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A RATIONAL CHOICE PERSPECTIVE ON CONGRESSIONAL NORMS

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INTRODUCTION

Theoretical work by several authors suggests that a minimum winning coalition (MWC) will determine the decisions of a legislature making distributive policy. Riker, Buchanan and Tullock, Riker and Ordeshook, and Aumann and Kurz[2] all conclude that the majority will adopt distributive policies that benefit themselves at the expense of the minority. These authors also predict that majorities will be of the barest possible size, since MWC maximizes the per capita gains for the winners.

Empirical studies of Congress uniformly find that the MWC prediction is simply wrong. Nearly all studies report that members of legislatures seek unanimity and are reluctant to exclude minorities from the benefits of distributive legislation.[3] Even in the more general case of legislative party relations, studies have repeatedly shown that majority parties in Congress attempt to work with the minority parties rather than to override them.[4]

This paper presents a modification of the theory of the legislature which retains the assumption of self-interested maximizing behavior, but yields predictions consistent with empirical observation. In addition, this perspective suggests rationales for other features

of Congress that are commonly reported in the empirical literature: the existence of various "norms," "roles," and "expectations."

PREVAILING THEORIES

A policy is distributive if the benefits accruing to one area can be varied without affecting the benefits received by other areas. Such policies exhibit high divisibilities so they can be disaggregated and dispensed unit by unit, thereby concentrating the benefits while spreading the costs through general taxation. These policies are in contrast to "public goods" which must be provided to all citizens or to none. The term was originally coined for nineteenth century land policies, but as Lowi suggests, it can be ". . . easily extended to include most contemporary public land and resource policies; rivers and harbor ('pork barrel') programs; defence procurement and R&D; labor, business, and agricultural 'clientele' services; and the traditional tariff."[5]

In analyzing distributive policies, formal theories of legislative behavior concentrate upon the consequences of simple majority rule. To develop the context of these models, consider a legislature with one hundred members, each with a consistent set of preferences over policies and outcomes. The legislature is assumed to be an n-person cooperative game, which is represented as follows. Suppose that each representative i proposes a project or program with benefits b_i to his district, zero to all others, and costs c_i distributed over all districts through general taxation. If a single project is proposed for a single district, it will be defeated by ninety-nine votes to one vote, since the payoffs

will be negative to all other districts.

Since no single project will be authorized, legislators may turn to a logrolling mechanism. In this context, logrolling is the process by which groups of representatives cooperate to pass each other's projects. Any coalition composed of more than half the legislators can ensure passage of their projects and is called a winning coalition.

Both Riker and Buchanan and Tullock conclude that winning coalitions will be of minimum size, or fifty-one out of one hundred legislators in the above example. That is, the set of MWC is identified as the "solution" to the legislative game and is considered to be stable in the following sense. All that is needed to ensure an outcome is the barest of majorities. If a set amount is to be divided up, then increasing the number of members in the coalition will serve only to decrease the payoff to some or all of the members of the winning coalition. If a coalition forms that is bigger than the minimum size, then a subset (i.e. another coalition) of these legislators can increase their own payoff by excluding some of the members in the larger coalition.[6] Which of the many minimum winning coalitions will actually form is not suggested; the theory merely predicts that the one that does form will be in this set.

MODIFYING THE THEORY

The preceding theory fails to explain universalism, i.e. the tendency to seek unanimous passage of distributive programs through inclusion of a project for all legislators who want one.

Indeed, this tendency constitutes evidence against the model. In exploring the observed data, it becomes apparent that the model fails to give consideration to an obvious feature of a representative process -- the payoffs to a representative and to his district may differ. While the district may wish to enrich itself at the expense of the rest of the country, the representative wishes to retain the prestige and power which accompanies continued membership in the legislature. This feature, when explicitly incorporated into a model of the legislature, destroys the MWC theory and gives rise to the norm of universalism.

The model that follows is based upon several assumptions. The first is that representatives seek reelection. Although this does not have to be an end in itself, it is necessary to continue the utility derived from the prestige and power obtained by being a member of the legislature.[7] The second assumption is that districts respond positively to beneficial legislation: the greater the net benefits received by the district the more likely they are to reelect their representative. Further, decisions made by the electorate are based on the net benefits accruing to them without consideration of the effects on other districts. While the model distinguishes the intentions of the electorate and the representatives, it does assume that their interests are related: the representative seeks to be returned to office and his electoral fortunes are related to the benefits he brings home to his district. The more successful he is at getting projects authorized, the greater his chances of remaining in the legislature.

The major implication of these assumptions for the analysis of distributive policy is that representatives pursuing their own

interests will prefer institutional arrangements which increase their chances of success in gaining benefits for their district. Universalism is such an institution. Rational self-interested legislators have compelling reasons to prefer decision making by maximal rather than minimal winning coalition.[8] The argument can best be communicated by an example.

Suppose each of our one hundred legislators proposes a project that benefits his district by $100 and costs $50. Should a minimum winning coalition form, fifty-one legislators will band together to pass each other's projects. The net payoff to their districts will be $74.50, which is $100 minus their district's share of the total costs ($25.50 or 1% of 51 x $50). The payoff to the legislator is a greater chance of reelection for insuring a project for his district.

For members not in the coalition the payoff to the district will be negative: they pay their share of the total costs, 1% of 51 x $50 for a net payoff of -$25.50. For these legislators, the payoff is an increased chance of defeat for having obtained a negative payoff for the district.

A priori, of course, no legislator can be sure that he will be a member of the winning coalition, and hence of how distributive programs affect his chance of reelection. From this standpoint, if all coalitions are equally likely, any given legislator has a 51 percent chance of being in the winning coalition, which yields an expected payoff of 51%($100 - .01x51x$50) + 49%(0 - .01x51x$50) = $25.50.

In contrast, if the legislature were to operate under a

universalistic norm, all projects would be approved. Each district then receives an expected payoff of \$100 - 1% x 100 x \$50 = \$50, which is greater than \$25.50. Moreover, each legislator is then more likely to be reelected. Under such conditions rational legislators will choose a decision rule of universalism rather than MWC.

The pursuit of reelection is not the only reason legislators would rationally choose to institutionalize and maintain a tradition of unanimous coalitions.[9] In addition to increasing the ex ante probability of reelection, unanimity reduces the uncertainties they face if MWCs are to be formed. Also, institutionalizing the coalition of the whole reduces the time and energy used to negotiate the formation of the winning coalition. This time can be used pursuing other actions related to the objectives of the members.

Once universalism has been accepted as an institutional rule, the legislator must decide whether to include a project (previously, the decision also included the choice of a strategy to become part of the MWC). This decision can be modeled as a noncooperative game and has a Nash equilibrium solution. The choice is whether to propose a project, given that all other districts are getting a project. As long as the project brings a net benefit to the district, it is in the interests of the representative to propose one.

Consider again one hundred legislators indexed by i. Each could propose a project bringing benefits, b_i, and costs, c_i. The decision for any legislator, j, is between the following strategies.

(1) Propose a project and receive net benefits $b_j - .01 \times (\Sigma_i c_i)$ or

(2) Fail to propose a project and simply bear the district's share of all other costs $- .01 \times (\Sigma_{i \neq j} c_i)$.

Strategy (1) is preferable to (2) as long as b_j is greater than $0.1c_j$ or, in words, the benefit/cost ratio of the project is greater than 1/100. Thus the equilibrium strategy is a project for every district as long as one can be found that provides benefits that exceed 1 percent of the costs.

A natural objection to the preceding analysis poses short-term against long-term rationality. In the long term all the legislators do better under universalism. But in the short term what prevents an impetuous group of legislators from proposing a bill with projects for just a bare majority? Obviously, a universalistic rule must include further features that give individual legislators an incentive to follow the rule at all times. What "maintenance mechanisms" are there to support this rule or "norm"?

One possible answer lies in the procedural rules and institutional structure of the legislature. For example, a rule may be adopted to prevent poaching. If a member attempts to remove a project by floor amendment or otherwise obstruct the process, then remove his project instead. Though this rule is rarely invoked, it occasionally is used. Ferejohn reports that Senator Proxmire's attempts to reduce the pork resulted in the curtailment of his pet project.[10] More recently, Senator Buckley of New York proposed a series of amendments removing a project or two for every state from the public works legislation. Only the two amendments removing projects from New York passed. Similarly, this rule provides potential penalties to a member seeking to build a MWC. Those who make the attempt may lose their share.[11]

A second, non-institutional factor inhibits attempts to form MWCs: the repetition inherent in the legislative process. In the next session a new MWC might form. If exclusion from the legislative benefits implies a much greater risk of defeat, then legislators will be even more reluctant to make the attempt for short-run gain out of fear of losing next time.

In order for the legislature to adopt universalism, legislators must perceive that the benefits of projects generally exceed the costs. Assuming each legislator's project has the same benefits and costs,[12] the proposal to adopt universalism yields net benefits to each legislator of b - .01 x 100c, in contrast to MWC expected benefits of .51b - .01 x 51c. The former exceeds the latter only if b is greater than c. Hence a rational legislator will vote to adopt universalism only if the expected benefits are positive. Yet this conclusion is at odds with scholarly observations of many distributive policies. The very term pork barrel connotes expenditures that are not economically warranted. Empirical studies abound with examples of public works projects for which the "benefits" exceed the costs only because of the wildest assumptions that lie behind the calculations.

Two factors help explain why universalism persists after the objective basis for its adoption has vanished. First, legislators rarely receive 100 percent of the vote.[13] Sixty percent is usually considered a large plurality. Since most districts are not composed of a homogeneous group of constituents, representatives cannot hope to capture 100 percent of the vote. A legislator is successful in obtaining reelection if he builds

a majority coalition or constituency within his district. The basis of this coalition is an amalgam of positions on issues, including issues other than distributive programs, such as regulatory or redistributive policies.[14] Thus a representative may consciously choose a supporting constituency that contains only a comfortable majority of the district population. This implies that the institution of universalism may continue even though the net return on projects is negative. If a representative has built a supporting constituency that represents, say 60 percent of his district, then projects with negative rates of return may still be included if the benefits can be concentrated among the supporting coalition and if b > .60c.[15]

Second, over time projects are chosen with successively lower rates of return. This reflects rational legislators choosing those projects with the greatest net benefits first. As the process continues, the net benefits of the projects decline and eventually become negative.

Once universalism is adopted, cooperative action by all legislators is no longer required, and each proposes his projects individually. As the projects being proposed no longer meet the criterion b > .6c, the process takes on the familiar form of the prisoner's dilemma. Acting individually, legislators will still continue to propose projects (until b < .006c, since each supporting constituency receives all the benefits and only 60 percent of one percent of the costs of its own projects). Consequently the institution may remain after it has ceased producing net benefits.

Constituents will not necessarily find it rational to

hold their representatives responsible for the persistence of pork after it ceases to provide them with net benefits. A legislator is only one vote in the legislature. Acting by himself, though perhaps making a valiant attempt (as either Proxmire or Buckley may have been doing), one vote is not likely to alter policy. At the same time, the legislator retains the ability to get the district its share. As Fiorina argues, constituents may indeed be satisfied with this type of role.[16] If voters perceive their ability to change the system, acting through their legislator, to be negligible, it is rational for them to approve (reluctantly) of this role.[17]

Eventually, electoral incentives will favor removing pork barrel expenditures when net benefits become sufficiently negative. A new cooperative action may remove or alter the nature of the now counterproductive institution, thereby increasing the flow of net benefits to the constituencies. This can be accomplished by canceling the program or by altering its scope and jurisdiction. The latter alternative has the potential to widen the set of possible projects to include some with positive net benefits.

Indeed, widening the scope of the process rather than dismantling a committee's jurisdiction has occurred frequently in recent years. As Ferejohn reports, "The Corps' function has expanded . . . dramatically in the last thirty years. Projects for the protection of wildlife, the construction of recreation facilities, the improvement of water supply and quality, and the stimulation of regional economic

development have all been authorized by Congress for the Corps of Engineers during this time period. . . . This expansion has enabled the Corps to avoid cutting back its budget and staff as earlier functions have declined in importance."[18] In particular the recent amendments to the Water Pollution Control Act (1956 and especially 1972) authorizing construction of sewage treatment plants gave the Corps a boost as their more traditional function has become less valuable.

These modifications to the theory of the legislature provide a rationale for the pork barrel as a structure to serve member goals. It further predicts that this cannot remain unaltered indefinitely. The process must either be halted entirely or dramatically changed.

POLICY CONSEQUENCES

In addition to affecting member goals differently from unmodified majority rule, universalism has an effect on policy outcomes. In the case of no constituency differentiation within the district the pork barrel system becomes an electoral liability once the benefits are no longer greater than their costs. This provides an incentive to alter the process as was discussed above. In contrast, under MWC the process will not become a liability until the benefits are less than 51 percent of the costs. Since fifty-one projects are built under MWC, a district receiving a project pays only 1% of 51 x c. Consequently, the net benefits to the district are positive if $b > .51c$. This implies that pork barrel will continue longer under unmodified majority rule than under

universalism. Alternatively more inefficiency (or pork) is possible under MWC than universalism.

The results remain if the possibility of the political rewards differing from the economic rewards is assumed. Recall that a congressman who has built a supporting constituency of 60 percent of his district receives positive benefits under universalism as long as $b > .60c$.[19] With this supporting constituency, under MWC rules, a project will yield positive political rewards of $b > .51 \times .60c$ or $b > .31c$.

The conclusion that simple majority rule allows more inefficient policies than unanimity is not new. Buchanan and Tullock argue that unanimity is required to insure that only efficient projects will be chosen.[20] Their conclusion and the results of this paper are derived from similar models so this consistency is not too surprising.

The literature is not fully supportive, however. Barry argues that unanimity has the greatest potential for pork since it distributes a "Veto" to every voter.[21] Each individual, pursuing his own self-interests, is likely to demand special benefits in return for his cooperation. Therefore, unanimity will maximize the pork if all voters pursue this strategy. However, in terms of the above model this argument makes little sense. If, indeed, all voters pursue the strategy of choosing a project such that $.01c < b < c$ then any one individual can make himself better off by vetoing the whole proposal. Since all are demanding pork, the payoff to any individual voter will be $b - .01 \times 100c = b - c < 0$.[22]

One possible way of intepreting Barry's claim is to examine a legislature where the majority rule is qualified to allow a subset of voters a veto.[23] Those legislators possessing veto power may be able to extract more pork than unmodified majority rule. In the simplest case, assume majority rule subject to only one legislator's veto. This legislator will be in any MWC that forms, and may demand more projects than any other legislator, potentially increasing the pork barrel. A more detailed investigation of this social choice rule is beyond the scope of this paper.

CONCLUSION

This paper provides an instrumental basis for the social-psychological norms observed in most real world legislatures. In doing so, it follows Fenno and others in interpreting these norms as the informal structure or rules of the legislature.[24] In the Power of the Purse Fenno begins the discussion of the House Appropriations Committee's structure in these terms.

> In the first place, the committee must develop an institutional decision-making structure. In the second place, the Committee must maintain or stabilize the decision-making it created. [p. 127]
>
> . . . The basic elements of the Committee's internal structure are its differentiated roles . . . . Roles consist of clusters of norms. [p. 128]

Next,

> The idea of control mechanisms completes the definition of an operative norm. Two such mechanisms are of special importance to the Committee on Appropriations. The first is the socialization process . . . the second is the sanctioning mechanisms applicable

> to all members of the committee which operates to reward the observance of appropriate norms and punish deviations from them. [p. 208]

As argued here, legislators find it in their own self-interests to establish norms and form institutions to further their goals. Observing that different institutions imply different outcomes, which affect member goals differentially, a rationale exists for establishing one set of norms over another.[25]

This perspective suggests possible explanations for other norms discussed in the literature. These informal rules of the legislature serve to further collective goals and individual member's goals. Consider the dual norms of specialization and reciprocity which support the committee system. These norms foster the development of legislative expertise in a specific area so that complex proposals on diverse subjects can be considered simultaneously. Consequently the Congress as a whole need not consider each bill and individual representatives need not study and research the details of all legislation. The reciprocity rule provides the incentives to specialize by delegating the decision power of the legislature in a particular area to a specific committee. Individual members thereby gain greater influence in a particular area. Since representatives tend to be members of committees related to their constituency's interests,[26] members can use this influence to shape policies closer to their constituency's needs or preferences than if these policies were to be drafted by a random collection of members.[27] Individual legislators consequently have an incentive to support the committee

system through following the reciprocity rule. Thus, like the norm of unanimity, the specialization and reciprocity norms will have an effect on a representative's electoral fortunes and on the nature of the policies written by the legislature.

FOOTNOTES

1. I am grateful to Robert Bates, John Ferejohn, Morris Fiorina, James Quirk, and Roger Noll for helpful comments at the various stages of this paper.

2. William Riker, The Theory of Political Coalitions (New Haven: Yale University Press, 1962); James Buchanan and Gordon Tullock, The Calculus of Consent (Ann Arbor: University of Michigan Press, 1962); William Riker and Peter Ordeshook, An Introduction to Positive Political Theory (Englewood Cliffs: Prentice-Hall, 1973); Robert Aumann and Mordecai Kurz, "Power and Taxes," mimeo, 1975.

3. To cite just a few: John Ferejohn, Pork Barrel Politics (Stanford: Stanford University Press, 1974); Arthur Maass, Muddy Waters (Cambridge: Harvard University Press, 1951), on Public Works; Richard Fenno, Power of the Purse (Boston: Little, Brown and Company, 1966), on the Appropriation Committee; Richard Fenno, Congressman in Committees (Boston: Little, Brown and Company, 1972), on the Interior Committee; John Manley, The Politics of Finance (Boston: Little, Brown and Company, 1970), on Tax Policy; E.E. Schattschneider, Politics, Pressures and the Tariff (Englewood Cliffs: Prentice-Hall, 1935), on the Traditional Tariff.

4. For example, Fenno, Power of the Purse; Ferejohn, Pork Barrel Politics; John Manley, "Wilbur D. Mills: a Study in Congressional Influence," American Political Science Review 62 (June 1969): 442-64; and David Mayhew, Party Loyalty Among Congressmen (Cambridge: Harvard University Press, 1966).

5. Theodore J. Lowi, "American Business, Public Policy, Case Studies and Political Theory," World Politics 16 (July 1964): 690. The categorization of public policies as either distributive, regulatory, or redistributive is developed in this article.

6. See Riker, Theory of Political Coalition, chapters 1 and 2, for a discussion of the various assumptions of this approach, especially the zero-sum condition which is not satisfied by the examples of this paper. Guillermo Owen presents a concise statement of the theorem and formal proof in Game Theory (Philadelphia, W. B. Saunders Company, 1968), p. 168. The theorem is actually much weaker than the result used by either Riker or Buchanan and Tullock.

7. See Fenno, Congressmen in Committees.

8. The following argument provides a rationale for Mayhew's claim: "On legislators supplying particularized benefits, two points may reasonably be made. The first is that it is vital for members to

win victories; a dam is not good unless it is authorized and built. The second is that winning victories can be made quite easy. The best way for members to handle the particularized is to establish universalistic standards". [David Mayhew, Congress: The Electoral Connection (New Haven: Yale University Press, 1974), p. 114.]

9. The question of maintenance will be pursued shortly.

10. Ferejohn, Pork Barrel Politics, pp. 114-115.

11. A full exposition of the institutions supporting universalism is beyond the scope of this paper. See Ferejohn, op. cit., for a discussion of the actual rules supporting the Public Works legislation.

12. At least in terms of the ex ante expectations of the legislators.

13. This section relies heavily on Richard Fenno, "Congressmen for their Constituencies: An Exploration", delivered at the Annual Meeting of The American Political Science Association, September 1975; and Morris Fiorina, Representatives, Roll Calls, and their Constituencies (Lexington, Lexington Books, D.C. Heath and Company, 1974).

14. See Lowi, op. cit., for discussion of this classification.

15. If the benefits are perfectly concentrated among the legislator's supporters then the cost to the supporters is 60% of .01 x 100c. Consequently, they receive positive net benefits at the expense of the rest of the district and all other districts if b > .6c.

16. Morris Fiorina, "The Case of the Vanishing Marginals: The Bureaucracy Did It," forthcoming, American Political Science Review. See also Morris Fiorina, Is There a Washington Establishment?, forthcoming.

17. Roger Noll, "Breaking Out of the Regulatory Dilemma: Alternatives to the Sterile Choice," forthcoming, Indiana Law Journal, presents a similar perspective on regulatory agencies.

18. Ferejohn, op. cit., p. 8.

19. Thus, the political net benefits are b - .6c.

20. See The Calculus of Consent, ch. 5, 10-14.

21. See Brian Barry, The Political Argument (London, Routledge & Kegan Paul, 1965), pp. 250-256 and 317-318.

22. See J. Roland Pennock, "The 'Pork Barrel' and Majority Rule: A Note." Journal of Politics 32 (1970): 709-716. Pennock

disagrees with Barry's arguments and supports Buchanan and Tullock. See also Ferejohn's "conclusion" in Pork Barrel Politics for a further contrast between the two approaches.

23. It is possible Barry had this in mind. He writes, "The nearer a system comes to requiring unanimity for decisions, the more prevalent we may expect to find the 'pork barrel' phenomenon. The United States comes nearer to a 'unanimity system' than any other Western democracy; it also suffers most from the 'pork barrel' problem," p. 317. In the above example, the individuals with the veto power are the relevant committee chairman, ranking minority member, president, etc.

24. Kenneth Arrow argues similarly for the case of medical ethics in "Uncertainty and the Welfare Economics of Medical Care," American Economic Review 53 (1963). John Harsanyi presents an insightful rational choice interpretation of social norms and values in "Rational Choice Models of Political Behavior vs. Functionalist and Conformist Theories" World Politics 21, (1969): 513-38. Finally, Brian Barry devotes most of Sociologists, Economists and Democracy (London: Collier-Macmillan, 1970) to contrasting the rational choice approach against the sociological. The first two scholars, and Barry at times, provide a partial synthesis of the two approaches. They conclude that rational choice theorists should consider social values or norms as

rules governing behavior rather than a competing explanation. In this sense, these rules must be explained in terms of the benefits they provide for the group and the individuals following the rules.

25. Mayhew devotes the second half of his excellent essay, Congress: The Electoral Connection, to a discussion of how the structure of Congress is designed to further member goals.

26. See Fenno, Congressmen in Committees.

27. Fenno, in The Power of the Purse, makes a similar argument for the House Committee on Appropriations. One of the committee's prime methods of controlling spending under Chairman Cannon was to assign members to subcommittees unrelated to their districts' interests. See Ferejohn, Pork Barrel Politics, ch. 9, for evidence supporting this claim in the case of pork barrel legislation.