its own while any two parties can win in coalition; in this sense they all have the same bargaining power.

Two slightly different a priori power indices have been used, one attributed to Shapley & Shubik (1954), the other to Banzhaf (1965). Both fundamentally impound the notion of the minimal winning coalition by measuring bargaining power in terms of the relative proportion of potential coalitions in which each actor is pivotal. Actors who are never pivotal are seen as having no bargaining power at all and are described as “dummies” (van Deeman 1989). The Shapley-Shubik index is neater in terms of its mathematics and its roots in co-operative game theory. The Banzhaf index is easier to calculate, as well as being more interpretable for nonspecialists. The two indices typically give similar results, and the Banzhaf index has thus tended to prevail in subsequent applications.

There has been a recent resurgence of interest in the use of a priori power indices among a new generation of constitutional engineers analyzing actual and potential enlargements and reforms of the European Union (EU). A priori power indices seem an appropriate way to measure the relative bargaining power of different EU member states, taking account of different nominal weights yet making no assumptions about policy preferences that may change on an issue-by-issue basis. The availability of faster computers and better computer programs, furthermore, makes calculating these indices less tedious and more reliable and seems to have encouraged new work on the subject (for recent work in this tradition, see Hosli 1993, 1997 and Widgrén 1994).

Dominant Parties

The second recent theoretical development within the office-seeking tradition concerns parties that have an especially strong position in the government-formation process. A dominant player is a particularly powerful pivotal actor and can be found when there are at least two mutually exclusive losing coalitions, either of which the dominant player could make into a winning coalition by joining, but which could not form a winning coalition by combining with each other in the absence of the dominant player (Peleg 1981, Einy 1985, van Deeman 1989, van Roozendaal 1992). In such circumstances, the dominant player can play the two losing coalitions against each other, while these coalitions cannot themselves combine to put pressure on the dominant player. Only the largest party in the system can be the dominant player; the easiest, although not the only, way to identify a dominant party is when the second- and third-largest parties are each large enough to form a majority coalition with the largest party, but too small to form a majority coalition with each other.

There has been some empirical application of the notion of the dominant player in the government-formation process (van Roozendaal 1992, 1993), but this office-seeking concept, while having clear theoretical potential, has rarely been taken up by those writing about the making and breaking of real governments. This is probably because almost all recent accounts of government formation have been based on policy-seeking assumptions about the motivations of politicians, and it is to these that we now turn.

EMPIRICAL POLICY-SEEKING APPROACHES

Government Membership

The idea that policy is at the heart of government formation is not new. Most traditional “inside-the-beltway” case studies of the formation of particular governments devote considerable attention to the bargaining that leads to the joint policy declaration that is one of the more prominent products of almost any government-formation process. Although never explicitly stated, it is generally understood that prospective coalition partners simply must agree on a joint policy declaration. (This of course does not mean that the declaration is magically implemented as the actual policy output of the government concerned.)

The empirical analysis of the impact of party policy on government formation was given a shot in the arm by the Manifesto Research Group (MRG), sponsored by the European Consortium for Political Research. The MRG researchers set out to conduct a systematic content analysis of the policy content of every party manifesto issued by every party in every election in every Western European democracy since World War II. The main results of this project are reported by Budge et al (1987), Laver & Budge (1992), and Klingemann et al (1994). It is often forgotten that the MRG data concern the salience of different policy dimensions for different parties, as opposed to party positions on these policy dimensions. Despite this, the great scarcity of consistent time-series data on party policy, combined with the burgeoning theoretical demand for such data, has meant that the MRG’s manifesto analyses have indeed been used as if they describe substantive party policy positions. Baron (1991), Schofield (1993), and Warwick (1994), among others, operationalized models of coalition politics using MRG data explicitly as if these could be used to retrieve party policy positions. Indeed the MRG itself used the more explicitly positional manifesto-coding categories as the basis for a general left-right scale. The country reports in the book describing this phase of the MRG project (Laver & Budge 1992) are also worth consulting for their detailed case-by-case discussions of the role of party manifestos and joint policy declarations in government formation.

This research tradition was extended, and brought closer to the neoinstitutionalist style of the noncooperative game theorists, in work on constraints by Strom et al (1994), who took the cooperative government-formation models of the MRG and investigated how the predictions of these models would be modified if various behavioral and institutional constraints were applied. Examples of such constraints include the need for investiture votes, the role of the electoral system in encouraging electoral coalitions, the role of the head of state in government formation, and so on.

The application of local constraints to a well-specified model is a technique of general relevance to those interested in government formation, for two reasons. First, large sets of predicted governments can be cut down to more precise predictions if constraints are used to rule out certain possibilities. Second, detailed institutional knowledge can be used to customize general theoretical models to a more specific and plausible local context. Nonetheless, when such constraints are applied to a model in a post hoc manner, there is a grave danger of the model becoming no more than a rationalization for what has been observed. Ultimately, applying local constraints to general models generates a special case of the dilemma of distinguishing *a priori* from empirical models. Applying local constraints, especially in a post hoc manner, will almost always give a better empirical fit, because certain possibilities that are known to be unlikely for local reasons are thereby ruled out. But every detailed local constraint that is imposed, of course, weakens the generality, and hence the heuristic usefulness, of the model concerned.

Portfolio Allocation

One of the most extensive empirical explorations of the policy bases of portfolio allocation in coalition cabinets has been conducted by Budge & Keman (1990). As part of a larger empirical analysis of the formation and functioning of coalition governments, they set out a series of conjectures about which types of parties are likely to prefer which cabinet portfolios. Thus they assumed, for example, that agrarian parties prefer the agriculture portfolio, religious parties prefer the religious-affairs portfolio, and so on (Budge & Keman 1990, pp. 102–3). They then tested these conjectures empirically, with good success, although some of their conjectures are so broad that they were almost bound to find empirical support. For example, they “test” the conjecture that “Socialist or Christian parties take the Ministry of Labour/Social Affairs/Health for all coalitions where (i) Socialist or Christian Parties participate in the coalition and (ii) there is such a ministry” (Budge & Keman 1990, p. 104). In general, however, this book reports a fully developed study of government formation within the essentially empirical methodological tradition.

Government Duration

A further strand of policy-oriented empirical research has to do with government durations. From the earliest cross-national empirical analyses of this theme (Sanders & Herman 1977, Warwick 1979), political scientists have explored the impact on government stability of the ideological diversity of both the party system as a whole and the cabinet in particular (an excellent review of this work can be found in Warwick 1994). This research tradition has recently been revitalized by the emergence of the events approach to government stability pioneered by Browne et al (1984, 1986), extended by King et al (1990), and refined into its current form by Warwick (1994).

Browne and his coauthors saw the making and breaking of governments as a stochastic process driven by the flow of critical events—unanticipated political shocks such as personal scandals, economic crises, and foreign policy events that have the potential to bring down a government. The events approach provoked a debate between Browne et al (1988) and Strom (1988), the latter arguing that some cabinets have attributes, such as majority status or ideological compactness, that are likely to make them last longer than others. This debate in turn led to the application by King et al (1990), and refinement by Warwick (1994), of event-count statistical models, which are ideally suited to exploring the impact of coalition attributes on government stability within the basic assumptions of the critical events approach. Event-count models now represent the standard methodology for empirical analyses of cabinet stability. The empirical results generated by both King et al and Warwick do indeed show that both the polarization of the party system and the ideological compactness of a coalition have the predicted effect on government stability. Warwick, in the most comprehensive application of this approach to coalition durability, is unequivocal: “Ideology must be reckoned with in its own right” (Warwick 1994, p. 72).

A PRIORI POLICY-SEEKING APPROACHES: COOPERATIVE GAME THEORY

Minority Governments

One of the striking empirical results to emerge from early tests of a priori office-seeking models of government formation (Browne 1973, De Swaan 1973, Taylor & Laver 1973) is that minimal winning coalitions are less common than might be expected in Western European parliamentary democracies. Minority governments, in contrast, comprise a larger share of administrations in post-war Europe than would be implied by a pure office-seeking approach (Strom 1990, Laver & Schofield 1990). Two influential attempts to

explain the formation of minority governments can be found in Strom (1990) and Luebbert (1986), both of whom rely heavily on the role of party policy.

Luebbert looks at politics within political parties and in particular at the role of party leaders. Seeing party leaders as fundamentally motivated by the desire to remain party leaders, Luebbert discusses party policy as something party leaders manipulate in order to achieve this end. Luebbert's interpretation clearly implies that some party leaders who find themselves with the opportunity to go into government may nonetheless judge the consequences of doing this, in terms of the necessary policy compromises, to endanger their leadership position within the party.

Strom's (1990) account of minority government, in contrast, looks to the wider legislative and electoral game. He sees government membership as having costs as well as benefits. Most of these costs are denominated in reduced party prospects in future elections and exist because of the policy compromises the party must make to get into power. Parties may stay out of office, according to Strom, if they expect too much subsequent electoral damage to result from entering (for an interesting and detailed recent case study of the costs of coalition in Italy, see Mershon 1996). In addition, Strom sees a role for parties outside the government, especially in legislative systems such as those in Scandinavia, where the committee system formally entrenches a role for the opposition in the policy process. Each of these factors implies an important role for policy outside the government coalition, a role that may in certain circumstances imply minority administrations.

A Priori Policy-Seeking Models of Government Formation

Cooperative game-theoretic models of the making and breaking of governments took party policy seriously long before the emergence of a literature on minority cabinets. These models followed in the footsteps of Downs (1957) in assuming that policy competition between parties takes place along a single left-right dimension of ideology. Two early and notable analysts of the role of party policy in government formation were Axelrod (1970) and De Swaan (1973). Axelrod predicted "minimal connected winning coalitions" (MCWs), connected in the sense that they comprise parties adjacent to each other on the left-right dimension and minimal in the sense that any party leaving the coalition renders it either losing or nonconnected. Developing this approach in a more explicitly game-theoretic manner, De Swaan predicted closed minimal range (CMR) coalitions. To identify the CMR coalition, we need to know the actual positions of the parties on a left-right dimension rather than merely their ordering. The CMR coalition is the MCW coalition with the smallest ideological range between its two extreme parties.

The arguments of Axelrod and De Swaan are very much those of cooperative game theorists. The intuition behind each is that ideologically more compact coalitions will be more valuable because they involve fewer costs in terms of policy compromises than do more diverse ones. The most valuable coalition is expected to form because it offers the possibility of giving every member a higher payoff than do alternative coalitions. Parties are simply assumed to be able to find a way of achieving this outcome, and no account is taken of the institutions and bargaining processes that might lead to it. Note that any approach predicting MCW coalitions along a single dimension of ideology also predicts the inclusion in government of the party controlling the median legislator along the left-right scale. (Whether seat totals are counted from the right or the left end of the scale, the party controlling the median legislator is the one whose votes will turn a winning coalition into a losing coalition.) Any coalition excluding the median legislator cannot be both winning and connected.

The next step was to consider government formation in a multidimensional policy space. One approach to analyzing this problem within the traditions of cooperative game theory is associated with Grofman (1982, 1996), who saw coalition formation as a process in which parties that are close to each other in policy terms successively fuse together into protocoalitions. His dynamic model of protocoalition formation conjectured a nonstrategic process in which government formation started with a set of individual political parties, each with a weight and a position in multidimensional policy space. The first stage in this process involves the fusion of the two closest parties into a single protocoalition. This protocoalition has the least policy divergence and is thus assumed to be the most valuable fusion; the approach is thus unequivocally within the traditions of cooperative game theory. The protocoalition is assumed thereafter to function as a unitary actor with a policy at the weighted mean position of the policy positions of its members, with weights proportional to the legislative weights of the respective parties. This process is then iterated in a series of similar fusions, which continue until the emergence of a protocoalition with a weight that exceeds the winning threshold, which is then assumed to take office and become the incumbent coalition.

This general approach was taken up by the Manifesto Research Group (MRG) when it turned its attention to government formation. In one implementation, the MRG data were reduced from 54 coding categories to 20 policy dimensions, and government formation was explored in the full 20-dimensional policy space (Laver & Budge 1992, pp. 15–40). Since Grofman's model works on raw policy distances between parties without taking account of policy dimensions, it can easily be implemented in policy spaces of any dimensionality, provided data are available.

Several aspects of the Grofman approach were modified in the MRG implementation. The first concerned the metric used to calculate policy distances between party ideal points. Almost universally within the analysis of party competition, the (Euclidean) 2-metric is used; policy distances are seen as analogous to distances in physical space. This assumes that diagonal distances between party ideal points have psychological meaning for political actors. The MRG implementation, very unusually, used the (city block) 1-metric, in which the distance between two points is the sum of the distances between them on each dimension, not the length of the diagonal between them. Whichever metric is eventually seen as the more appropriate, this matter is of general interest to those modeling party competition, and it is striking that the relative appropriateness of these and other metrics has been the subject of little debate.

The MRG also questioned Grofman's use of a single ideal point to represent the policy position of a protocoalition, and instead used an average linkage algorithm in which the distance between two protocoalitions was computed as the average of all distances between pairs of parties in different protocoalitions. Members were thus assumed to retain their own views of the distance between two points in policy space, even after joining a protocoalition. In the same vein, the MRG implementation did not automatically assume, as Grofman did, that the protocoalition formation process is hierarchical, in the sense that a protocoalition, once formed, could never split up. An alternative implementation was also modeled, in which protocoalitions were allowed to split up en route to an eventual winning coalition.

The Interaction Between Government Formation and Electoral Competition

The analysis of government formation within the traditions of cooperative game theory has been most extensively developed by Norman Schofield in an ambitious attempt to model the interaction between government formation and electoral competition. His work builds on analyses of majority voting in multi-dimensional issues spaces, noted for the famous chaos results that implied the generic nature of voting cycles (McKelvey 1976, 1979; Schofield 1978). (Voting cycles arise when alternative X beats alternative Y in a majority vote, alternative Y beats alternative Z, alternative Z in turn beats alternative X, and so on, ad infinitum.) Schofield expanded this basic model to deal with party competition more generally, and especially with the interaction between electoral competition and government formation. Despite the fact that these two arenas of party competition are self-evidently linked in strategic terms, modeling the interaction between them is a difficult task for a rigorous formal theorist.

The easiest way to start is with parties in legislatures that generate governments on the basis of majority voting. This defines a weighted majority voting

game that Schofield explores for the existence of equilibria, which he characterizes as core points (Schofield 1986, 1987; McKelvey & Schofield 1986, 1987). Given a multidimensional policy space and a set of party ideal points, every minimum winning coalition of parties has a compromise set—a set of policy positions such that any move away from the position harms at least one coalition member. A policy point is a core point if and only if it lies in the compromise set of every minimum winning coalition. If the intersection of these compromise sets is empty, then there is no core. If small perturbations of party ideals leave a particular core point in the compromise set of every minimum winning coalition, then the core point in question is structurally stable.

A core party is one whose ideal policy is a core point. Schofield argues that if a core party exists, the result will be a minority government in which the core party ideal point is government policy (Schofield 1993, p. 8). If, as is often the case, a core party does not exist, then there will be voting cycles. These cycles will involve policy positions to be found within a central region of the policy space defined by the ideal points of the parties that are members of minimal winning coalitions, a region Schofield calls the cycle set. The union of the cycle set and the core is known as the heart.

All of the argument thus far ignores the electoral competition that takes place both before and after any government-formation process and assumes, unrealistically, that party policy positions are simply exogenous inputs to the political game. The most ambitious part of the Schofield project, however, is to relax this assumption and thereby integrate an account of government formation into a wider theory of political competition in representative democracies. Specifically, his model sees party policy positions as an outcome of electoral competition and an input into government formation, which in turn is an input into the next round of electoral competition, and so on. Much of this important political action, according to Schofield, takes place in the centrally located heart of the policy space (Schofield 1993, 1995, 1996; for an overview of the context and main intuitions of his argument, see Schofield 1997).

A PRIORI POLICY-SEEKING APPROACHES: NONCOOPERATIVE GAME THEORY

Government Formation

In contrast to the institution-free approach of cooperative game theorists such as Schofield, much recent writing on government formation has been in the traditions of the new institutionalism and its key tool, noncooperative game theory. The distinctive feature of each of the new noncooperative models of making and breaking governments is a focus on some particular institutional feature of the government-formation process. Three particular features have

figured prominently in work published to date: institutions deciding the sequence in which parties are nominated as formateurs with the right to make a proposal for some particular government; a vote-of-confidence procedure that allows a government to put its future survival to a majority vote in the legislature; and institutions allocating distinguished positions in particular policy arenas to particular government parties.

In one of the early pieces of published work involving a noncooperative account of government formation, Austen-Smith & Banks (1988) proposed a simple model with one policy dimension, three parties, and a sequence of proportional representation elections and government formations. This sequence forces voters to anticipate the policies of possible governments when deciding whom to support in the election and punishes government members who stray too far from their electoral promises. Embedding the government-formation process in a wider noncooperative model of party competition is a major step toward enhanced realism, but, as Schofield found in his attempts to construct a cooperative account of essentially the same problem, the resulting models are hard to analyze in a systematic and rigorous manner. The model proposed by Austen-Smith & Banks (1988) responds to this analytical complexity by dealing only with the very simple three-party decisive structure and one dimension of policy. The institutional feature that gives the authors analytical leverage is an assumed method of choosing formateurs, which gives the job of forming a government first to the largest party, second to the second-largest party, and so on. In the equilibrium implied by the model, the largest party proposes a coalition with the smallest party, pitching the offer at just the right point to have it accepted and taking account of all possible offers that might be made if the process were to move on down the line.

It is striking that subsequent noncooperative models of government formation have typically confined themselves, for the sake of analytical tractability, to three-party legislatures. This can be seen clearly in two important recent models, proposed by Baron (1991) and Huber (1996a,b), as well as in the influential work on stability by Lupia & Strom (1995) (see below). The Baron model develops the idea that the formateur sequence is an important institutional feature of the government-formation process, extending to the analysis of policy-driven government formation a more general model of bargaining in legislatures over a fixed prize, put forward earlier by Baron & Ferejohn (1989). Baron (1991) moves beyond a single dimension of ideology and looks at both fixed and probabilistic formateur sequences, as well as at certain centrally located fourth parties, but he sacrifices any real strategic consideration of the electoral game. Baron identifies potential equilibria in government formation suggesting that small parties have a good chance of being in the government and that a centrally located party stands a good chance that government policy will be close to its ideal point (Baron 1991). Above all, however, his

conclusions emphasize the importance of the structure of the formation process, inasmuch as this affects the order in which actors get to make proposals.

These formal conclusions about the order of moves are substantively interesting. If the formateur sequence does help the largest party, then this highlights an important feature of the election result hitherto ignored by government-formation theorists in their concentration on the decisive structure of the legislature. While the largest party may have no more bargaining power than other parties according to a priori power indices, its place in the formateur sequence may give it a real bargaining advantage. This advantage has considerable implications for party competition in the preceding election, since it makes the role of the largest party well worth fighting for.

Rather than looking at the formateur sequence, Huber (1996a,b) recently modeled the role of the vote-of-confidence procedure in parliamentary democracies. In effect, Huber sees the vote of confidence as another way in which the sequence of decisions can give distinctive advantages to particular players. In this case, the vote of confidence allows a prime minister unilaterally to transform a vote on a specific issue into a vote on the entire future of the government, using this institutional asymmetry to gain advantages in bargaining over particular issues. For the most part these advantages derive from the costs imposed on others, especially on members of the legislative majority supporting the government, if an election is induced by a lost confidence vote. They allow prime ministers to achieve policies much closer to their own ideal points than might otherwise be the case. Indeed, the mere potential to invoke a vote of confidence may well be sufficient, since this allows the prime minister to make just the right level of demand that will be accepted by opponents who know that the procedure could be invoked if necessary.

This approach is substantively interesting because it refocuses attention on an important political actor, the prime minister, who has been bizarrely overlooked in previous theoretical accounts of the making and breaking of governments. In Huber's model, the policy preferences of the prime minister define a set of feasible policies within which subsequent policy bargaining must take place. While this conclusion will hardly amaze country specialists, it is important to see its derivation from a carefully specified and rigorously analyzed model of government formation.

Portfolio Allocation and Government Formation

Another recent noncooperative approach focuses on the distinctive role of cabinet ministers. The portfolio allocation model of government formation was proposed independently by Austen-Smith & Banks (1990) and Laver & Shepsle (1990) and was then given book-length treatment by Laver & Shepsle (1996). This model is based on the distinctive roles of the legislative and ex-

executive branches in parliamentary democracies. While the executive branch is responsible to the legislature and must resign if it loses a vote of confidence, the portfolio allocation approach assumes that almost all policy making and implementation takes place within the executive rather than the legislative branch of government. Within the executive branch, furthermore, although most European cabinets operate formally on the principle of collective responsibility, most of the actual process of making and implementing policy takes place within government departments. Only government departments, each the political responsibility of a cabinet minister, have the resources and technical competence to develop implementable policy proposals within their jurisdictions. Thus cabinet ministers, according to this approach, have two roles: They are members of a cabinet that takes collective responsibility for government policy; they also hold portfolios that make them individually responsible for the departments that do much of the work of developing and implementing public policy.

The portfolio-allocation model highlights two crucial equilibrium concepts. The first is the dimension-by-dimension median (DDM) cabinet, generated by giving each key portfolio to the party median on the policy dimension(s) under the jurisdiction of the portfolio concerned. Only this particular portfolio allocation can be such that no legislative majority prefers some alternative cabinet. The second crucial concept is that of a strong party, one that is involved in, and therefore able to veto, every cabinet some legislative majority prefers to the cabinet in which the strong party takes all key portfolios. In other words, if a strong-party minority cabinet is in office, it participates in every alternative cabinet that might be preferred by a legislative majority; it can veto every alternative cabinet and thereby prevent its formation. Laver & Shepsle (1996) proved that if a strong party exists, then it is a member of every equilibrium administration, either on its own or as a coalition partner. If a strong party has an ideal point at the DDM position and no alternative portfolio allocation is preferred by a legislative majority, then it is a "very strong" party, in such a powerful position that it should be able to control all key policy portfolios without any other party.

Government Duration

Noncooperative approaches have recently been extended to the problem of government stability. Lupia & Strom (1995) set out to develop a more analytical version of the events approach used, as we have seen, by more empiricist writers on government stability. They consider a government in the aftermath of a particular type of event—one that changes the expectations of key actors about the outcome of the next election and that may in turn change minds about who would benefit from bringing down the incumbent government.

The argument is developed for a three-party legislature, assuming that bringing down a government has costs for cabinet members, while both fighting elections and renegotiating coalitions have transaction costs for those involved. Driven by these costs, the Lupia-Strom model shows that government members who find that they stand to gain at the next election may nonetheless either accept the status quo or renegotiate a new coalition agreement without an election, rather than force an election to realize expected electoral gains. This result is interesting because it runs counter to what might seem a commonsense assertion that coalition members bring down governments when they anticipate electoral gains (Grofman & van Roozendaal 1994). The Lupia-Strom model also shows that since the opportunity costs of bringing the government down decline as any administration approaches the end of its maximum constitutional term, a given event's likelihood of destabilizing an incumbent cabinet increases throughout the life of the government. This provides a theoretical justification for the empirical finding that, other things being equal, the probability of a government falling appears to increase throughout its term of office (Warwick 1994).

Building on this general approach, Laver & Shepsle (1997) extended the portfolio allocation model of government formation to deal with government stability, using the model to identify different types of critical events that might have a bearing on the ability of governments to survive. In addition to "public opinion shocks" with a bearing on future election results, as modeled by Lupia & Strom (1995), Laver & Shepsle (1997) look at "policy shocks" that affect how the parties relate to each other, in effect perturbing the matrix of interparty policy distances, and "agenda shocks," which affect the relative weight of different policy dimensions—most commonly seen in the emergence of new salient policy dimensions.

While Lupia & Strom (1995) develop their model using classical analytical techniques, and thus confine themselves to analyzing a three-party system, Laver & Shepsle (1997) use simulations to explore the impact of random perturbations of key model parameters on larger party systems, in effect simulating the bombardment of incumbent governments by flows of different types of critical events. This approach allows them to unpack aspects of the stability of individual real-world "base" cases. They show that cases that might look similar can in fact be unstable in different ways; some types of critical events are more dangerous for some governments, other types more dangerous for others.

THE WAY FORWARD?

Almost all the models reviewed in this paper share two key, and related, properties. They are static in the sense that, given a set of initial conditions, they generate an analysis of government formation that will not change unless the

initial conditions change; there is virtually no feedback or complexity in the models of government formation that currently characterize the state of the art. These models further assume that parties, with respect to the government-formation process at least, can be treated as if they are unitary actors.

The absence of these features from government-formation models is not because theorists regard them as unimportant. The reason is more prosaic—it is very difficult to incorporate them in a rigorous manner. We have already seen this from attempts to chain together the processes of government formation and electoral competition, which mark a step in the direction of more dynamic models but which have proved hard to implement in all but the simplest of cases.

One of the biggest unclaimed prizes in the field, however, is to develop a more dynamic approach to analyzing the making and breaking of governments. Beyond modeling the interaction between government formation and electoral competition, this development is most likely to result from lifting the lid on the inner workings of political parties and building some model of these into a theoretical account of the making and breaking of governments. This will involve relaxing the unitary-actor assumption and no longer treating political parties in anthropomorphic terms, as if parties had brains of their own, with ideal points that they seek to implement during the government-formation process. What actually generates the decisions of political parties, of course, is a process of intraparty politics. Modeling this engine of party decision making will involve treating parties as coalitions of politicians, as strategic liaisons that act as units only to the extent that this suits the purposes of their members. Given this, party ideal points may shift as a result of intraparty politics. Even the identities of the parties themselves, and hence the decisive structure of the legislature, will no longer be seen simply as an exogenous input into a government-formation game, but rather as the dynamic output of a complex political process.

As with all forms of rigorous political modeling, this is easier said than done. But getting away from a purely static approach is certainly the most exciting and inviting prospect for political scientists who are interested in the making and breaking of governments.

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