Authors(s): Jackson, John E.
Title: Analysis of Pilot Study Issue Questions
Date: Undated
Dataset(s): 1979 Pilot Study

Abstract

Jackson finds that few differences exist in the information obtained through the different forms of the issue preference and candidate placement questions in the 1979 Pilot Study. Alternate question forms measure comparable issue dimensions and none of the items seem to be systematically biased by the presence of other factors. What differences do exist among the questions appear to favor the traditional seven point scale format. The differences among the alternate measures of issue importance, on the other hand, are more significant. The political importance form is superior to the personal importance question based on (1) the content of the survey responses and (2) the nature of the measurement bias.

Not for Quotation

Analysis of Pilot Study Issue Questions

John E. Jackson

University of Pennsylvania

The expected introduction might be "I have some good news and some bad news." However, in this case, it is more appropriate to say that I have no news, and to some that is good and to others it may be bad news. There are few differences in the information obtained by the different forms of the issue questions, and what differences do exist, appear to favor the traditional seven point scale. The differences between importance measures are more significant and favor the measure related to political importance. I have analyzed the various measures in terms of content--are they measuring the same things?--and in terms of their ability to explain other forms of political behavior--can candidate evaluations be related to issue positions? The analysis follows this outline. It first discusses responses as variables to be explained and then analyzes them as explanatory variables.

The structure used in this analysis is drawn from the more recent analyses of voting behavior (Jackson, 1975; Page and Jones, 1979; Converse and Marcus, 1979) which treat people's issue positions and perceptions are presumed to relate to a set of exogenous factors and to other endogenous variables, for example, party identification or candidate preference. Candidate evaluations and voting decisions are then derived from comparisons of these personal and candidate positions and other variables which might cause the respondent to favor a candidate.

Due to the limited size and information contained in the pilot study, this structure is simplified for comparing the responses to the individual questions. The more complex structural systems estimated by the other papers are condensed to a small set of reduced form equations explaining issue positions and candidate perceptions. Candidate evaluations are hypothesized to be related to an aggregate candidate distance variable and a small set of exogenous variables. The exogenous variables included in each equation represent the effects of the omitted structural variables included in the other studies as well as their own direct effects. Our concern with evaluating the information obtained from the different question forms and not with estimating the full structural model justifies these reduced form equations. Except for exogenous variables omitted from the study, and hence from the reduced form equations, this specification captures the full set of hypotheses contained in these more elaborate studies. At the same time, we are permitted to concentrate on the question form evaluations in the most statistically efficient manner.

The equations representing this structure are:

(1) Personal Preferences = $Y_1 = XB_1 + U_1$

(2) Candidate Perceptions = $Y_2 = XB_2 + U_2$

(3) Issue Importance = $Y_3 = XB_3 + U_3$

(4) Candidate Evaluations = $Y_4 = f(Y_3^* |Y_1 - Y_2|) + XB_4 + U_4$.

The set of exogenous variables included in the analyses is shown in Table 1. (The exogenous variables omitted from the candidate evaluation equation are specified to have values of zero for the appro-

Table 1: Study Variables

I. Exogenous Personal Characteristic Variables

1. East: CT, ME, MA, NJ, NY, PA
2. Mid-west: IN, IA, MI, MO, OH
3. South: AL, AR, FL, GA, LA, SC
4. Border: KY, MO, TN
5. Male
6. White
7. Age (in tens of years)
8. Age >37 (reached voting age before 1964)
9. Education (years of schooling)
10. High School Graduate
11. College Graduate
12. Income

II. Question Forms

A. New (self and candidates)

1. Current Policy-Health, Jobs
2. Branching-Social Security, Defense
3. Ambiguity-Russia, Minority

B. Old (self and candidates)

1. Traditional seven point scale-all issues

C. Importance

1. Important personally
2. Importance of government policy changes

D. Candidate Evaluation

1. "New" thermometer

priate elements of B_4.) The expectations are that the coefficients B_1 show the systematic relationship between individual characteristics and issue preferences. This systematic relationship may arise from individual interests associated with an issue, e.g., elderly may favor increased social security benefits; from group socializations leading to general ideological orientations, e.g., racial tolerance increases with education levels; or from partisan effects, e.g., Democrats may have different positions than Republicans because of party cues. The list of exogeneous variables represents the reduced form effects of these, and other, considerations.

The candidate perception equation includes any systematic effects on perceptions. In the most idealized models, all voters locate a candidate at the same policy positions. This implies that all elements of B_2 are zero except for the constant term. In actuality, this is not the case. Political figures may shade their positions differently for different constituents, voters may misperceive positions because of selective attention to cues or because they already favor the candidate for other reasons. If these perceptions have any systematic basis, then the assiciated elements of B_2 will be non-zero. Non-systematic variations in stated perceptions are represented by the U_2 term. Similar interpretations apply to the model for the importance of each issue.

The final equation relates people's candidate evaluations to their perceptions of the politician's positions relative to their own preferences. The greater the distance between preferences and perceptions, the less favorable the evaluation. Further, the more impor-

tant the issue to the person, the more distances on that issue effect evaluations. This hypothesis is the subject of considerable debate, and we will examine a limited set of points in that debate in an effort to evaluate the issue importance measures. Finally, the set of regional variables are included in the evaluation equation to proxy the effects that other considerations may have on evaluations. For example, national politicians usually have regional attachments transcending any set of issues because of our regional based recruitment process. Thus we might expect southerners to give Carter a more favorable rating, irrespective of issues, than people in other regions.

There are more complete, elaborate, and sophisticated specifications one might want to substitute for equations 1 - 4. These extensions would better model and provide more information about the individual electoral decision process. However, the purpose of this study is to compare the alternative forms of the issue and importance questions. For our limited purpose, this simple structure captures the fundamental parts of the process, and provides an adequate representation from which to make these evaluations.

The analytical strategy for evaluating the alternative forms relates the responses to the two questions to the appropriate conceptual variable. For example, if Y_{11} represents preferences on the health care issue and if $Z_{1_{11}}$ and $Z_{1_{12}}$ denote the responses to the two questions asking people to locate their preferences on

health care, we have the following relations,

$$\text{Response to Form 1} = Z_{1_{11}} = A_{1_{11}} Y_{11} + e_{1_{11}}$$

$$\text{Response to Form 2} = Z_{1_{12}} = A_{1_{12}} Y_{11} + e_{1_{12}}.$$

(The subscript denotes preferences rather than candidate perceptions and the sub-subscript denotes the issue number and the form of the question.) The A coefficients estimate how well the responses relate to issue preferences. The stochastic term, e, assesses how much random variation, independent of preferences, is contained in the response. We would hope the values of A would be large, that the variances of e would be small, and that the combined structure in equation 1 and the response model would account for the variances and the covariances among the responses and the exogenous variables. In the best of such worlds, where the fit to these covariances is good, the conclusion is that the responses to both question forms are measuring the same preferences and that we can use the values of A and the variance of the e's to assess how well the question forms measure these preferences. If the fit to the observed covariances is poor, it means that the questions are measuring different concepts, or positions on different issues. In this latter case, we must then examine the nature of these differences in hopes that we can understand how the responses differ.

This structure is repeated for all the issue preference, candidate perception and issue importance items. If we denote these items by Z_1, Z_2, and Z_3 respectively, the response model is,

(5) Self-Placements on New Forms = $Z_{1_1} = A_{1_1} Y_1 + e_{1_1}$

Self-Placements on Old Forms = $Z_{1_2} = A_{1_2} Y_1 + e_{1_2}$

(6) Candidate Placements on New Forms = $Z_{2_1} = A_{2_1} Y_2 + e_{2_1}$

Candidate Placements on Old Forms = $Z_{2_2} = A_{2_2} Y_2 + e_{2_2}$

(7) Issue Importance on Form 1 = $Z_{3_1} = A_{3_1} Y_3 + e_{3_1}$

Issue Importance on Form 2 = $Z_{3_2} = A_{3_2} Y_3 + e_{3_2}$.

This structure is estimated separately for preferences, perceptions of Carter, perceptions of Reagan and issue importance. Our evaluation of the alternative question forms is based on this estimated response structure.

Each of the three models is estimated simultaneously for all six issues and twelve question items. This way we have the information provided by the covariances among the responses to all the different issue questions to help in estimating the response model and in ascertaining if the responses to the different question forms refer to the same issue dimension. If the alternative formats provide information about the same issue, the covariances among issue pairs should be comparable for the alternative questions. For example, the covariance between jobs and minority preferences should be similar and derived from the same structure for the new question forms and for the traditional seven point scale. Thus estimating the structure and response equations with all twelve questions maximizes our use of the available statistical information.

The procedure just outlined is a variant of the common factor analytic approach. We are hypothesizing that the underlying preference variables, Y, are the unobserved components, and that the Z's are the imperfect measures of these unobserved variables. The A's are analogous to factor loadings while the variances of e are comparable to the unique variances. The difference between this analysis and a conventional factor analysis is that the unobserved variables are endogenous, being a function of the individual characteristic variables, rather than being unobserved exogenous variables. An advantage of this procedure, besides being a better representation of the electoral decision process, is that it permits us to use the information contained in the covariances between the responses and the exogenous variables to help estimate the structure and to evaluate the alternative responses. If both question forms measure preferences on the same issue, the covariances of the two response variables and the exogenous variables will be comparable. The goodness-of-fit, as measured by the Chi-squared statistic, tests this comparability. The estimation procedure, done with a program called LISREL developed by Joreskog (1973) estimates the magnitudes of the coefficients and variances and the goodness-of-fit of the hypothesized structure to the observed data. We apply this procedure to each of the different model components; preferences, candidate perceptions and importances, using the information provided by the 236 respondents interviewed in both waves of the study.

Response Content

Analysis of the alternative question forms proceeds according to the structure in equations 1 and 5. The preference questions are examined first, followed by the candidate perception responses, and then the measures of importance. The candidate perception analysis only concerns the placements of Carter and Reagan because they are the only politicians included in all six issue questions.

Before we begin this analysis however, we examine the responses to the set of ambiguity questions. These questions permit respondents to indicate a range of possible positions rather than forcing them to locate themselves and the candidates at a specific point on the seven point scale. The hypothesis is that preferences, and particularly candidates perceptions, are not referenced by a fixed point, but contain some ambiguity, and that measures of this ambiguity are important for modeling political preferences and behavior. Form 1 of the questions about relations with Russia and policies towards minorities allows people to express this range in locating themselves and the potential candidates.

The first concern is what additional information this ambiguity form provides. Table 2 shows the proportion of the people giving a response (don't knows, have not thoughts, etc. excluded) who indicated only a single point, as they would be asked to do with the traditional scale, those who gave a range of two adjacent points, and those who gave a range extending beyond two adjacent points. The vast majority

Table 2: Proportion Using Ambiguity Options

Relations with Russia	No Ambiguity	Adjacent Points	Non-Adjacent Points	N
Self	73.8	18.3	8.0	263
Carter	73.6	20.0	6.1	246
Reagan	70.5	24.0	5.5	183
Ford	75.3	20.2	4.5	223
Current Policy	72.7	21.8	5.5	238
Minority Policy				
Self	81.1	17.0	1.9	259
Carter	81.3	15.8	2.9	241
Reagan	86.1	12.3	1.6	187
Ford	82.7	13.6	3.7	214
Current Policy	83.5	14.3	2.2	230

expressed no ambiguity in placing either themselves or candidates and only a very small fraction used a range extending beyond two adjacent points. (Of course there is the one perceptive respondent who placed Carter somewhere between 1 and 7 on the relations with Russia scale, but I am not sure this is an indication of ambiguity in the sense of these questions.) Furthermore, ambiguity did not change when people were asked to place politicians rather than themselves. The expectation is that it should increase. I interpret these results either to mean that people do not see themselves and candidates in ambiguous ways, and are quite comfortable locating positions as points, or that the question form is inadequate. It is quite conceivable that some proportion of the respondents giving adjacent points are picking a point between the two hash marks rather than expressing ambiguity. In terms of the scale, they are locating themselves or a candidate at 2.5, not somewhere between 2 and 3 as the question intends. (We of course have no way of separately assessing these two possibilities.) Given the relatively small number of people expressing ambiguity, and the possibility that even some of these people are really choosing an intermediate point, subsequent analysis treats those giving a range of responses as picking the midpoint of that range. Thus someone responding, "between 2 and 3" is treated as picking the point 2.5, for their preferences or candidate placements.

Issue Preferences

The overall fit for the basic model in equations 1 and 5 is minimially acceptable, The Chi-squared measure for the goodness-of-fit is 131.62. With 111 degrees of freedom the significance level

is only 0.09. The largest deviations from the observed data are concentrated in the ambiguity measure of preferences on the minority issue. Specifically, the covariances with East, South; and male were badly estimated with this structure. When the model was reestimated with separate coefficients for the relationship between these three variables and the responses to the ambiguity-minority question the fit is quite acceptable, the Chi-squared value is 113.62. With 108 degrees of freedom the significance level is 0.34.

Table 3 gives the estimated parts of the model relating responses to the underlying preference structure. Because we are only concerned with the ability of the alternative question forms to measure preferences, we will only discuss the parts of the model relating responses to the underlying preference structure. The coefficients for the estimated preference structure (the B's and Σu) are given in an appendix available from the author. The model is arbitrarily scaled so that a unit change in the underlying preference structure produces a unit change in the responses to the traditional seven point scale. (This scaling is arbitrary in that it simply sets the metric for the model and any set of weights could be used. Regardless of the units selected, the relative size of the other coefficients is unaffected.)

The responses to the branching questions exhibit greater responsiveness to the underlying structure than do the responses to any other set of questions, new or old. Responses to the other new questions show less response to preferences than do the traditional seven point scale questions, with the responses the ambiguity questions having the smallest relation with the underlying structure. The unique

Table 3: Estimated Response Model for Preferences

I. Relation of Response to Preference Structure (A)

	Issue					
Question	Health	Jobs	Social Security	Defense	Russia	Minority
New	.79	.92	1.38	1.25	0.73	0.65
(st. error)	(.10)	(.11)	(.22)	(.13)	(.12)	(.11)
Tradit.	1.00	1.00	1.00	1.00	1.00	1.00

II. Unique Variance (σ_e^2)

New	0.054	0.047	0.021	0.019	0.045	0.049
(% of tot.)	(0.56)	(0.56)	(0.37)	(0.21)	(0.60)	(0.64)
Old	0.056	0.035	0.031	0.020	0.029	0.011
(% of tot.)	(0.44)	(0.45)	(0.62)	(0.31)	(0.34)	(0.13)

( ): asymptotic standard errors.

variances associated with the responses to each question are also given in Table 3, along with their percent of the total variance in the responses. (This is the component of the responses to each question which are not correlated with the responses to any other question or with the exogenous variables.) The responses to the branching question have smaller unique variances than the responses to the other question types, while the responses to the ambiguity questions show the greatest unique variances.

The results have several possible implications. First, we can have reasonable confidence that the alternative versions of the issue questions are measuring the same underlying preferences, with the possible exception of the ambiguity-minority question. Even here, the differences with the initially specified model are slight. Secondly, the branching form seems to do better than the traditional seven point scale at measuring preferences. It was more responsive to changes in preferences and had smaller unique variances. Thus the content of the responses to these questions is likely a truer measure of preferences. The other two alternative forms of the issue questions perform worse than the traditional scales, with the ambiguity measures doing worst of all.

Candidate Perceptions

The analysis now turns to the alternative questions measuring how people place the candidates. This is a central concept to most current electoral behavior models. Consequently, it is as important to have good measures of candidate positions as it is to measure preferences accurately.

The response model for candidate perceptions requires a modification to the model in equation 6. We must consider the probability that the respondent cannot locate a candidate and responds, "don't know." We may also expect that this possibility is systematically related to characteristics such as education level--the higher the education level, the higher the probability of knowing where to locate a candidate. If we denote the probability that person i knows where to locate a candidate on issue j when asked question form k as P_{ijk}, then the expected response to the candidate perception question is,

$$(8) \qquad Z_{2_{ijk}} = (A_{2_{jk}} Y_{2_i} + e_{2_{ijk}})P_{ijk} + R(1-P_{ijk}),$$

where R is the coded response for "don't know." Since we are interested in estimated A_2 and the variances of the e's, we must first remove this expected systematic bias in the responses.

This "don't know" bias is removed by first estimating the probability of knowing where the candidates are located as a function of education. This is done with a probit analysis where the dependent variable is one for respondents who can locate Carter (or Reagan) and zero for those who cannot. (This latter category includes those who said they had not thought about the issue and are then not asked to locate any of the candidates.) This estimation is done for both Carter and Reagan for all issue questions. The estimated results are shown in Table 4,along with probabilities of locating the candidate for three education levels. (The analysis was also done including the region variables to test the hypothesis that people in some regions

Table 4: Probability of Locating Candidates

Carter	Constant (B_1)	Education (B_2)	College (B_3)	% Predicted Correctly	Probability College 8 yrs.	Probability College H.S.	Probability College College
Health - New	-0.181	0.062	0.527	0.75	0.62	0.71	0.91
Old	-0.636	0.092	0.240	0.71	0.54	0.68	0.86
Jobs - New	-0.466	0.102	0.272	0.80	0.64	0.78	0.93
Old	-0.515	0.089	0.556	0.75	0.58	0.71	0.93
Social Sec. - New	-0.337	0.057	0.034	0.66	0.55	0.64	0.73
Old	0.186	0.011	0.578	0.66	0.61	0.63	0.83
Defense - New	-0.486	0.106	0.254	0.81	0.64	0.78	0.93
Old	-0.608	0.111	0.297	0.79	0.61	0.77	0.93
Russia - New	-0.162	0.114	-0.202	0.88	0.77	0.89	0.93
Old	-0.482	0.124	-0.443	0.84	0.07	0.84	0.85
Minority - New	-0.222	0.105	0.325	0.88	0.71	0.85	1.00
Old	-0.904	0.139	0.139	0.79	0.58	0.78	0.93
St. errors	(0.47-0.51)	(0.040-0.045)	(0.30-0.39)				

Table 4: Probability of Locating Candidates (con't)

Reagan		(B_1)	(B_2)	(B_3)	% Predicted Correctly	Probability College 8 yrs.	H.S.	College
Health -	New	-0.766	0.056	1.078	0.61	0.37	0.46	0.89
	Old	-1.466	0.108	0.813	0.64	0.27	0.43	0.86
Jcbs -	New	-0.799	0.076	0.905	0.62	0.42	0.54	0.91
	Old	-1.151	0.096	1.084	0.65	0.35	0.50	0.93
Social Sec. -	New	-0.954	0.071	0.567	0.58	0.35	0.46	0.77
	Old	-0.883	0.058	0.711	0.62	0.34	0.43	0.77
Defense -	New	-0.871	0.079	0.697	0.61	0.41	0.53	0.86
	Old	-1.703	0.145	0.681	0.65	0.29	0.51	0.90
Russia -	New	-1.103	0.114	0.581	0.67	0.42	0.60	0.90
	Old	-1.232	0.111	0.426	0.64	0.36	0.54	0.83
Minority -	Old	-0.787	0.086	1.390	0.68	0.46	0.60	0.98
	New	-1.21	0.097	0.650	0.64	0.36	0.52	0.86
St. errors		(0.48-0.045)	(0.042-0.045)	(0.30-0.47)				

were more familiar with either Reagan or Carter and thus more likely to be able to place them. This was not the case. The region coefficients are not statistically significant.)

The most obvious difference, not surprisingly, is the greater probability of respondents associating Carter with a specific policy, particularly at lower education levels. Only when we consider college educated individuals do we have comparable probabilities of the person locating both Carter and Reagan. At this level, the probabilities vary between 0.85 and 1.00, except for the social security issue. Even for those with 12 years of schooling (presumably a high school education), there is about a 0.25 to 0.30 higher probability of locating Carter than there is of locating Reagan. These differences hold at the level of eight years of education, although the absolute probabilities are lower.

An important question is whether the question form affects the probability of the respondent locating a candidate, since this entails the loss of important information necessary for modeling electoral behavior. To address this question, the coefficients in the equations in Table 4 are regressed against variables representing the issue area, the question form, and the candidate in an effort to estimate the effect each of these characteristics has on the probability of the respondent locating the candidate (more precisely, of indicating a knowledge of the issue and of locating the candidate). The intercept term in these equations is the expected coefficient for placing Reagan on the health issue with the traditional seven point scale. The remaining entries indicate how the expected coefficient changes

with variations in substantive issue ares, question form, and if Carter is being placed.

The variations in issue, question form, and candidate have their most pronounced effects on the constant term in the probability equations. As should be evident from Table 4 and confirmed by the entries for B_2 in Table 5, there is little systematic variation among the education coefficients, suggesting that the effect of increasing education on the probability of the respondent locating the candidate is about the same for all issue question and candidate pairs. It is possible that questions based on changes from current policy (new question form 1) reduce the effect of education, but this differnece is not statistically significant at the 0.05 level.

The expected constant term (B_1) varies dramatically among alternative question forms however. Both the current policy and ambiguity forms substantially increase the probability of the person locating the candidate relative to the seven point scale. There is only a small and statistically insignificant difference between the branching and the seven point scales. A surprising result is that one might expect the seven point scales to have a higher probability of a response because they all occurred in the second wave of the study. If being interviewed increases ones attention to political events, we would expect a higher probability of the people locating the candidates in the second interview, which whould appear as higher probabilities for the traditional seven point scales. This did not happen however. Secondly, given the similarity between the structure of the ambiguity form and the traditional seven point scale, it is surprising that the prob-

Table 5: Effects on Probability of Respondents Locating Candidates

Probability Function

	B_1		B_2	
	Effect	St. error	Effect	St. error
Intercept	-1.291	0.156	0.090	0.014
Current Policy	0.389	0.171	-0.022	0.016
Branching	0.090	0.171	-0.003	0.016
Ambiguity	0.366	0.171	-0.013	0.016
Jobs	0.030	0.171	0.011	0.016
Social Security	0.415	0.209	-0.040	0.019
Defense	-0.005	0.209	0.021	0.019
Russia	0.029	0.209	0.032	0.019
Minority	0.015	0.209	0.023	0.019
Carter	0.669	0.099	0.001	0.009
R^2	0.82		0.67	

ability of a location is so much greater for the ambiguity questions than for the traditional form.

The next concern is the structure of how people perceive candidates and how the questions purporting to measure these perceptions actually perform. We are now returning to the original model in equations 2 and 6. To estimate these structures and the response relationships for Carter and Reagan we must first transform equation 8 to remove the expected probability of no response. This transformation is,

$$(9) \quad \frac{Z_{2_{ijk}} - R(1-P_{ijk})}{P_{ijk}} = A_{2_{jk}} Y_{2_{ij}} + e_{2_{ijk}} = W_{2_{ijk}}.$$

The transformation on the left hand side is designed to purge the responses of the probability of a no response, leaving the person's expected perception of the candidate, which we denote as $W_{2_{ijk}}$ for person i, issue j and question form k. The variances and covariances used to estimate the underlying perception structure and the response relationships (following the procedure used for the preference model) are computed from the appropriate W_2's.

The fits of the estimated structures for these adjusted candidate perceptions are not statistically significant. The Chi-squared statistics are 187.10 and 194.90 for Carter and Reagan respectively. With 111 degrees of freedom, these fits are worse than one would expect by chance if the estimated structures were the correct ones. (The propabilities of getting a larger Chi-squared than these by chance is less than 0.001.) Examination of the deviations from the observed variances and covariances did not reveal any noticeable and obvious errors

or patterns. Consequently, it is not possible with any simple additions to significantly improve the fit. Comparisons of the deviations in the Carter model with those in the Reagan model are no more revealing, further implying that there is no systematic aspect of the responses omitted from the structure. The models were reestimated with specific error terms for each of the four question forms. This model tests the hypothesis that common stochastic terms are introduced by the type of question. Although these additions improved the fits, the estimated structure is far from being significant (probability levels still less than 0.005).

These results suggest the possibility that once we have extracted the "don't know" component and the mean perception (extracted by the process of computing covariances) most of what remains is random, non-systematic noise, which does not conform to any predictable structure. As we shall see, there are some systematic components in the remaining responses, but these cannot account for a significant proportion of the observed covariances.

The estimated response structures for Carter and Reagan are shown in Table 6. The results largely parallel those found with self placements. The placements done with the branching form are more responsive to changes in the underlying structure than are placements with the seven point scale. The other two forms are less responsive. A very high proportion of the total variance in these placements, once they have been purged of the probability of not locating a candidate, is what we have labelled unique variance. For the new measures, these proportions are about 70 percent. In most cases, the unique variances

Table 6: Estimated Candidate Perception Structures

I. Relation of Responses to Preference Structure (A)

		Issue					
		Health	Jobs	Soc. Sec.	Defense	Russia	Minority
Carter - New Form		0.69	0.64	1.03	1.93	0.79	0.84
		(0.13)	(0.10)	(0.25)	(0.54)	(0.22)	(0.13)
	Old Form	1.00	1.00	1.00	1.00	1.00	1.00
Reagan - New Form		0.68	0.69	1.52	1.76	0.87	0.93
		(0.09)	(0.12)	(0.26)	(0.15)	(0.15)	(0.11)
	Old Form	1.00	1.00	1.00	1.00	1.00	1.00

II. Unique Variances (σ_ε^2)

Carter - New Form		0.056	0.054	0.094	0.058	0.066	0.044
		(0.73)	(0.079)	(0.74)	(0.43)	(0.74)	(0.73)
	Old	0.052	0.041	0.052	0.050	0.050	0.041
		(0.55)	(0.54)	(0.62)	(0.71)	(0.58)	(0.65)
Reagan - New		0.090	0.110	0.154	0.050	0.094	0.049
		(0.70)	(0.85)	(0.73)	(0.25)	(0.69)	(0.58)
	Old	0.067	0.091	0.077	0.064	0.048	0.056
		(0.44)	(0.69)	(0.76)	(0.56)	(0.47)	(0.58)

(st. errors)

with the seven point scales are in the 55 percent to 60 percent range. If we accept these estimated response models in spite of the statistical insignificance, the weak implication would be to favor the traditional measure, with some acknowledgment that the branching method performs about as well, or better on the defense issue.

The Importance of Issues

The basic structure estimated for the importance measures is statistically insignificant (Chi-squared of 320.26 with 111 degrees of freedom) and contains several implausible estimated coefficients. Thus it is easy to reject the null hypothesis that the basic structure describes the responses to the issue importance questions. A check of the deviations from the observed data suggests the presence of some systematic biases associated with each question type. The model is modified to include these hypotheses by adding an underlying variable related to each question type. If we denote these variables as V_1 and V_2 for the two respective forms of the importance measures, the expanded form of the model is,

$$V_1 = XB_1^* + U_1^*,$$

$$V_2 = XB_2^* + U_2^*, \text{ and}$$

$$Z_{3_k} = A_{3_k} Y_3 + C_k V_k + e_{3_k}, \qquad k = 1,2.$$

(A_{3_k} and C_k are vectors of coefficients related to the different issues.)

These form specific additions substantially improve the fit of the structure to the observed data. The model now has a Chi-squared

value of 70.28 with 75 degrees of freedom. The probability of getting a larger Chi-squared by chance is 0.63. Thus we have very little basis on which to reject the estimated structure as the true structure. The estimated response model, including the form specific equations, is shown in Table 7.

The results in Table 7 imply that the two importance questions only partially tap the same concept. The two measures do have a common dimension, as indicated by the large coefficients (A_3). However, the responses to both sets of questions clearly reveal the presence of a large form specific term. The total variance of these two terms, about 0.03, is larger than the variances of the common dimensions, which all had variances between 0.016 and 0.022. Thus we have two distinct measures.

The compositions of these two form specific components are vastly different, as are their effects on the importance variable. The personal importance specific component is virtually all systematic variation among people with different characteristics (the X's), while the political importance component is almost totally stochastic. Secondly, the relationship between the personal importance measured for each issue and the form specific component varies substantially by issue area. This component increases the importance attributed to health care and social security issues and decreases the importance associated with the minority issue. The effect of the specific term for political importance is virtually uniform across issues.

On the basis of these form specific influences, the political importance measure is to be preferred. This term is mostly stochastic

Table 7: Response Model for Issue Importance Measures

I. Relations with Underlying Components (A and ė)

	Importance Variable (Y_{3j})		Form Specific (V_k)	
	Form 1	Form 2	Form 1	Form 2
Health	2.34	1.00	1.00	1.00
	(0.74)			
Jobs	1.48	1.00	0.00	1.16
	(0.25)		(0.73)	(0.19)
Social Security	1.06	1.00	0.62	0.95
	(0.58)		(0.43)	(0.18)
Defense	1.63	1.00	-0.07	1.16
	(0.28)		(0.85)	(0.19)
Russia	1.70	1.00	0.15	1.08
	(0.29)		(0.65)	(0.18)
Minority	1.79	1.00	-0.60	1.29
	(0.40)		(1.50)	(0.21)

Table 7: Response Model for Issue Importance Measures (con't)

	Form Specific (V_k)	
	Form 1	Form 2
College	-0.08	-0.02
	(0.14)	(0.16)
Income	-0.03	0.01
	(0.04)	(0.02)
σ_{u*}^2	0.006	0.027
	(0.012)	(0.008)
Total Var.	0.026	0.033

III. Unique Variances (σ_ε^2)			% of Total Variance	
	Form 1	Form 2	Form 1	Form 2
Health	0.022	0.093	0.24	0.65
Jobs	0.042	0.063	0.50	0.48
Social Sec.	0.040	0.089	0.40	0.65
Defense	0.032	0.059	0.36	0.45
Russia	0.024	0.051	0.28	0.44
Minority	0.021	0.043	0.27	0.36

Table 7: Response Model for Issue Importance Measures (con't)

	Form Specific (V_k)	
	Form 1	Form 2
II. Systematic Component (B_j)		
East	0.32	0.01
	(0.33)	(0.14)
Mid-West	0.35	0.02
	(0.35)	(0.15)
South	0.52	0.07
	(0.51)	(0.23)
Border	0.35	0.03
	(0.35)	(0.15)
Male	0.00	0.08
	(0.61)	(0.03)
White	0.14	0.02
	(0.18)	(0.08)
Age	0.12	0.07
	(0.06)	(0.12)
Age > 37	0.05	0.01
	(0.12)	(0.05)
Education	0.00	0.18
	(0.16)	(0.07)
High School	-0.10	-0.02
	(0.12)	(0.05)

and its effect, when present, is to uniformly inflate or deflate the importance attributed to all issues. The presence of this type of error can be dealt with by normalizing the importance attached to each issue so that all importances sum to one. This normalization means that our measure is assessing the relative importance of each issue rather than its absolute importance (if such a concept exists). Since the theory justifying the measurement of issue importance is stated in terms of relative importance, we would make this normalization any way. Thus the effects of the form specific error are minimal for the political importance measure. We cannot make this statement for the personal importance measure. Because it has a large systematic component, with variations among individuals (indicated by the large B^* coefficients) and greatly varied effects on the importance measure for each issue, the biases are not easily removed by the normalization process just described. What we have with the personal importance measure is an unreliable and systematically biased measure.

The estimated unique variances associated with the responses to the importance measure (form 1) are less than or equal to those of the political importance measure (form 2). Thus considered simply on the basis of which measure yields variables with the largest systematic components, we would favor form 1. However, we have seen that part of this systematic element is related to the biases introduced by the question form, and thus is not desirable.

Summary

Based on the analysis of the content of the responses to the various question forms, there is little to choose from among the different forms of measuring issue preferences and candidate perceptions. Alternative question forms measure comparable issue dimensions and none seen to be systematically biased by the presence of other factors. The current policy and ambiguity forms were more likely to solicit people's perceptions of the candidates, as opposed to a "don't know," than the traditional seven point scale and the branching type questions. The branching questions had a larger proportion of systematic as opposed to unique variance than the seven point scales while the other two new forms had the largest unique variances. If we consider these unique variances as estimates of question reliability, then the branching questions are preferred with the current policy and ambiguity questions being the least attractive.

Among the two measures of issue importance, the second form referring to the importance of changes in government policy, is preferred. The biases inherent in this measure are primarily stochastic, are uniformly present in all issue measures, and are relatively easily removed by the normalization procedure one is likely to use in estimating electoral models. The biases observed in the personal importance measure are highly related to personal characteristics, are not random, do not have a uniform effect on the responses for different issues, and are not easily removed in constructing a variable for use in other modeling.

The Alternative Measures as Explanatory Variables

As important as what these different questions measure, is the question of whether what they measure relates to important aspects of political behavior. Thus we are now evaluating the measures as explanatory variables rather then as variables to be explained. The structure for this analysis is equation 4, where we relate candidate evaluations to people's issue positions, to their perceptions of the candidate relative to these preferences, and to the importance attached to each issue. There are several criteria available for these evaluations. One, of course, is how much of the variance in evaluations can be explained by alternative measures. A second, and equally important one, is the precision with which we can measure these relationships. One of the purposes of improved measurement is to make such estimations more precise and in this way improve our knowledge of political behavior. For example, in much current work with more sophisticated modeling and statistical procedures, having a precise estimate that a causal link is quite small is as important as "explaning" some aspect of electoral behavior. If everything else is equal, the better the variable measurement the more precise the ensuing estimates. This precision can be assessed by comparing the standard errors of coefficients on comparable variables developed from the alternative measurements.

In order to limit the number of comparisons and estimations, the evaluations in this section only concern the respondents' evaluations of Carter. Because he is the best known of the candidates located on

all issue scales this analysis should provide an accurate view of how the alternative question forms perform in developing explanatory variables. The dependent variable in all these analyses is the new form of the theromometer measure where people are asked their rating of Carter on a 0 - 100 scale. All equations include the four regional exogenous variables to capture evaluations not related to issues. In all comparisons, the estimations are done using two-stage least squares, with the twelve exogneous variables shown in Table 1 used to create the necessary instruments. This statistical procedure is required for several different reasons. Theoretically, we must allow for the possibility that people's evaluations of Carter systematically bias their perceptions of his issue positions. People who like (dislike) Carter may perceive him as being closer to (further from) their own preferred position. In this case, any observed positive association between the evaluation and the distance variables is a combination of causal effects and cannot be used to estimate the effect of issue proximity on evaluations, which is our concern here. The two-stage least squares method is designed for such situations of jointly determined endogenous variables. This same argument applies if we suspect there is covariation among the error terms in equations 1 - 4. If any of the contributors to one error term are present in the evaluation equation error term, which is likely, this will spuriously inflate the estimated effect of proximity on evaluations. Two stage least squares is an appropriate and the most accessible means for confronting this situation. Finally, we have already observed that all three variables--

preferences, perceptions, and importance-- contain unique variances which might be interpreted as measurement error. The presence of these random terms will attenuate any estimated relationship between proximities and evaluations if some correction is not made. Two stage least squares is again an acceptable method for dealing with this error in the variables problem. Thus use of two stage least squares should provide better estimates of the effects of alternative proximity measures on Carter evaluations.

There are many potential comparisons to be made. We have four alternative ways of measuring proximity, although only two for each issue, and four alternative importance measures (two forms and each can be normalized or not). We also have several alternative ways of aggregating the proximities on each issue to obtain an overall proximity measure. A first analysis is done to compare the importance measures and the two alternative aggregation methods. Once we have made these evaluations, the results are used to compare the alternative issue measures. For the first set of comparisons, the traditional seven point scales are used.

The first aggregation method simply averages the proximities for all six issues. If the person had not thought about an issue or could not locate Carter, the proximity was set equal to two. (Two is the modal proximity for those having a preference and locating Carter.) The second measure averages the proximities only for those issues on which the respondent stated a preference and located Carter. Only if this condition was not satisfied for any of the six issues was the value of two assigned. These two variables are referred to as no weight measures. The aggregations are also computed weighting

each proximity by the normalized importance of the issue, using both forms of the importance measure, and by the unnormalized political importance form. Estimation of the Carter evaluation equation is then done with both the unweighted and the weighted aggregate proximity measures in their various forms and then with both weighted and unweighted versions in the same equation.

Table 8 shows the estimated coefficients, the R^2, and the t-statistics for the equations estimated with the different importance weights, proximity aggregations and normalizations. These results are not overwhelmingly persuasive for any alternative. Based on the R^2 measure, the equations with normalized weights perform better than the equations with unnormalized weights, and the political weight measure gives better fits than the personal weight variable. This result, combined with the earlier analysis of the content of the alternative weight forms suggests that if we want to try weighting proximities by importance, the political weights are better than the personal weights. Among equations with normalized weights and with unweighted proximity measures the aggregate proximity measure based on the average of all issues performs better than the average computed only for those issues where the person has a preference and locates Carter. Finally the unweighted proximity measure performs better than either of the weighted forms. However, on the basis of the statistical significance of the coefficients, the weighted versions are preferred. Based on these results, the evaluations of the alternative question forms are done with unweighted and

Table 8: Carter Evaluations with Alternative Weights and Proxmity Aggregations

	Aggregation Method					
	All Issues			Have Preferences and Locate Carter		
	R^2	b	t-stat	R^2	b	t-stat
No Imp. Weight	0.165	-11.64	-1.18	0.145	-7.52	-1.29
Normalized Weights						
Personal Imp.	0.129	-13.81	-1.44	0.137	-7.02	-1.37
Political Imp.	0.144	-7.22	-1.41	0.095	-4.36	-1.12
No Wt. & Pers. Imp.	0.129	-2.16	-0.15	0.136	0.18	0.01
		-12.30	-0.87		-7.16	-0.46
No Wt. & Pol. Imp.	0.158	-3.63	-0.26	0.145	-7.47	-0.59
		-5.94	-0.84		-0.03	-0.00
Unnormalized Weights						
Personal Imp.	0.048	-3.51	-1.73	0.113	-2.07	-1.52
Political Imp.	0.095	-0.99	-0.90	0.101	-0.89	-0.92
No Wt. & Pers. Imp.	0.039	-4.04	-0.31	0.098	2.02	0.16
		3.12	-1.30		-2.48	-0.85
No Wt. & Pol. Imp.	0.151	-10.81	-0.93	0.135	-14.54	-1.03
		-0.54	-0.46		1.26	0.55

weighted proximities, aggregating proximities on all issues. For the weighted versions, the normalized political weights are used.

To make the comparisons between question forms, the aggregate proximity variable is constructed with all possible pairs of question forms. For example, the first equation is estimated based on the proximities measured with all three new question forms. The second equation is estimated with an aggregate proximity created from the new versions (current policy and branching) for the first two pairs of questions (health and jobs, and social security and defense) and the traditional method (seven point scales) for the third pair (Russia and minority). We have eight combinations of question forms by proceeding in this manner. The Carter evaluation equation is then estimated for the unweighted, the weighted, and the combined specifications of each combination.

Table 9 gives the estimated coefficients, standard errors, t-statistics, and R^2 values for these alternative equations. These results, as might be expected, are less than overwhelming in their implications for a choice of question format. On the basis of goodness-of-fit, the aggregate proximity measure based on the current policy measure for the first issue pair and the traditional seven point scale for the other two pairs performs best. This is true for the equations with the weighted variable and with both weighted and unweighted variables. For the equation with unweighted variables, the traditional seven point scale does better than any combination of new and old measures. If we evaluate the results on the basis coefficient size, which we can do because the variables are compa-

Table 9: Carter Evaluations with Different Question Forms

Proxmity Measure	b	σ_b	t-stat	R^2
No Important Weights				
A B C				
New, New, New	-25.38	9.12	-2.79	0.018
New, New, Old	-19.50	8.76	-2.23	0.109
New, Old, New	-25.62	10.08	-2.54	0.050
New, Old, Old	-17.70	9.60	-1.85	0.142
Old, New, New	-28.98	11.70	-2.47	-0.110
Old, New, Old	-15.18	9.00	-1.69	0.144
Old, Old, New	-29.82	13.86	-2.15	-0.117
Old, Old, Old	-11.64	9.86	-1.18	0.165
Weighted by Importance				
New, New, New	-12.32	4.75	-2.60	0.082
New, New, Old	-7.73	4.29	-1.80	0.128
New, Old, New	-13.20	5.03	-2.62	0.103
New, Old, Old	-8.09	4.57	-1.77	0.146
Old, New, New	-13.93	5.68	-2.45	0.062
Old, New, Old	-6.93	4.74	-1.46	0.130
Old, Old, New	-15.53	6.30	-2.47	0.054
Old, Old, Old	-7.22	5.13	-1.41	0.144

Table 9: Carter Evaluations with Different Question Forms (con't)

Proxmity Measure	b	σ_b	t-stat	R^2
Both Weighted and No Wt.				
New, New, New	-29.70	24.96	-1.19	-0.031
	2.50	13.44	0.19	
New, New, Old	-34.74	25.26	-1.38	-0.075
	8.16	12.49	0.65	
New, Old, New	-12.72	24.42	-0.52	0.118
	-7.22	12.53	-0.58	
New, Old, Old,	-12.84	21.54	-0.60	0.162
	-2.60	10.27	-0.25	
Old, New, New	-21.42	18.30	-1.17	-0.055
	-5.14	9.64	-0.53	
Old, New, Old	-12.13	14.32	-0.86	0.151
	-1.99	7.41	-0.27	
Old, Old, New	-15.36	18.19	-0.81	-0.071
	-10.27	9.33	-1.01	
Old, Old, Old	-3.60	13.80	-0.26	0.158
	-5.93	7.06	-0.84	

A = Health and Jobs

B = Social Security and Defense

C = Russia and Minority

rably scaled, measures with the ambiguity form combined with the traditional scales do best. None of the differences are overwhelming. We can turn the comparison around and ask if there is a form which performs poorly or erratically, and thus can be eliminated. By this criteria, only the ambiguity forms can be singled out. Equations including these measures consistently had poor fits, often with negative R^2 (indicating that the sum of squared errors exceeds the variance of the observed evaluation variable). The aggregate proximity including the branching form gave positive coefficients (implying that evaluations improve as proximity decreases) for two of the equations including both the unweighted and weighted variables. We would obviously reject this result as being implausible.

These equations are also estimated with the separate proximity measures for each of the six issues. Due to the small sample size and the lack of a good independent information base, these results are too erratic to bother discussing. (All equations had negative R^2 and each equation had several issues with positive coefficients.)

The summary of this analysis is a bleak one. No measure performed significantly better than another. There is a slight tendency for the traditional seven point scale measures to perform better on a goodness-of-fit basis, but this is not a strong superiority. This result is also supported if we compare coefficient sizes for the equations based on the unweighted measure. Again, however, the differences are small, and this may not be the most appropriate basis for comparison.

Conclusions

It is very hard to write conclusions to a paper which did not find anything. It is somewhat akin to not finding a needle in a haystack. One can always be accused of not looking carefully enough or in the right place. However, this type of statistical analysis is not as serrendipitous as hunting needles in haystacks. One usually begins to get clues about where needles are located before finding them. These clues often take the form of interesting, suggestive, and possibly significant results which suggest further modifications and analyses, which then lead to more interesting and better results. We have not found any such encouragement so far. There surely are alternative procedures to try. One can use quadratic rather than absolute differences as proximity measures. Other transformations of the importance variables and the thermometer scales are possible. I would strongly urge that the candidate perception variables be omitted in constructing the proximity measures, and that these measures be based solely on the distance of the person's preference from the modal location of the candidate among those choosing a location. Given the substantial noise contained in these perception variables, their use in constructing proximity measures may actually weaken the measure rather than strengthen it. However, there is little to suggest that any of these alterations will alter the basic results. I expect that we will continue to see little substantive difference among the alternative issue question forms. Because of these expected small differences and the implication that the tradi-

tional seven point scales do slightly better on a goodness-of-fit basis at explaining Carter preferences, I recommend staying with this format.

The only place where the results are somewhat more suggestive is with respect to the alternative measures of issue importance. In terms of the content of the responses and of their ability to relate to candidate evaluations the political importance form is better than the personal importance question. Unfortunately, the results of the Carter evaluation equations do not argue for the importance of importance on statistical grounds. However, it is worth pointing out that in the equations with both unweighted and weighted proximity measures, the coefficient on the weighted variable is large enough to imply that variations in the importance of an issue can have a large effect on candidate evaluations. What we cannot be very sure of is the precise magnitude of this effect because of the relatively large standard errors of these coefficients.

BIBLIOGRAPHY

Converse, P.E., and Markus, G.B., 1979, "A Dynamic Simultaneous Equation of Electoral Choice," American Political Science Review, Vol. 73 (Dec.), forthcoming.

Jackson, J.E., 1975, "Issue, Party Choices, and Presidential Votes," American Journal of Political Science, Vol. 19 (May), pp. 161-185.

Joreskog, K., 1973, "A General Method for Estimating a Linear Structural Equation System," in Goldberger, A.S. and Duncan, O.D. (eds.), Structural Equation Models in the Social Sciences, (New York: Seminar Press), pp. 85-110.

Page, B.I., and Jones, C.C., 1979,"Reciprocal Effects of Policy Preferences, Party Loyalties, and the Vote," American Political Science Review, Vol. 73 (Dec.), forthcoming.