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ABSTRACT

ON THE RETROSPECTIVE EFFECT OF ECONOMIC CONDITIONS  
IN CONGRESSIONAL ELECTIONS: A SIMULTANEOUS  
EQUATION MODEL APPROACH

Naim H. Al-Adhath

In this paper a simultaneous equation model is employed to investigate the relative effects of: (1) economic conditions, (2) incumbency, and (3) recognition of the presidential party's candidate on the dual decisions of the individual to participate and vote in congressional elections. My finding is decidedly negative regarding the effect of economic conditions on both turnout and voting for the presidential party. I have, however, established the relative effects of both incumbency and recognition.

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1. INTRODUCTION

The various models developed by investigators to explain political choice have stressed either objective or "materialistic" factors, such as campaign expenditures or economic conditions [1] [6], or have stressed subjective or "nonmaterialistic" factors, such as salience of the candidates, party identification and some aspects of incumbency [8].

In a society where achievement and success are largely attributed to hard work and rational effort and where political structure results in political "education" which stresses the government responsibility and ability to influence the economic well-being of the country, it is hard to reject, a priori, the argument of the various investigators in this area. These arguments rationalized and presented some evidence as to the effect of the performance of the government in the economic arena on the voting decision, whether it is on the individual's level or on the level of the electorate as a whole. All things being equal, one would expect that a voter will choose to give his vote to the person whom he can recall by name in the voting booth rather than to a complete unknown. The catch words used here are

"all things being equal"; the fact is that things are not equal as far as the individual is concerned. The question then becomes; "Under what conditions is the salience of the candidate transforms into a positive or negative vote?"

Incumbency, on the other hand, has enjoyed a more celebrated place in the literature of voting than salience. It has been hypothesized that incumbency is used to bribe certain effective sections of the electorate through pet projects, etc., or to buy salience through the acquisition and expenditure of campaign resources. It can also have a certain magic which expresses itself through the saying, "The devil we know is better than the devil we don't." The real world is not polarized into objective and subjective elements; there is a dialectical unity in the world which underlies socio-political phenomena. To explain the effect of the subjective elements, we have to look for the underlying objective factors, and vice versa. Models which capture this essence of the real world are the only models which answer such questions as; "How do these factors influence this phenomenon?", rather than, "What factors are involved?"

This paper examines the responsiveness of the participation and voting decisions of the voter to the performance of the incumbent president. This examination is conducted within a framework of the political phenomenon of simultaneity. Previous studies which were based on a single-equation estimation procedure suffer from conceptual as well as methodological shortcomings. A unification of the "objective" and "subjective" approaches in one framework will ascertain their effect on the individual's dual decisions on participation and voting. The

emphasis, however, will be on the effect of economic conditions on turnout and on the electoral fortunes of the President's party in Congressional elections. Earlier studies by Kramer [1], [2], Stigler [3] and Arcelus and Metzler [4] use models in which the dependent variable is the parties' aggregate Congressional votes. Various macroeconomic indicators of performance such as inflation, employment and income serve as explanatory variables.

The contradictory findings and the numerous methodological and logical errors prompted M. Fiorina to seek confirmation of the phenomena at the individual voter's level [6]. Using SRC (1952-1974) data, he establishes that "a citizen's personal economic condition affects his Presidential vote, but for Congressional voting the findings are positive until 1960 and negative thereafter." He also observes that there is "no systematic relationship between a citizen's personal economic condition and his decision to vote or abstain."

The above mentioned models are single-equation formulations which ignore important determinants of voting behavior, making it subject to simultaneity as well as misspecification bias. This observation covers not only this study, but almost all studies in the field of voting. We could hardly stress the importance of simultaneity not only in the voting decision, but also in all political phenomena. On this, B. Page [38] writes, "Single or recursive equation models suffer from simultaneity bias, yet simultaneous equation models are exceedingly difficult to specify in a plausible fashion." What is surprising, though, is that little effort has been expended to locate those aspects of the problem where a simultaneous equation model can be formulated,

and where some exogenous variables can be excluded from some equations on a sound theoretical basis, thereby facilitating identification and estimation of the model. In the particular setting of economic retrospective voting, there is also the possibility that economic factors, or for that matter, any other factor may operate directly and indirectly through some specific variable on the dual decision of participation and voting for the presidential party.

In general, the task is to take into consideration various simultaneity effects in order to answer a number of related questions.

- 1) What are the relative effects of objective factors, such as the individual's perception of his own economic well-being on both his decision to participate and his voting decision as opposed to informational factors, such as incumbency or saliency of the candidate?
- 2) What are the underlying influences behind informational factors? Are there objective factors driving individuals to seek information about the candidates? What are the secondary channels through which an informational factor may also exert its influence?
- 3) How do the effects of these variables vary over time? How do they vary between off-year and on-year Congressional elections?
- 4) What are the overall effects of incumbency?

In this paper a preliminary investigation of SRC (1952-1970) data is conducted to suggest the relevancy of various variables to the individual's dual decisions in participation and voting. Some testable

hypotheses will be developed. A simultaneous equation model will then be formulated. Simultaneity is captured through the assumption that incumbency as well as economic conditions directly affect the voting decision, as well as the assumption that it is indirectly affected by the awareness of the Presidential party candidate. It will be established that there is no significant effect of economic conditions on the individual voter's decisions for all Congressional elections covered by the survey and for the pooled data. Other variables such as awareness of the President's party candidate and incumbency will show more significance in off-year elections than in on-year elections.

## 2. PRELIMINARY INVESTIGATION OF THE DATA

The task of this section is to probe the available data using simple statistical techniques to investigate the relevancy to the individual's voting decisions of various variables which are considered a priori as being relevant.<sup>1</sup> Also, the interaction between these variables will be examined. These findings will be used as motivation for the simultaneous equations model. Various indices are extracted from the raw data in the SRC surveys (1956-1970). These indices will then be used to make some tentative hypotheses and observations.

Three categories of party affiliations are considered:

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<sup>1</sup>This is a common procedure in political science, but discussion of relevancy should be based on theoretical ground, not statistical ground. However, these cross tabulation techniques, in certain circumstances, are sufficient to prove some points without going to elaborate regression models.

Democratic, Independent and Republican.<sup>2</sup> Also, three categories of respondents to the question regarding their perception of changes in economic conditions are considered: those who perceived "better" conditions, those who perceived the "same" conditions, and those who perceived "worse" conditions. For this purpose, use was made of the following question in the SRC survey. "During the last few years, has your financial situation been getting better, getting worse, or has it stayed the same?"

For the salience variable, use was made of a question in the SRC survey which asked the respondent to name the candidates for the House in his district. If the respondent could name the candidate, he was considered to be aware of him; otherwise not. The limitation of the data is mainly due to the availability of recognition data only for 1958, 1964, 1966, 1968, and 1970 elections.

The results are mainly reported in the appendix, and the tables are suitably labeled as such by appending the letter A to the number of the table to distinguish it from the summary tables in the main text. Since it will be necessary to make some observation regarding the relative effect of certain variables over time, the tables show the differential values of these variables rather than their absolute values. For example, if a test is to be made that recognition of the incumbent (Inc.) is increasing over time relative to that of the challenger, then

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<sup>2</sup>For the purpose of inference from pooled runs, it would have been better to code the PID variables as follows:

PID = 1 if respondent belongs to the president's party  
 = 0 otherwise

However, we opted for the three-way categorization D, R, and I to facilitate comparison with other works.

the relevant variable to observe over time is the differential recognition of the incumbent. That is (the percent recognizing the incumbent minus the percent recognizing the challenger). This has simplified the form and inference from the summary tables. The interest will be in the number of entries in the original table with positive or negative sign, the magnitude of the entries (how much positive or negative are they?) and the number of cases which show increasing ( $\uparrow$ ) or decreasing ( $\downarrow$ ) entries over time.

### 3. ON TURNOUT AND ECONOMIC CONDITIONS

The question is whether the inference from the data support AM's contention that the main effect of the individual's perception of his well-being falls on his decision to participate. We can postulate two hypotheses in this regard.

- a) The Apathy Hypothesis (A). This states that the probability of abstaining increases with betterment in the voter's economic conditions. Thus, it can be expected that a higher proportion of those in the "better" response category will be non-voters.
- b) The Protest Hypothesis (R). This states that the probability of abstention increases with the worsening of the individual's economic condition. Thus, it can be expected that a higher proportion of those in the "worse" response category will be non-voters.

Let  $P_B$  be the proportion of abstention in the group who perceived betterment in their conditions and  $P_W$  be the proportion of

abstention in the group who perceived worsening in their conditions. The weakest criterion to test the Apathy (A) hypothesis requires that  $P_B \geq P_W$ ,<sup>3</sup> while for the support of the protest (R) hypothesis that  $P_W \geq P_B$ . To test the two hypotheses, the proportions of different party affiliates (PID), in various economic response categories, who abstained are calculated in Table 1A. For example, in 1956, 29.2 percent of the Democrats who perceived improvement in their economic conditions abstained. Tables 1 and 2 summarize the results. It is concluded that the protest hypothesis claims 75 percent of the cases for the Democrats, while the two hypotheses have equal strength in the case of the Republicans and Independents. As is clear from Table 1, no general conclusion can be drawn as to the relative strength of the various hypotheses except that the protest hypothesis seems to be strongest in the case of Democrats.

Table 1: Percent of Total Cases in Support of Either Hypothesis A or R

Dem.		Rep.		Ind.	
A	R	A	R	A	R
25.0	75.0	37.5	37.5	50.0	50.0

Total number (n) of cases for each PID category = 8

Table 2 shows for different PID's the average proportion of non-voters during on-year and off-year elections. The table presents

<sup>3</sup>It is a weak criterion, because it does not insist on "complete" monotonicity, i.e.,  $P_B \geq P_S \geq P_W$ , where  $P_S$  is the proportion of non-voter in the "same" economic response category.

evidence that mid-term Congressional elections have a higher total proportion of non-voters compared to on-year elections. For example, the average percentage of non-voters among the Democrats during mid-term elections is 47 percent compared to 30 percent during on-year elections. Thus, if we accept AM's contention that economic conditions mainly affect participation, the result may imply that the economic-condition<sup>4</sup> effect is relatively stronger in mid-term than in on-year elections. However, the lower turnout in off-year elections may be simply explained by the absence of the presidential race.

Table 2: Percent of Non-Voters

	on-year	off-year
Dem.	30 %	47 %
Rep.	22	38
Ind.	42	60
	n=4	n=4

Table 1A provides, also, some evidence of increasing non-participation over time. This is true for all economic response categories in all party affiliations.

#### 4. ON VOTING DECISIONS

##### The Effect of Economic Conditions

First, we seek some confirmation for the intuitive notion of a positive effect of economic conditions on the voting decisions. The effect of various other variables will then be investigated

<sup>4</sup>Other explanations for this observation may be advanced. For example, the voter may simply believe that his vote matters less in mid-term than on-year elections; or, that information cost is higher in mid-term than on-year elections, due to the lower level of publicity of the former compared with the latter.

for different economic response categories, controlling for the presidential party's candidate and party affiliation (Table 2A). If the intuitive notion about the phenomena is correct, it is expected that a higher proportion of those who are in the "better" response category will vote for the candidates of the presidential party.

Define  $P_{\text{better}}$  as the proportion of voters who favor the candidate of the presidential party among those in the "better" response category;  $P_{\text{same}}$  and  $P_{\text{worse}}$  are defined analogously. The weakest test of the model is whether  $P_{\text{better}} \geq P_{\text{worse}}$ , i.e., examining the two polar cases only.

Table 3 summarizes the evidence by showing the percentage of cases which support the hypothesis. For all party affiliates, the hypothesis passes the test with the support of more than 70% of the cases. The Republicans present the strongest support for the notion that the individual's perception of his well-being has a positive effect on his voting decision. In fact, only 1966 deviates from the general trend in this case.

Table 3: Percentage of Cases Which Support the Hypothesis

Democrats	Republicans	Independents
75%	87.5%	62.5%

Total no. of cases for each PID category = 8

The Effect of Incumbency

Kramer claimed that incumbency has no significant effect on voting once the effect of economic conditions is taken into account. Table 3A shows the incremental proportion in the presidential party candidates vote as a result of the incumbency of its candidates. Thus, the more positive are the entries in the table, the firmer is the inference regarding the covariation of incumbency and vote.

Except for 1960 elections, entries are overwhelmingly positive (more than 80 percent of the 63 cases), indicating that incumbency affects the vote for candidates of the presidential party. The effect is especially strong in the latter parts of the period. Table 4 summarizes Table 3A. Consider that the first period includes 1956, 1958, and 1960; the second period 1964, 1966, 1968, and 1970.

Table 4: Proportion of Party Vote Due to Incumbency,  
Controlling for Presidential Party and Economic Conditions

	Average of Entries in 56, 58, 60	Average of Entries in 64, 66, 68, 70
Democrat	20.12	66.51
Republican	22.64	50.56
Independent	-13.1	59.77

Source: See Table 3A.

Table 4 provides some evidence to support the contention of increasing incumbency effect over time on the presidential party candidate's vote in congressional elections for all party identification categories. There is, also, some evidence that the effect of incumbency is strongest among the Democrats during the early part of the period while it is strongest among the Independents during the latter part of the period.

The Effect of Candidate Salience

Since Stokes and Miller's classic paper [20], in which they conclude that candidate salience has a positive effect on his vote, no one has challenged this proposition, except perhaps Ferejohn [8]. Thus, it is necessary to probe a bit further into the effect of candidate's salience on voting. Table 4A shows the differential vote of the presidential party candidate as a result of his recognition by the voter, controlling for PID and economic response categories. For example, during the 1958 election, of the Democrats (who perceive an improvement in their conditions and vote for the presidential party), the difference between those who know the incumbent and those who know the challenger is 17.1 percent of the electorate. The more positive are the entries of Table 4A, the firmer is the inference regarding the effect of salience on vote. The following observations can be made from the summary Table 5.

1) All entries are decidedly positive and reasonably large, indicating a possible favorable effect of salience on voting. The evidence on increasing effect of saliency over time is also

conclusive. 66 percent of cases support this observation.

2) No firm general observation can be made regarding differential impact of saliency on different categories of economic conditions and party identification. For example, it cannot be said of the people who vote for the presidential party candidates and perceive betterment in their lot that the Democrats are more likely to recognize those candidates.

For the moment, at least, it can be said that saliency of the candidates is positively related to the voting decision of the individual.

Table 5: Differential Saliency of the Presidential Party Candidate

	% positive entries in Table 4A	% of cases increasing over time
Differential Saliency of The Presidential Party Candidate	87 n = 45	56 n = 45

(Summary of the Data in Table 4A)

#### Economic Conditions and Saliency of the Presidential Party Candidate

It can be postulated for this relationship a variant of the negative voting hypothesis: "The Avenger Model." In this model, the individual voter is most likely to incur the cost of information by seeking the presidential party candidate's name if he is hurt economically by the latter's policies.

Table 5A tests the model by showing the covariation of the perception of economic conditions and saliency for Republicans,

controlling for incumbency. Specifically, it shows the saliency of the presidential party in different economic response categories, controlling for incumbency. Table 5B shows the same effect on the challenger's party candidate.

For example, in 1958 there are 87.5 percent Republicans in the "better" category who recognize the presidential party candidate. The weakest test of the model requires that  $P_{\text{better}} \leq P_{\text{worse}}$  for saliency of the presidential party. The evidence in this table seems to indicate some covariation between saliency of candidates and economic perception. Moreover, the support for the Avenger model is high, as 70 percent of the cases are in favor of it.

#### Saliency of the Presidential Party Candidate and Incumbency

Several authors claim that saliency varies positively with incumbency [11], [6]. To demonstrate the strong relationship between the saliency of the presidential party candidate and incumbency, the differential of those who live in areas with an incumbent who belongs to the challenger party is calculated in Table 6A (controlling for economic responses and PIDs). For example, the table shows that in 1964, the proportion of the Democrats who recognize the presidential party candidate (in the "better" response category) and reside in areas with incumbents belonging to the presidential party, exceed that of those with similar characteristics who reside in areas with incumbents belonging to the challenger party. The larger the differential (the entries in Table 6A), the stronger is the inference regarding the effect of incumbency on the saliency of the presidential party candidate. Table 6 summarizes



the observations made from Table 6A.

Table 6: Differential Saliency of the Presidential Party

Candidate Due to Incumbency		
	% Positive Entries	% Entries Greater than 80% differential
Democrat	100	80 n = 15
Republication	100	50 n = 15
Independent	100	80 n = 15

The data seem to indicate a stronger effect of incumbency on saliency for the partisans than that for the Independents.

Also, if the 1958 and 1964 elections are considered as a first period, and 1966, 1968 and 1970 as the second period, then only four out of nine cases indicate increasing effect over time.

#### 5. THE MODEL AND ESTIMATION PROCEDURE

The information in the previous tables is certainly suggestive, but firm conclusions have to await further evidence which takes care of the simultaneity effect on one hand and insures the proper control of all relevant variables in the problem on the other. The evidence in the data provides a reasonable basis to establish the relevancy of the various factors to the individual voting decision. For example, it is shown, given the limitations of the data and the tabulation technique, that saliency of candidates, incumbency, and to a lesser degree the individual's perception of his economic lot, are related to the voting decision. Moreover, it is shown that incumbency and economic perception are related to the saliency of the candidate.

On participation, there is some support for the claim that the individual's perception of how well he has been faring economically is

related to his decision to participate or abstain. It remains to formulate a model that captures the most critical relevant variables on one hand and takes into consideration the simultaneous nature of political phenomena on the other. The definitions of the variables in the model should facilitate the analysis of participation as well as voting decisions by using the same data base, whether for individual elections or in pooled form for all elections without redefining the variables. This kind of formulation will improve on the specification of previous models and reduce possible simultaneity bias. It will also exposit the primary and secondary influences of various variables on the individual's dual decision on participation and voting. A simultaneous two equations model is formulated. The first equation has the vote for presidential party candidates (or participation) as the dependent variable and the saliency of the presidential party candidate, perception of economic conditions, incumbency, and party affiliation as explanatory variables. The second equation has the saliency of the presidential party candidate as the dependent variable and incumbency, perception of economic conditions, education, and party identification as explanatory variables. A better specified model may be achieved by adding other variables, such as campaign expenditures and duration of incumbency in both equations. It may even be desirable to add a third equation for incumbency. While such modifications may affect some of the results obtained in this paper, it is proper to point out that the specification in this paper is dictated by both theoretical and practical considerations posed by the limitation of the data.

The Model<sup>5</sup>

$$y = 1 \text{ if } \alpha_1 + b_1 \hat{R}_1 + b_2 F + b_3 P + b_4 I_1 + \varepsilon_1 > 0 \quad (1)$$

= 0 otherwise

$$R = 1 \text{ if } \hat{R}_1 = \alpha_2 + c_1 F + c_2 P + c_3 I_1 + c_4 E + \varepsilon_2 \geq K \quad (2)$$

= 0 otherwise

where:

y is either the participation variable or the voting variable;

that is, y = 1 if participating<sup>6</sup> (or voting for the presidential

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<sup>5</sup>Another model with interactive terms between party ID and economic variables was formulated as follows:

$$y = 1 \text{ if } \alpha_1 + b_1 P + b_2 I_1 + b_3 (DB) + b_4 (DW) + b_5 (RB) +$$

$$b_6 (PW) + b_7 (IB_1) + b_8 (IW) + b_9 R_1 + \varepsilon_1 > 0$$

= 0 otherwise

$$R_1 = 1 \text{ if } \hat{R}_1 = \alpha_2 + c_1 P + c_2 I_1 + c_3 E + c_4 (DB) + c_5 (DW) +$$

$$c_6 (RB) + c_7 (RW) + c_8 (IB) + c_9 (IW) + \varepsilon_2 \geq K$$

= 0 otherwise

where  $Y_1$ , P, I, R and E are defined as in the original model.

DB = 1 if the respondent is a Democrat who perceives a betterment of his economic condition

= 0 otherwise

DW = 1 if the respondent is a Democrat who perceives a worsening of his economic condition.

The other interaction terms for Republicans RB, RW and for Independents IB and IW are analogously defined. The results of this model are substantially the same as were obtained from the original model [45].

<sup>6</sup>For a different focus, see Campbell, et al. "Voting and Turn-out" [40] or S. Verba, Participation in America [42], where the emphasis is on factors that determine the psychological involvement of the individual in politics.

party candidate)

= 0 otherwise.

$R_1$  is the salience of the presidential party candidate where

$R_1 = 1$  if recognize the presidential party candidate

= 0 otherwise.

F is the economic conditions variable

$$F' = \begin{bmatrix} F_1 \\ F_2 \\ F_3 \end{bmatrix}$$

where:

$F_1 = 1$  if the response is "better"

= 0 otherwise

$F_2 = 1$  if the response is "same"

= 0 otherwise

$F_3 = 1$  if the response is "worse"

= 0 otherwise.

P is the party identification variable

$$P' = \begin{bmatrix} P_1 \\ P_2 \\ P_3 \end{bmatrix}$$

where:

$P_1 = 1$  if the respondent is Democrat

= 0 otherwise

$P_2 = 1$  if the respondent is Republican

= 0 otherwise

$P_3 = 1$  if Independent

= 0 otherwise.

The most interesting observation is the significant, negative effect of incumbency on turnout in comparison with a strongly positive influence of salience of the candidate. That is, incumbency increases the probability of the presidential party's candidate being known to the voter (i.e., increases his salience, which in turn affects positively the probability of turnout and his chances of receiving the vote), but the direct effect of incumbency on turnout is in the opposite direction.

(See Figure 1)

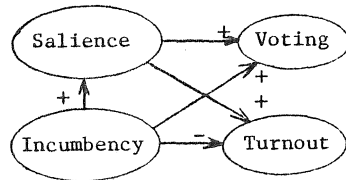


Figure 1

Thus, the boosting of the salience of the presidential party candidate by incumbency works in the opposite direction to its direct effect on turnout. Is there any "apathy" theory lurking in the background? Could the individual voter reason for himself that the incumbent is unbeatable and therefore there is no efficacy for his vote?

The answer could be yes, if the profile of the non-voter is postulated to be the same as that which emerges from Campbell et al. study [35].

"The non-voter tends to be a person of lower involvement whose emotional investment in politics and its partisan decisions is on the average much less than that of the voter. As a result, we would expect the non-voter to be less stable in his partisan inclinations than the voter and more responsive to the massive political stimuli that produce shifts of popular attitude over time. And we have little doubt that for the non-voter a stimulus of great importance in this period, as in any other, was the fact of who was winning elections.... The power of partisan choice to motivate turnout is contingent on the individual feeling that his vote may count."

Table 9: Turnout

Coefficients Years	$\alpha$	$c_1$	$c_1'$	$b_1$	$b_2$	$b_3$	$b_4$
	Const.	Dem.	Rep.	Worse	Better	Inc.	Recog.
58	0.68*	0.14	0.29*	-0.19*	-0.28*	-0.25*	1.60*
	0.20	0.13	0.13	0.09	0.09	0.11	0.27
64	0.75*	-0.26	-0.15	0.05	0.13	-0.14*	1.5
	0.22	0.23	0.27	0.11	0.08	0.08	0.34
66	0.53*	-0.25*	0.33*	-0.05	-0.03	-0.31*	0.81*
	0.18	0.12	0.14	0.09	0.09	0.09	0.18
68	0.79*	0.14	0.20	0.12	0.02	-0.67*	1.3*
	0.20	0.13	0.16	0.11	0.09	0.17	0.35
70	0.30*	0.39*	0.56*	-0.06	0.01	-0.20*	1.2*
	0.14	0.11	0.15	0.08	0.09	0.09	0.16
64 & 68	0.79*	-0.03	0.06	0.10	0.06	-0.44*	1.5*
	0.15	0.12	0.14	0.08	0.06	0.07	0.24

I is the incumbency variable

$$I_1 = 1 \text{ if the presidential party candidate is incumbent} \\ = 0 \text{ otherwise.}$$

E is the education variable

$$E = 1 \text{ if the respondent has college degree} \\ = 0 \text{ otherwise.}$$

Note that in every variable, one category is not included in the actual regression model to avoid singularity and over-identification. Also, the definitions of the dependent and independent variables facilitate pooling of data from several elections to nail down the effect of some crucial variables. As indicated, the data used are SRC (1956-1970) election data.

Although the salience variable, R, is observable as dichotomous, it will be assumed that R reflects an underlying continuous salience variable  $\hat{R}$  with a threshold level of k such that

$$\hat{R} \geq k \Rightarrow R = 1 \\ \hat{R} < k \Rightarrow R = 0 . \quad (3)$$

This assumption justifies the use of a two-step estimation procedure. Equations (2) and (3) define a standard probit model; coefficients of (2) can be estimated by maximum likelihood procedure. These estimated coefficients are used to construct  $\hat{R}$ , which can be used as an instrument to replace R in (1). The rest of the estimation procedure proceeds analogously to the two-stage least square [47].

The two-stage probit technique is used in estimating the model for individual elections and for pooled runs. All tests of significance

are conducted at 5 percent level of confidence.<sup>7</sup>

#### The Salience Equation

Table 7 shows the result of the first step of the procedure: the regression of the salience of the presidential party candidate. Note that  $c_1$  is the coefficient of the "better" element of the vector of economic condition F, similarly  $c'_1$  is the coefficient of "worse" and  $c_2$  is the coefficient of the Democrat, while  $c'_2$  is the coefficient of the Republican element of the vector of party identification P. From these tables we can draw the following conclusions.

1) Economic conditions have no significant effect upon salience of the presidential party candidate. Moreover, even the sign patterns are not consistent with a priori notions. The coefficients of the "better" and "worse" variables are overwhelmingly negative (more than 75 percent of the cases are negative), which does not support either a negative or positive hypothesis regarding the effect of economic conditions on the salience of the presidential party candidate, even on considerations of sign alone.

2) Education and incumbency are both very significant in determining the saliency of both candidates. All signs are positive except for the case of 1964 where the coefficient of incumbency is also insignificant.

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<sup>7</sup>The consistency of the estimates of the coefficients in this procedure has been established by Takeshi Amemiya [46]. However, he also established that the estimates of the standard errors in the second stage are not consistent. This makes the distribution of the ratio of the estimate to the standard error in probit, not exactly t. This effect has to be considered when interpreting the results in this chapter. The significance test will be supplemented with a likelihood ratio test whenever two or more variables are examined at the same time.

3) Party identification has no effect on the salience of the presidential party candidate during off-year elections. For on-year elections, it was only significant during the 1964 election. This finding is contrary to the hypothesis that one is more likely to know the presidential party candidate if the latter belongs to the same party.

#### The Voting Equation

Table 8 shows the result of the probit estimation of the voting regression equation (1) using the computed values of the salience variables from equation (2). Several comments can be made.

1) Economic perception has no significance or even sign stability on voting decisions. That is, the finding supports rejection of either a positive or negative hypothesis about the effect of the perception of economic conditions on the probability of voting for the presidential party candidate. A likelihood ratio test confirms this conclusion.

2) Recognition of the presidential party candidate has a more significant effect on voting decisions during mid-term Congressional elections than in on-year Congressional elections. However, when data are pooled for on-year elections, the coefficient of salience is unambiguously significant and positive. This finding is solid, considering the degrees of freedom attained by pooling the data.

3) The effect of incumbency is again more pronounced in off-year elections than in on-year elections (although for the latter there are only two cases -- that of 1964 and 1968 -- perhaps not enough to

Table 7: Salience of Presidential Party Candidate

Equation 2

	$\alpha_2$	$c_1$ Better	$c_1'$ Worse	$c_2$ Dem.	$c_2'$ Rep.	$c_3$ Inc.	$c_4$ Ed.
	S.E.	S.E.	S.E.	S.E.	S.E.	S.E.	S.E.
58	-0.5*	0.1	-0.009	0.09	-0.04	0.4*	0.34*
	0.14	0.09	0.09	0.14	0.15	0.07	.09
64	-0.4*	-0.04	-0.08	0.5*	0.64*	-0.07	.28*
	0.16	0.08	0.11	0.15	0.16	0.07	0.09
66	-0.7*	-0.14	-0.06	0.09	0.22	0.23*	0.5*
	0.14	0.09	0.1	0.12	0.14	0.09	0.09
68		-0.09	-0.14	0.16	0.22	0.4*	0.27*
	0.14	0.09	0.1	0.13	0.14	0.07	0.08
70	-0.7*	-0.15	0.003	0.03	0.02	0.43*	0.63*
	0.11	0.09	0.09	0.11	0.12	0.08	0.08
58 & 66 70	-0.6*	-0.08	-0.05	0.08	0.1	0.3*	0.5*
	0.07	0.05	0.05	0.07	0.07	0.04	0.05

\*Significant at .05 level

support such a strong judgment). However, the model suggests a significant effect of incumbency in off-year Congressional elections.<sup>8</sup>

Again, when data from on-year elections are pooled, incumbency becomes clearly significant. This is perhaps not surprising, and it has been pointed out by a number of scholars [6], [8]. These results show that both incumbency and salience of the candidate have strong, significant, and independent effects.

#### On Turnout

In this context, equation 1 is reinterpreted as a participation equation. The dependent variable is a dichotomous variable ( $y$ ) which equals one if the individual participates and zero if he abstains. The two-stage probit estimation procedure is repeated with the regression of equation (2) first, then equation (1) using the computed values of the recognition variable from (1).

Table 9 shows the result of the second step of the procedure. Examination of this table does not support AM's hypothesis on the effect of economic conditions on turnout. Except for the 1958 elections, economic conditions fail to show significant effect on turnout. This may lead to the conclusion that economic conditions have some effect on turnout in the early part of the period examined. There are, however, some sign anomalies which cast doubt on this conclusion. For example, there is a negative significant coefficient for the "better" variable in the 1958 case.

<sup>8</sup>In reference to the observation made in footnote 7, it is reassuring to note the absence of sign anomalies in these coefficients.

Table 8: Vote for Presidential Party Candidate

#### Equation 1

	$\alpha_1$	$b_1$	$b_2$	$b_2'$	$b_3$	$b_3'$	$b_4$
	Const.	Inc.	Better	Worse	Dem.	Rep.	Salience
	S.E.	S.E.	S.E.	S.E.	S.E.	S.E.	S.E.
58	-0.2	2.0*	-0.01	-0.07	-1.0*	0.98*	-0.31
	0.22	0.33	0.11	0.13	0.18	0.17	0.16
64	-0.43*	0.15	0.05	-0.02	0.18	0.17	0.16*
	0.2	0.33	0.08	0.12	0.22	0.27	0.08
66	-0.88*	0.45*	-0.01	0.06	0.7*	-0.4*	0.35*
	0.2	0.2	0.1	0.1	0.13	0.16	0.1
68	0.58*	0.51	-0.009	-0.15	0.62*	-0.64*	0.12
	0.2	0.34	0.09	0.12	0.15	0.18	0.17
70	-0.94*	0.56*	0.07	-0.02	-0.55*	0.89*	0.45*
	0.16	0.16	0.11	0.11	0.14	0.13	0.11
64 & 68	-0.5*	0.47*	0.06	-0.08	0.55*	-0.68*	0.21*
	0.12	0.15	0.06	0.08	0.11	0.13	0.06

In other words, the would-be non-voter:

- 1) is most likely to have weak preferences,
- 2) is most likely to favor the incumbent.

If we add to this a further assumption that

- 3) he is most likely to believe that the incumbent would be the winner, which leads him to believe that his vote is of low efficacy,

then the would-be non-voter in Campbell et al. study will be a non-voter.

#### Conclusion

No significant effect of the individual's economic condition was found on either his voting or participation decisions. There is evidence to support the common belief that salience of the candidates and incumbency affect the individual's dual decision. In particular, incumbency affects the individual's dual decision both directly and indirectly through the awareness variable. The simultaneous equations formulation suggests that possible misspecification in AM's model is responsible for their results that, "The principle effect of incumbency is to increase participation." The direct effect of incumbency on participation appears to be negative, although it has a positive indirect effect through the salience variable. Finally, we find no effect of economic conditions on the awareness of the candidates by the individual.

Table 1A: Turnout

#### For Democrats

Year economic response	*56	58	*60	62	*64	66	*68	70
	-	-	(+)	-	-	-	-	+
Better	29.2	41.0	25.0	42.4	28.3	45.6	31.3	57.8 ↑
Same	30.2	40.6	24.9	46.2	32.1	40.7	35.5	48.4 ↑
Worse	31.1	52.1	24.7	44.6	32.0	51.7	38.1	53.9 ↑
Total % non-voters	30.1	43.9	24.9	44.5	30.3	45.5	36.4	52.8 ↑

#### For Independents

Year economic response	*56	58	*60	62	*64	66	*68	70
	-	-	-	+	-	+	+	+
Better	30.4	39.4	29.7	65.7	50.0	67.3	62.8	70.8 ↑
Same	26.7	62.5	23.1	50.0	35.7	59.3	35.7	55.3 ↑
Worse	43.8	70.4	53.8	45.0	57.9	64.5	55.2	63.6 ↑
Total % non-voters	30.3	57.8	30.5	55.4	47.2	63.4	50.9	65.7 ↑

#### For Republicans

Year economic response	*56	58	*60	62	*64	66	*68	70
	+	-	-	n	-	+	+	n
Better	22.0	34.6	12.8	34.5	13.7	42.4	32.6	37.8 ↑
Same	27.2	36.3	12.4	35.2	22.1	36.7	25.5	46.8 ↑
Worse	19.2	50.5	14.3	34.4	20.5	28.8	24.7	37.9 ↑
Total % non-voters	23.6	38.0	16.7	34.8	18.1	36.4	27.6	41.7 ↑

\*on-year elections  
n does not support either hypothesis  
+ supports "apathy" hypothesis  
- supports "protest"  
↑ increasing over time

Economic conditions and turnout,  
entries are % non-voters of  
particular party affiliation in  
various economic response cate-  
gories.

Table 2A: Economic Conditions and the Plurality of the  
 Presidential Party Candidates.  
 (Entries are the Presidential Party Plurality.)

## DEMOCRAT

	*56	*58	*60	*62	64	66	*68	*70
Better	-48.1	-35.2	-58.6	44.5	50.3	32.8	36.6	-28.2
Same	-58.8	-55.5	-56.8	43.4	55.8	36.9	37.3	-38.9
Worse	-57.9	-44.1	-63.2	43.8	52.0	40.1	26.3	-31.6

## INDEPENDENT

	*56	*58	*60	*62	64	66	*68	70
Better	33.9	12.0	16.2	17.1	7.2	8.2	0	-12.5
Same	10.0	-5.3	0	7.2	42.9	-7.4	7.1	-2.6
Worse	31.3	7.4	-30.8	15.0	31.5	9.7	-10.4	-6.0

## REPUBLICAN

	*56	*58	*60	*62	*64	66	*68	*70
Better	64.1	44.8	62.4	-43.5	-37.9	-36.8	-46.6	40.6
Same	59.0	43.5	61.8	-44.3	-43.3	-42.0	-46.3	38.0
Worse	60.9	41.0	46.7	-51.5	-52.3	-34.0	-59.5	37.9

\* Support the hypothesis.

Table 3A: Incumbency Effect on Vote  
 (For all PID's)

Better

	56	58	60	64	66	68	70	
Dem	10	68.6	-42.9	30	61.9	18.7	77.8	↑
Rep	30.9	41.6	10	20.4	30.0	87.5	10.5	↑
Ind	51.7	50	-25	8.3	92.3	42.8	50	↑

Worse

	56	58	60	64	66	68	70	
Dem	30	20	-9	46.7	84.2	17.3	90.9	↑
Rep	50.0	45.3	-17.7	16.7	84.2	10	7.0	↔
Ind	-14	20	-100	-14	100	40.0	80	↑

Same

	56	58	60	64	66	68	70	
Dem	40.0	25.0	39.4	40.9	50.0	30.2	50.0	↑
Rep	30.4	26.5	-13.2	42.8	87.5	55.6	2.8	↑
Ind	4.0	33.4	-33.2	46.6	77.8	26.6	-12.5	↑

Entries are:

(Proportion who voted for  
 the presidential party  
 and reside in an area with  
 incumbents belonging to the  
 presidential party.)

(Proportion who voted for  
 the presidential party  
 and reside in an area with  
 a challenger party  
 incumbent.)

↑ increasing over time

↔ No trend

↓ decreasing over time



Table 4A: Presidential Party Differential Vote and Salience

Controlling for Different Party Affiliation/Economic

Response Categories

First Period

Second Period

	58	64	66	68	70	
Dem/better	17.1	25.5	23.8	15.8	44.4	↑
Dem/same	14.3	29.7	17.3	35	25	↑
Dem/worse	60.0	28.0	31.6	26.9	45.5	↓
Ind/better	16.6	27.0	40	25	0	↔
Ind/same	22.2	25.0	22.2	26.6	0	↓
Ind/worse	0	0	0	20	80	↑
Rep/better	23.2	11.4	46.2	14.3	18.9	↑
Rep/same	16.5	37.0	31.2	22.2	27.8	↑
Rep/worse	25.0	0	31.5	28.6	24.2	↑

Entries are:

(Proportion of a category of respondents who voted for the presidential party and recognise the presidential party's candidate.) minus

(Proportion of the same category who voted for the presidential party and recognize the challenger party's candidate.)

Table 5A: Salience and Economic Conditions

Year economic response	*58	*64	*66	68	*70
Better	87.5	81.3	80	83.3	63.6
Same	88.9	94.1	88.9	77.8	75.0
Worse	100	100	100	62.5	100

Entries are: proportion of Republicans recognizing the Incumbents of the presidential party.

Table 5B: Differential Salience of the Challenger's Party

Incumbent Candidate Among the Republicans

	*58	*64	66	68	*70
Better	70	85.7	77.8	89.5	91.7
Same	93.3	94.7	87.5	94.7	100.0
Worse	100	100	70.0	62.5	100.0

Entries are as defined above for the challenger party.

\*Supports the "Avenger Model."

Table 6A: Incumbency on Salience

## "Better"

	58	64	66	68	70	
Dem	100	88.4	85.3	82.2	66.6	↓
Rep	84.4	62.5	70	66.6	36.3	↓
Ind	100	25	50	100	80	↑

## "Same"

	58	64	66	68	70	
Dem	66.1	85.3	100	91.2	57.1	↑
Rep	86.6	88.2	77.8	61.1	56.3	↓
Ind	100	100	100	25	0	↓

## "Worse"

	58	64	66	68	70	
Dem	100	91.6	100	87.5	100	↑
Rep	100	100	100	25	100	↓
Ind	94	100	100	100	100	↑

Entries are: of the different PID

(Proportion who recognize the presidential party's candidate and reside in an area with incumbents belonging to the presidential party.)

minus

(Proportion who recognize the presidential party's candidate and reside in an area with a challenger party incumbent.)

## REFERENCES

1. Kramer, G. "Short-Term Fluctuations in U.S. Voting Behavior 1896-1964." American Political Science Review 65 (March 1971): 131-143.
2. Goodman, S., Kramer, G. "Comments on Arcelus and Meltzer, 'The Effect of Aggregate Economic Conditions on Congressional Elections.'" American Political Science Review 69 (1975): 1255-1265.
3. Stigler, G. "General Economic Conditions and National Elections." American Economic Review 63 (May 1973): 160-167.
4. Arcelus and Meltzer. "The Effect of Aggregate Economic Variables on Congressional Elections." American Political Science Review. 69 (December 1975): 1232-1259.
5. Leuchtenburg, W. The New Deal, Documentary History. University of Carolina Press, 1968.
6. Fiorina, M. "Economic Retrospective Voting in American National Elections: A Micro-analysis." American Journal of Political Science Vol. 22, No. 2 (May 1978): 426-443.

7. Fiorina, M. "Retrospective Voting in American National Elections."  
Research proposal, National Science Foundation.
8. Ferejohn, J. "On the Decline of Competition in Congressional Elections." American Political Science Review 71 (March 1977): 166-175.
9. Lazerfeld, P., Berelson, B. and Gaudet, H. The People's Choice. Columbia University Press, 1968.
10. Lazerfeld, P., Berelson, B. and McPhee. Voting. University of Chicago Press, 1968.
11. Mayhew, D. "Congressional Elections: The Case of the Vanishing Marginals." Polity 6 (Spring 1974): 295-317.
12. Dahl, R. Democratic Theory. The University of Chicago Press, 1973.
13. Dahl, R. Pluralistic Democracy in the U.S. New York: Rand-McNally, 1967.
14. MacPherson, B. Democratic Theory. Oxford University Press, 1975.
15. Mayo, H. An Introduction to Democratic Theory. Oxford University Press, 1960.

16. Nixon, Richard. Six Crises. New York: Doubleday, 1962.
17. Evans, R. Nixon in the White House: The Frustration of Power. New York: Random House, 1971.
18. Tufte, E. The Political Manipulation of the Economy: Influence of the Electoral Cycle on Macroeconomic Performance and Policy. Princeton University, August 1974.
19. Wright, G. "The Political Economy of the New Deal: An Econometric Analysis." Review of Economics and Statistics 56 (1974): 30-38.
20. Miller and Stokes. Elections and Political Order. John Wiley and Son, 1966.
21. Campbell, A., Converse, P., Miller, W. and Stokes, D. The American Voter. New York: John Wiley and Son, 1964.
22. Pomper, G. "From Confusion to Clarity: Issues and American Voters, 1956-1968." American Political Science Review 66 (June 1972): 415-428.

23. Boyd, R. "Popular Control of Public Policy: A Normal Vote Analysis of the 1968 Election." American Political Science Review 66 (June 1972): 429-449.
24. Converse, P. "The Concept of Normal Vote." In Elections and Political Order, pp. 9-39. Stokes, et al. New York: Wiley and Sons, 1966.
25. Page, B. and Brody, R. "Comment: The Assessment of Policy Voting." American Political Science Review 66 (June 1972): 450-458.
26. Kessel, J. "Comment: the Issue in Issue Voting." American Political Science Review 66 (June 1972): 459-465.
27. Key, V.O. Public Opinion and American Democracy. New York: Knopf, 1961.
28. Beam, J.H. Ballot Behavior. Washington, D.C.: American Council on Public Affairs, 1940.
29. Tufte, E. "Determinants of the Outcome of Mid-Term Congressional Elections." American Political Science Review 69 (September 1975): 812-826.

30. Rees, A. and Kaufman, H. "The Effect of Economic Conditions on Congressional Elections '46-'58." Review of Economics and Statistics 44 (1962).
31. Clark, W. "Economic Aspects of a President's Popularity." Ph.D. dissertation, University of Pennsylvania, 1943.
32. Okun, A. "Comments on Stigler's Paper." American Economic Review Papers and Proceedings 63 (May 1973): 172-177.
33. McCracken, P. "The Practice of Political Economy." American Economic Review 63 (May 1973): 168-177.
34. The Gallup Poll Index, August 1971.
35. Bailey, M. "The Welfare Cost of Inflationary Finance." Journal of Political Economy 64 (1956).
36. Tullock, Gordon. Towards a Mathematics of Politics. Ann Arbor: University of Michigan Press, 1968.
37. SRC - Burkhard Strumpel - ASA, August 1972.

38. Page, B. "Elections and Social Choice." Discussion paper presented at Conference on Social Choice Theory, Key Biscayne, Florida, December 15-20, 1975.
39. Berns, W. "A Critique of Berelson, Lazarsfeld and McPhee's Voting." In Essays on the Scientific Study of Politics. Edited by H. Storing. Holt, Rinehart and Winston, 1962.
40. Campbell, Converse, Miller & Stokes. "Voting and Turnout." Quoted in Public Opinion and Public Policy. Edited by Luttbeg. The Dorsey Press, 1968.
41. Verba, Sidney, Nie, N. and Petrocik, J. The Changing American Voter. Harvard University Press, 1976.
42. Verba, Sidney, Nie, N. Participation in America. New York: Harper and Row, 1972.
43. Theil, H. Principles of Econometrics. New York: Wiley & Sons, 1971.
44. Fair, Ray C. "The Effect of Economic Events on Votes for the President." Cowles Foundation Discussion Paper No. 420, January 1976.

45. Al-Adhath, Naim., "The Decline of Competition in Congressional Elections -- Mayhew May Still be Right." Pasadena: California Institute of Technology Social Science Working Paper No. 218, November 1977.
46. Amemiya, Takeshi. "The Estimation of A Simultaneous-Equation Generalised Probit Model." Technical Report No. 237, Institute for Mathematical Studies In the Social Sciences, Stanford University, May 1977.
47. Nelson, Forrest and Lawrence Olson. "Specification and Estimation of a Simultaneous-Equation Model with Limited Dependent Variables." Social Science Working Paper, No. 149, California Institute of Technology, Humanities and Social Science, January 1977.