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Patterns of political action committee contributions to the 1980 campaigns for the United States House of Representatives

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1. INTRODUCTION

The explosion of spending on political campaigns in the last ten years has occasioned great interest among observers of the political scene. The emergence of Political Action Committees (PACs) as a vehicle for channeling resources to candidates has been viewed with particular fascination and some alarm. Both politicians and commentators have been quick to note the connections between PAC contributions and legislative activities (although frequently with different conclusions).[1] For scholars of the political process, the recently instituted reporting requirements of the Federal Election Commission (FEC) have made it possible to study issues relating to campaign contributions in a systematic way. To Alexander's detailed studies of Presidential election finance (Alexander, 1983 is a recent example) there can now be added a growing number of studies of Congressional campaigns. Much of the work

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[1]For the views of a broad spectrum of observers, see Malbin (1980). Drew (1983) reports the opinions of a variety of political professionals. Her book, while overly alarmist in tone, is particularly useful for its wealth of detail about the labyrinths of campaign finance.

on Congress has focused on the relationship between campaign contributions and electoral outcomes. Welch (1981), Kau and Rubin (1982), and Jacobson (1980, 1985) are recent studies of this type. They explore the simultaneous relationship between money and votes--how campaign money influences a candidate's electoral prospects and how, in turn, electability generates campaign money.

Another developing line of empirical research seeks to understand the connections between campaign contributions and the voting behavior of Congressmen. There is a broadly accepted notion shared by journalists and academics alike that campaign contributions buy "access" to legislators in a way that is more potent than the claims of noncontributors. If not this, then, at the very least, campaign contributions should go to candidates whose platforms or records are consistent with the preferences or interests of the donor. There should therefore be a systematic relationship between campaign contributions and such observable components of legislative behavior as roll-call voting or--harder to observe but perhaps even more prevalent--the provision of casework or *ombudsman* services of the type noted by Fiorina (1977) and others. This line of work, focusing on the readily available data from roll calls, typically uses ratings by a single interest group such as Americans for Democratic Action, or constructs *ad hoc* vote indices from a sample of roll calls. These measures are then used as variables in econometric models that attempt to estimate the (possibly reciprocal) relationship between roll calls and money.[2]

Finally, theoretical work has attempted to construct models of campaign contributions (rather than campaign spending) that incorporate various elements of the "access" and electoral-outcome approaches in the empirical literature.[3] A difficulty facing the theoretical literature (in addition to formidable tractability problems and issues related to existence of equilibrium) is that the empirical literature on campaign contributions to Congress has so far focused either on a small number of

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[2]Welch (1980), Chappell (1981), and Kau and Rubin (1982) are recent examples.

[3]See, e.g., Hinich (1977), Aranson and Hinich (1979), Austen-Smith (1983), and Ferejohn and Noll (1984).

contributors or has relied on relatively few roll calls.[4] As a result, we do not yet have reliable, systematic data about a large enough body of campaign contributions to provide real guidance about what these models should be explaining, other than the existence of campaign contributions.[5]

Our efforts in this paper are directed mostly toward organizing a large body of data on campaign contributions to discover or confirm systematic patterns, or what in some academic dialects are known as "stylized facts." We are not engaged here in "testing" models, though obviously our particular way of looking at the data is influenced by what we (and many others) believe are fruitful questions to ask. The focus of our attention is the set of Political Action Committee contribution data compiled by the FEC for the 1979-80 electoral cycle of the House of Representatives.[6]

A key organizing feature of our approach is the view that PACs evaluate Congressional candidates by considering their positions or likely positions in terms of a fairly simple spatial model. According to this view, a PAC is more likely to make contributions to candidates located close to its ideal point in the evaluative space than to those far away. We take the evaluative space as one that is based on recorded roll-call votes. Previous work using roll-call data typically characterized the position of a member of the House by using, for example, his or her ADA score or some other vote index. We depart from this approach. Instead, we use the ratings of a large number of interest groups (most of them distinct from and not connected to a PAC). By

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[4]Welch (1980), for example, looked at only seven contributor groups, six of which were labor unions. Of these six, only contributions to Democratic candidates (in 1974) were examined. Chappell (1981) looks at voting on a particular issue (maritime cargo preference). Kau and Rubin (1982) use vote indices based on as few as eight roll calls.

[5]Not that explaining the existence of giving to political candidates is a trivial task. Indeed, no formal model has yet provided a fully convincing equilibrium story that ties together the behavior of voters, candidates, and contributors.

[6]The data we analyze include direct contributions made by political party committees. Technically, these are not really PACs. Rather than continually make pedantic distinctions, however, we will commit the minor solecism of referring to all committees as PACs.

means of a multidimensional unfolding technique we locate each legislator in a recovered space. This space turns out to be quite well characterized in *one evaluative dimension*. Moreover, the ordering of House members on this recovered dimension corresponds remarkably closely to the familiar "liberal-conservative" spectrum, with Representatives generally regarded as "liberals" toward one end of the dimension and those typically viewed as "conservatives" toward the other end.

We are particularly interested in seeing how well the pattern of PAC contributions matches this "ideological" mapping of candidates. More specifically, we seek to measure the extent to which the pattern of contributions by a PAC or a category of PACs is consistent with the "ideological" pattern of legislators. PACs whose giving is primarily along such lines should exhibit a high level of spatial consistency. Those that base contributions on other considerations (e.g., generalized access or broad-based geographic support) should exhibit patterns that look more nearly random when viewed from the "ideological" perspective.

Since PACs are typically constrained both by their own resources and by legal limitations on contributions to individual candidates, we would expect them to choose among otherwise "acceptable" recipients on the basis of maximizing the impact of a contribution. For this reason, it has generally been held that considerations of incumbency, seniority status, committee assignments, and the expected closeness of a race should all influence PAC giving. Therefore, we go on to amplify our approach by adding these considerations to our measure of spatial position. We look at each seat in which an incumbent ran for reelection in 1980 and estimate regression equations for each PAC type, using money given to or against the incumbent as the dependent variable. In addition to the incumbent's location on the recovered dimension, we use measures that capture these other considerations as independent variables.

Since our method for generating our key variable--the location of legislators on the evaluative dimension--may be unfamiliar to some readers (especially to economists), we begin by describing briefly how the unfolding technique is applied to an underlying spatial model. We then describe the data files available from the FEC and the way we organized them for our analyses. The rest of the paper reports our results.

2. THE "IDEOLOGY" VARIABLE

Creating a geometrical representation of legislators based on the pattern of their roll-call voting is a method that has been used for some time to study Congressional voting. The standard approach is to compute measures of association or agreement among legislators and then to analyze these agreement scores with factor analysis, cluster analysis, or multidimensional scaling to produce a geometrical representation of the legislators. This general approach assumes (explicitly or implicitly) that legislators and the Yea and Nay alternatives for each roll call can be represented as points in a policy space, that the legislators have symmetric, single-peaked utility functions over the space, and that they vote for the alternative closest to them. Unfortunately, as Morrison (1972) has shown, given this model, these scaling techniques are unlikely to recover the true positions of the legislators because the measures of association are sensitive to the distribution of the roll-call policy outcomes over the space.

To produce our spatial variable we use methods developed by Poole (1981, 1984) for the analysis of preferential choice data. In particular, we use least squares multidimensional unfolding on interest-group ratings to obtain a spatial map of legislators. As with the legislators, we assume that the interest groups can be represented as points in the policy or evaluative space and that they have symmetric, single-peaked utility functions over the space. To rate members of Congress, an interest group normally chooses between 10 and 40 roll calls that are relevant to whatever interests the group purports to represent. In spatial terms, we assume that the interest groups select roll-call votes with outcome locations near their ideal points in the policy space to construct their ratings. The ratings are determined by ascertaining the "correct" vote on each of the chosen roll calls and expressing the "correct" votes as a percentage of "correct" plus "incorrect" votes. Each rating thus represents the legislator's percentage agreement with the stated positions of the group.

Given this spatial model (and setting aside a group's possible error in perceiving outcome locations), the number of "correct" votes is monotonic with the distance between the interest group and the member of Congress. Figure 1 displays the utility function for one hypothetical

interest group near the end of a single evaluative dimension. The horizontal dotted line represents the utility threshold for the interest group; that is, the group will consider a vote for its ratings only if the vote has a possible outcome in the interval $[O_1, O_2]$. For example, consider three roll calls -- A, B, and C -- where the subscripts 1 and 2 indicate the two policy outcomes corresponding to Yea and Nay, respectively. A legislator located between O_1 and O_3 (where O_3 is the midpoint of B_1 and B_2) will vote for A_1, B_1, and C_1 and thus receive a rating of 100. A legislator between O_3 and O_4 (where O_4 is the midpoint of A_1 and A_2) will vote for A_1, B_2, and C_1 and receive a rating of 67. Similarly, a legislator between O_4 and O_5 (where O_5 is the midpoint of C_1 and C_2) will receive a rating of 33, and a legislator to the right of O_5 receives a rating of zero. The accuracy of an interest group's ratings in distance terms thus depends on the number of roll calls it selects, as well as on the distribution of outcome pair midpoints corresponding to the roll calls. In general, as the number of roll calls used to compute the ratings increases, the ratings become more linear with the true distances between the legislators and the interest group. Since most groups use more than 20 roll calls to compute their ratings, this is not a serious source of distortion.[7]

Figure 1 shows the drawbacks of using a single interest group's set of ratings as a spatial measure. First, the ratings are confined to the interval [0, 100] when in fact they should be able to take on any value in the interval $(-\infty, 100]$. An interest group near the edge of the policy space as in Figure 1 will give zero or near-zero ratings to legislators over a relatively broad region on the opposite side of the space. Second, if the interest group is interior to the legislators, then legislators equidistant from the interest group but spatially on opposite sides of the group receive the same rating. The set of ratings in such an instance would constitute what Coombs (1964) called a *folded* J scale.

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[7]Abstention by members of Congress is also not a serious source of distortion in the ratings. A member's attendance and voting record is scrutinized closely by opponents and the press, and genuine abstention (i.e., attending but voting "present") is rare. Consequently, members may often have to choose between outcomes, both of which may be distant from their ideal points.

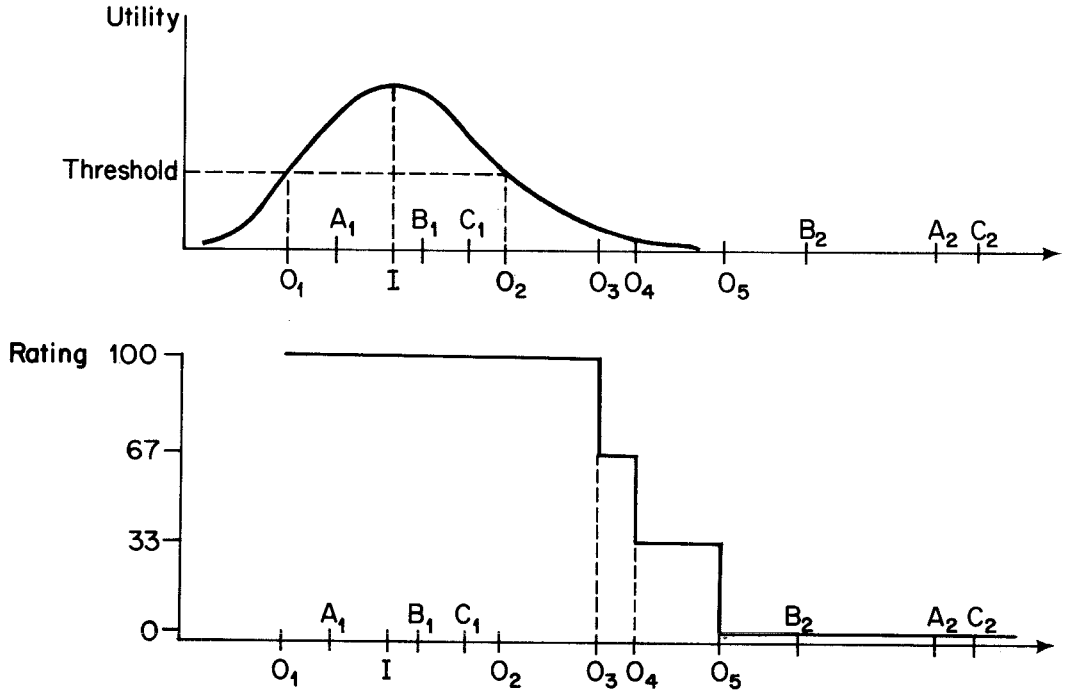

Figure 1
Rating Example

These problems can be overcome by the use of the ratings of several interest groups simultaneously in an *unfolding* analysis. The object of an unfolding analysis, in this instance, is to locate points representing the legislators and points representing the interest groups in a space of minimal dimensionality such that the Euclidean distances between the two sets of points reproduce the ratings as closely as possible. The use of a variety of interest groups allows the locations of the legislators to be identified. The truncation of the ratings of some groups because of their location near the edge of the space is counterbalanced by interest groups located more to the interior of the distribution of legislators as well as by groups located near the opposite edge of the space.

Formally, let δ_{ij} denote the jth interest-group's rating of the ith member of Congress. We convert the ratings to distances by the linear transformation

$$d^{*}_{ij} = (100-\delta_{ij})/50 = d_{ij} + e_{ij} \qquad (1)$$

where the error term, e_{ij}, is picking up two effects: (1) perceptual error; and (2) the substitution of zero for negative ratings. Let x_{ik} denote the ith legislator (i=1,...,p, where p is the number of legislators) on the kth dimension (k=1,...,s, where s is the number of dimensions), and let z_{jk} denote the jth interest group (j=1,...,q, where q is the number of interest groups) on the kth dimension. The loss function we minimize is

$$\mu = \sum_{i=1}^{p}\sum_{j=1}^{q} e_{ij}^2 = \sum_{i=1}^{p}\sum_{j=1}^{q} \{d^{*}_{ij} - [\sum_{k=1}^{s} (\hat{x}_{ik} - \hat{z}_{jk})^2]^{1/2}\}^2 \qquad (2)$$

Poole (1982, 1984) has developed a method of metric multidimensional unfolding which finds estimates of the legislator and group locations -- $\hat{x}_i$ and $\hat{z}_j$ -- that minimize μ. If the e_{ij} are assumed to be independently and normally distributed with constant variance, then the $\hat{x}_i$ and $\hat{z}_j$ will be maximum likelihood estimators using this method of

unfolding.[8]

Table 1 displays the unfolding results for the 1979 House of Representatives. One dimension explains over 83 percent of the variance of almost 16,000 ratings by 36 interest groups. Table 2 shows the unfolding results broken down by interest group, along with the recovered locations of the groups in one dimension. The interest groups cover almost the entire spectrum of contested issues in American politics: peace groups, womens' groups, labor unions, environmentalists, civil liberties groups, defense groups, senior citizens' groups, consumer groups, Christian fundamentalists, and so on. One group, the Committee for the Survival of a Free Congress, issued four sets of ratings--one based on all votes it felt were important, one based on economic issues, one based on defense issues, and one based on social issues--and we treated it as four interest groups.

Figure 2A shows the distribution of the recovered locations of the Representatives for 1979. The histogram on the left shows the entire House, while the one on the right separates the Democrats and Republicans. Figure 2B repeats this information for those members of the 1979 House who appeared on the general election ballot in 1980.

The coordinates for the groups in Table 2 show interest groups generally considered to be "liberal" at the negative end of the scale and "conservative" groups at the positive end. The estimated coordinates for Representatives locate "liberals" and "conservatives" in a similar fashion.[9] In other words, the primary evaluative dimension underlying the interest-group ratings looks remarkably like the

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[8]These assumptions are unlikely to hold in practice because $d^{*}_{ij} \geq 0$. If d_{ij} is small, e_{ij} must be small. However, Monte Carlo work with the unidimensional version of the unfolding technique (Poole, 1984) has shown it to be very robust when the normal-distribution, constant-variance assumptions are violated. The procedure recovers the true coordinates equally well when the error is generated in accordance with models based on the lognormal distribution, the noncentral chi-square distribution, and the normal distribution with the variance as a function of the true distances. The noncentral chi-square distribution is used to model the truncation in the ratings.

[9]For example, at one end of the distribution are: Dellums (D-CA), -1.062; Studds (D-MA), -1.053; P. Burton (D-CA), -1.045; Drinan (D-MA), -1.044; and Moffett (D-CT), -1.043. At the other end are: D. Crane (R-IL), .905; Hansen (R-ID), .912; Kelly (R-FL), .913; McDonald (D-GA), .929; and Collins (R-TX), .938. A full listing of the 1979 House coordinates is available from the authors.

TABLE 1

Unfolding Results for 1979 House

One Dimension	Pearson r^2 = .8355
Two Dimensions	Pearson r^2 = .8707
Three Dimensions	Pearson r^2 = .8902
No. of Interest Groups	36
No. of Representatives	434
No. of Ratings	15624

liberal/conservative continuum familiar to journalists and political scientists. For this reason, we will label the dimension "ideology."

Liberalism/conservatism in the American political context has, since the New Deal, primarily meant attitudes on government intervention in the economy. In recent years, however, the terms "liberal" and "conservative" have become tied to attitudes on government intervention in the private lives of individuals. Thus, "conservatives" such as Ronald Reagan favor government regulation of abortion, the care of newborn deformed infants contrary to the wishes of the parents, the sexual conduct of teenagers, and so on. "Liberals" oppose such regulation. In the political language of the United States, the words "liberal" and "conservative" are not used in the same way as they are in political philosophy. A "true" or "classical" conservative would probably be a modern-day Libertarian. Granted that liberalism/conservatism is applied to two highly collinear but distinct sets of attitudes (it is possible to be "liberal" on race, equality, and economic issues but "conservative" on abortion and family issues), we shall use the term *ideological* to refer to the primary evaluative dimension recovered from the interest-group ratings. There is, of course, room for debate over whether this *really* captures what is meant by ideology. Rather than join this debate here, we simply reiterate that the primary evaluative dimension produces an ordering of Representatives that strongly resembles the colloquial ideological ordering of these legislators.

The spatial configuration of Representatives recovered from the

TABLE 2

Unidimensional Unfolding Results by Interest Group

Interest Group	Location 1979	r^2 1979
American Civil Liberties Union	-1.087	.707
American Conservative Union	1.100	.948
Americans for Constitutional Action	1.112	.917
Americans for Democratic Action	-1.102	.951
American Farm Bureau Federation	.648	.616
American Federation of State, County and Municipal Employees	-1.028	.803
American Federation of Teachers	-1.004	.862
American Security Council	.913	.842
Building and Construction Trades	-.717	.609
Bread for the World	-.813	.877
Chamber of Commerce of United States	.932	.940
Child Welfare League of America	-.842	.889
Christian Voice	1.000	.851
Coalition for a New Foreign and Military Policy	-1.074	.751
Committee on Political Education	-.945	.910
Committee for the Survival of a Free Congress#	1.059	.956
CFSC Economic Issues	1.044	.916
CFSC Defense Issues	1.061	.921
CFSC Social Issues	1.076	.919
Congress Watch	-1.153	.874
Conservative Coalition	.853	.958
Consumer Federation of America	-1.199	.896
Friends Committee on National Legislation	-1.035	.911
League of Conservation Voters	-1.048	.823
League of Women Voters	-.978	.901
National Alliance of Senior Citizens	.909	.927
National Council of Senior Citizens	-.996	.896
National Education Association	-1.026	.661
National Farmer's Organization	-.150	.069
National Farmer's Union	-.338	.423
National Federation of Independent Business	.704	.857
National Taxpayer's Union	1.250	.773
National Womens' Political Caucus	-1.050	.842
President Carter@	-.765	.886
United Auto Workers	-1.007	.961
United Mine Workers	-1.071	.882

#CFSC issues four sets of ratings: one for all issues; one for economic issues only; one for defense issues only; and one for "social" issues (busing, etc.) only.
@Complied by Congressional Quarterly. The scores were corrected to remove absences.

Figure 2A.

Distribution of the 1979 House of Representatives

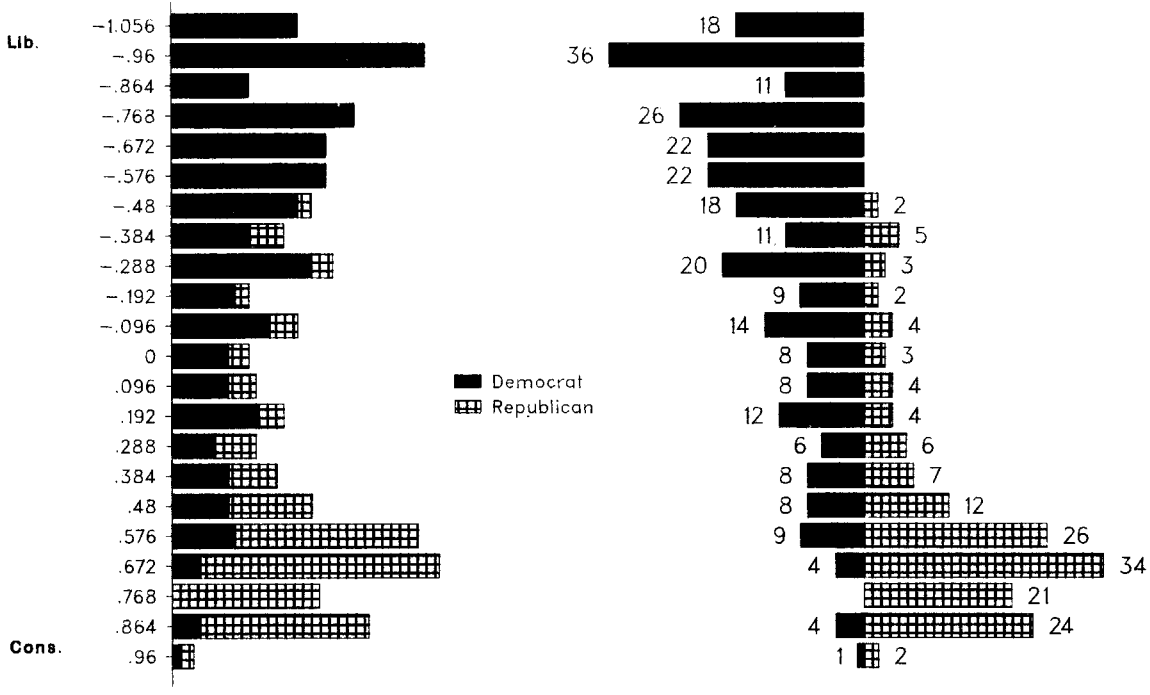
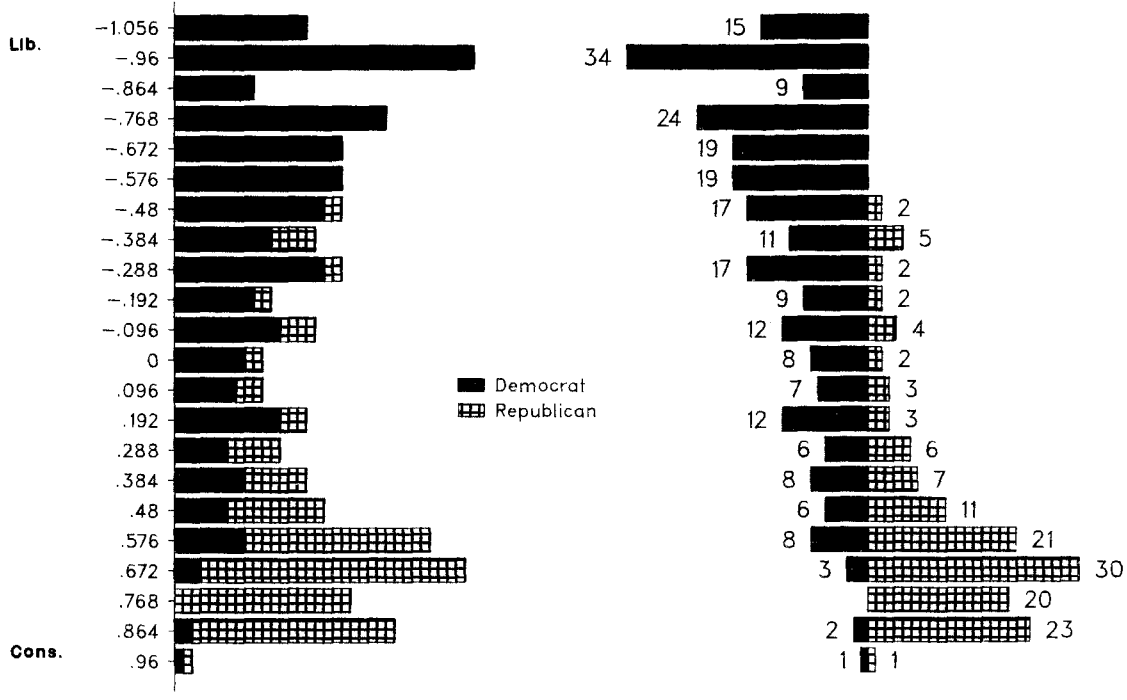


Figure 2B.

Distribution of the 1979 House of Representatives

Incumbents Running in 1980



ratings is, loosely speaking, what the interest groups "see" when they look at Congress. Their evaluative world is largely one-dimensional--namely, they judge legislators mostly on the basis of what we have called ideology--that is, liberalism/conservatism in the two senses discussed above. Furthermore, the fits in Table 2 show that, for nearly every interest group, regardless of where the group is on the dimension, it tends to perceive the same spatial configuration of Representatives.

That the perceptual space of the interest groups is largely unidimensional does not mean that the Representatives perceive one other, or indeed the interest groups, in the same fashion as the groups perceive them. This can be tested by determining how consistent roll-call voting is with the configuration of Representatives on the dimension.

Assume that Representatives have single-peaked preferences and vote for the outcome nearest to them on the dimension. Suppose also that, for a given roll call, there is only one outcome on the dimension corresponding to a Yea vote and one outcome corresponding to a Nay vote, and that all members perceive the same locations for these outcomes. Then there will be a point or cutting line equidistant between the locations of the two outcomes such that all legislators to the left of the cutting line will vote for the liberal position and all members to the right of the line will vote for the conservative position.

Poole and Daniels (1985) tested this model with all Senate and House votes cast from 1959 through 1980, and found that 85.4 percent of the votes cast in the Senate and 86.9 percent of the votes cast in the House were consistent with the simple unidimensional two-outcome spatial model. If unanimous votes are excluded, the figures are 83.3% for the Senate and 83.6% for the House. Just using political party to classify voting produced percentages of 75.3 and 77.5 respectively for the non-

unanimous votes.[10] For the 1979-80 House, 86.8% of all votes and 83.3% of non-unanimous votes were correctly classified.

3. DATA ORGANIZATION

The data available from the Federal Election Commission for a two-year election cycle consist of three files: a contribution file recording every contribution from a PAC to a candidate (about 132,000 records for 1979-1980); a committee file that lists every PAC registered with the FEC; and a candidate file listing every candidate registered. Not every registered PAC or candidate gave or received money during the cycle. Some PACs were inactive, and many minor-party and independent candidates received no PAC money in 1979-80.

We organized the contribution data by *House seat* rather than by candidate. The House seats were in turn broken down into two types: *incumbent seats*, those in which the incumbent ran for reelection in 1980 (N = 389); and *open seats*, those without an incumbent running (N = 46). There were four seats that had been filled by special elections in 1980. We treated these as open seats in our analysis.[11] In incumbent seats, we broke down the money contributed by each PAC into total amount

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[10]Poole and Rosenthal (1984a, 1985) have confirmed these results for the 1979 and 1980 Senates using a probabilistic model of choice that estimates the locations of the Senators and roll-call outcome pairs simultaneously directly from the recorded roll-call votes. The correlation between the configurations recovered from the interest-group ratings and those from the Poole-Rosenthal method is greater than .97 for both years. The Poole-Rosenthal approach is theoretically superior to the interest-group unfolding method for producing a geometrical representation of legislators. However, a computer large enough to handle a 435 by 600 matrix (the data have to be held in core) was not available to use. Given the high correlations between the Senate configurations produced by the two methods, we do not think that much information is lost by our approach.

[11]The four special elections were: (1) January 1980, John Porter (R-IL) elected to replace Abner Mikva (D-IL) who was appointed a Federal judge; (2) April 1980, Raphael Musto (D-PA) elected to replace Dan Flood (D-PA) who resigned; (3) May 1980, William Tauzin (D-LA) elected to replace David Treen (R-LA) who resigned to become governor; (4) June 1980, John Hutchinson (D-WV) elected to replace John Slack (D-WV) who died in March. One special election occurred in 1979--William Royer (R-CA) was elected in March to replace Leo Ryan who was murdered in Jonestown, Guyana in November, 1978. Since Royer served nearly a full term, we treated him as an incumbent in 1980.

contributed to the incumbent and total amount contributed to an incumbent's primary and general-election opponents. We refer to these as *positive* and *negative* money, respectively. In open seats, we organized the contributions similarly. "Positive" money for an open seat was that contributed to the *winner* of the general election, and "negative" money was that contributed to the *second-place* finisher in the general election.[12] Consequently, when we refer to positive and negative contributions below, we mean the *total* spent by a PAC on behalf of an incumbent or winner of an open seat and the *total* money spent by a PAC on behalf of an incumbent's challengers or second-place finisher in an open-seat race.

Our analysis includes the top 500 PACs in terms of overall spending (House, Senate, and Presidential races). Of these 500, twenty-five gave only to Senate and Presidential candidates. The 475 PACs of the top 500 that gave to House candidates accounted for 90.1% of PAC spending on House candidates during the 1979-80 election cycle. In sum, we reorganized the FEC contribution data into a matrix of 435 rows (one for each House seat) and 950 columns (two for each of the 475 PACs). This money matrix will be the focus of our attention in this paper.

4. A SPATIAL ANALYSIS OF CONTRIBUTIONS

If a Political Action Committee based its contributions to candidates solely on its approval/disapproval of the candidates' ideology (liber-

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[12]We made one exception in organizing the contributions for the open-seat races. The exception was the confused situation in the 2nd district of New Mexico in 1980. Harold Runnels (D) died after the June primary in which he was unopposed. In fact, the Republicans had decided not to oppose Runnels in the general election. After Runnels' death, the Republicans nominated Joe Skeen to run in the fall, but Skeen was ruled off the ballot because of the Republicans' initial decision not to contest the seat. Skeen subsequently ran as a write-in candidate. The Democrats, in the meantime, nominated David King, a nephew of Bruce King, the governor. His youth and the nepotism charge tarnished his candidacy, and he tried unsuccessfully to withdraw from the election. To add to the confusion, Dorothy Runnels, widow of Harold Runnels, also ran as a write-in candidate. The election results were Skeen (write-in R) 38%, King (D) 34%, and Runnels (write-in D) 28%. Because of the bitter split in the Democratic party, we decided not to treat the contributions to King and Runnels as "negative" money--that is, money against Skeen. Only positive money observations (i.e., contributions to Skeen) were used.

alism/conservatism in the two senses discussed earlier) in spatial terms, what should the pattern of contributions look like? Clearly, a conservative PAC would spend money for conservative incumbents and open-seat candidates and spend money against liberal incumbents. A liberal PAC should do just the opposite.

For example, consider Figure 3, which is similar in format to the right-hand histograms of Figures 2A and 2B. Figure 3 shows the pattern of contributions to House incumbent races by the National Conservative Political Action Committee (NCPAC) and the Political Action Committee of the United Auto Workers (UAW-V-CAP) over the ideological dimension recovered from the interest-group ratings. (We chose these two PACs for illustrative purposes because they both gave broadly but in opposing patterns.) Solid bars indicate the number of races in which money was donated to an incumbent (positive money), while hatched bars indicate the number of races in which money was donated to the opponents of an incumbent (negative money.)[13] NCPAC gave money to conservative incumbents and to the opponents of liberal incumbents--and vice versa for UAW.

For the time being, as in Figure 3, we will confine ourselves to analyzing the presence/absence of money rather than the actual dollar amount. Viewed in this way, the pattern of contributions of a PAC can be treated much like a roll-call vote: the presence of positive money is akin to a Yea vote, and the presence of negative money is akin to a Nay vote. If the pattern of a PAC's contributions is consistent with the ideological dimension, then the pattern should look like a roll call that is consistent with the two-outcome spatial model of voting we detailed above. Let "O" represent a race in which a PAC contributed positive money, and "#" one in which negative money was contributed. Then, for example, if the contributions of a PAC over the legislators, aligned left to right, were

OOO...OOO###...###

or

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[13]The sum of hatched and shaded entries is less than 389 for either group, because neither group spent money on all races.

###...###000...000,

the pattern would be perfectly consistent with the ideological dimension. Perfect consistency means that there is a cutting point on the dimension such that to one side of the point a PAC contributes only positive money and to the opposite side of the point the PAC contributes only negative money.

To measure spatial consistency for a particular PAC, we locate the cutting point in such a way that we minimize classification error relative to an ideal pattern. For example, suppose the pattern is

0000000000#00/##0#0##########

Placing the cutting point as shown ("/") minimizes the error with respect to a pattern in which all contributions to the left of the cutting point are positive ("0") and all contributions to the right of the cutting point are negative ("#"). In this example, three errors are made (one # to the left and two 0's to the right of the cut). To compute a measure of consistency we perform the following calculation

$$\lambda_{\ell} = \frac{MINC_{\ell} - CE_{\ell}}{MINC_{\ell}}, \qquad (3)$$

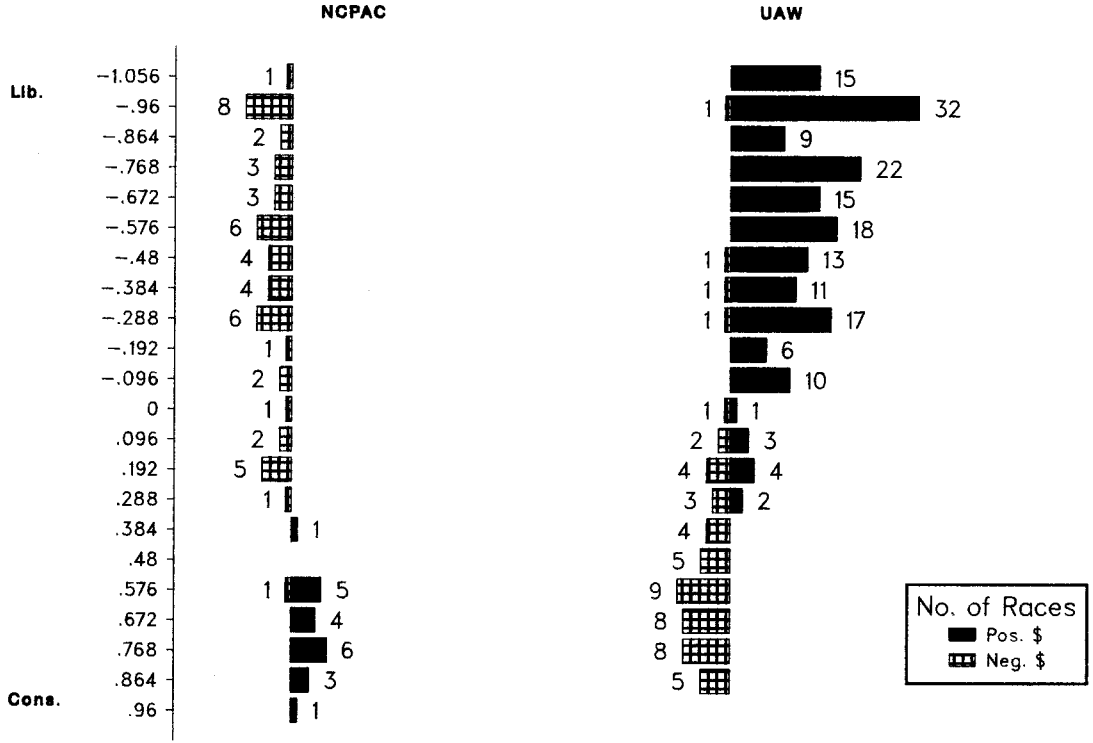
where CE_{ℓ} is the number of classification errors for the ℓth PAC, and $MINC_{\ell}$ is the minimum of the number of positive contributions and the number of negative contributions. λ_{ℓ} ranges between 0 and 1. The reason we use λ_{ℓ} as a measure of consistency rather than, say, just the number of classification errors is that λ_{ℓ} is not affected by the number of positive contributions relative to the number of negative contributions. For example, compare the pattern just considered with this one:

0000#00000#00000000#0000000

The best we can do with this pattern is place the cutting point at either end. This produces three classification errors. Both patterns

Figure 3.

Contributions by NCPAC and UAW-V-CAP



thus have the same number of classification errors, but on the first there are 14 positive contributions and 14 negative contributions, while for the second pattern there are 23 positive contributions and 3 negative contributions. The associated λ's are (14-3)/14 = .786 and (3-3)/3 = .000, respectively.

For the contribution patterns of NCPAC and UAW shown in Figure 3, the λ's were .950 and .811, respectively. NCPAC spent money on behalf of 20 incumbents and spent money against 50 incumbents. Placing the cutting point at 0.355 produces only one classification error. The λ value is therefore (20-1)/20 = .950. NCPAC's "zone of tolerance" is small. They spent positively only on incumbents from the right to far right while spending negatively on incumbents who are moderately conservative to very liberal. In contrast, the United Auto Workers gave money to 178 incumbents who were located over one-half the spectrum--from center to far left--and spent money against 53 incumbents who were spread over the opposite half--from center to far right. Placing a cutting point at .197 (center right or moderate conservative) produced 10 classification errors. The λ value is therefore (53-10)/53 = .811.

The spatial inconsistency of a category or set of PACs can be measured in the same way as that of individual PACs. For example, the joint λ for NCPAC and UAW is (20-1 + 53-10)/(20 + 53) = .849. In general,

$$\lambda = \frac{\Sigma MINC_{\ell} - \Sigma CE_{\ell}}{\Sigma MINC_{\ell}} , \qquad (4)$$

where the summation is over the subset of PACs of interest.

The overall λ for the 389 House incumbent seat races in 1980 was .490. This includes all those PACs from the Top 500 that contributed to at least five races positively and one negatively: 412 PACs in all. (Many PACs give money only to incumbents and spend no money on challengers.)

These 412 PACs made 27,302 positive contributions and 6126 negative contributions for a total of 33,428. Approximately 91 percent (30,543/33,428) of the contributions were correctly classified by the spatial model. While this figure appears impressive, approximately 82

percent (27,302/33,428) of the contributions were correctly classified by simply assuming that PACs always make positive contributions. Furthermore, approximately 83 percent (27,769/33,428) were correctly classified by assuming that PACs that make more positive than negative contributions make only positive contributions, and that PACs making more negative than positive contributions make only negative contributions. In this context, λ, as expressed in equation (4), is the percentage improvement that the spatial model makes over this "majority" model.[14] That is, about 17 percent of the contributions are not correctly classified by the "majority" model, and about 9 percent are not classified correctly by the spatial model. This represents about a 50-percent improvement.

An alternative explanation for patterns such as those shown in Figure 3 is political party. Since Democrats tend to be more liberal than Republicans, NCPAC may simply make its positive contributions to Republicans and its negative contributions to Democrats--vice versa for the UAW. This can be tested by computing a *party* λ using formulas (3) and (4), only now the classification errors (CE_q) are determined by using political party rather than the spatial model. Under the party model PACs that make more positive than negative contributions to Democratic (Republican) incumbents are assumed to make only positive contributions to Democrats (Republicans), and vice versa if the number of negative contributions exceeds the number of positive contributions. For example, NCPAC gave 2 Democrats positive contributions, 47 Democrats negative contributions, 18 Republicans positive contributions, and 3 Republicans negative contributions. This results in 5 classification errors so the party λ is (20-5)/20 = .750. For the United Auto Workers, 11 classification errors occur with the party model, giving a λ of (53-11)/53 = .792. Both of these party λ values are lower than the spatial λ's. Overall, political party correctly classifies approximately 88 percent (29,537/33,428) of the contributions, with a λ of .312.

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[14]The origin of the phrase "majority model" lies in Congressional roll-call analysis (Weisberg, 1978), where it predicts that each legislator will vote with the majority on each roll call.

The political-party model can be improved by treating the Democratic party as two parties--Southern and Northern.[15] Southern Democrats have traditionally been more conservative than Northern Democrats and have often formed a "conservative coalition" with the Republicans in Congress. We will refer to this as the *three-party* model as opposed to the *two-party* model discussed above. For NCPAC and UAW, the three-party model is not an improvement over the two-party model. The λ's are the same: .750 and .792, respectively. Overall, the three-party model is only a slight improvement over the two-party model--correctly classifying approximately 89 percent (29,888/33,428) of the contributions, with a λ of .374.

The overall λ's disguise considerable differences by PAC type. Table 3 displays six major categories of PACs with their associated spatial and party λ's for the 389 incumbent seat races.[16] The contrast between labor PACs and others is particularly interesting. Labor PACs are the most ideologically oriented. They give almost exclusively to liberal Democrats, which is why the gap between the spatial λ and the party λ's is so small. In contrast, corporate PACs are also ideological in making their contributions but pay little attention to party in doing so. Nonconnected PACs--a category that includes NCPAC and other similar nonparty, ideologically-oriented organizations--fall somewhere between the corporate and labor PACs in their behavior. Trade association PACs are similar to the corporate PACs, but their giving is less consistent with the ideological dimension. The cooperative PACs in the Top 500 are mostly the milk producers. They spend money on a great number of incumbents, giving virtually nothing to challengers.[17] Finally, the party PACs quite naturally are the most ideological and the most party-

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[15]By Southern, we mean the 11 states of the Confederacy.

[16]These categories are those used by the FEC. We corrected a few cases of obvious misclassification.

[17]Of the four Cooperatives PACs in Table 3, three are milk producers. The largest, the Committee for Thorough Agricultural Political Education (Associated Milk Producers, Inc.), contributed $461,327 to 218 incumbents and $39,000 to 10 challengers. The Agricultural and Dairy Educational PAC (Mid-America Dairymen, Inc.) gave $148,800 to 167 incumbents and $4250 to 7 challengers. The Special Agricultural Community Education PAC (Dairymen, Inc.) gave $117,660 to 92 incumbents and $3450 to 6 challengers.

TABLE 3

Spatial and Party λs For 1980 House Incumbent Seats

PAC Type	Spatial λ	2-Party λ	3-Party λ	No. of PACs	No. Pos. Contri-butions	No. Neg. Contri-butions
Corporate	.4957	.2060	.2983	216	11,385	2628
Labor	.6637	.6168	.6168	62	5,552	1024
Nonconnected	.5717	.4316	.5024	31	1,216	846
Trade/Membership/ Health	.2611	.1100	.1700	87	8,187	1270
Cooperatives	.0000	.0000	.0000	4	494	23
Party	.7560	.9904	.9904	7	273	302

TABLE 4

Spatial and Party λs For 1980 House Open Seats

PAC Type	Spatial λ	2-Party λ	3-Party λ	No. of PACs	No. Pos. Contri-butions	No. Neg. Contri-butions
Corporate	.6389	.4921	.6468	98	1082	252
Labor	.9217	.9609	.9652	28	248	345
Nonconnected	.6875	.6429	.6964	18	286	121
Trade/Membership/ Health	.3966	.2291	.3631	48	739	184
Cooperatives	.0000	.0000	.0000	2	42	9
Party	.8667	1.0000	1.0000	4	96	53

oriented--the latter clearly being more important than the former.

Table 4 displays the spatial and party λ's for the 46 open-seat races in the same format as Table 3. We obtained spatial locations of the winners of the open-seat races by unfolding a matrix of 1981 interest-group ratings. We then used these coordinates to order the positive (to the winner) and negative (to the loser) contributions, so spatial λ's could be computed. By using the 1981 ratings to estimate spatial position, we had to assume that, if a PAC was inclined to contribute money on the basis of ideology, then it would be a good forecaster of an open-seat candidate's ideological leanings. The results in Table 4 are consistent with this assumption but not quite in the way we expected. Except for the milk producers who remain resolutely nonideological, the spatial λ's are higher than those in Table 3, indicating that when incumbency is not a factor PACs are freer to indulge their ideological predilections. However, except for the trade associations, the three-party λ's are higher than the spatial λ's. This is due in part to the fact that, unlike the considerable overlap between the two parties in the center of the spectrum in 1980 (as shown in figure 2), the open-seat winners are almost perfectly spatially separated by party. If party is treated like positive and negative money (that is, if we assign "0" to a Democrat and "#" to a Republican), only two classification errors are made. The associated λ is .889 (the Democrats won 18 open seats, the Republicans 28). This greater polarization by party in the open seats is consistent with evidence for increasing polarization by party in the Senate over the past two decades (Bullock 1981; Poole and Rosenthal, 1984b).

For both incumbent and open seats, the measures of classification error are based on nominal (i.e., zero-one) variables. For each PAC, we looked only at whether there was some positive or some negative contribution in a given race. The dollar amounts of the contributions were not used. These dollar amounts are clearly of interest, however, since they may be an indication of a PAC's "intensity of preference." In the remainder of the paper we report on some computations and econometric work that make use of the magnitude of contributions as well as their spatial location.

5. CORRELATIONS BETWEEN AMOUNT CONTRIBUTED AND SPATIAL LOCATION

The most straightforward measure of association between the spatial location of a PAC's contributions and the money contributed is simply the correlation between these two variables. For such a correlation to have some content, each PAC for which the correlation is computed should give to more than a handful of candidates. Accordingly, we selected all PACs from the Top 500 that made contributions (positive or negative) in at least 45 races with an incumbent on the ballot. This provided a sample of 263 PACs.[18]

TABLE 5

Correlation Between $ Contribution and Incumbent Location
PACs Giving In At Least 45 Races
Number of PACs By PAC Type

r	Corporate	Labor	Non-Connected	Trade/Memb/Health	Coops	Party
> 0.9	0	0	0	0	0	0
0.8 to 0.9	2	0	1	0	0	0
0.7 to 0.8	10	0	1	0	0	0
0.6 to 0.7	15	0	3	6	0	0
0.5 to 0.6	10	0	3	3	0	1
0.4 to 0.5	14	0	0	5	0	0
0.3 to 0.4	17	0	1	3	0	1
0.2 to 0.3	7	0	0	6	0	0
0.1 to 0.2	11	0	0	11	0	1
0.0 to 0.1	21	1	0	6	1	0
-0.1 to 0.0	8	0	1	13	1	0
-0.2 to -0.1	11	4	0	8	0	0
-0.3 to -0.2	6	7	0	4	0	0
-0.4 to -0.3	1	5	1	0	1	0
-0.5 to -0.4	0	10	0	1	0	0
-0.6 to -0.5	0	8	1	0	0	0
-0.7 to -0.6	0	8	0	0	0	0
-0.8 to -0.7	0	1	1	0	0	1
< -0.8	0	0	0	0	0	0
Totals	133	44	13	66	3	4

[18]These PACs accounted for 82.1% of contributions by the Top 500 in races with an incumbent running.

For each PAC, for each race, we computed a *net* contribution by subtracting negative money (contributions to challengers) from positive money (contributions to the incumbent). Races in which a PAC made neither positive nor negative contribution were treated as missing data. We then calculated for each PAC the Pearson correlation, r, between the net contribution and the incumbent location of the contribution. Table 5 reports these correlations by PAC type.

Labor PACs show the clearest pattern. All but one of them have $r < 0$, with 61.4% of the sample having $r < -0.4$. Corporate and Trade PACs have predominantly positive r, as do most of the Nonconnected PACs. Two of the three Cooperative PACs (belonging to milk producers' associations) made very broadly-based contributions, resulting in r near zero.

6. WEIGHTED MEAN LOCATION OF CONTRIBUTIONS

A PAC's pattern of contributions is a reflection of its political preferences (constrained by resources and contribution limits). To get a measure of the central tendency of a PAC's choices, we computed a "weighted mean location" of each PAC's contributions as follows. For incumbent seats, we defined, for PAC j:

$$\text{INCMEAN}_j = \frac{\sum_{i=1}^{389} (y_{ij}^{+})(x_i)}{\text{INCDOL}_j}$$

and

$$\text{CHALMEAN}_j = \frac{\sum_{i=1}^{389} (y_{ij}^{-})(x_i)}{\text{CHDOL}_j}$$

where y_{ij}^{+} is PAC j's total contribution to the campaign of incumbent i

y_{ij}^{-} is PAC j's total contribution to the campaigns of incumbent i's challengers

x_i is incumbent i's location on the dimension

$INCDOL_j$ is PAC j's total contribution to all incumbents $(= \sum_i y^+_{ij})$

$CHDOL_j$ is PAC j's total contribution to all challengers $(= \sum_i y^-_{ij})$

$INCMEAN_j$ weights the location of each positive contribution by the proportion of the PAC's total positive contributions. $CHALMEAN_j$ treats negative money similarly. While a given value of INCMEAN (or CHALMEAN) is consistent with a wide range of contribution patterns, it is interesting to note the differences of these values across PACs and PAC types.

Tables 6A and 6B tell a story similar to that of the correlations of Table 5 and the nominal results of Table 3. Within each PAC type, we see a fairly broad range of contribution behavior, though there are clear differences across PAC types.[19] The mean INCMEAN over all committees is fairly close to the mean location of all incumbents running for reelection in 1980 (-0.059). This is also true for the Trade/Membership/Health group and for Cooperatives. Corporate PACs, though they are spread fairly widely across the dimension, tend to be on the conservative side, as do the Nonconnected groups. Labor PACs once again exhibit a clear preference for liberals. No labor PAC has an INCMEAN above -.197, and the mean labor INCMEAN is -.583, solidly on the left side of the dimension.

When it comes to contributing to challengers, the differences in

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[19] We also computed weighted means by treating each category as one giant PAC. The results were quite close to the mean INCMEANs and CHALMEANs in Tables 6A and 6B:

PAC Type	"Grand" INCMEAN	"Grand" CHALMEAN
Corporate	.191	-.543
Labor	-.581	.422
Nonconnected	-.024	-.344
T/M/H	.143	-.497
Coops	-.081	-.191
Parties	.212	-.383

TABLE 6A

INCMEAN

PAC Type	Mean	Min	Max	N
All Committees	.058	-.961	.929	464
Corporate	.213	-.426	.929	220
Labor		-.583	-.795	-.197
65				
Nonconnected	.180	-.961	.884	47
Trade/Membership/Health	.054	-.900	.768	99
Cooperatives	-.034	-.309	.392	6
Political Parties	.173	-.938	.841	21

TABLE 6B

CHALMEAN

PAC Type	Mean	Min	Max	N
All Committees	.102	-1.015	.912	455
Corporate	-.504	-1.015	.902	218
Labor		.433	-.394	.905
64				
Nonconnected	-.198	-.640	.630	47
Trade/Membership/Health	-.354	-.957	.760	90
Cooperatives	-.034	-.634	.394	4
Political Parties	-.135	-.965	.912	26

ideological preferences across PAC types become clearer. A negative value of CHALMEAN indicates that a PAC's contributions are slanted in favor of opponents of liberal incumbents. Positive values of CHALMEAN indicate a (dollar-weighted) preference for opponents of conservative incumbents. PACs in the Corporate and Trade/Membership/Health groups tend, on average, to have negative CHALMEAN. Nonconnected PACs also have a tendency to support opponents of liberal incumbents, although this is weaker than the pattern for Corporate and Trade PACs. Labor's contributions to challengers are a mirror image of these PACs' giving to incumbents, going largely to opponents of incumbents with positive location.

We also computed measures corresponding to INCMEAN and CHALMEAN for open seats. As with our measures of spatial consistency (λ) , we treated the winner of an open-seat race as the "incumbent." We used

these winners' locations on the dimension recovered from the 1981 unfolding analysis as our measure of x_i for open seats. The variable $WINMEAN_j$ is defined the same way as $INCMEAN_j$, with y^+_{ij} representing contributions to the eventual winner of the open seat. We designated the runner-up in the general election as the "challenger." We defined $LOSEMEAN_j$ to correspond to $CHALMEAN_j$, with y^-_{ij} representing contributions to the runner-up.

The picture here (Tables 7A and 7B) parallels what we see from the nominal results (Table 4). Although there are differences among PACs within the Corporate group, for that group as a whole, there is a preference toward conservative candidates. The same is true for Nonconnected PACs. For Trade PACs, giving in open-seat races is more balanced. Labor PACs again exhibit a strong tilt in favor of liberals.

INCMEAN, CHALMEAN, and PAC size

Because of overall resource constraints, relatively small PACs may not be able to give to as many different candidates as they would like. Larger PACs, on the other hand, are constrained by contribution limits--they are forced to spread their money around, even if they would prefer

TABLE 7A

WINMEAN

PAC Type	Mean	Min	Max	N
All Committees	.244	-1.210	.766	419
Corporate	.430	-.679	.766	210
Labor	-.621	-1.210	.158	55
Nonconnected	.305	-1.026	.653	40
Trade/Membership/Health	.272	-1.21	.766	90
Cooperatives	.289	-.211	.381	4
Political Parties	.371	-.581	.653	17

TABLE 7B

LOSEMEAN

Pac Type	Mean	Min	Max	N
All Committees	-.049	-1.183	.739	322
Corporate	-.238	-1.183	.635	147
Labor	.445	-1.183	.635	57
Nonconnected	-.119	-.765	.611	32
Trade/Membership/Health	-.072	-1.183	.739	68
Cooperatives	.490	.392	.593	3
Political Parties	.101	-.656	.673	12

to concentrate on a small number of candidates. In a series of OLS regressions, we looked at the relationship between PAC resources and weighted mean location of contributions. Our sample for these regressions consisted of PACs that made contributions to incumbents in at least five races *and* to challengers in at least five races. We imposed this restriction because we were interested in how funds spent on incumbents and challengers, respectively, affected INCMEAN and CHALMEAN.

For each PAC type,[20] we regressed INCMEAN on ln INCDOL and ln CHDOL. (A specification using INCDOL and CHDOL gave similar results but a somewhat poorer fit.) The results are reported in Table 8.

For every PAC type other than Labor, the coefficient of ln INCDOL is negative--though for Trade PACs, it is only about 1.5 times its estimated standard error--while the coefficient of ln CHDOL is positive. These PACs, as a group, tend to lean toward incumbents with positive location. Nonetheless, those that contribute more to in-

[20]We did not estimate a separate set of equations for Cooperatives because of the small number of committees in this group. (There are only 6 Cooperatives in the Top 500.)

cumbents, holding CHDOL constant, have lower INCMEAN. Those that contribute more to challengers, for a given amount spent on incumbents, tend to favor more conservative candidates in their contributions to incumbents.

Labor PACs again show an opposite pattern. For them, the coefficient of ln INCDOL is positive, while that of ln CHDOL is negative. For these committees, increased spending on incumbents, for constant CHDOL, tends to be associated with slightly more centrist candidates. On the other hand, committees that spend more on challengers tend to be more liberal in (though not necessarily more liberal *with*) their contributions to incumbents. Note, however, that the effects of PAC size (as measured by INCDOL and CHDOL) are small, and the estimated constant is quite close to the mean INCMEAN for this group.

TABLE 8

Incumbent Seats
Dollar-Weighted Mean Locations Of PACs
Dependent Variable: INCMEAN

	Corporate PACs	Labor PACs	Trade/Memb./ Health PACs	Nonconnected PACs
C	.033	-.538*	.090	.596
	(.241)	(.110)	(.375)	(.924)
ln INCDOL	-.095*	.045*	-.054	-.265*
	(.020)	(.020)	(.036)	(.079)
ln CHDOL	.140*	-.057*	.086*	.342*
	(.017)	(.021)	(.032)	(.082)
$\bar{R}^2$	.353	.106	.085	.442
Mean of Dep. Var.	.258	-.581	.137	.218
N	168	45	61	26

Estimated standard errors in parentheses. Coefficients with an asterisk have $|t| > 2.0$.

These results suggest that PACs that contribute relatively more to challengers also tend to prefer incumbents farther out toward one end of the dimension or the other.

We estimated similar regressions using CHALMEAN as dependent variable. Except for Nonconnected PACs, however, none of the CHALMEAN regressions has explanatory power. This is possibly because contributions to challengers in the Corporate, Trade, and Labor groups are relatively small, and relatively few PACs in these categories give to many challengers. In these categories, incumbent contributions were over 3 times greater than challenger contributions for the sample in Table 8. For Nonconnected PACs, contributions to challengers were actually slightly greater than those to incumbents. The estimated equation for Nonconnected PACs is (estimated standard errors in parentheses):

$$\underset{\text{(.102) (.065)}}{\text{CHALMEAN} = -.165 + .166 \ln \text{INCDOL}} \underset{\text{(.067)}}{- .299 \ln \text{CHDOL}}$$

$$R^2 = .290 \qquad N = 26$$

The signs of the contribution variables in this regression are the opposite of those in the INCMEAN one. (This is also the case for the other PAC categories, but for them $\bar{R}^2$ is less than .05 when CHALMEAN is the dependent variable.)

The simple correlation between INCMEAN and CHALMEAN for the sample in Table 8 is negative for all PACs and is particularly large for Nonconnected and Trade PACs.[21] This suggests that PACs tend not to contribute to both sides. Indeed, if we look at all PACs in the Top 500, there is relatively little giving to both incumbent and challenger

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[21] For the sample in Table 8, the simple correlations between INCMEAN and CHALMEAN are: Corporate PACs -.154 (N=168); Labor PACs -.095 (N=45); Nonconnected PACs -.846 (N=26); and Trade/Membership/Health PACs -.700 (N=61). For all these PACs plus five Cooperatives PACs taken together, the correlation is -.791 (N=305).

in the same race. (See Table 9.) Except for a handful of instances of promiscuous giving (especially by the National Rifle Association), most PACs give only to the incumbent or to a challenger in a given race. Only 17 PACs contributed to both incumbent and challenger in more than five races. Of the 474 PACs in the Top 500 that contributed to House races where an incumbent was running, 278 gave only to the incumbent or to a challenger in each race in which a contribution was made.

7. CONTRIBUTIONS TO INCUMBENTS AND CHALLENGERS

The pattern of PAC contributions across political campaigns may reflect not only the intrinsic political preferences of PACs, but also such considerations as the likelihood of an incumbent's reelection, the incumbent's committee assignments, and his or her seniority in Congress. We analyzed the patterns of positive and negative contributions to each of the 389 races with an incumbent running. For each PAC type, and for all PAC types together, we computed maximum likelihood Tobit estimates, using the sum of positive money contributed by PACs of the given type as the dependent variable. We repeated the exercise using total negative money contributed by PACs of the given type as the dependent variable.[22] In each regression, there are 389 observations.[23] Results appear in Tables 10-13.

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[22]Because the dependent variable is nonnegative and zero observations abound, particularly for contributions to challengers ("negative money"), Tobit is more appropriate than OLS. (For positive money, OLS and Tobit provide quite similar estimates.)

[23]We also ran all regressions eliminating incumbents who were unopposed in the 1980 general election. (There were 33 such cases.) Our results were unchanged by this reduction of the sample.

TABLE 9

PACs Contributing To Both Incumbent And Challenger(s)

A. 10 or more races

National Rifle Association	163 races
National Association of Realtors	45 races
American Medical Association	38 races
Nat'l Assn. of Life Underwriters	27 races
Nat'l Assn. of Home Builders	22 races
Nat'l Assn. of Mutual Insurance Agents	14 races
Nat'l Automobile Dealers Association	11 races
American Dental Association	11 races

B. Fewer than 10 races

	No. of races								
	1	2	3	4	5	6	7	8	9
No. of PACs	83	45	22	16	13	6	2	0	1

TABLE 10

	ALL (incl. PARTY) PACs		ALL (excl. PARTY) PACs	
	Positive $	Negative $	Positive $	Negative $
C	10.692*	4.414*	8.889*	3.986*
	(1.067)	(1.311)	(.978)	(1.010)
LOC	.178	-.492	.225	-.538
	(.444)	(.562)	(.406)	(.434)
PARTY	.060	1.682*	.969	.402
	(.580)	(.738)	(.532)	(.566)
SEN	-.451*	.041	-.411*	-.016
	(.133)	(.164)	(.122)	(.126)
$(SEN)^2$	.023*	.0026	.021*	.0024
	(.0058)	(.0071)	(.0053)	(.0055)
CHMN	-.514	-1.076	-.461	-.923
	(.785)	(.981)	(.719)	(.752)
78DVOTE	-.053*	-.092*	-.047*	-.069*
	(.0068)	(.0089)	(.0063)	(.0069)
ln likelihood	-1048.1	-983.0	-1007.8	-872.7
Mean of dep. var. ($\times 10^4$)	5.955	2.459	5.415	1.691

Estimated standard errors in parentheses. Coefficients with an asterisk have $|t| > 1.96$. (All specifications include CTEES vector, whose estimated coefficients are not reported here.)

TABLE 11

	CORPORATE PACs		TRADE/MEMBERSHIP/ HEALTH PACs	
	Positive $	Negative $	Positive $	Negative $
C	2.905*	.225	3.177*	.760
	(.381)	(.564)	(.364)	(.558)
LOC	.896*	-.542*	.910*	-.702*
	(.158)	(.244)	(.151)	(.257)
PARTY	.126	1.158*	.041	.586
	(.207)	(.332)	(.198)	(.335)
SEN	-.189*	.0039	-.151*	-.024
	(.047)	(.070)	(.045)	(.071)
$(SEN)^2$	.0096*	.0003	.0076*	.0003
	(.0021)	(.0031)	(.0020)	(.0031)
CHMN	-.212	-.297	-.365	-.215
	(.282)	(.433)	(.268)	(.418)
78DVOTE	-.0068*	-.036*	-.010*	-.044*
	(.0024)	(.0042)	(.0023)	(.0046)
ln likelihood	-634.6	-431.1	-623.2	-431.1
Mean of dep. var. ($x10^4$)	1.399	.434	1.827	.518

Estimated standard errors in parentheses. Coefficients with an asterisk have $|t| > 1.96$. (All specifications include CTEES vector, whose estimated coefficients are not reported here.)

TABLE 12

	LABOR PACs		NONCONNECTED PACs	
	Positive $	Negative $	Positive $	Negative $
C	1.706*	2.494*	.765*	.585*
	(.465)	(.595)	(.120)	(.288)
LOC	-1.734*	-.238	.041	.0011
	(.193)	(.292)	(.150)	(.126)
PARTY	.918*	-2.694*	-.011	.665*
	(.254)	(.387)	(.065)	(.167)
SEN	-.047	-.234*	-.030*	.012
	(.058)	(.082)	(.015)	(.037)
$(SEN)^2$	.0028	.010*	.0012	.0006
	(.0025)	(.0035)	(.0006)	(.0016)
CHMN	-.209	-.514	-.064	-.141
	(.343)	(.442)	(.088)	(.217)
78DVOTE	-.023*	-.025*	-.0053*	-.017*
	(.0030)	(.0049)	(.0008)	(.002)
ln likelihood	-687.6	-354.5	-199.9	-418.1
Mean of dep. var. ($x10^4$)	1.643	.362	.290	.355

Estimated standard error in parentheses. Coefficients with an asterisk have $|t| > 1.96$. (All specifications include CTEES vector, whose estimated coefficients are not reported here.)

TABLE 13

	COOPERATIVES PACs		PARTY PACs	
	Positive $	Negative $	Positive $	Negative $
C	.131		1.986*	.101*
	(.104)		(.262)	(.593)
LOC	.063		-.131	-.085
	(.045)		(.121)	(.250)
PARTY	.136*		-1.460	2.125*
	(.058)	Insufficient	(.156)	(.343)
		data.		
SEN	-.022		-.036	-.0089
	(.013)	(See	(.034)	(.075)
		text.)		
$(SEN)^2$	.0008		.0017	.0012
	(.006)		(.0015)	(.0032)
CHMN	-.052		-.045	.079
	(.058)		(.194)	(.448)
78DVOTE	-.0031*		-.016*	-.039*
	(.0007)		(.0020)	(.0042)
ln likelihood	-173.9		-359.0	-509.8
Mean of dep. var. ($x10^4$)	.200		.540	.768

Estimated standard errors in parentheses. Coefficients with an asterisk have $|t| > 1.96$. (All specifications include CTEES vector, whose estimated coefficients are not reported here.)

Independent variables are:

PARTY Dummy variable; 1 if incumbent is a Democrat, 0 otherwise

SEN Incumbent's years of continuous service in Congress. We also used $(SEN)^2$ or ln SEN in some specifications. Only the quadratic specification is reported here.

CHMN Dummy variable; 1 if incumbent is chairman or ranking minority member of a committee, 0 otherwise

LOC Incumbent's location on the dimension

78DVOTE Difference between percentage of total votes received by incumbent and by his major party challenger in 1978 election

CTEES A vector of 22 dummy variables, one for each House committee; 1 if incumbent is on committee, 0 otherwise[24]

Positive contributions

In every case, 78DVOTE has a negative coefficient, which is always at least twice its estimated standard error. The closer the incumbent's 1978 election, the greater the contributions in his favor, regardless of PAC type. This result, together with a parallel one on challenger contributions, appears to be the most robust finding in the empirical literature on campaign contributions [Jacobson (1985), Kau and Rubin (1982)]. The 1978 vote difference was a signal of the expected closeness of the 1980 race, and hence the expected strength of the 1980 challenger.[25] (We also find that negative money increases as 78DVOTE decreases, reflecting Jacobson's (1980, 1985) findings about the links between challenger and incumbent monies.)

For all PAC types other than Labor and Cooperatives, seniority has a significant effect on positive contributions. The quadratic specification consistently has a negative coefficient on the linear term and a

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[24]Not all Representatives serve on the same number of committees. Including a dummy variable for each committee, therefore, does not lead to singularity.

[25]Using the actual outcome of the 1980 vote, 80DVOTE, gives essentially the same results. 80DVOTE is probably a more accurate indicator of the expected closeness of the 1980 race, particularly since the bulk of contributions are made in the second year of the 79-80 cycle. Using the 1980 vote as a right-hand side variable, however, clearly involves simultaneity between 80DVOTE and campaign contributions. (Jacobson, 1985; Welch, 1981)

positive coefficient on $(SEN)^2$. The implied partial derivative of positive money with respect to seniority is *negative* for relatively low values of SEN and *positive* for high values. This derivative is zero near 10-12 years in office. *Ceteris paribus*, both junior members of Congress and those with considerable seniority receive more PAC contributions than do Representatives with 5 or 6 terms in office.[26]

The incumbent's position as chairman or ranking minority member of a committee does not appear to affect PAC contributions to the incumbent beyond the effects of seniority *per se*.

When *all PACs other than party committees* are aggregated, neither the PARTY dummy nor the LOC variable is significantly different from zero, reflecting the fairly even balance of contributions to liberal and conservative incumbents. Inclusion of CTEES improves the fit slightly (improvement in likelihood is significant at 5%). Members of Appropriations, Armed Services, Foreign Affairs, and Government Operations received relatively less money than average, *ceteris paribus*, while incumbents on Interior and Insular Affairs and on Interstate and Foreign Commerce were at the high end.

Disaggregating by PAC type reveals interesting differences across categories. *Corporate* PACs in the top 500 contributed 54% more to the average Republican running for reelection than to the average Democrat doing so. Nonetheless, when other factors are taken into account, the PARTY variable is not significantly different from zero. Rather, it is the significantly positive sign on LOC that reveals corporate PACs' preferences. These PACs lean strongly toward conservatives--and, of course, there are more Republicans on the positive half of the dimension. Adding CTEES improves the fit for corporate positive money (improvement in likelihood is significant at 1%). Particularly favored committees are Budget, Interior and Insular Affairs, Interstate and Foreign Commerce, and Ways and Means. Significantly lower than average contributions, *ceteris paribus*, were received by members of Appropriations, Education and Labor, Foreign Affairs, Government Operations,

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[26]The mean value of SEN is 8.8, which is quite close to the interval for which the derivative with the quadratic specification is near zero. A specification that included only the linear term picked up no seniority effect, nor did one with ln SEN.

House Administration, Judiciary, and Post Office and Civil Service.

Labor PACs strongly favored Democrats, but among Democrats they particularly liked liberals. Both PARTY and LOC coefficients are significantly different from zero, the latter being negative. The addition of CTEES has no effect.

The sample of *Nonconnected* PACs includes both right-wing and left-wing groups. It is not surprising that, except for seniority and the measure of the expected closeness of the race, no other variable has a significant coefficient. Inclusion of CTEES does not appreciably improve the fit.

Trade PACs resemble corporates. Again, Republican incumbents received much more on average than Democrats did (55% more). But it is LOC that is significant--and positive--not PARTY. Addition of CTEES improves the fit. (Improvement in likelihood is significant at 1%.) The committee preferences are also similar to those of corporate PACs though somewhat more broadly based. Only Appropriations, Education and Labor, and Foreign Affairs seem relatively unfavored.

The *Cooperatives* group consists of only 6 PACs, all but one of them associated with dairy producers. Though small in number, these PACs contributed to 262 of the 389 incumbents running for reelection. They gave literally across the spectrum. LOC is not significant. When committee assignments are not included, our estimates suggest that they favored Democrats. However, with the inclusion of CTEES, this result disappears. What cooperatives particularly like are the members of Agriculture and Small Business Committees. The coefficients on the dummy variables for these two committees are strongly positive, and the fit of the regression improves dramatically with the inclusion of CTEES (significant at less than 1%).

Negative contributions

As with positive contributions, the 1978 vote difference is significantly negative in every regression. The vector of incumbents' committee assignments has no effect on the amount of contributions to challengers, nor does chairmanship or being a ranking minority member. For every PAC type, however, there are intriguing differences between the results of the negative money regressions and those we found for positive money.

The effect of seniority on negative contributions is generally unimportant.

For *Corporate* PACs, PARTY does influence the pattern of negative money, as does LOC. Both of these variables have significant coefficients, PARTY's being positive and LOC's negative. The PACs in this group gave more money to challengers of Democratic incumbents and to challengers of liberal incumbents, both Democrat and Republican. Since almost no money was given to opponents of Republicans (contributions to challengers of Democrats averaged nearly ten times that of contributions to challengers of Republicans), most of the negative money went to challengers of liberal Democrats. *Trade* PACs once more look very similar to corporate PACs. Again, contributions favor challengers of Democrats and of liberals.

Labor PACs, on the other hand, gave significantly larger amounts to challengers of Republican incumbents: about 35 times more, on average, than to challengers of Democrats. PARTY is significant here, but LOC is not.

Conservative PACs in the *Nonconnected* group played a different strategy in negative giving than in positive contributions. The PARTY variable, insignificant in the positive money regressions, now enters with strongly positive coefficients. This reflects the broadly-based giving by groups such as NCPAC to opponents of many Democrat incumbents. Taken together, these results indicate contributions by Nonconnected PACs to challengers of relatively senior Democrats in electoral trouble.

Negative money regressions for *Cooperatives* would have no content. As we noted earlier, these PACs made almost no contributions to challengers. (There are only 18 nonzero observations of the dependent variable.)

We have also included the results of positive money and negative money estimates for *Party* committees. Republican party committees outspent Democrats by about 6 to 1 in direct contributions. The estimates reflect this, showing a large negative coefficient on PARTY in positive contributions and a large positive coefficient in negative contributions. In addition, both parties allocated resources with at least some consideration of the expected closeness of the race. 78DVOTE has a significant, negative coefficient in all regressions. Finally,

seniority and committee assignments do not appear to matter.

8. SUMMARY

Our most robust findings can be summarized as follows:

- The spatial location of candidates is important in determining the pattern of campaign contributions. Many PACs and all PAC types, except agricultural cooperatives, contribute in a manner highly consistent with a simple spatial model. There is little giving by an individual PAC to candidates at opposite ends of the dimension. There is *no* instance of a PAC contributing to incumbents located at each end of the dimension *and* only to challengers of incumbents in the middle (or vice versa). Contributions against incumbents (i.e., to challengers of incumbents) are often spatial mirror images of a PAC's giving in favor of incumbents, though this statement must be tempered by the fact that the large majority of PACs give relatively little money to challengers. Few PACs give money to both challenger and incumbent in the same race. Giving in open-seat races is, if anything, even more spatially consistent than in races where an incumbent is running.

- While many individual PACs exhibit patterns of contributions consistent with the "ideological" dimension, the data for 1980 suggest that there was no particular bias toward one end of the spectrum or the other. Taking all PACs together essentially eliminates the effect of the location variable in the regressions. Giving in races with an incumbent on the ballot was, overall, balanced across the dimension.

- There are, however, "ideological" distinctions even among groups as broadly defined as the FEC categories. For the Corporate, Labor, and Trade/Membership/Health groups, the incumbent's location on the "ideological" dimension is an important explanatory variable even when other factors specific to the incumbent are considered. (Of course, "ideology" matters to Nonconnected groups, too. They just tend to balance each other off in positive money, though not in negative.) On average, Corporate and Trade groups favor conservative incumbents and opponents of liberal incumbents. Labor PACs do the opposite.

- Except for Labor PACs, party is not an important variable in explaining positive contributions, once the incumbent's voting record is

taken into account. For contributions to challengers, however, party is significant. Corporate, Nonconnected, and Trade PACs gave to opponents of Democrats. Labor PACs did the opposite.

- The expected closeness of the election is always an important variable. Both positive money and contributions to challengers increase as the probability of a strong challenge increases. This suggests that PACs are sensitive to the potential impact of contributions on electoral outcomes.

- Although committee assignments have some importance in explaining campaign contributions by PAC categories, their net effect is never strong, except in the case of Cooperatives. This is almost certainly because of the diversity of interests represented by PACs in every category except Coops, which are essentially one giant PAC of milk producers. We would surmise that competitive forces in the House result in most members having a portfolio of committee assignments that provides maximum advantage vis-à-vis each member's constituency. It would therefore be surprising if, overall, committee assignments by themselves pointed to significant differences in generating campaign resources. Being chairman or ranking minority member of a committee has no impact on campaign contributions, other things equal.

- Seniority, as measured by number of consecutive years in office, has a complicated role. For positive contributions, seniority has a nonmonotonic effect, with contributions being higher for the most junior and most senior members, ceteris paribus, than for incumbents with average seniority. Negative contributions, however, are not significantly related to seniority.

We hasten to stress that what this paper reports is an overview of a large body of data. Our focus is mostly on patterns by broad categories of PACs. For some groups (Labor PACs and Agricultural cooperatives), these categories are quite homogeneous. For others (Nonconnected PACs, Corporate, and Trade PACs), there is considerable heterogeneity. This is apparent from the fairly high level of unexplained variance in most of our regressions, though we note that we did not engage in much fit-improving activity. Yet even within these broad categories, systematic patterns emerge. The large body of data available from 1980 on is a rich potential source of further investigation, both at the aggregate level (e.g., replicating for later years the kinds

of things we have done for 1980) and for looking at individual PACs in greater detail.[27] Ours is but a glimpse at the rough outlines.

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[27]Replication across years would be particularly useful in light of the contention that 1980 may have been somewhat atypical, especially in the role of "ideological" PACs and the ascendancy of conservative candidates. Casual inspection of aggregate data for 1982 does not suggest dramatic differences in overall patterns, except that contributions increase in every category. The role of PACs as a component of overall campaign finance is also increasing. (See, e.g., Jackson, 1984.)

As to more detailed analysis, it would be interesting to look, for example, at corporate PACs by industry type and other characteristics. This would complement the work of Handler and Mulkern (1982), who studied the internal organization of 71 business PACs. Eismeier and Pollock (1984) use FEC data on total contributions (including Senate and Presidential races) for 1980 to analyze PACs by characteristics such as type, size, industry, and having an office in Washington. Their perspective is quite different from that of our paper.

REFERENCES

Alexander, H.E.
(1983) *Financing the 1980 Election*. Lexington, Massachusetts: D.C. Heath.

Aranson, P.H. and Hinich, M.J.
(1979) Some Aspects of the Political Economy of Election Campaign Contribution Laws. *Public Choice*, **34**: 435-461.

Austen-Smith, D.
(1983) Interest Groups, Campaign Contributions, and Spatial Voting. GSIA Working Paper 59-82-83, Carnegie-Mellon University.

Bullock, C.S., III.
(1981) Congressional Voting and Mobilization of a Black Electorate in the South. *Journal of Politics*, **43**: 662-682.

Chappell, H.W., Jr.
(1981) Campaign Contributions and Voting on the Cargo Preference Bill: A Comparison of Simultaneous Models. *Public Choice*, **36**: 301-312.

Coombs, C.
(1964) *A Theory of Data*. Ann Arbor: Wiley.

Drew, E.
(1983) *Politics & Money: The New Road to Corruption*. New York: Macmillan.

Eismeier, T.J. and Pollock, P.H., III.
(1984) Political Action Committees: Varieties of Organization and Strategy. (ed.) M.J. Malbin, *Money and Politics in the United States*. Chatham, N.J.: Chatham House.

Ferejohn, J. and Noll, R.

(1984) Campaign Contributions and Lobbying Activities as Reputational Phenomena. Manuscript. Presented at the Congerence on the Political Economy of Public Policy, Stanford University.

Fiorina, M.

(1977) *Congress: Keystone of the Washington Establishment.* New Haven: Yale University Press.

Handler, E. and Mulkern, J.R.

(1982) *Business in Politics.* Lexington, Massachusetts: D.C. Heath.

Hinich, M.J.

(1977) A Model for Campaign Contributions. (Eds.) R. Auster and B. Sears, *American Re-Evolution.* Tucson: University of Arizona Press.

Jackson, B.

(1984) House Reelection Campaigns--More Incumbents Turn to PACs. *Wall Street Journal*, May 1.

Jacobson, G.C.

(1980) *Money in Congressional Elections.* New Haven: Yale University Press.

(1985) Money and Votes Reconsidered: Congressional Elections, 1972-1982. *Public Choice*, this issue.

Kau, J.B. and Rubin, P.H.

(1982) *Congressmen, Constitutents, and Contributors.* Boston: Martinus Nijhoff.

Malbin, M.J.

(1980) (Ed.) *Parties, Interest Groups, and Campaign Finance Laws.* Washington: American Enterprise Institute.

Morrison, R.J.

(1972) A Statistical Model for Legislative Roll Call Analysis. *Journal of Mathematical Sociology*, **2**: 235-247.

Poole, K.T.

(1981) Dimensions of Interest Group Evaluation of the U.S. Senate, 1969-1978. *American Journal of Political Science*, **25**: 49-67.

_____

(1982) Least Squares Multidimensional Unfolding with Applications to Political Data. Manuscript. Presented at 1982 Meeting of the Midwest Political Science Association, Milwaukee.

_____

(1984) Least Squares Metric, Unidimensional Unfolding. *Psychometrika*, **49**: 311-323.

_____ and Daniels, R.S.

(1985) Ideology, Party, and Voting in the U.S. Congress, 1959-1980. *American Political Science Review*, **79**: in press.

_____ and Rosenthal, H.

(1984a) Extremism, Intensity, and Perception in Congressional Voting. GSIA Working Paper 33-83-84, Carnegie-Mellon University.

_____ and _____

(1984b) The Polarization of American Politics. *Journal of Politics*, **46**: in press.

_____ and _____

(1985) A Spatial Model for Legislative Roll Call Analysis. *American Journal of Political Science*, **29**: in press.

Weisberg, H.F.

(1978) Evaluating Theories of Congressional Roll-Call Voting. *American Journal of Political Science*, **22**: 554-578.

Welch, W.P.

(1980) The Allocation of Political Monies: Economic Interest Groups. *Public Choice*, **35**: 97-120.

(1981) Money and Votes: A Simultaneous Equation Model. *Public Choice*, **36**: 209-234.