BARBARA HINCKLEY
Cornell University

*Coalitions in Congress: Size and Ideological Distance**

The applicability of Riker's "size principle" for coalition building is tested with congressional data. The size principle states that "in social situations similar to n-person, zero-sum games with side payments, participants create coalitions just as large as they believe will ensure winning and no larger." But politics is a series of games, not the single game that the deductive model posits. "Seriality," open entry, and strong consensual norms should push congressional coalitions toward larger-than-minimum size. Empirical testing for the 81st through 91st Congresses indicates no tendency for minimum winning coalitions to form. Increases in majority party size bring increases in winning coalition size and no increase in the majority party's propensity to defect.

COALITION FORMATION IS central to politics. Indeed, a coalition defined as "the joint use of resources to determine the outcome of a decision in a mixed motive situation" approximates what many would agree politics is all about.[1] Thus it would seem important to inquire for different political contexts the kinds of coalitions that form and the conditions under which they appear and win their victories. A rich theoretical and empirical literature has developed in social psychology, with work by political scientists well under way.[2] But from

* My thanks to Wayne Francis and a helpful anonymous reader for suggestions on an earlier draft.

[1] W. A. Gamson, "Experimental Studies in Coalition Formation" in L. Berkowitz, ed., *Advances in Experimental Social Psychology* I, (New York: Academic Press, 1964), pp. 81-110. See also Barry Collins and Bertram Raven, "Group Structure: Attraction, Coalitions, Communication, and Power," in Gardner Lindzey and Elliot Aronson, eds., *The Handbook of Social Psychology*, 2nd ed., Vol. 4 (Reading, Mass.: Addison-Wesley, 1969), p. 127. For an excellent development of the argument, see William Riker, *The Theory of Political Coalitions* (New Haven: Yale University Press, 1962), pp. 9-12.

[2] See the work by T. Caplow, "A Theory of Coalitions in the Triad," *American Sociological Review*, 21 (August 1956), 489-92; "Further Development of a Theory of Coalitions in the Triad," *American Journal of Sociology*, 64 (March 1959), 488-93; the work of W. A. Gamson, *op. cit.*; and "A Theory of Coalition Formation," *American Sociological Review*, 26 (June 1961), 373-82; "An Experimental Test of a Theory of Coalition Formation," *American Sociological Review*, 26 (August 1961), 565-73; "Coalition Formation at Presidential Nominating Conventions," *American Journal of Sociology*, 68 (September 1962), 157-71; and the

the political side, there has been as yet limited effort to link theory with empirical practice. In studies of Congress, for example, where one might think majority coalition-building would be of particular concern, there has been little attempt to test or derive propositions about coalition formation against the knowledge of party and voting behavior developed outside the coalitional frame.[3] The present study attempts such a linkage—of coalition theory and congressional practice—with particular regard to coalition formation as a function of size and ideological distance.

According to Riker's "size principle," "in social situations similar to n-person, zero-sum games with side payments, participants create conditions just as large as they believe will ensure winning and no larger."[4] Rational political actors will form minimum winning coalitions since the fewer the winners the larger the share of rewards, be

work by Jerome Chertkoff, "A Revision of Caplow's Coalition Theory," *Journal of Experimental Social Psychology*, 3 (April 1967), 172-77; and "The Effects of Probability of Future Success on Coalition Formation," *Journal of Experimental Social Psychology*, 2 (July 1966), 265-77. Also relevant for the political scientist are studies by W. E. Vinacke and others in the *American Sociological Review*, 22 (August 1957), 406-15; *Sociometry*, 24 (March 1961), 61-75; *Behavioral Science*, 11 (May 1966), 180-89; *Sociometry*, 26 (March 1963), 75-88. For a useful critique and review of the literature, see Collins and Raven, *op. cit.* For examples of work in political science, see Riker, *op. cit.*; A. S. Shapley and M. Shubik, "A Method for Evaluating the Distribution of Power in a Committee System," *American Political Science Review*, 48 (September 1954), 787-92; the essays in Sven Groennings *et al.*, eds., *The Study of Coalition Behavior* (New York: Holt, Rinehart and Winston, 1970); Charles Adrian and Charles Press, "Decision Costs in Coalition Formation," *American Political Science Review*, 62 (June 1968), 556-63; Steven Brams and William Riker, "Models of Coalition Formation in Voting Bodies," paper presented at the Annual Meeting of the American Political Science Association, Los Angeles, September 1970; James Zeis and John Kessel, "A Theory of Presidential Nominations with a 1968 Illustration," paper presented at the Annual Meeting of the American Political Science Association, Los Angeles, September 1970.

[3] R. Duncan Luce and Arnold A. Rogow, "A Game Theoretic Analysis of Congressional Power Distribution for a Stable Two-Party System," *Behavioral Science*, 1 (April 1956), 83-95; and on a different subject from the size principle, William Riker, "A Test of the Adequacy of the Power Index," *Behavioral Science*, 4 (April 1959), 120-31; and "The Stability of Coalitions on Roll Calls in the House of Representatives," *American Political Science Review*, 56 (March 1962), 58-62. See also John Manley's projected study of conservative coalition voting as outlined in "The Conservative Coalition in Congress," paper presented at the Annual Meeting of the American Political Science Association, Washington, D. C., September 1969.

[4] Riker, *The Theory of Political Coalitions*, p. 47.

it money, power, or policy satisfaction. One qualification is that of uncertainty. Riker admits that winning coalitions may exceed the minimum if players are not certain they have enough to win. Beyond this qualification, however, a condition with a "positive slope" where members know they have formed a winning coalition and "keep on adding members until they have reached some specific size larger than the minimum" cannot be expected. Riker offers empirical support from cases in congressional and American party politics. While his best examples are cases where a coalition of the whole breaks down into smaller coalitions, it is clear that the theory should apply to still-smaller potential coalitions as well. Larger than minimum coalitions "are difficult to imagine and in concrete reality are probably non-existent." [5] So far, experimental evidence for the operation of a size principle has been mixed.[6]

If the size principle is to be applied usefully to some real-world coalitions, one important qualification must be added. Politics is a *series of games*—not the single game that the deductive and experimental models posit. With "seriality," as it can be called, winnings in one game may become resources in the next and the size of the winning today may determine entry and the subsequent distribution of resources tomorrow. Landslide elections enable presidents to push for more controversial proposals. A resounding House vote for one bill may encourage legislators to try for harder bills. Party leaders may be judged on how well they hold their partisans together. And so forth. In politics, the "game" is never over. What this means is that political strategists must use a higher calculus than a size principle—perhaps a "conversion principle" as well, in which coalitions are formed large enough to win and to affect the winning of subsequent games. This may require maximizing, not minimizing, strategies.

In legislatures two other conditions apply which any full coalition theory would have to consider.[7] In voting bodies such as the Congress, entry into coalitions is not controlled, as Riker admits.[8] Any legislator may vote aye or nay with the winners, inflating the coalition above minimum size. And in many American legislatures and noticeably so

[5] *Ibid.*, p. 45.

[6] See Chertkoff, "Sociopsychological Theories and Research on Coalition Formation," in *The Study of Coalition Behavior*, pp. 313 ff.; Collins and Raven, pp. 136 ff.; Wayne Francis, "Coalitions in American State Legislatures," in *The Study of Coalition Behavior*, pp. 409-23.

[7] Adrian and Press, *op. cit.*

[8] Riker, *The Theory of Political Coalitions*, p. 44.

in Congress, norms of consensus and accommodation may push members toward seeking maximum rather than minimum winning combinations. Indeed, "accommodative" versus "exploitive" strategies have been identified in experimental coalition research with considerable difference in subsequent outcomes.[9] All three conditions, it should be noted—seriality, open entry, and strong consensual norms—push congressional coalitions toward larger-than-minimum size.

If we suspect that the size principle will not lead in itself to minimum coalitions in Congress, an alternative motive for minimization is offered by the concept of *ideological distance*. If political actors search for coalitions that are winning and that span a minimal ideological range, the push toward larger-size victories explored above may be limited by ideological or policy concerns.[10] In a legislature prestructured along party lines, where parties differ on a number of policies, soliciting votes by members of one party from members of the opposite party may have clear policy costs. Therefore, it might be expected that legislators in one party would attempt wherever possible to limit coalitions to party members through control of bargaining and pre-voting strategies.[11] Combining ideological distance with the push toward larger and more impressive victories, legislators would attempt to maximize coalition membership within the party and minimize it between parties. The party's size, or initial distribution of resources, in this view becomes critical in determining whether ideological costs must be paid.

The foregoing discussion suggests certain basic interrelations that can be tested for involving majority party size, party cohesion, and the resulting coalition formation. Do increases in majority party size bring increases in winning coalition size? Or, following Riker, do coalitions tend to level off at some point approaching minimum winning

[9] Collins and Raven, pp. 127 ff.; W. Vinacke, "Sex Roles in A Three-Person Game," *Sociometry*, 22 (December 1959), 343-60; Vinacke and Abe Arkoff, "An Experimental Study of Coalitions in the Triad," *American Sociological Review*, 22 (August 1957), 406-15.

[10] For the concept of ideological distance, see Michael A. Leiserson, "Coalitions in Politics: A Theoretical and Empirical Study," (unpublished Ph. D. dissertation, Yale University, 1966); Leiserson, "Power and Ideology in Coalition Behavior: An Experimental Study," in *The Study of Coalition Behavior*, pp. 323-35; and Abraham DeSwaan, "An Empirical Model of Coalition Formation as an N-Person Game of Policy Distance Minimization," in *The Study of Coalition Behavior*, pp. 424-44.

[11] Randall Ripley suggests the same point in *Majority Party Leadership in Congress* (Boston: Little, Brown, 1969).

size? How does majority party size affect the majority and the minority party's cohesion, with subsequent effect on the winning coalition size? Three basic possible strategies can be outlined. With *minimum winning strategies*, an increase in majority party size would bring an increased majority propensity to defect with a resulting fairly stable and low percentage of members in the winning coalition. The difficulty with empirical approximations of Riker's theory, as Chertkoff and others have noted, is that in conditions of uncertainty, any winning alliance might be said to support the theory, since it is not clear how far above minimum is necessary for members to be assured of victory.[12] Nevertheless in congressional roll call voting with parties opposed, the leadership has impressive information-gathering facilities in the whip organizations, which have demonstrated considerable accuracy in predicting outcomes.[13] While we cannot say with precision how small a percentage could be called minimum, we can at least identify large coalitions which, given the good information available, clearly are not minimum.

By contrast, with *maximum size strategies*, where legislators sought consensus and/or large victories to influence subsequent games, an increase in majority party size would bring no increased propensity to defect, with a resulting regular increase in winning coalition size. And for a third possibility, with *maximum size-minimum distance strategies*, where legislators sought to maximize intra-party support and minimize inter-party bargaining, increasing majority size would bring no increased majority propensity to defect, but would bring instead a decrease in minority defection as incentives to defect from the minority to the majority were withdrawn. As majority size increased, one would then expect an increase in winning coalition size, at some decreasing rate.

Some empirical accounting of the possible strategies outlined above can be given for House coalition formation in the ten post-1946 congresses where the Democratic party was the majority party—the 81st through the 91st congresses with the exception of the 83rd. Cases thus include the extremely large Democratic majority of the 89th Congress and the small 53 percent majority of the 84th, spanning almost the full range of majority party size in the twentieth century House.

[12] Chertkoff, "Sociopsychological Theories and Research in Coalition Formation," p. 311.

[13] Ripley, "The Party Whip Organizations in the United States House of Representatives," *American Political Science Review*, 58 (September 1964), 561-76.

Four variables are employed: majority party size (percent Democrats in the House); majority and minority propensity to defect; and winning coalition size (percent of all House members in winning coalitions). Only party roll calls are used (roll calls where a majority of one party opposes a majority of the other party) to approximate conditions of competition and exclude the frequent congressional cases where high value is placed on consensual voting.[14] Taking party roll calls as constituting cases where competitive coalition building was necessary, we can examine how party size and ideological distance affect coalition formation in Congress.

Table 1 presents for the ten congresses the relation between Democratic party size, Democratic propensity to defect, and the percent of House members in winning Democratic coalitions. Two facts should be immediately clear. As the Democratic size increased from the 84th to the 89th Congress, the percentage in winning coalitions also increased. The correlation based on the 442 individual roll calls in the ten congresses is strong ($r = +.69$). While nothing can be said about situations beyond 68 percent strength, there appears no tendency to form minimum winning coalitions within this range.

A second fact is also clear. Increases in party size bring no increased Democratic propensity to defect. For all party roll calls Democratic cohesion, if anything, increases slightly. And for winning Democratic roll calls, there is no relation between party size and cohesion or Democratic defection rates. In fact, the correlation between party size and percent Democrats defecting for the 442 individual roll calls is zero.[15]

[14] See DeSwaan, *op. cit.*, p. 427. See also David W. Moore, "Legislative Effectiveness and Majority Party Size," *Journal of Politics*, 31 (November 1969), 1063-79. Moore's empirical study of size and cohesion in state legislative voting found no relation between size and cohesion for all roll calls and a negative relation using only party roll calls. But since competition is assumed in Riker's size principle, only the competitive roll calls would appear of interest to test the size-cohesion relation suggested by the theory. (In most sessions, approximately one-half of U.S. House roll calls are party votes, with the bulk of the remainder being high consensual votes with large majorities of both parties voting the same way.)

[15] The size-cohesion relation, it should be noted, does not appear affected by the result of the more loyal Northern Democratic membership (as opposed to Southern Democrats) increasing with Democratic party size. The congresses with the greatest Northern strength in the party—the 86th, 89th, 90th, and 91st—spanned the full range of Democratic cohesion from a high of 70.6 to a low of 42.5.

One other fact deserves attention from Table 1. Comparing the percentage of Democrats and the mean percentage of members in winning coalitions, it should be noticed that in congresses where the proportion of Democrats in relatively small, winning coalitions larger

TABLE 1

PARTY SIZE, PROPENSITY TO DEFECT, AND COALITION FORMATION IN DEMOCRATIC CONGRESSES, 81ST-91ST [a]

			Democratic Defection			
Congress	Years	% Democrats in House	Democratic Cohesion [b] All Party Roll Calls	Winning Democratic Roll Calls	% Democrats Defecting on Winning Democratic Roll Calls	Mean % House Members in Winning Democratic Coalitions [c]
89th	1965-66	68	59.6	63.2	18.3	62
86th	1959-60	65	70.6	79.2	10.4	64
81st	1949-50	61	58.1	76.3	12.7	61
87th	1961-62	60	62.5	69.4	13.6	60
88th	1963-64	60	68.5	73.9	13.0	59
90th	1967-68	57	55.1	66.8	16.4	57
91st	1969-70	56	42.5	54.7	21.9	59
82nd	1951-52	54	58.5	78.0	11.1	58
85th	1957-58	54	58.1	72.8	13.6	57
84th	1955-56	53	57.9	71.3	14.3	56

[a] Based on all party roll calls in House first sessions, for each congress. The Republican 83rd Congress is excluded.

[b] In this case, Rice's Index of Cohesion seemed appropriate as a summary measure. For explanation and discussion, see Duncan MacRae, *Issues and Parties in Legislative Voting* (New York: Harper and Row, 1971). The mean is based on Democratic cohesion scores for each party roll call, and for each party roll call that Democrats won, respectively.

[c] A "winning Democratic coalition" is a party roll call with the majority of Democrats on the winning side. The standard deviations for the means are noticeably consistent and low, ranging for the 10 congresses from 5.9 to 7.7.

than initial party size are produced, whereas when the Democratic majority is large, coalitions no larger or smaller than initial size are produced. In other words, while coalitions increase in size well above minimum with increasing party strength, they do so at a decreasing

rate. Since Democratic defection cannot explain the pattern, one can look to the concept of ideological distance and the minority's propensity to defect in relation to majority party size.

Table 2 relates majority size and coalition formation to the minority's propensity to defect, as shown by Republican cohesion scores and the percent of Republicans defecting to winning Democratic coalitions. Coalition formation is indicated by the increase in winning coalition size over initial majority party size derived from Table 1. As Democratic party size increases, Republican cohesion also increases for all party roll calls and for roll calls where the Democrats won and Republican defection rates decline. The correlation between Demo-

TABLE 2

MAJORITY PARTY SIZE, COALITION FORMATION, AND THE MINORITY'S PROPENSITY TO DEFECT

Congress	% Democrats in House	Increase in Winning Coalition Size over Majority Party Size	Minority Propensity to Defect: Republican Cohesion, All Party Roll Calls	Minority Propensity to Defect: Republican Cohesion, Winning Democratic Roll Calls	Minority Propensity to Defect: % Republicans Defecting to Winning Democratic Coalitions
89th	68	−6	61.5	58.2	18.5
86th	65	−1	68.0	65.5	15.0
81st	61	0	65.4	61.8	16.2
87th	60	0	63.8	60.1	18.2
88th	60	−1	66.4	63.0	16.4
90th	57	0	63.3	51.8	20.8
91st	56	+3	44.0	29.6	30.2
82nd	54	+4	67.9	52.7	20.0
85th	54	+3	52.0	46.3	22.3
84th	53	+3	54.8	54.4	19.2

cratic size and Republicans defecting for the 442 individual roll calls is $r = -.19$. Dichotomizing congresses into those with large or small majority size with the cutoff point at 60 percent, the difference in minority defection rates becomes clearer. The five "large size" congresses show the highest cohesion scores and the lowest percent defecting. The minority's propensity to defect decreases with increasing majority size. It should be clear, of course, that the findings are at best suggestive. Defection rates vary greatly between congresses

and within each congress, suggesting influences at work other than party size.[16]

Some evidence, then, supports ideological distance as a factor in coalition formation. It could be argued that in congresses where the Democratic contingent is small, bargaining incentives yield a higher propensity to defect among minority Republicans. Conversely, where the Democratic contingent is relatively large, with the unnecessary and costly bargaining incentives withdrawn, the minority propensity to defect declines. The ideological or policy distance necessary for bargaining is spanned only when it is perceived necessary to win.

The argument is advanced cautiously at this macro-level of analysis, since a much more detailed exploration of congressional perceptions about competition and bargaining would be necessary to establish the point firmly. Also, party cohesion may be influenced at the micro-level by differences in the issues of the time, presidential and congressional leadership strategies, or other competitive or cooperative inter-party patterns not visible here—which would require some modification of the ideological distance argument. At this macro-level, however, no pattern for cohesion emerged for either party when differences in Presidents, Speakers or Minority Leaders were examined. (There were five Presidents, two Speakers, and three Minority Leaders in office during the time span of the present study.)

To summarize, winning Democratic coalitions increase in size to a point above 60 percent—exhibiting a combination of minimization and maximization effects and neither one alone. As depicted graphically in Figure 1, coalition formation in Congress approximates neither the horizontal minimum winning function (represented arbitrarily on the

[16] A parallel analysis conducted for Conservative Coalition voting (votes where a majority of Northern Democrats opposed a majority of Southern Democrats and a majority of Republicans) found the same pattern. Winning coalition size increases slightly with the increase in party size and the minority's propensity to defect declines.

Since *Congressional Quarterly* breakdowns for Southern voting on individual roll calls are available only from the 88th Congress on, only the 88th-91st were analyzed for Conservative Coalition voting. This necessarily excluded the "small-size" 82nd, 84th, and 85th Congresses from the analysis. However, the large 89th, compared with the middle-sized 88th, 90th, and 91st, showed a slight increase in winning coalition size and a decrease in the minority's prospensity to defect. Winning coalition size increased from 56 percent for each of the three congresses to 58 percent for the 89th. And Republicans defecting to winning Democratic coalitions decreased to 20 percent in the 89th from 31, 27, and 36 percent for the other three congresses.

graph at 55 percent), nor a situation where party size alone determines coalition size. Since Democratic defection does not increase with increases in Democratic size, the push toward maximization seems limited only by ideological distance and the minority's defection rate. What happens beyond the 68 percent level, we do not know.

The positive slope in Figure 1, where the majority party converts increasing resources into increasingly large victories is of course no

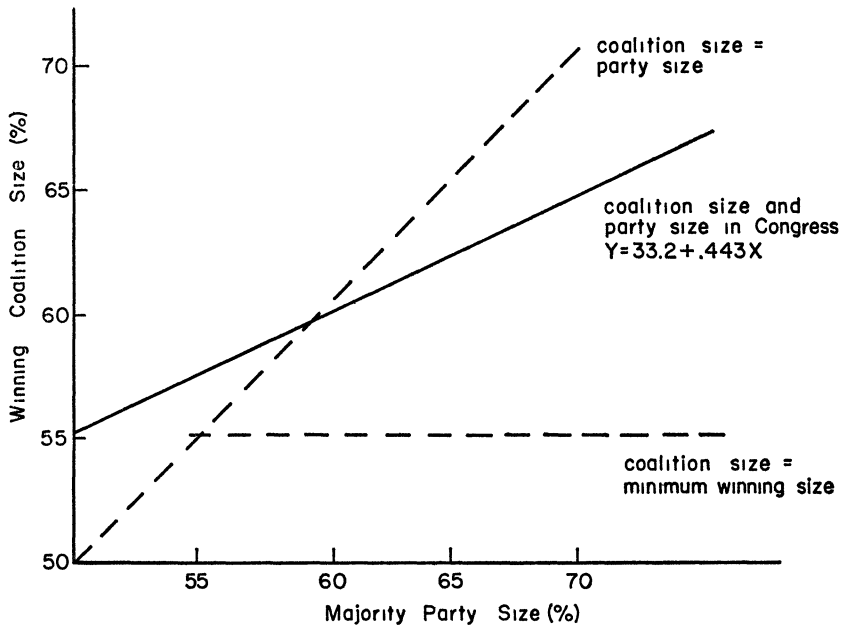

FIGURE 1
PARTY SIZE AND WINNING COALITION SIZE IN CONGRESS

contradiction of the size principle, since the congressional conditions of seriality and open entry differ from the deductive model. But the analysis suggests some limits on the real-world applicability of the model in that *given these conditions, there appears no tendency for minimum winning coalitions to form.* (Party leaders no longer have to shake their heads gloomily during election victory celebrations, fearing the increased defection that the swollen ranks will bring. . . .) This may contribute somewhat to knowledge of coalition behavior by identifying a set of contests, and, more importantly, a set of con-

ditions within which initial size and ideological distance appear to affect the kind of coalitions formed.

The analysis may also clarify majority building in Congress by placing parties more firmly within a coalitional frame. Viewing parties as proto-coalitions, engaged in a series of games, suggests a two-part strategy of competition and bargaining which might well be explored at more micro-levels of analysis. In contrast to the still-persisting notion that large party size may injure cohesion, no such relation was found for the House Democratic majority party.[17] Playing their series of games, majority parties may need to muster all the partisan support they can get if the highway vote today means the housing bill tomorrow. And so to this extent parties attempt to maximize victory, with the initial distribution of resources having no effect on bargaining within the party. But with competition between parties, the initial distribution of resources may well affect interparty bargaining as the majority party, once assured of victory, seeks to minimize ideological or policy costs.[18] Such a combined strategy, at least, fits the combination of maximizing and minimizing effects as described in the present study.

[17] Three separate studies of state legislative voting present mixed evidence on the point. Moore, *op. cit.*, found a negative relation between size and cohesion on party roll calls for the Indiana House. However, since that body meets for only 60 working days every two years, the condition of seriality present in the American Congress may well not apply to the Indiana House. Francis, *op. cit.*, also for the Indiana legislature found some negative relation between size and cohesion, except that large majority sessions produced high cohesion. Hugh LeBlanc analyzed variables affecting cohesion in 26 different state Senates and found no relation between cohesion and size. See "Voting in State Senates: Party and Constituency Influences," *Midwest Journal of Political Science*, 13 (February 1969), 33-57. It seems clear that further investigation of the size-cohesion relation should identify the legislative conditions (such as seriality, stability of membership, etc.) necessary to make the findings comparable.

[18] Charles Jones for the minority party and Randall Ripley for the majority party each cite examples of congresses where this pattern of interparty bargaining may apply. See Ripley, *Majority Party Leadership in Congress*, and Jones, *The Minority Party in Congress* (Boston: Little, Brown, 1971).