Information, Participation, & Choice

An Economic Theory of Democracy in Perspective

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CHAPTER 3

Information-pooling Models of Electoral Politics

Bernard Grofman and Julie Withers

Much of the work on the role of information in politics has been inspired by the ideas of Anthony Downs. One of the most important contributions of Downs in *An Economic Theory of Democracy* (1957b) is his explicit analysis of the role that information plays in electoral competition. The value of information, along with its costs, methods of evaluation, strategic uses, and means of acquisition and dissemination have been subjects of intensive study and debate over the past thirty years (See Calvert 1986; Ferejohn and Kuklinski 1990; Krehbiel 1990.)

There are five key aspects of Downs's views. First, "in an uncertain world, roads leading toward the good society are hard to distinguish from those leading away from it. Thus, even though voters have fixed goals, their views on how to approach these goals are malleable and can be altered by *persuasion*. Consequently, leadership can be exercised on most policy questions" (Downs 1957b, 87, emphasis added).

Second, *ideological identification* serves as a cognitive shortcut for voters, who then do not need to know the stands of candidates on every issue. Ideology effectively gives voters a sample of the issues that differentiate the parties, thus serving to cut information costs. Downs also points out that ideology is useful to political parties as well as voters; each party fashions an ideology that it believes will attract the greatest number of voters. Uncertainty (combined with social diversity) accounts for why political parties do not offer identical ideological positions (Downs 1957b, 100–101).

Third, because voters are uncertain about what candidates will actually

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do in office, if voters are risk-averse, then there will be a *bias toward the status quo* unless the alternative is clearly superior.

Fourth, because voters are uncertain about what candidates will actually do in office, voters use *past performance* and *party labels* as cues. Thus, according to Downs, parties will develop consistent images and seek to keep their promises.

Fifth, because gathering information is not costless, "each citizen decides how much information to acquire by utilizing the basic marginal cost-return principle of economics" (Downs 1957b, 219). According to Downs, for most purposes many voters rely entirely on *free information* that comes to them and use cues provided by the positions and preferences of the media, interest groups, or other more knowledgeable voters in order to ascertain which candidate is most likely to enact policies the voter would prefer.

The first topic area, persuasion, as far as we are aware, has been largely (if not entirely) neglected by subsequent researchers (see, however, chap. 15). The second topic area, ideology as an information cost-reducing cognitive heuristic, also has not generated an extensive literature (see, however, Glazer and Grofman 1989). The third topic area is the subject of chapter 2. The fourth and fifth topics are reviewed in chapter 1. Also, Roger G. Noll (chap. 2) reviews and expands upon Downs's exposition of the concept of "rational ignorance," that is, reasons why voters might choose not to gather additional information about the political choices open to them if the information-gathering process were costly and/or did not provide benefits other than simply the ability to cast a more-informed vote. Our focus is on a few very recent models that look at how voters might process information from *multiple sources* to discern differences between candidates or parties. This chapter can be thought of as a complement to that of Popkin (chap. 1), in which he reviews the empirical literature on voter decision heuristics and information-gathering shortcuts.

As noted, one type of uncertainty[1] that Downs focuses on is the incumbent's and challenger's locations in the issue space.[2] In models of electoral competition, candidates may be characterized by three potentially distinct

1. Following Luce and Raiffa 1957, information conditions such as those surrounding a candidate's platform may be classified as certain, risky, or uncertain. A voting decision is said to occur under conditions of *certainty* when the action leads to a known outcome. When the issue space is unidimensional, candidate platforms will be characterized by point locations in a model of electoral competition under complete or certain information. In contrast, a decision under *risk* occurs when the voter faces a known probability distribution over possible outcomes while a decision under *uncertainty* occurs when these probabilities are incompletely known and dependent on some unknown parameter or state of nature.

2. Downs identifies at least five arenas of voter uncertainty, such as the uncertainty arising from the fact that "voters are not always aware of what the government is or could be doing" (Downs, 1957b, 80).

location decisions: the location that they espouse during the campaign, the position they seek to implement once in office, and the policy outcome that actually results. Let the candidates' campaign location be referred to as their *platform,* the location they seek to implement once in office as their *issue effort,* and the location they succeed in implementing after election as their *issue performance* (cf. Enelow and Hinich 1984, 1990b).[3] The platform may be expressed as a set of issue positions or, more loosely, in terms of a general ideology.[4] Voters and other candidates may have some degree of uncertainty about a particular candidate's platform or probable issue effort or eventual issue performance or about all three.[5]

John Ferejohn's essay in this volume reviews the literature on incentives for a candidate's announced positions to accurately reflect the policies the candidate will seek to implement if elected (i.e., on potential divergence between platform and issue effort). Bernard Grofman (1985b) looks at why a candidate may be unable to fulfill promises, leading to those promises being discounted by rational voters (i.e., a potential divergence between issue effort and issue performance). James M. Enelow and James W. Endersby (chap. 8) test for such evidence of voter discounting and find it for voter evaluations of the positions of challengers. However, most of the literature we review in this essay blurs the distinctions between announced platform, issue effort, and probable issue performance. In what follows, for simplicity, the reader may take us to be discussing incomplete information models of candidate platform location.

The degree of uncertainty surrounding a candidate's platform is not the same for all voters. "Uncertainty divides voters into several classes" (Downs 1957b, 82), since "not all citizens receive the same amount of free data, nor are those who do receive the same amount equally able to make use of it" (Downs 1957b, 223). This is true not only of direct information about candi-

3. According to Downs, "All rational voters cast ballots in order to influence the *actions* of political parties, not their *statements*" (1957b, 99).

4. Downs points out that ideologies serve to focus attention on the differentiation between parties. Downs asserts that a party's ideology must be consistent with "either (1) its actions in prior election periods, or (2) its statements in the preceding campaign (including its ideology), or (3) both" (1957b, 103). For more on this point see chapter 7.

5. The uncertainty that voters have about postelection outcomes can be attributed to five basic factors: (1) a rational competitor may have incentives to strategically misrepresent postelection intentions, (2) even in the absence of strategic misrepresentation, a rational competitor may have incentives to provide less-than-complete information, (3) other electoral participants (other voters, interest groups, etc.) may have incentives to manipulate the information environment, (4) the mechanism by which information is transmitted to the voters may be imperfect, and (5) postelection events may lead the victor to revise his or her intended policy location. Thus, even if all the parties want the electorate to be fully informed, voter perceptions may still be imperfect due to exogenous policy shocks or the "white noise" associated with information acquisition.

date platforms but also of information on predictive signals of platform location, such as candidate ideology. The presence of these asymmetries within the electorate means that individual voters may be able to decrease their perceived uncertainty about candidate platforms through interaction with or observation of other voters, groups of voters, or the electorate as a whole.

Before we turn to our central topic we briefly review some of the work looking at incentives for candidates to be ambiguous about the policies they espouse or expect to pursue.

The Effect of Policy Ambiguity on Candidate Convergence and Voter Choice

In a model of incomplete information, the exact location of a candidate's platform may not be known. Downs's description of multi-issue politics suggests the notion of candidates as lotteries. Each candidate has an estimated location on the various dimensions of the issue space, but this location need not be a point (Downs 1957b, 132). Voters evaluate a candidate's relative location by weighing "its net position [the mean of its policies] against its spread [their variance]" (133). In effect, the electorate is comparing lotteries in its voting decision. The variance of a lottery gives a measure of the degree of uncertainty surrounding the (expected) location of the candidate's platform.

Research on the effect of the risk environment on candidate location was motivated by Downs's observation that the choice of a lottery with high variance "increases the number of voters to whom a party may appeal" (1957b, 136). Downs anticipates subsequent models by alluding to the fact that this variance may be symmetric or asymmetric across candidates, symmetric or asymmetric with respect to voter perceptions, and either fixed or subject to change as a result of the acquisition of new information or learning within the model.

Kenneth A. Shepsle (1972) develops a model in which candidate platforms are characterized as known probability distributions over the issue space—that is, as lotteries. Voters then must choose between lotteries (candidates) so as to maximize their expected utility. Shepsle restricts the incumbent's choice of electoral strategies to degenerate probability distributions (i.e., certainties) and the challenger to nondegenerate distributions, arguing that an incumbent's platform is inherently less uncertain because of the incumbent's "visibility (which is) enhanced by the media . . . [and the incumbent's ability] to communicate directly with the voters through his control of government activities which alter their utility streams" (560).[6] Shepsle

6. This echoes Downs's observation that information about candidate location is distributed asymmetrically across candidates due to, among other reasons, the ability of the incumbent to publish "large amounts of information as an intrinsic part of its governing activities" (Downs 1957b, 222).

shows that, under these assumptions, "strategies of ambiguity" will not occur when the electorate is risk-averse since they can be defeated by degenerate lotteries.

Richard D. McKelvey (1980) shows that when voter preferences are unimodal and there is symmetry in variance across candidates the equilibrium results obtained are the same as those in a complete information model of two-candidate competition. In equilibrium, "parties in a two-party system deliberately change their platforms so that they resemble one another" (Downs 1957b, 115). When candidates already resemble one another in terms of lottery variance, they will then seek to further that resemblance by choosing the same expected value for their platform locations. McKelvey (1980) also found that, in general, "strategies of ambiguity" cannot occur in equilibrium and that, if we interpret ambiguous strategies to be inherently unpalatable to risk-averse voters, then intentional ambiguity will not occur in a Downsian model with risk aversion.

These results seem at odds with Downs's statement that candidates in a two-party system have incentives to be "as equivocal as possible" even when we recognize that this statement is made with the important caveat that candidates' "tendency towards obscurity is limited by their desire to attract voters to the polls since citizens abstain if all parties seem identical or no party makes testable promises" (1957b, 1136). Moreover, casual observation of contemporary politics suggests that candidates for political office (much like candidates for judicial office such as Clarence Thomas) do, with some frequency, engage in a strategy of ambiguity with respect to some important issues. Nixon's "secret plan" for ending the Vietnam War, for example, immediately comes to mind. Thus, it seems clear that the last word has not yet been said with respect to modeling candidate incentives to offer ambiguous policy platforms.[7]

In the remainder of this essay, we review in some detail four models of particular relevance to a Downsian perspective on voter information heuristics and information-pooling tactics: those of McKelvey and Peter C. Ordeshook (1984, 1985a, 1985b, 1986, 1987, 1990), Nicholas R. Miller (1986), Grofman and Barbara Norrander (1987), and Randall Calvert (1985a). The bottom line of these models can be taken to be that, rather than voters being doomed by the incentive structure of collective political choice to "rational ignorance," voters as individuals can become highly knowledgeable about the political choices facing them through a variety of information heuristics and information-pooling devices and can (as a collectivity) often make choices identical to those that would be made by a set of "fully informed" voters.

7. Relevant to the development of models designed to match up with reality is the empirical evidence on projection and rationalization phenomena in voter choice that affects how lotteries are actually evaluated by voters.

Recent Information-pooling and Information Heuristic Models

McKelvey and Ordeshook

McKelvey and Ordeshook's model (1984, 1985a, 1985b, 1986, 1987, cf. 1990) demonstrates how voters can use societal performances to determine their own preference. Its basic thrust can be illustrated in one dimension.

Each voter is assumed to know (1) which candidate is further to the left, (2) poll results that characterize the overall preferences of society on the candidates, and (3) where the voter stands on the issue dimension relative to all other voters (i.e., a percentile location).

If the electorate splits, say sixty to forty in favor of the leftmost candidate, A, then a voter, V, whose percentile location on the issue dimension is such that 55 percent of the electorate prefers policies to the right of V and 45 percent prefer policies to the left of V, can calculate that V should also vote for A since he or she must be to the left of the midpoint between A and the other candidate, B. Since the location of that midpoint determines the breakdown of the vote, all voters with ideal points to the right of the midpoint should vote for B, and all with ideal points to the left of it should vote for A.

Generalizing this process, if the voter breakdown is p percent for A and $(100 - p)$ percent for B, and all voters are Downsian and informed as to the location of the candidates, the midpoint of the AB line segment must be at the p percentile. Since our hypothetical voter is below (to the left of) this percentile, if V assumes that the electorate is making an informed choice, V knows his or her preferred choice is identical to that of the society as a whole. For example, if $A = 40$ and $B = 80$, then $A + B/2 = 60$, and the distance between A and V is 5 while the distance between B and V is 35. (Recall that V is at the 55th percentile.) Similarly, suppose $A = 30$ and $B = 90$; then $A + B/2$ is again 60, and A is closer to V than is B. It should be apparent that all that counts is the location of the AB midpoint. Thus, partly informed voters can use societal preferences to determine (by a process of what we might loosely call "triangulation") their own preferred choice.

McKelvey and Ordeshook generalize this model to the multidimensional case and show that, even if some of the electorate is uninformed, a sequential series of polls will allow all voters to make a fully informed choice. They also present experimental evidence that such a convergence in fact takes place, although this convergence is not perfect; only some 14.5 percent of the uninformed voters make erroneous judgments (McKelvey and Ordeshook 1984, 84). These erroneous voters are concentrated in a zone in which choice is difficult because they are close to the true bisecting line; it doesn't matter much to them which choice is made.

Miller

Miller (1986, 175) begins by noting that empirical findings consistently show that U.S. voters are "poorly informed," yet as V. O. Key, Jr., points out (1966, 7), in the large, the electorate behaves about as rationally and responsibly as we should expect, given the clarity of the alternatives presented to it and the character of the information available to it.

Miller then goes on to assert that there is nothing mystical or even surprising about the relative competence of the electorate as a whole, even though it may be composed largely of relatively incompetent voters, and sets forth an account of this phenomenon based on a variant of the Condorcet Jury Theorem (Condorcet 1785; Black 1958; Grofman 1975; Urken 1980; Grofman, Owen, and Feld 1983). The import of the Condorcet Jury Theorem is that, if p, the likelihood that a given voter will make the "correct" choice over some dichotomy is greater than $1/2$—where correctness is defined from the standpoint of some underlying criterion of evaluation—then group competence (i.e., the likelihood that group picks the better of the two alternatives using a majority rule vote) increases as the size of the group increases,[8] and thus "it may be entirely reasonable to entrust an important binary decision for which there is in principle a 'correct' decision (e.g., convicting or acquitting a criminal defendant) to a group of individuals of lesser competence (e.g., a jury) rather than to a single individual of greater competence (e.g., a judge)" (Miller 1986, 179).[9]

Of course, the applicability of the Condorcet Jury Theorem would seem

8. *Condorcet Jury Theorem:* Consider a group of n voters (for simplicity, let n be odd), each with a probability p of voting "correctly" on a given measure. The probability that the group majority vote $[m = (n + 1)/2]$ is correct is given by

$$p_n = \sum_{h=m}^{n} \binom{n}{h} p^h (1 - p)^{n-h}$$

and

$$\text{if } p > 1/2, \text{ then } \lim_{n \to \infty} P_n \to 1$$

$$\text{if } p = 1/2, \text{ then } P_n = 1/2 \text{ for all } n$$

$$\text{if } p < 1/2, \text{ then } \lim_{n \to \infty} P_n \to 0$$

9. This result has been generalized by Grofman, Guillermo Owen, and Scott L. Feld (1983), so that it applies to any distribution of competences as long as $\bar{p} > 1/2$ (see also Nitzan and Paroush 1985).

obviously limited to those relatively few domains where there might, in principle, be a single "correct" answer, and it would seem not to be applicable to arenas in which there was conflict of interest (Black 1958, 163; Miller 1986, 179), but Miller shows this commonsense expectation to be erroneous.

Miller's way of generalizing the domain of applicability of the Condorcet Jury Theorem is to recognize that the probability of correctness of a given voter's opinion, p_i, may be taken to be the probability that the voter has "accurately perceived his *own* individual interest—not the public interest or 'true' interests shared by all individuals" (Miller 1986, 180, emphasis ours). In this context, a voter's true interest is simply the preference the voter would have if he or she were perfectly informed. The electoral process "succeeds" (to use Miller's term) when the party that wins is the same as that which would have won had all voters been completely informed.[10]

Miller (1986, 181–83) is able to show that, for two blocs, A and B, those whose true interests would lead them to support positions A and B, respectively, of size n_A and n_B ($n_A + n_B = n$); if p is the probability that a member of each bloc will correctly perceive his or her own self-interest (i.e., vote for candidate A if in bloc A, and for candidate B if in block B), if $p > 1/2$, then the probability that the electoral process "succeeds" approaches 1 as n increases. Miller (183–84) then generalizes this result further by showing that it still holds as long as $\bar{p}$, the average competence of the bloc members, is the same for both blocs.

Miller then proceeds to consider the case where the average competence of the voters in the two blocs is different, and where voters sample k bits of information, some of which are reasons for a given voter to favor alternative B and others that are reasons for the voter to favor alternative A. (Note that some given piece of information may provide a reason for one voter to favor candidate A, but that same bit of information may impel another voter with different interests toward candidate B.) Miller proposes a model in which each bit of information is weighted equally and voters choose in accord with the information provided by a majority of their cues.[11] This leads them to a microlevel version of the Condorcet Jury Theorem where n is the number of cues (information bits) sampled, and p is the informativeness of those cues to the individual voter.[12]

10. The parallels to the McKelvey and Ordeshook (1987) analyses are straightforward.

11. This model is formally identical to that used in Mackelprang, Grofman, and Thomas 1975 to model individual choice.

12. Miller (1986, 193) also shows that "the same factor—the large size of electorates—that discourages voters from acquiring political information also reduces the need (from the point of view of the chances of 'success' of the electoral process) for individual voters to be well informed."

Grofman and Norrander

Grofman and Norrander (1987, 1990) look at reference groups as sources of cues for voters, permitting cues to differ in their informativeness and also allowing for the possibility of nonequal weighting of information bits. Their 1990 article considers the case of sources located along a single line. They show that, when all reference groups are located on a line, the voter's best choice is to choose in accordance with the recommendation of the *single* reference group to which the voter is closest. In their earlier paper, they consider how to pool information from multiple-independent sources (e.g., each of which provides information about the location of alternatives on exactly one of some set of [orthogonal] axes in the space). For the latter task, they make use of the Shapley-Nitzan-Grofman-Paroush model of information pooling (Nitzan and Paroush 1985; Shapley and Grofman 1984), which is a Bayesian-derived variant of the well-known logit model. If we have n groups with the ith group having probability P_i of giving the voters the correct answer (i.e., picking the alternative whom the voter would choose had the voter full information), then, in the two-party competition, the voter should choose A over B if and only if

$$\sum_{\substack{\text{groups favoring} \\ A}} \log\left(\frac{P_i}{1-P_i}\right) > \sum_{\substack{\text{groups favoring} \\ B}} \log\left(\frac{P_i}{1-P_j}\right).$$

The conclusion of the Grofman and Norrander (1987) paper is that individuals who know very little about the political choices can nonetheless make the choice they would have made with perfect information by combining information from a number of different (reference group) sources whose interests are in part proxies for (or, alternatively, the opposite of) the voters' own interests. Note that in this model the preferences of groups whose interests are seen as opposed to those of the voter can be as highly informative as the preferences of groups with whom the voter identifies. Whether or not this model perfectly fits the information search and utilization pattern of most voters, even if voters fail to make optimal use of the information provided by reference group cues, it is clear from the data looked at in chapter 1 that processes similar to those described in the Grofman and Norrander (1990) model are actually used by voters. Moreover, the work of Arthur Lupia (1990, 1991a, 1991b) on voters' use of information cues derived from referendum endorsements or opposition statements (such as those by Ralph Nader or insurance companies) to determine their referendum voting is consistent with the intuitions suggested by the Grofman and Norrander (1987) approach,

although Lupia's research is rooted in more traditional social choice modeling of imperfect information environments. Lupia's work offers further support for the Downsian proposition that voters are able to make relatively "informed" choices about matters about which they lack "hard" information by making use of information decision heuristics.

Calvert

Calvert (1985a) considers the usefulness of biased versus neutral sources of information. In particular, if the individual is choosing between two alternatives, denoted 1 and 0, then the advice of an information source is posited by Calvert to the following simple function of the individual's true interests, for $i \epsilon [0,1]$

$$S = \begin{cases} 1 \text{ with probability } & u_i^{\alpha_i} \\ 0 \text{ with probability } 1 - & u_i^{\alpha_i} \end{cases}$$

When $\alpha_i = 1$, the information source is *neutral* toward alternative *i;* when $\alpha_i > 1$, the information source is *biased against* alternative *i;* when $\alpha_i < 1$, the source is *biased in favor* of alternative *i*. Calvert argues, "the value of a source lies in the possibility that its advice may cause the decision maker to change his mind" (539); therefore, when there is a cost to information search, ceteris paribus, a biased source is to be preferred. For an initially undecided decision maker, "a biased observer recommending the alternative that he was biased against is likely thereby to prevent the decision maker from making a relatively large error" (552). Similarly, for a decision maker with a strong predisposition toward one alternative, "in a setting of sequential sampling, the optimal information gathering procedure might use biased advisors first, since this might eliminate the need of any further consulting, again by giving an unexpected recommendation" (552). This classification of information bits according to bias permits the users to increase their efficiency. Of course, the extent to which such a model of optimal information search actually fits the observed patterns is an open question.