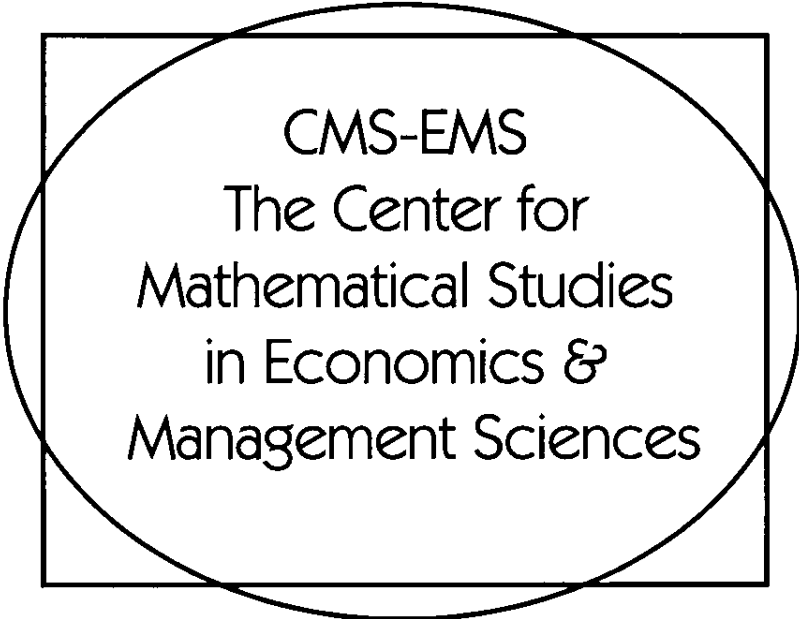"Analysis of Democratic Institutions:
Structure, Conduct, and Performance"

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Mathematical Studies
in Economics &
Management Sciences

ANALYSIS OF DEMOCRATIC INSTITUTIONS:

STRUCTURE, CONDUCT, AND PERFORMANCE

by

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September 1994

Abstract. This paper develops an economic perspective on political theory, as a guide to some problems and directions of current research. The electoral system and the allocation of powers to elected offices together define the game that politicians play. So democratic structures should be compared and evaluated by analyzing game models, to see how equilibrium behavior of political agents may depend on the structure of the political system. The goal of such research is to predict how the conduct of politicians and the performance of government may depend on the incentives created by the structure of the political system.

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The structure of a democratic political system consists of the offices that politicians may seek, the constitutional powers associated with these offices, and the procedures by which candidates are elected to these offices. These structures together form a complex incentive system for politicians, determining what kinds of political decisions and strategies will be rewarded. Thus, the constitutional structure of a democracy may influence the conduct of its politicians and the performance of its government. In this way, political theory confronts a set of questions that have much in common with the classic economic questions of structure, conduct, and performance in industrial organization. This paper develops this economic perspective on political theory, as a guide to some problems and directions of current research.

Economic and Political Interpretations of a Classic Model

When one looks at political theory from an economic perspective, it may be tempting to assume that familiar structures of economic markets carry over into the political arena. However, political questions are unlikely to fit well into the framework of price-theoretic analysis, because the structure of commodities and transactions that underlies price theory is special to economic markets. Game-theoretic analysis is more likely to fit political questions, because game theory imposes fewer structural assumptions. But the models that offer the clearest insights into political phenomena are not necessarily the same as those that have been most valuable for understanding markets.

For example, consider Hotelling's (1929) seminal paper on spatial

1

competition. Hotelling developed a mathematical model to show that duopolists who are choosing shop locations on a line will locate together at the same median position. Suppose that the customers' locations are distributed uniformly over the interval from 0 to 1; then both duopolists should locate at the median point 1/2. Each customer will buy from whichever shop is closest, and so moving away from the median would leave more than half of the market to the other firm.

Hotelling lamented that such competitive forces operate widely in markets, confronting buyers with an excessive sameness. When the shops locate together at the point 1/2, the average distance that a customer must travel to shop is 1/4. But if the shops separated and located themselves at the points 1/4 and 3/4, then the average distance that a customer travels would be only 1/8. So the convergence of the two shops on Main Street causes a real welfare loss.

Hotelling then extended this conclusion to political competition, reinterpreting the line of possible locations as the set of possible values of some important parameter of government policy. In this political version, the customers are reinterpreted as voters, each of whom has an ideal policy position between 0 and 1, and the voters' ideal points are distributed uniformly over the interval from 0 to 1. Just as customers want to buy from the closest firm, so voters want to vote for the party whose policy position is closest to their ideal policy position. So when the two parties compete to win, they converge in equilibrium to the middle of the voters' distribution. Thus Hotelling offered an explanation of why the policy positions of the Democratic and Republican parties may also tend to "excessive sameness."

However, there is at least one crucial difference between the economic and political situations that Hotelling discussed. The ultimate payoff to an

2

individual voter in the political game is determined not by the party for which he votes, but by the party that wins the election and sets government policy thereafter. When the parties locate together at the median point 1/2, then the average difference between a voter's ideal point and the actual government policy is 1/4. But if the parties separated and located themselves at the points 1/4 and 3/4 then the average difference between a voter's ideal point and the actual government policy would be 5/16, whichever party won the election. So convergence of the two parties' policy positions does not cause welfare losses in the political game. In fact, with risk-averse voters, an equilibrium in which both parties have a positive probability of winning can be Pareto-efficient only if the two parties converge to the same position.

Thus, welfare analysis in the political game is completely different from the economic game. The flaw in the analogy is that both stores can separately serve customers in the economic version, but only one winning candidate or party can serve the voters in the political version. Nonetheless, Hotelling's unfavorable view of policy convergence has set the tone for much of the political literature on spatial competition.

Hotelling's discussion of this problem has had enormous influence on political theory, both directly and through the subsequent work of Downs (1957). The literature has analyzed a wide variety of assumptions about the number of competing political parties and their objectives, about the timing and cost of entry into the political race, about the behavior of voters, and about the dimensionality of policy space. (For recent surveys, see Shepsle, 1991, and Enelow and Hinich, 1990.) But most of this literature has considered only one political structure: a winner-take-all election in which each voter can only vote for one party. Comparing different electoral systems in this

3

sort of model can offer specific and valuable insights into the ways that democratic structures may influence political behavior.

Comparison of Electoral Systems

When only two candidates vie for an elected office, then there is essentially only one anonymous neutral electoral system: every voter can give one vote to one of the two candidates, and the winner is the candidate with the most votes. When more than two candidates enter a race, however, an enormous range of electoral systems need to be compared.

Under plurality voting, for example, each voter can give one vote to only one candidate, and the candidate with the most votes wins. Under approval voting, each voter can give an approval vote to any number of candidates (but no more than one to any one candidate), and the winner is the candidate with the most approval votes. Under Borda voting with K candidates, each voter must rank the candidates in some order and must give 0 votes to the candidate at the bottom of the ranking, 1 vote to the second-lowest ranked candidate, and so on up to K-1 votes for the top-ranked candidate; again, the winner is the candidate with the most votes. Under negative plurality voting, each voter can give one negative vote against one candidate only, and the winner is the candidate with the fewest negative votes. In addition to such winner-take-all systems, there are list systems like proportional representation, in which each voter can give one vote for only one party (as in plurality voting), and seats are allocated to parties in proportion to their votes. There are many variations on proportional representation, differing on such questions as how to fit a vote distribution to a finite integer number of seats, and how to determine which candidates in a party's list get to actually fill the seats

4

that the party wins. The other papers in this symposium explain these types of voting in greater detail, and provide examples of still other voting systems. The reader interested in various types of voting systems might also begin with Balinski and Young (1982) and Taagepera and Shugart (1989).

Social scientists need to understand what differences in political conduct may be induced by these different electoral systems. Economic theory suggests this methodology: formulate game models in which political agents must make decisions, and then investigate how the equilibrium behavior in these games changes as the rules of the electoral system are changed, holding fixed the basic parameters of individual preferences.

As an example of work in this spirit, consider Cox (1987b, 1990), who studied the properties of electoral systems by looking for symmetric convergent equilibria, in which all parties (or all candidates) choose the same position in a one-dimensional policy space.[1] An example of such an equilibrium was Hotelling's main result: when there are two candidates for a single office, such a convergent equilibrium exists only at the median voter's ideal point. Under plurality voting, such symmetric convergent equilibria do not exist when there are more than two candidates. Under approval voting or Borda voting, however, Cox showed that there is always a unique convergent equilibrium at the median voter's ideal point. Under negative plurality voting, convergent equilibria can be constructed at any point in an wide interval, which expands across the set of voters' ideal points as the number of candidates increases.

These results may be expressed quantitatively. The Cox threshold of candidate diversity may be defined as the largest number Q such that, when a fraction Q of the voters have ideal point 1, and all other voters have ideal point 0, there exists a symmetric convergent equilibrium in which all K

5

candidates choose the policy position 0. That is, the Cox threshold is the size of largest coherent bloc of voters that could be ignored by all K candidates in a symmetric equilibrium (Cox, 1987b, 1990; Myerson, 1993b). With only two candidates in an election, both candidates should converge on whichever policy position is known to be preferred by the majority of the voters. With three candidates under plurality voting, however, the three candidates can converge at 0 only if less than one-third of the voters prefer 1 to 0. If more than one-third of the voters prefer 1, then at least one candidate might appeal to those who prefer 1, hoping that the other two candidates would split the majority at 0 in a symmetric equilibrium. In general, the Cox threshold is 1/K for plurality voting with K candidates.

In negative plurality voting, instead of trying to be ranked first, candidates are trying to avoid being ranked last. With two candidates, this is the same as plurality voting, of course. With three candidates, however, if less than two-thirds of the voters prefer 1 to 0, then the positions of all three candidate can converge to 0 in equilibrium, even if there is a majority preferring 1! A candidate deviating alone to 1 would get negative votes from all the voters at 0, whereas the two remaining candidates at 0 would split the negative votes from the voters at 1. In general, the Cox threshold for negative plurality voting with K candidates is (K-1)/K, which increases towards 1 as K increases. This result, that a large majority of voters can be ignored by all candidates in equilibrium under negative plurality voting, shows us that negative plurality is a very unattractive voting mechanism.

In approval voting, by contrast, a voter can designate multiple choices. As a result, in the bifurcated voter distribution considered above, any candidate who is favored by the majority of voters will get more votes than

6

any candidate who is favored by the minority, even if the majority is distributing its votes symmetrically over many candidates. Thus, the Cox threshold with approval voting is 1/2. That is, even with more candidates, no more than 1/2 of the electorate can be ignored by all the candidates. The Cox threshold is also 1/2 with any number of candidates under Borda voting, and also under single transferable vote when there is one seat to fill. Thus, this analysis reveals substantial differences among multicandidate electoral systems, in the relative incentives that they give candidates to advocate a diversity of positions or to adopt similar policy positions.[2]

In Cox's analysis, an election in which legislative seats are allocated by proportional representation looks essentially the same as for an election in which a single office is allocated by plurality voting, because in both cases a voter can only support one party or candidate. In both cases, with K parties that nominate candidates, the Cox threshold is 1/K. This conclusion may seem surprising, because we normally expect a greater diversity of party positions under proportional representation with multi-seat districts than under plurality voting with single-seat districts. The difficulty is that the above analysis assumed an exogenously given number of equally serious parties, but in reality the number of major parties itself may depend on the electoral system. Under plurality voting, there is an empirically observed tendency to two-party systems, known as Duverger's law, but proportional representation often supports many more parties (Duverger, 1954; Riker, 1982a).

So we need to explain the tendency toward two-party systems under plurality voting, and more generally, to predict how the number of serious parties may depend on the electoral system. To explain Duverger's law, we must drop the assumption that voters think that all parties' candidates are equally

7

likely to be close contenders to win the election (which was implicit above in our restriction to symmetric equilibria). If voters think that only two parties' candidates have any serious chance of being close contenders to win, then voters will view votes for other parties as "wasted," and so under plurality voting each voter will choose only between the two "serious" parties. Notice that this argument can be applied to any two arbitrarily selected parties, provided that each is preferred over the other by at least some voters. Thus, plurality voting creates an enormous multiplicity of voting equilibria when there are many parties on the ballot (Palfrey, 1989; Feddersen 1992; Myerson and Weber, 1993).[3] To derive Duverger's law, it remains for us to refine this argument to exclude other multiparty equilibria, in which more than two parties get votes under plurality voting. (Feddersen, 1992, has such a result for pure-strategy equilibria in a spatial model with costly voting.)

From an economic perspective, Duverger's law looks rather like a statement that plurality voting tends to create barriers to entry against third parties (because votes for those third parties would be "wasted"). Just as barriers to entry allow higher profit-taking by oligopolists in a market, so barriers to entry may also allow more exploitation by oligarchs in the political arena. That is, electoral systems that allow more fluid entry and exit of parties may reduce the degree to which political leaders can exploit their political power.

Myerson (1993a) investigated a formulation of this conjecture in a voting game in which parties (which differ in their positions on a simple binary question) publicly bid levels of corruption, as Bertrand oligopolists bid prices. In equilibria of this game, the barriers to entry created by plurality voting allow party leaders to enjoy corrupt profits. If the electoral system is changed to approval voting or proportional representation, however, then

competition drives corruption to zero in all equilibria of this game. In essence, plurality voting appears less competitive because it encourages blocs of like-minded voters to coordinate their support behind one big party, in a nonsymmetric equilibrium where other similarly positioned parties are not considered serious contenders to win. Thus plurality voting protects big parties even if they are somewhat corrupt. In contrast, approval voting and proportional representation facilitate the entry of new parties.

Borda voting and negative plurality voting also allow corrupt profits in the voting game of Myerson (1993a), but for a different reason. Borda voting and negative plurality voting can create barriers to consolidation of parties, by encouraging a bloc of voters to spread their support over several smaller parties, even if some of them are somewhat corrupt. The result is that a corrupt party will not necessarily be driven out of contention. In effect, Borda and negative plurality may be less competitive because they have too few nonsymmetric equilibria in which some parties are considered out of contention.

Thus, game-theoretic comparison of electoral systems suggest at least two dimensions on which the properties of electoral systems may be distinguished. Given any number of equally strong parties, first-place rewarding systems with low Cox thresholds (like plurality voting and proportional representation) compel parties to scatter widely in policy space; last-place punishing systems with high Cox thresholds (like negative plurality voting) allow parties to cluster at any of a wide range of policy positions; while systems with intermediate Cox thresholds around 1/2 (like approval voting, Borda voting, and single transferable vote) allow clustering only at the median voter's ideal point (if such a point exists). When the number of serious parties is admitted as an endogenous variable, we may also distinguish systems (such as plurality

9

voting) that tend to create a small number of serious parties, and systems (such as Borda voting and negative plurality voting) that tend to encourage a proliferation of parties, from intermediate systems (such as approval voting, proportional representation, and single transferable vote) that can flexibly accommodate small or large numbers of parties.

The significance of these sorts of categorizations of electoral systems, by the properties of their equilibria in selected political games, is only beginning to be appreciated. Classic results in social choice theory have emphasized the difficulty of designing voting systems that would give voters an incentive to vote sincerely over given sets of alternatives. In any real political system, however, the alternatives in an election are not given exogenously; they are the result of decision-making by politicians. Thus we have suggested (following Riker, 1982b) that electoral systems should be evaluated by the incentives that they create, not for the voters, but for the politicians, when they form parties, choose policy positions, and offer themselves as candidates for high office.

Separation of Powers and Bargaining Among Elected Officials

Elections themselves are only part of the political process; a full specification of the election game also requires attention to post-election bargaining among elected officials. After all, a voter's preferences over the candidates for any one office cannot be fully understood without considering the powers of this office and the other elected officials with whom the winner of this office will need to cooperate. Conversely, the behavior of these other elected officials cannot be fully understood without considering what they must do to be reelected.

10

In multiparty parliamentary systems, the formation of a governing coalition stands out as the crucial post-election event. The development of models to help understand this process is complicated both by the subtlety of the incentives which may motivate the political agents and by the tendency of bargaining games to have multiple equilibria. In the negotiations that determine national laws and policy, an elected politician might be motivated by a goal of minimizing the difference between government policy and the position that the politician advocated in campaign promises, or by a goal of maximizing the share of the government budget that the politician controls, or by a goal of maximizing the politician's chances for reelection (which may entail avoiding responsibility for current national problems). As Laver and Schofield (1990) have shown, models based on various combinations of simplifying assumptions can offer valuable insights into this process.

For example, using one set of assumptions about such post-election coalitional bargaining, Austen-Smith and Banks (1988) have developed an integrated model of both electoral and legislative politics, to analyze the question of whether voting in proportional representation systems creates a legislature that is a "mirror of the people" (in the sense that each interest group is represented in proportion to its share of the voting population). They show that a rational equilibrium can be sustained in which one party chooses an extreme leftist position, another party chooses an extreme rightist position, and a third party chooses a centrist position, but a substantial set of centrist voters do not vote for their most preferred party. The voters anticipate that the most likely outcome is that one of the two extremist parties will lead a government in coalition with the centrist party. By the rules of legislative bargaining, which one of these coalitions will form will

11

be determined by whether the extreme leftist or extreme rightist party is larger. To have an impact on this crucial race between the two extremist parties, many centrist voters will vote for their more preferred among the two extremist parties, instead of the centrist party, until the centrist party is in danger of failing to win any legislative seats. The model has other equilibria, but this one suffices to show that extremists could be systematically overrepresented in a legislature that has been elected by proportional representation.

This result is important, because it has been often suggested that an ideal for an electoral procedure should be to generate a legislature that is a mirror of the people, so that the members of the legislature will bargain as the people themselves would bargain if they could all be brought together. An economic analysis of bargaining games, however, should make us question such a political ideal. Bargaining games are prone to extreme multiplicity of equilibria, because of the rewards that can accrue to a blocking coalition that maintains a reputation for being tough and inflexible (Van Damme, Selten, and Winter, 1990; Baron and Ferejohn, 1989; Myerson, 1991, sections 8.8-8.9). With multiple equilibria, the outcome of bargaining is likely to depend on what Schelling (1960) called the "focal-point effect." That is, manipulative leaders can influence the outcome of bargaining games simply by focusing people's attention on self-fulfilling prophecies about who will make concessions and who will not. Thus, making the distribution of policy positions of legislators more diverse may make the determination of government policy more dependent on focal manipulation of perceptions among legislative bargainers, rather than on the voters' actual preferences.

In this context, it may be useful to recall why economists commonly feel

that prices are better determined in a competitive market composed of many small agents, rather than in a bargaining process between a producers' cartel and a consumers' union. In a perfectly competitive market, as in an anonymous election, there are no individual reputations, and so agents do not modify their behavior to build individual reputations for toughness.

Legislative committees play a crucial role in American legislative processes, and a rich literature has developed to explain their functions. Committees can serve to enforce and maintain agreements of a majority coalition (Shepsle, 1979; Weingast and Marshall, 1988; Cox and McCubbins, 1993), to create incentives for information gathering (Gilligan and Krehbiel, 1990), or to sustain a seniority system that encourages reelection of incumbents (McKelvey and Riezman, 1992).

A comparison of the British and American legislatures shows major differences in internal legislative institutions (Mayhew, 1974; Cox, 1987a; Cain, Ferejohn, Fiorina, 1987). Legislative committees appear more powerful in America, whereas legislative party discipline is much stronger in Britain. We should ask whether such differences can be explained as endogenous consequences of more basic structural differences between the British and American systems. The most striking of these basic structural differences is that America has an independently elected chief executive (the president), whereas the British chief executive (the prime minister) is chosen by the parliament. There is good reason to believe that the creation of an independent president has profound consequences for political behavior of individuals throughout the legislative and executive branches of the political system (Shugart and Carey, 1992; Lijphart, 1992). Diermeier and Myerson (1994) have argued that the existence of the president with an independent veto increases the incentive for

13

legislators to grant a counterbalancing veto power to committee chairmen in the legislature, in order to increase the overall bargaining power of the legislature against the president. Moe and Caldwell (1994) have argued that the legislature's inability to control the chief executive in a presidential system also gives it an incentive to design inflexible and inefficient executive agencies, as a substitute form of control.

Of course, building a theory of the differences between presidential and parliamentary systems requires considering more than just the British and American cases. Presidential systems differ in many dimensions: the methods for electing the president and the legislature; the legislative powers of proposal and veto that may be assigned to the president; the degree to which executive appointments may be directed by the legislature; and the allocation of other constitutional powers (i.e., power to amend the constitution, power to call for new elections). Shugart and Carey (1992) examine evidence that such structural parameters may have systematic consequences for legislative and executive behavior. For example, increasing the president's legislative veto powers may tend to increase the propensity of legislative candidates to identify themselves as individual advocates of special interests (to claim particular credit for protecting particular interests), rather than as members of a disciplined legislative party that has a coherent general program of government policies. Game-theoretic models of such effects still need to be developed, however.

The American political system is characterized by a separation of powers between federal and state governments, as well as between the presidential and legislative branches of the federal government. Persson and Tabellini (1993) have used game models to study the effects of different ways of allocating

14

responsibility for social insurance and macroeconomic stabilization programs among the state and federal levels of government. Results of organization theory should also be applicable to the study of federalism. Decentralization of powers in a federal system can create a competition among state governments that may help to solve problems of moral hazard and adverse selection among government agents, in comparison with a fully centralized national government.

An organization-theoretic perspective should also contribute to the understanding of differences in party structure across different political systems. The existence of coherent parties should be encouraged by legislative electoral systems in which voters must choose among closed party lists, rather than among individual candidates (Katz, 1980; Carey and Shugart, 1994); but such considerations of ballot form cannot explain the differences in party discipline between America and Britain. A parliamentary system might also strengthen party discipline by somehow increasing party leaders' ability to make credible promises and threats, or by increasing the voters' relative propensity to trust collective reputations of parties rather than personal reputations of individual politicians. In general, a political party must be understood (like a firm) as a nexus of reputations and promises, both among individual politicians, and between politicians and voters.

Empirical Analysis and Significance

In this paper, I have emphasized the role of game-theoretical models for predicting how political behavior may be affected by constitutional structures. For direction and confirmation, however, such theoretical models should be developed in a dialogue with empirical work on comparative politics.

Since Duverger (1954) and Rae (1971), attempts to study the effects of the

15

constitutional structures on political behavior have used both detailed

comparisons of selected nations and statistical analyses of multinational data;

for good recent overviews, see Lijphart (1984, 1990, 1994), Grofman and

Lijphart (1986), Taagapera and Shugart (1989), and Shugart and Carey (1992).

Dependent variables in these studies have included: the number of parties, the

proportionality of legislative seat allocations to votes, the ideological

diversity among party positions, the internal coherence and discipline of

parties, the size and composition of coalition governments, and the stability

of governments. Explanatory structural parameters have included: the form of

the electoral system, the size of legislative districts, the existence of

federal structures, and the powers of the president (if any).

Such empirical work can also benefit from complementary analysis of

game-theoretic models. Theoretical models are needed to extend predictions

to new constitutional structures which have never been tried, to distinguish

cause and effect from other statistical correlations, and to evaluate the

normative importance of these relationships. For example, we may see less

normative appeal for having legislative seats be proportional to votes, when we

learn from Austen-Smith and Banks (1988) that votes do not necessarily express

the voters' sincere preferences.

Some of the best recent empirical work suggests that details of the

constitutional structure may have significant effects on political conduct and

performance. Shugart and Carey (1992) find that the performance of a

presidential democracy may depend crucially on many structural details, about

both the extent of presidential powers and the electoral system under which

president and legislature are elected. Such importance of structural details

is also found in game-theoretic analysis, and so game models can help

16

empiricists to sort the potential impacts of the bewildering array of constitutional parameters. For example, when Shugart and Carey construct an aggregate measure of a president's legislative powers, they add together measures of the president's veto power and the president's power to call national referenda; but Diermeier and Myerson's (1994) game-theoretic model suggests that veto powers and referendum powers may have opposite effects on legislative behavior.

My general theme has been that social scientists should evaluate constitutional structures by analyzing game models, to see how equilibrium behavior of political agents may depend on the structure of the political system. We need to develop a literature in which many such models are analyzed, because any one tractable model can only consider a few simple aspects of constitutional structure and political behavior. By examining many such models, and by relating the theoretical analysis to empirical findings from comparative politics, we can gradually build a better understanding of the significance of different political institutions. Work in this area may ultimately have great practical value in finding institutional structures that can improve the chances for the sustenance and spread of representative democracy in the world.

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Endnotes

1. The assumption of symmetry here means that candidates who are located together at one position are treated symmetrically by the voters, both on and the equilibrium path and in the event that a candidate deviates from it.

2. In a one-dimensional Hotelling-type example, the actual policy outcome of a multicandidate winner-take-all election is not game-theoretically predictable, unless the electoral system's Cox threshold is 1/2. Notice, however, that the reasons are different on the two sides of 1/2. When the threshold is below 1/2, any symmetric equilibrium outcome must involve randomization, because candidates with serious chances of winning are scattered over policy space. When the threshold is above 1/2, we get multiple nonrandomized equilibria, in which the serious candidates may converge anywhere in some range of policies.

3. Myerson and Weber (1993) show that Borda and approval voting can have substantially fewer equilibria than plurality voting. For example, plurality voting can sustain a three-party equilibrium in which an extremist party wins even though there is a centrist party at the median voter's ideal point, but extremists never win against such centrists in approval-voting equilibria. In another of their examples, Borda voting has a unique equilibrium in which three parties are in a close race to win, even though one of these three parties is actually preferred by only a tiny minority of the voters; but approval voting and plurality voting have equilibria in which this minority party is out of the serious race to win.

22