

Memo to: Board of Overseers of the National Election Studies
From: Gregory B. Markus and Philip E. Converse
Subject: Conference on "Issue Voting, Cognitive Processes, and Rational Choice"
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The role of issue considerations in determining the individual voting decision--and, thereby, the ultimate electoral outcome--has been a central concern to political scientists. This concern is more than a manifestation of normal scholarly curiosity. It stems from a recognition of the centrality of policy-oriented voting to normative models of the democratic process itself. Nevertheless, policy considerations form but one component of a more comprehensive model of voting. Because of the interrelatedness of the components of this model, it is impossible to study issue voting in isolation from other aspects of the model, e.g.; partisan attachments, candidate traits, and the like. As Brody and Page (1972: 455) put it: "There is no way to avoid modeling the individual voting decision and still estimate policy voting."

Despite the obvious value of the series of national election studies to date, it is probably fair to say that too much attention has been paid to the relative importance of factors idiosyncratic to particular elections and not enough effort has been directed toward the development and evaluation of an integrated and generalizable model of the individual voter's calculus. The purpose of this memorandum is to sketch out an example of such a model, stressing the place of issue orientations within it. In doing so, we shall touch upon some implications for design, measurement, and analysis that flow from the nature of the model's specification.

Toward a Model of the Voting Decision

Theories of voting which assume a rational citizen operating under conditions of perfect information, although useful for normative purposes, are not likely to reflect actual behavior very accurately. On the other hand, purely descriptive accounts of voting run the risk of not attaining a level of generality sufficient to raise them above the peculiarities of a single election. One reasonable modeling strategy is to begin with a fairly "clean" positive model and then introduce successive modifications which render the model more verisimilar to a voter's actual cognitive process.

One model of voting choice which is appealing on both normative and empirical grounds is derived from the idea of minimizing subjective expected loss (Shapiro, 1969; Davis et al., 1970; Riker & Ordeshook, 1973). Following Shapiro, define the quadratic loss associated with candidate j by an individual voter as follows:

$$(1) \quad L_j = \sum_{i=1}^m a_i (x_i - \theta_{ij})^2, \quad j = 1, 2, \dots, n$$

where: x_i is the voter's preferred position on evaluation dimension i ,
 $i = 1, 2, \dots, m$;

θ_{ij} is the j th candidate's position on dimension i as perceived by the voter;

a_i is a weight reflecting the importance of dimension i to the voter.

Once the expected losses associated with each candidate are assessed, the model assumes that the citizen will vote for the candidate with the smallest expected loss:

$$(2) \quad \text{If } L_j < L_k, \quad \forall k \neq j, \quad P = L_j,$$

where P is the citizen's vote choice.

Equation (2) is a deterministic decision rule and, as such, it is unrealistic as a model of actual behavior. It is nevertheless useful as the basis for a stochastic model of the voting decision. In a two candidate contest, a stochastic version of Eq. (2) would set p_j , the probability of voting for candidate j , equal to a function of the expected losses associated with the candidates:¹

$$(3) \quad p_j = b_0 + b_1(L_k - L_j) + u$$

Equation (3) is logically acceptable, but it has been shown (Kelley & Mirer, 1974) to be incomplete from a behavioral perspective in that it neglects the role of party identification as a "tie breaker" in instances wherein the evaluations of the opposing candidates are very similar. The model may, therefore, be modified as follows:

$$(4) \quad p_j = b_0 + b_1(L_k - L_j) + (b_2 - b_3 |L_k - L_j|)I + u,$$

where I is the party identification of the voter.

Basically, Eq. (4) states that the smaller the amount by which the voter prefers one candidate over the other, the greater the influence of party loyalty in determining the final choice. This formulation is similar to the decision rule developed by Kelley and Mirer (1974) and, more broadly, to models devised by Brody and Page (1973), Jackson (1975), and Shaffer (1972).

From a strictly axiomatic point of view, the model described thus far is utterly indifferent to the criteria employed by the voter in calculating the expected losses associated with each candidate. Empirically, however, we expect that standing partisan predispositions, issue concerns, and perceptions of candidate traits will weigh heavily in the calculus. Moreover, once we move from the domain of abstract theory into the realm of

empirical reality, this calculus is not likely to involve simple one-way lines of causation or functional dependence. Instead, a model which is to be true to the cognitive processes of the voter must show not only how issue orientations and partisan leanings impinge on overall candidate evaluations but also the reverse. And the determinants of the vote are certain to influence one another, as well. Thus, for a given set of cross-sectional data a model of the electoral decision must be specified nonrecursively, with policy preferences, partisan attachments, and candidate evaluations being simultaneously interrelated and, therefore, endogenous to the causal system being modelled.

The model displayed in Figure 1 is consistent with these ideas. The model reflects the preeminence of the trilogy of partisan attachments, issue evaluations, and perceptions of candidates' personal qualities as determinants of electoral choice. These factors are not linked directly to the vote, however, but instead their effects are seen as being mediated by the citizen's overall evaluations of the candidates. The importance of placing candidate evaluations in an intervening position in the model is that, by doing so, we explicitly represent a fact which has sometimes been obscured in voting research: the ultimate electoral decision is a choice among candidates; and issues, personalities, and (to a degree) parties may influence voting only to the extent that they affect the public's evaluations of the candidates for office. As Brody and Page (1973: 10) pointed out: "Common sense says that people probably vote for the candidate they like best." Given this fact of life, we should begin to "shift the analytical task from an explanation of the vote to an explanation of attitudes toward candidates" (Brody & Page, 1973: 16).

For various reasons, modeling the impact of party identification and candidate personalities upon the overall candidate evaluation is likely to be less complex than will be modeling the role of issue preferences. With regard to partisanship, the party labels associated with the candidates are typically not subject to perceptual distortion. Thus, only the voters' positions on the partisan dimension need be ascertained; the perceived candidate positions may be taken as "given." A similar argument holds with regard to candidate traits. These qualities may be thought of as "valence issues" in the sense that voters' preferred positions will not vary greatly--i.e., everyone prefers an honest, experienced candidate to a dishonest, inexperienced one, ceteris paribus. Hence, only voters' perceptions of candidate traits are relevant, not the voters' own ideal points.

With respect to policy-related dimensions of evaluation, in contrast, perceived candidate positions and voters' own preferences are likely to be interdependent, and neither can be assumed a priori. For one thing, perceptions of candidate stands on issues of the day may vary significantly from voter to voter. Some of this variation will be unsystematic, arising from the casual attention most voters pay to campaign information--or arising from the nature of the campaign information itself. Against this background of noise, however, the ways that voters perceive candidate policy positions may depend systematically upon their own issue preferences and their overall evaluations of the candidates. That is, voters may "project" their own issue stands onto candidates they like on other grounds,

and by the same token, they may tend to distort the issue stances of negatively evaluated candidates in such a way as to increase the policy related distance between themselves and these candidates (Page & Brody, 1972; Brody & Page, 1972).

In addition to the projection hypothesis, there is also the possibility of "persuasion." If a citizen were to alter his issue positions to coincide with those of the candidate he most favored, then one might say that the voter had been persuaded by the candidate (Brody & Page, 1972: 457). A form of reverse persuasion would occur if a voter changed his issue opinion so as to contrast it with that of a negatively evaluated candidate.

From a simultaneous equation perspective, then, we expect that the equations for the three central variable-sets (own issue positions, perceptions of candidates' positions, and overall evaluations of candidates) will show that each is a function of the other two. The move from verbal theorizing to empirical evaluation raises at least two problems: (1) the mathematical form of the model specification; (2) the identifiability of the system of equations, i.e., the question of whether unique estimates of relevant parameters are obtainable.

With regard to specification, equations which accurately reflect the cognitive processes alluded to above are likely to be nonlinear in the variables and/or parameters. Consider, for example, the equation for the voter's own position on a given issue. The equation should specify both the exogenous and endogenous variables which are likely to influence policy preferences directly and also take into account the persuasion hypothesis:²

$$(5) \quad \text{Own Position} = f(\text{Party ID, Ideology, Past Behavior, Socio-Demographic Factors, etc.}) + b_1(\text{Perceived Candidate}_1 \text{ Position} - \text{Own Position})\text{Candidate}_1 \text{ Evaluation} + b_2(\text{Perceived Candidate}_2 \text{ Position} - \text{Own Position})\text{Candidate}_2 \text{ Evaluation} + u$$

As it stands, the equation is nonlinear in the variables. If it is rewritten so that the dependent variable (Own Position) appears only on the left-hand side, the equation becomes nonlinear in the parameters, as well. These complications need not present any intrinsic problems to modeling and estimation (Fisher, 1966; Goldfeld & Quandt, 1972), but it is important to recognize that simple, linear "causal models"--even if nonrecursive--are not suitable for representing a wide class of theories of voter's cognitive processes.

Equations similar in form to Eq. (5) would describe the origins of perceived candidate positions and would incorporate the projection hypothesis. The form of the equations for overall candidate evaluations would parallel Eq. (1), and the equation for the ultimate vote choice has already been outlined (Eq. 4).³ A choice of weights for a stochastic version of Eq. (1) might be made in a number of ways. One workable method would be to assume that the weights are reasonably uniform across all voters (or across all voters in identifiable subsets) and derive the values empirically, i.e., by least squares. Another approach would be to utilize information from the individual respondents regarding the relative importance of various factors in determining their decisions. This approach might employ fairly straightforward closed-ended questions or it might involve

more elaborate coding of responses to open-ended probes. Two points are relevant in this regard. The first is that recent work indicates that individuals are often quite unreliable in assessing the reasons behind their decisions (Nisbett & Wilson, 1977). The second is that, except in the most pathological of cases, the choice of weights makes only minor differences in the ultimate prediction (Wainer, 1976).

Before data can be brought to bear on the simultaneous equation model, its identifiability must be established. A discussion of the concept of identification is clearly beyond the scope of this memorandum, but its primary implication is that the model must be sufficiently rich in exogenous variables before consistent estimates of the parameters in the equations may be obtained. By exogenous variables, we refer to those factors which partially determine the dependent variables of ultimate interest but which are not themselves caused by variables included within the system of equations.⁴

The search for relevant exogenous variables is one that is guided primarily by theoretical considerations rather than by purely statistical ones. For example, social, economic, and demographic variables--whose values are determined outside of the cognitive system under study but which bear on the attitudes of interest--comprise one fairly straightforward set of exogenous variables. Other possibilities include certain fundamental personality traits and political orientations of the voter which are unlikely to vary greatly in the face of the stimuli of a given election. Party identification has often been included on this list--at least implicitly. But current thinking suggests that partisan attachments may well be endogenous to the electoral process (Jackson, 1975; Brody, 1977). On the other hand, basic attitudes toward the scope of government, feelings of interpersonal trust and self-competence, etc., may be regarded as essentially predetermined with respect to a single election.

A third, largely untapped, source of relevant exogenous factors includes objective and attitudinal measures of the citizen's immediate political and economic environment. Community conditions *vis à vis* unemployment, education, racial tensions, etc., could be measured, as could individual feelings about one's own personal life-space. Finally, variables referring to behaviors and attitudes prior to the current campaign may play an important role in identifying the model. Included here are recalled voting history, parental partisan leanings, and--when available--panel data on past political attitudes.

This last possibility raises an important point. It has often been suggested that the ultimate solution to disentangling the interrelationships of variables endogenous to the vote decision lies in the collection of repeated observations on the same sample of respondents--panel data. Unfortunately, the solution may not be quite that simple. First, given that the process of interest occurs primarily within the course of a single campaign, panel data collected across a series of elections are of little direct value in examining the interplay of partisan, issue, and candidate variables. (As stated above, such panel data may nevertheless be useful for purposes of estimating a simultaneous equation model.) Second, if the cognitive process is indeed one of fairly continuous give and take among endogenous variables, then it should be modelled as such, and attempts to

impose a time dimension--no matter how fine-grained--upon the system will be contrived and artificial. On the other hand, if there are substantive grounds for modeling the vote decision as a truly dynamic process, then the inclusion of lagged endogenous variables on the right-hand side of equations like Eq. (5) would greatly facilitate estimation of relevant parameters.

Summary of Implications for the Election Studies

The major point of this memorandum has been to stress that an evaluation of issue voting is not likely to succeed unless a reasonably comprehensive and well-specified model of the vote decision has been mapped out prior to the data collection stage. To be sure, the Election Studies data must serve a wide range of needs and audiences, but if progress is to be made in explaining the determinants of the vote, some agreement must be reached on a model (or class of models) that should be explored. Hopefully, that will be one of the outcomes of the conference.

The discussion of model identification pointed to a variety of potential sources of exogenous variables. Some of these variables have been tapped in previous election studies, but others have not. A need for contextual information to supplement survey data has also been suggested. The measurement of endogenous variables has not been addressed here. Although the measurement of certain variables, e.g., the vote choice itself, is not likely to be complex, other operationalization tasks may not be so straightforward. For instance, overall candidate evaluations might be operationalized by the well-known feeling thermometer questions, but other possibilities are worth considering.

Finally, we have argued that utilizing intensive multi-wave data collection to circumvent problems of interdependencies among variables in the model may not be a fruitful strategy. In any event, decisions about time lags between survey waves must be derived from careful thought about time sequences within the individual vote choice process itself, sequences which may well vary from individual to individual.

Footnotes

¹It may well be that for analytical purposes a probit model formulation may be preferable, with the log-odds in favor of voting for candidate *j* serving as the dependent variable. For matters of exposition, however, the linear model is quite adequate. See Aldrich & Cnudde (1975).

²A numerical example of Eq. (5) may be useful. Assume that the first set of parenthesized factors leads to an "expected" voter position of 2 on an arbitrary issue continuum and that a candidate is perceived to be located at point 5. Then under changing levels of overall candidate evaluation (ranging from +2 to -2), the voter's own issue position would be predicted as follows:

Own Position	=	2	+	.2	(5	-	2)	(+2)	=	3.2
"	=	"	"	"	(+1)	=	2.6			
"	=	"	"	"	(0)	=	2.0			
"	=	"	"	"	(-1)	=	1.4			
"	=	"	"	"	(-2)	=	.8			

These results illustrate the mathematical representation of the persuasion hypothesis, wherein the voter's position is pulled toward a favored candidate's position and pushed away from that of an unfavored one.

³Endogenous variables may also be useful for identification purposes, provided that certain assumptions can be met regarding the covariation of disturbances in the system. The nonlinear nature of some equations may also aid in identification (Fisher, 1966).

⁴It should be noted that the model is addressed to the topic of choice among candidates for office and does not deal with the question of who votes and who does not. Implicit in this delimitation is the assumption that these two concerns may indeed be fairly distinct from one another and, hence, separable for analytical purposes. This assumption is based on the argument that the decision to vote or not in a given election is determined for the most part by fairly stable attitudes toward the voting act itself and is only secondarily affected by election-specific variables (candidates, issues, etc.). The stream of literature beginning with The American Voter and culminating most recently in the works of Riker and Ordeshook (1968), Ferejohn and Fiorina (1974, 1975), and Shaffer and Weber (1976) supports this contention. As Campbell et al. (1960: 93) first put it, and has been demonstrated repeatedly since then, "inquiry into the determinants of voting turnout is less a search for psychological forces that determine a decision made anew in each campaign than it is a search for the attitude correlates of voting and non-voting from which these modes of behavior have emerged and by which they are presently supported."

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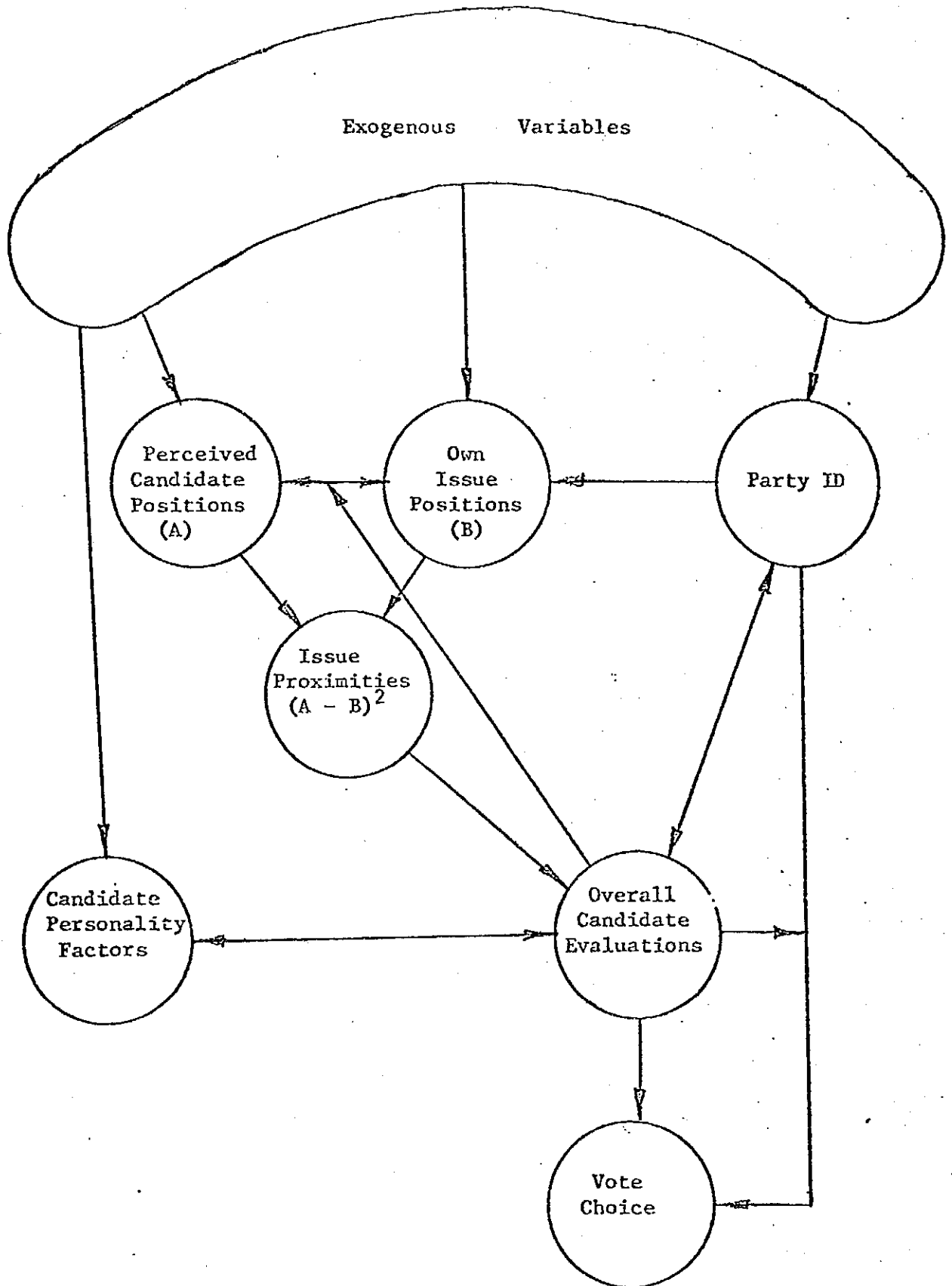


Figure 1. A Model of the Voting Decision