DIVISION OF THE HUMANITIES AND SOCIAL SCIENCES

CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA, CALIFORNIA 91125

COMMITTEE DECISIONS UNDER ALTERNATIVE PROCEDURAL RULES: AN EXPERIMENTAL STUDY APPLYING A NEW NONMONETARY METHOD OF PREFERENCE INDUCEMENT

Roger C. Kormendi
University of Chicago

Charles R. Plott
California Institute of Technology

SOCIAL SCIENCE WORKING PAPER 346

September 1980

ABSTRACT

Committees operating with simple majority rule procedures and with closed rule procedures are studied. A new method (the duplicate method) was used to induce preferences. The results of the control experiments compare favorably to those for which monetary incentives have been used. In all cases the core is a relatively accurate model of committee choices.

COMMITTEE DECISIONS UNDER ALTERNATIVE PROCEDURAL RULES: AN EXPERIMENTAL STUDY APPLYING A NEW NONMONETARY METHOD OF PREFERENCE INDUCEMENT

Roger C. Kormendi
University of Chicago

Charles R. Plott*
California Institute of Technology

The experiments and methods reported below are part of a broader attempt to ascertain the influence of decision-making procedures on the choices made by committees. Recent experimental research addressing the question of decision rule influences have relied upon substantial financial incentives as a means of controlling critical parameters within committee processes. In this paper we introduce a new method of inducing preferences (called the "duplicate method") that seems to produce a level of control similar to that achieved through financial incentives, but that is relatively less expensive and, hence, may make this type of experimental research more accessible. We use this new method to study the substantive question of the effects and implications of the "closed rule" on committee processes.

The "closed rule" procedures under examination are a set of rules governing the terms under which motions on the floor can be amended by a deliberative body. In the procedures studied below

both amendments and motions require a majority to pass. Under the control procedures no individual has any special power beyond those powers implicit in majority rule and ordinary rules of order. Under the closed rule procedure, however, a single individual has the power to prohibit amendments to motions. The power of an individual or group to block amendments is not uncommon. Sometimes committees in the United States House of Representatives are granted such powers by the Rules Committee. The process is also analogous to one in which there exists an individual whose decisions are implemented only after they are ratified by the majority of a committee of which he/she is a voting member.

This particular version of the closed rule procedure was first studied by Isaac and Plott (1978).[1] The principal conclusion of that study was that the core of a rather naturally defined cooperative game was substantially more accurate in predicting outcomes than were any of the competing models (bargaining sets, von Neumann-Morgenstern solutions). Unfortunately the core in the Isaac and Plott experiments seemed "fair" to some individuals so the reliability of the core alone as a predictive model in the absence of any "fairness" properties could not be clearly determined. In addition, the comparisons with other committee experimental work (e.g., Fiorina and Plott, 1978) is somewhat clouded since the Isaac/Plott committees only had three members (as opposed to five) and the committees had only ten alternatives to consider (as opposed to an infinite number).

The procedures studied in this paper are the same institutions that were explored by Isaac/Plott but the parameter configurations are comparable to those implemented by Berl et al. (1976) and Fiorina and

Plott (1978). The space of alternatives is euclidean two-space, and indifference curves are circles arranged such that the majority-rule core/equilibrium exists. Committees have five members. Thus, the experiments reported here form a logical link between previous studies. The natural conjecture is that the core which seems to have been a good model of committee choices for the (three-person, ten-alternative) closed rule experiments and which has been generally a good model for the (five-person, infinite-alternatives) simple majority-rule committees will continue to be accurate when the rules governing committee decision processes are changed.

In previous experiments the payoff medium was dollars. No money at all was used in the experiments reported here. Instead the payoff was in points toward a course grade where the points were determined by the duplicate method in which a competition pitted "similarly situated" individuals (not on the same committee) against each other (in duplicate bridge fashion). In view of substantial results indicating that the payoff medium is important in committee research (Fiorina and Plott 1978) checks (controls) were built into the research design to ensure that the preference parameters were properly induced. Since this type of payoff medium can potentially reduce research costs and remove suspicions which some researchers have about the sole use of monetarily induced preferences, it is an important aspect of our study.

The study is organized as follows. The first section is devoted to the payoff methodology and parameters. The theory and theoretical conjectures are introduced in the second section. Following that the experimental procedures are explained. A discussion

of results and conclusions are in the fourth section. The basic results are that the method of inducing preferences seems to have worked for us and the core model was a reasonable predictor of the outcomes.

I. INDUCED PREFERENCES

A. The Reward Medium and the Duplicate Method

The theory of induced preference and its role in experimental work has been discussed extensively elsewhere (Smith 1976, Plott 1979). The basic idea is to provide each individual, i, a reward medium, v^i, the magnitude of which depends upon some known (to i) functional relationship, f^i, to the decisions, x, made by the group. Thus if X is the set of all possible decisions, $v^i = f^i(x)$, $x \in X$ induces a preference relation

(1) $$xR^i x' \Leftrightarrow f^i(x) \geq f^i(x').$$

The key assumptions are that v^i is valued by i and that the elements of X hold no value for i other than as determined through $f^i(x)$. When v_i is a sizable monetary reward, there are no side payments, and the magnitude of v_j is unknown to i, these conditions are more or less satisfied and define the conditions under which previous research has been conducted.

In the experiments below, the reward medium was points toward a final course grade (as well as a possible appeal to individuals' capacity to enjoy competition). The problem with using such rewards which the duplicate method seems to overcome is the possibility of zero-sum conflicts which stem from course competition or from the competitive attitude itself. Ordinarily if one does well in a competition for

grades or in a test of skills, the others involved in the same competition must necessarily do poorly. For example, in group decision making one wants to avoid the situation in which individual i can do well only by taking actions which make others in the group do poorly, because then the individualistic structure of the reward medium as implied by (1) is lost. A competitive reward structure can thus easily induce group decision situations in which there are no "gains from exchange"--only conflict.

The duplicate method was implemented as follows. A large class of students was divided into several groups of five students each. Each group was called a committee and was given an index k. The individual members of each committee were indexed from one to five. Thus, each individual subject was indexed (jk) where k was the committee of which the individual was a member and j was the name (associated with particular preference parameters) the individual had within that committee

If X^k was the set of alternatives for committee k, then $p^{jk} = p^{jk}(x)$, $x \in X^k$, was the "game point" reward to individual j on that committee. Given that there were K committees, the reward medium, the points toward a final course grade as opposed to the game points, were of the form $R^{jk} = f^j(p^{j1}, p^{j2}, \ldots, p^{jk}, \ldots, p^{jK})$. That is, the points toward a final course grade received by an individual were determined by the number of game points (s)he received in comparison with the game points received by those individuals on other committees who occupied the same position (had the same preference parameter). The crucial element of this reward structure is that the game points

received by members of the same committee (i.e., p^{ik}, $i \neq j$) had no effect at all on R^{jk}. Thus, as long as final course grades are positively valued and $\partial f^j/\partial p^{jk} > 0$, the level surfaces of $p^{jk}(x)$ become indifference curves for j on X^k.

Without the notation and in somewhat more detail the key function $f^j(p^{j1}, \ldots, p^{jK})$ was determined as follows. Points awarded to students towards their grades were determined by their ordinal rankings relative to other "similarly situated" students, i.e., those with the same member number in other committees with the same experimental instructions. Students in the top 20 percent were given two points towards their final grade, students in the second 20 percent were given one point. No points were given to students in the lower 60 percent. These point awards were in addition to a total of one hundred class points available on the exams.

The impact of the points on the students' grade was determined as follows. Specific numerical cutoffs for A's, B's, C's, D's and F's, were determined on the basis of the distribution of exam points alone, and an initial grade was assigned independent of performance on the experiment. The points on the experiment could then only improve a student's grade over his initial grade by raising him above the various determined cutoffs. Thus only students within one or two points of the cutoff could be affected.

In order to assess the expected value of the point awards the students were given the following information. In prior courses given by the instructor it was determined that approximately 10 percent of the students were within two points and 5 percent within one point of the cutoffs. Thus with approximately a 10 percent probability, being

in the top 20 percent of experimental performance would raise a student's letter grade; and with approximately 5 percent probability, being in the second 20 percent would raise a student's letter grade.

In addition to the point awards students were asked to take the experiment seriously and were told that their performance would be compared on an informal basis to the performance of students in past and future experiments. Thus in addition to the grades the students were involved in a competition with some sort of absolute standard established by others who had been similarly involved. To the extent that one can speak of a desire to compete, this desire was channeled into an attempt to maximize one's own points without regard to the points received by others on the same committee.

Thus, the basic idea of the duplicate method of preference inducement is reminiscent of duplicate bridge whereby the competition is against "similarly situated" individuals. Competition with "similarly situated" individuals is certainly zero sum. But since similarly situated individuals are not in the same committee, the reward structures within the committee need not exhibit the zero-sum character.

B. The Preference Parameters

The basic problem for each committee was to pick a single point in euclidean two-space (i.e., $X^k \equiv E^2$). The preference parameters are graphed on Figure 1. Individuals are indexed as 1, 2, 3, 4, and 5. The point with the individual index is that person's most preferred point in the space (euclidean two-space) of alternatives. (The method of inducing these preferences was outlined above.) That is, the most preferred points of individuals 1, 2, 3, 4, and 5 are (30, 52), (39, 68),

(62, 109), (165, 32), and (25, 72), respectively. All indifference curves are circular; a representative indifference curve is drawn in the figure for each individual. The actual functions expressed in points given as a function of the final group choice are as follows.

$$p^1(x,y) = 6{,}000{,}000 - 30{,}000[(x - 30)^2 + (y - 52)^2]^{1/2}$$

$$p^2(x,y) = 1{,}000{,}000 - 5{,}000[(x - 39)^2 + (y - 68)^2]^{1/2}$$

$$p^3(x,y) = 15{,}000 - 82[(x - 62)^2 + (y - 109)^2]^{1/2}$$

$$p^4(x,y) = 500{,}000 - 2{,}200[(x - 165)^2 + (y - 32)^2]^{1/2}$$

$$p^5(x,y) = 10{,}000 - 52[(x - 25)^2 + (y - 72)^2]^{1/2}$$

A comparison of the functions suggests that the units were considerably different. Each individual knew that the "value" of the points was based upon a comparison of the points received by "similarly situated" people. Because the identities of the other similarly situated people were not revealed, because there was no chance for organized comparison across groups, and because the units were substantially different, we suspected that problems of "side payments" were minimal. Thus, if the individuals cared about points toward a grade, or if they cared about how they did in comparison to "similar" individuals (the utility of competing), then the indifference curves are as presupposed by the parameter values applied in the model.

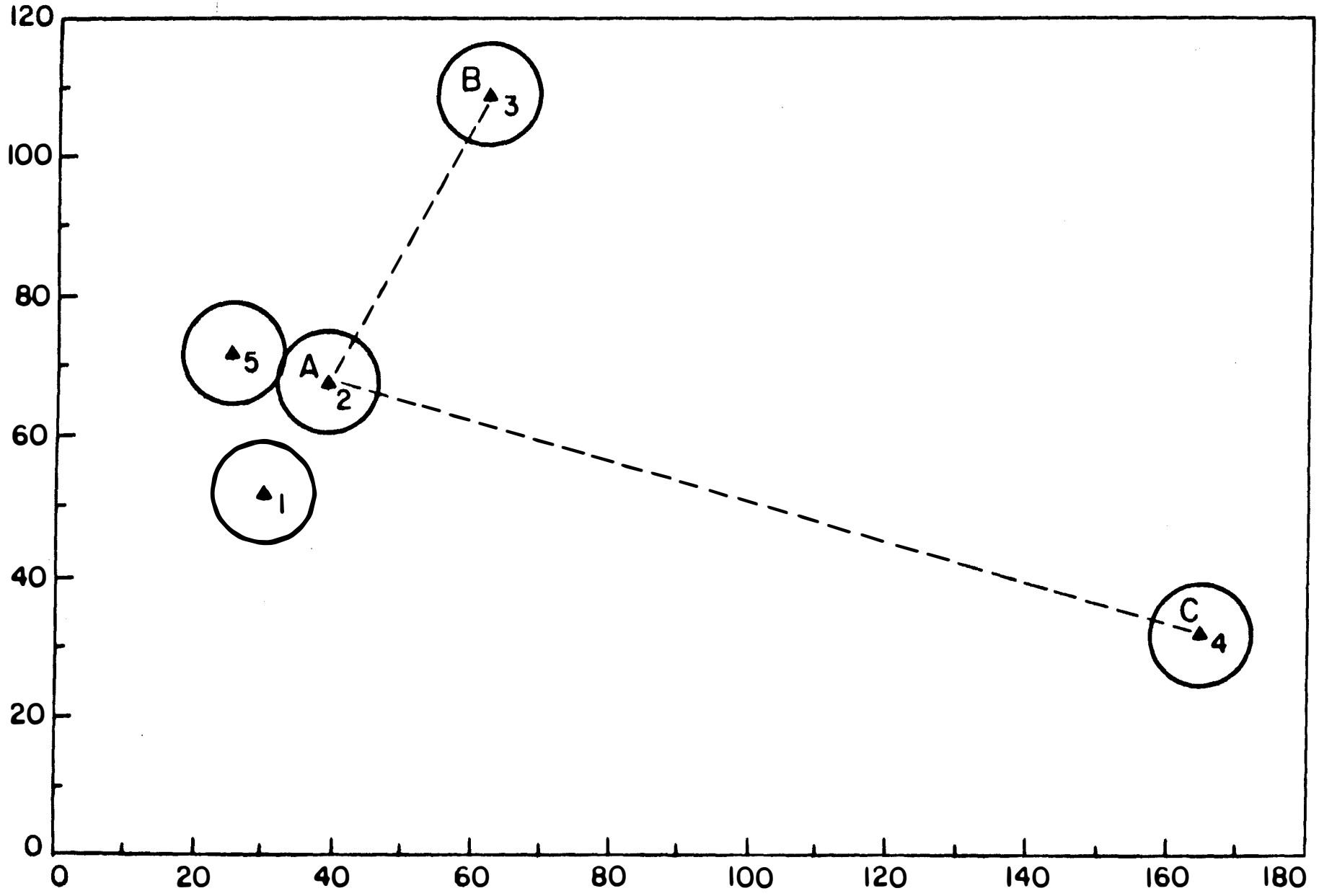


FIGURE I Preference Parameters and Cores

II. THEORY AND DESIGN

Three different treatments were used. The first was simple majority rule. Committees operating under this rule are referenced as MR committees. The second was closed rule and the powers under the closed rule were given to the individual in position 3 on Figure 1. These committees are called CR3 committees. The third also operated under the closed rule but the powers were given to the individual in position 4 on Figure 1. These committees are referenced as CR4 committees.

The simple majority rule procedures were those studied by Fiorina and Plott (1978). The process begins with an initial motion on the floor (200,150). This motion on the floor is then open for amendments which have to be passed by a majority to be effective. The process of amendment continues until a majority decides to stop discussion and vote on the amended motion. The final motion passed by a majority is the committee choice. Should the committee fail to adopt a final motion, the status quo (-200,-200) was automatically adopted. Since the procedures were essentially the same as Fiorina/Plott,[2] one would expect the outcome to be similar if the preferences were successfully controlled by the method of preference inducement outlined in Section I. Thus, the simple majority rule committees served as controls on our experimental procedures.

If the rule is simple majority rule with an unrestricted amendment procedure and, if the preferences are as shown on Figure 1, then the core of the appropriate cooperative game model is point A, the point of maximum for individual 2. If people vote their preferences alone, no other point can achieve a majority vote over this point in a

binary contest. This model has been an accurate predictor of committee choices for this particular pattern of preferences and a variety of others. This generates the first conjecture.

Conjecture 1: MR Committees Will Choose Point A

The closed rule process is similar to simple majority rule except for one major exception. One individual is designated as a "convener" who has the exclusive right to propose amendments to any motion. Motions are still subject to full discussion and majority rule, but formal motions to implement any alternative other than the status quo can be submitted by the convener alone. Furthermore, the procedures are such that the convener can make no "mistakes" by submitting motions (s)he would regret later (formal submissions are made as part of the final vote). Thus, the convener can "block" any motion, x, other than the status quo by simply refusing to endorse an amendment to any motion on the floor which would make x become the motion on the floor. A motion cannot be adopted unless the convener agrees that it can be considered, so a refusal to grant permission constitutes a block.

If the rules are changed from majority rule to the closed rule, then the core will generally change. If individual 3 is made the convener, any majority which finally votes in a motion other than the status quo must have individual 3 as a member. Then the core becomes the dotted line segment, AB, which connects the points of maximum of individuals 2 and 3 as shown in Figure 1. Intuitively, this can be seen as follows. Choose two alternatives on the dotted line. Call them x and y and let x be the closest to the maximum

for individual 3. Since individual 3 prefers x to y, y does not dominate x. Since a majority prefers y to x, x does not dominate y. Therefore, points on the line are mutually undominated. A similar argument can be applied to show that points on the dotted line segment are undominated in general, and that any point off the segment is dominated by some point on the segment. Therefore, the dotted line segment is the core--the set of undominated options. This leads to the second conjecture.

Conjecture 2: CR3 Committees Will Choose Points on AB

If individual 4 is made the convener, the core is still different. In this case it is the dotted line segment, AC, connecting the point A to the maximum for individual 4. This leads to the third conjecture.

Conjecture 3: CR4 Committees Will Choose Points on the Segment AC

III. EXPERIMENTAL PROCEDURES

A. Design

Subjects were students in two economics classes in the MBA program at the University of Chicago.[3] The first class of eighty students was divided into sixteen committees of five persons each. One committee was discarded because only four people met. Thus, in Class I there were fifteen committees studied. The second class of thirty students was divided into six committees of five persons each. Thus we have twenty-one decisions to report.

The assignment of subjects to experimental conditions was

as follows. In Class I, six of the fifteen committees were assigned to the MR condition (simple majority rule), five had individual 3 as a convener (the CR3 condition) and four committees had individual 4 as a convener (the CR4 condition). The simple majority committees served as controls for comparison with the result of other experiments. In Class II two of the six committees were assigned to the MR condition[4] while for the remaining four committees individual 4 was the convener (the CR4 condition). Again the simple majority rule committees are viewed as a control group that are designed to detect influences of differences in experimental procedures on subject pools between Class I, Class II, and other studies of committee decisions.

B. Instructions and Control

Both the instructions and the circumstances of the committee meetings differed substantially from those of previous committee experiments. During all previous committee decisions the experimenter was present to make sure amendments were clearly stated, discussion was allowed, votes were properly counted, and no side payments occurred. By contrast some of the committees reported on here set their own meeting time and all met without the benefit of monitoring by the experimenter.

Instructions (see Appendix) were read by the experimenter during class time. The figure in the instructions was on the blackboard and the points in the instructions were illustrated while the instructions were read. A few parenthetical remarks were made clarifying the instructions in response to questions. In addition subjects were urged to do as well as they could.

Subjects in Class I were allowed to take the instructions home and were required to draw the level surfaces of their payoff function on a grid to be used during their meeting. Each committee arranged its own meeting time. By contrast the committees in Class II met during class time. The level surfaces of preferences, etc. were drawn on a grid and given to them during class.

IV. EXPERIMENTAL RESULTS

The first question we address is whether our new method of inducing individual preferences is successful compared to the financial incentive used previously. To answer this we can compare the results of our MR control group experiments with those of Fiorina and Plott, in which the same preference parameters and procedures were used.

The data for all experiments are shown in Table 1; the data for the MR experiments are shown in Figure 2. As a measure of success we use the mean deviations from the predicted outcome of point A. In our experiments the mean deviation was 2.2 units; in the Fiorina/Plott experiments the mean deviation was 4.8 units when a "high" financial incentive was utilized and over 20 units when a "low" payoff was utilized. Thus, relative to the core model of group choice, our method seems to have motivated performance at least as well as significant financial incentives did.

The second set of questions addresses the substantive issues concerning committee decision processes. We have seen that in our control group, MR experiments, the core seems to predict actual outcomes

TABLE 1

Class	Rules	Committee Index	Individuals Voting in Favor	Outcome	Deviation from Core	Deviation from (39,68)	Deviation from Core for C4
I	MR	1	2,3,5	40,70	2.4		
I	MR	2	2,3,4	45,60	5.6		
I	MR	3	1,2,5	39,68	0		
I	MR	4	1,2,5	40,67	1.4		
I	MR	5	1,2,4,5	39,68	0		
II	MR	6	1,2,4	40,70*	2.4		
II	MR	7	1,2,5	39,65*	3.0		
Mean				40,67	2.2		
I	CR4	1	1,3,4	85,65	9.0	45	
I	CR4	2	1,2,4	63,60	1.5	25	
I	CR4	3	1,2,3,4,5	39,68	0	0	
I	CR4	4	1,2,3	120,52	7.0	85	
II	CR4	5	1,2,4	82,60	4.0	50	
II	CR4	6	2,3,4	104,60	10.0	70	
II	CR4	7	1,2,4	90,60	6.0	55	
II	CR4	8	1,2,4,5	90,50	3.0	60	
Mean					5.1	50	
I	CR3	1	3,4,5	45,70	4.0	7	5
I	CR3	2	1,2,5	35,63	5.6	6	6
I	CR3	3	1,2,3	55,75	11.2	18	10
I	CR3	4	2,3,5	40,80	5.0	12	12
I	CR3	5	?	44,72	2.5	7	7
Mean					5.7	10	8

*Transformed from actual parameters (see footnote 2).

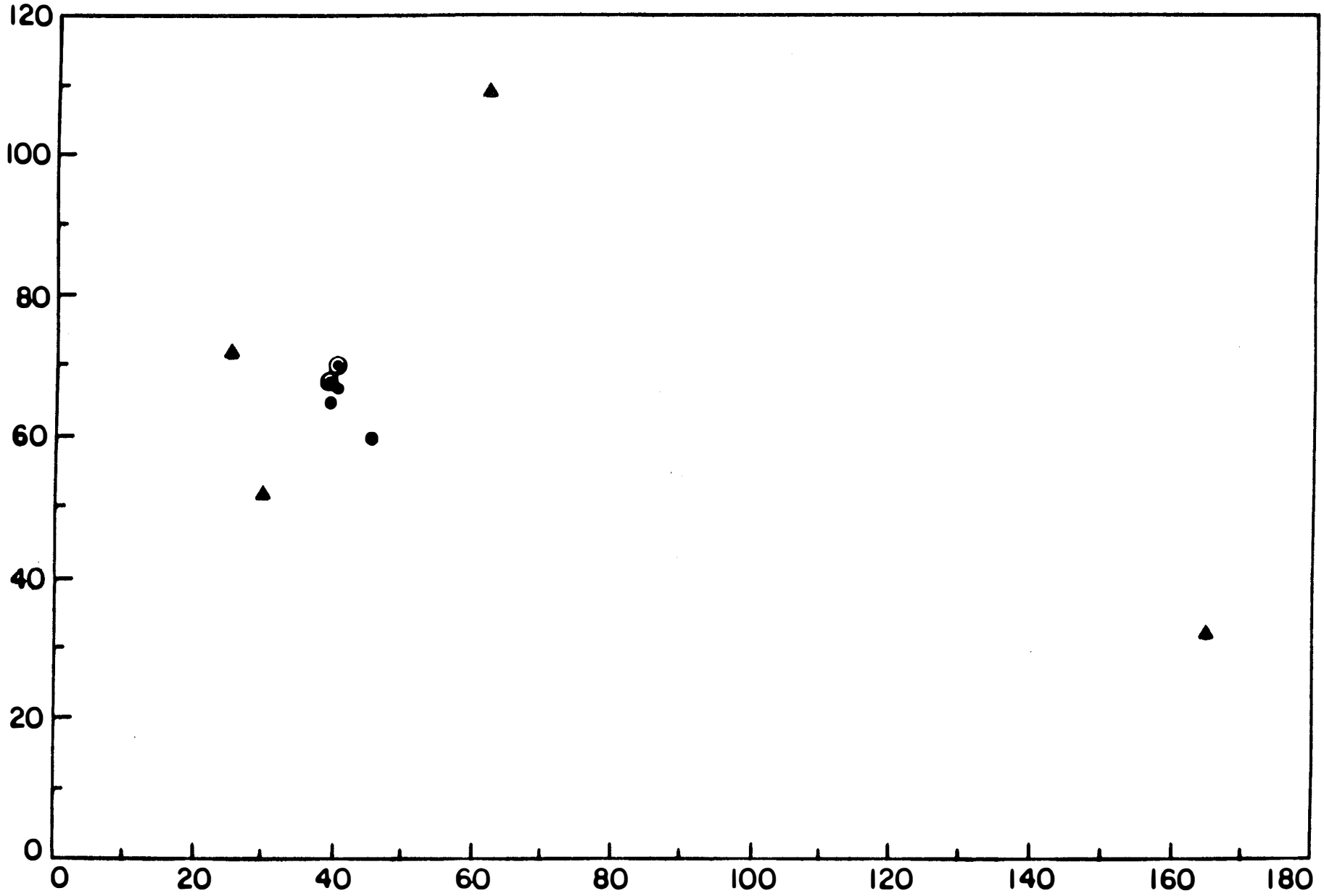


FIGURE 2 MR Committee Choices

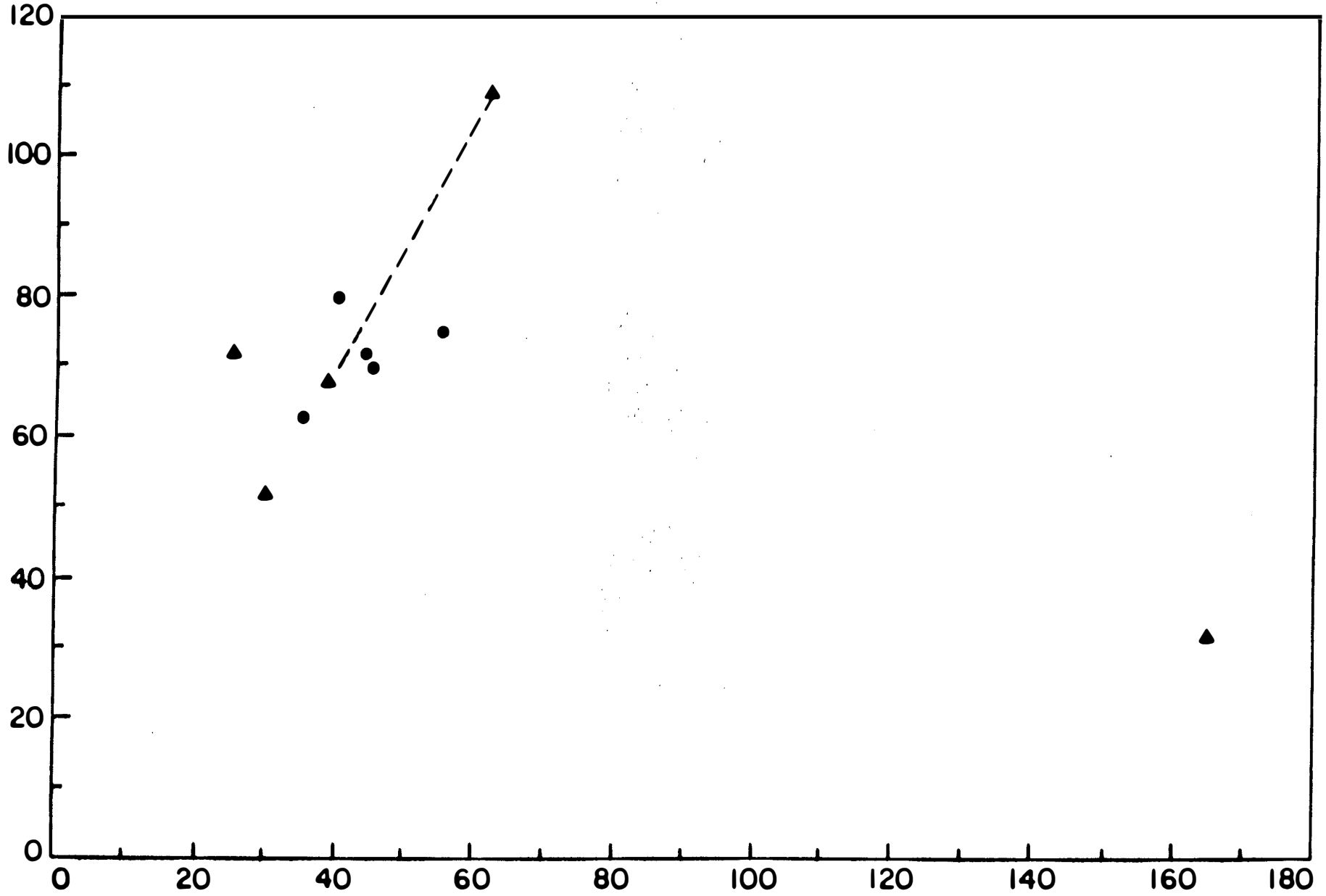


FIGURE 3 CR3 Committee Choices

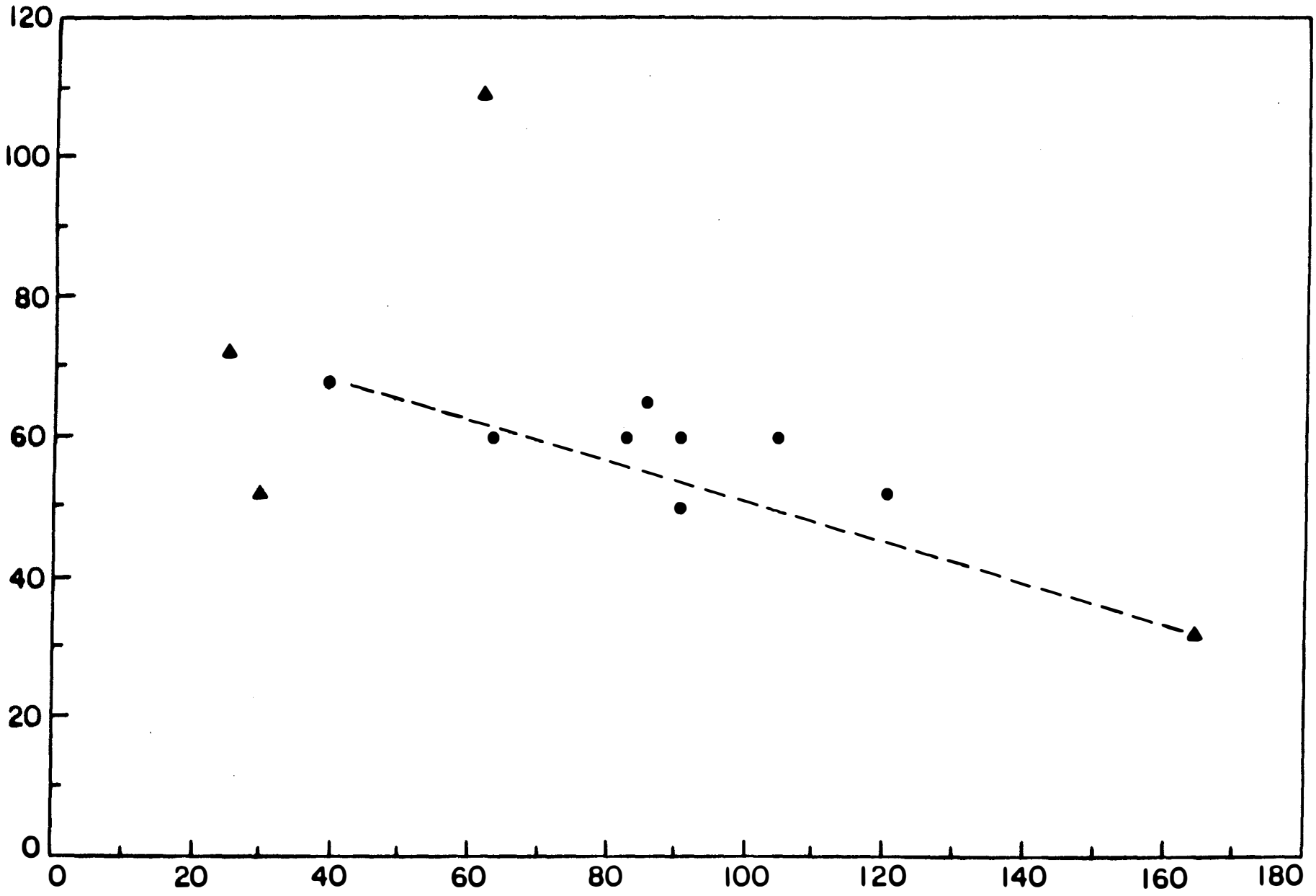


FIGURE 4 CR4 Committee Choices

of the experiments at least as well as it did in earlier studies. We now wish to see whether changing the rules under which committees operate to reach their decisions affects significantly the outcome of the decision and whether the core predicts well the actual outcomes. The predictions of the game theoretic approach were developed in Conjectures 1, 2, and 3.

The data for each of the two types of closed rule experiments are graphed in Figures 3 and 4, the data being taken from Table 1. As can be seen from the figures, the outcomes generally cluster near the core of each. When the convener was individual 3, the results seem a little disbursed (Figure 3) but appear to have a reasonable orientation relative to the core. The data for the CR4 committees is more striking in the sense that they are distributed near the CR4 core.

In order to make the conjectures under consideration operational, we undertook a series of statistical comparisons of the data across the three experiments. These comparisons are summarized in the following statistical hypotheses tests which utilize the data in Table 1.

H1: The data from the C4 experiments are drawn from the same distribution around the MR core as the data from the MR experiments.

Result: An F-test was constructed using the sum-of-squared deviations from the MR core (i.e., point A in Figure 1) of both the C4 and the MR data. The ratio of these sums-of-squares, reflecting

degrees of freedom adjustments, was over 350, while $F_{.05}(8,7) = 3.7$. Thus, H1 is easily rejected at the .05 confidence level.

H2: The data from the C3 experiments are drawn from the same distribution around the MR core as the data from the MR experiments.

Result: A similar F-test as for H1 was constructed. The (adjusted) ratio of sums-of-squares was over 15, while $F_{.05}(5,7) = 4.0$. Thus, H2 is easily rejected at the .05 confidence level.

H3: The data from the C4 experiment are drawn from the same distribution around the C3 core as the data from the C3 experiments.

Result: A similar F-test as for H1 was constructed using minimum distance to the C3 core (line A,B in Figure 1) as the measure of deviation. The (adjusted) ratio of sums-of-squares was over 110, while $F_{.05}(8,5) = 4.8$. Thus, H3 is easily rejected at the .05 confidence level.

H4: The data from the MR experiments are drawn from the same distribution along the C4 core as the data from the C4 experiments.

Result: Since the MR core is a subset of the C4 core, and since the standard deviation of the data from the MR experiments is smaller than for the C4 experiments, the F-test is not

powerful enough to reject the hypothesis that the MR data is drawn from the same distribution around the C4 core as the C4 data is. However, the nonparametric Mann Whitney U-test for equality of medians is capable of testing whether the distributions along the C4 core, i.e., at the point along the C4 core of minimum distance, are drawn from the same distribution. The U-value for the data is 3, while the critical $U_{.05}(5,8) = 7$. Thus, H4 is rejected at the .05 confidence level.

H5: The data from the MR experiments are drawn from the same distribution along the C3 core as the data from the C4 experiments.

Result: A similar U-test as for H4 was constructed. The U-value for the data is 4, while the critical $U_{.05}(5,7) = 5$. Thus, H5 is rejected at the .05 confidence level.

H6: The data from the C3 experiments are drawn from the same distribution along the C4 core as the data from the C4 experiments.

Result: A similar U-test as for H4 and H5 was constructed. The U-value for the data is 5, while the critical $U_{.05}(7,8) = 13$. Thus, H6 is rejected at the .05 confidence level.

The tests of the operational hypotheses 1 through 6 all support Conjectures 1, 2, and 3. The results can be summarized as saying that changes in the rules under which committee decisions are made induce outcomes that are well predicted by the core of the appropriate game. One would like in addition to devise a way to indicate how well the data from the C3 and C4 experiments conform to the predicted outcomes of Conjectures 2 and 3, respectively, in some absolute (as opposed to a comparative) manner. In moving towards this we ran two regressions, one on the C3 data and one on the C4 data. The purpose was simply to determine the "best" linear fit of the data and the corresponding standard errors of their estimates. In both cases the data were transformed so that a line with both the slope and intercept coeffecients equal to zero corresponded to the relevant core.

In both cases, the estimated intercepts and slopes were insignificantly different from zero at the .05 confidence level. However, this would not be a very powerful result if the standard errors were very large and the estimated line very "far" from the core. In Figures 5 and 6, we present the estimated regression line and the one standard error band along with the relevant core. The C4 experiments generate "better" results in the sense of smaller standard errors, but in both cases, the theoretical core lies well within the one standard error core of the regression estimates.

Before concluding, a few more observations are of interest. We have no satisfactory hypothesis which might serve as an explanation as to why the C3 data deviate the most from the core predictions. We did notice that the largest outlier (35, 63) was voted in by a coalition which did not include the convener. This leads us to suspect that either there was some confusion in this committee about the convener's powers or this convener chose to relinquish the powers!

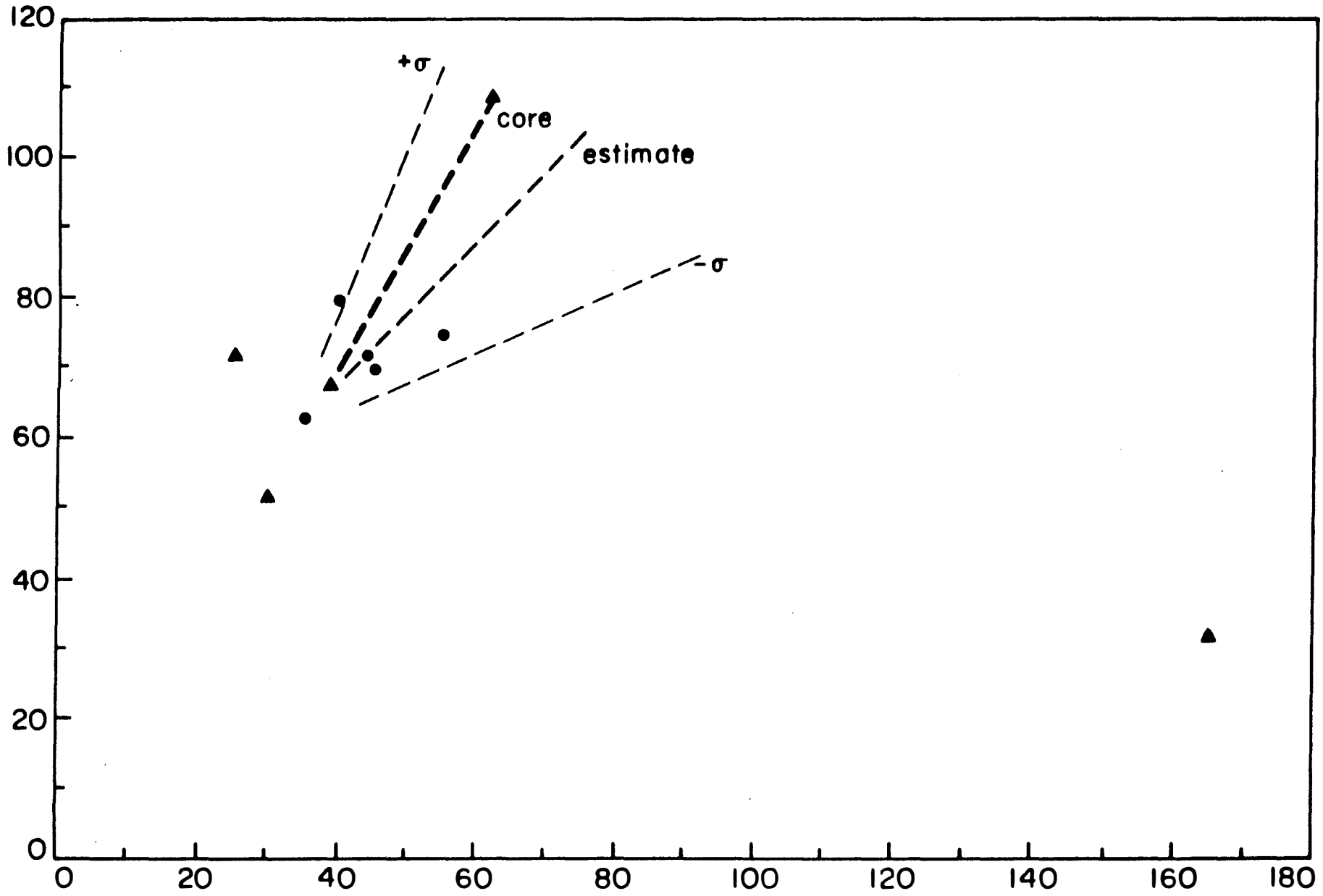


FIGURE 5 Core Regression and one Standard Error for CR3 Committees

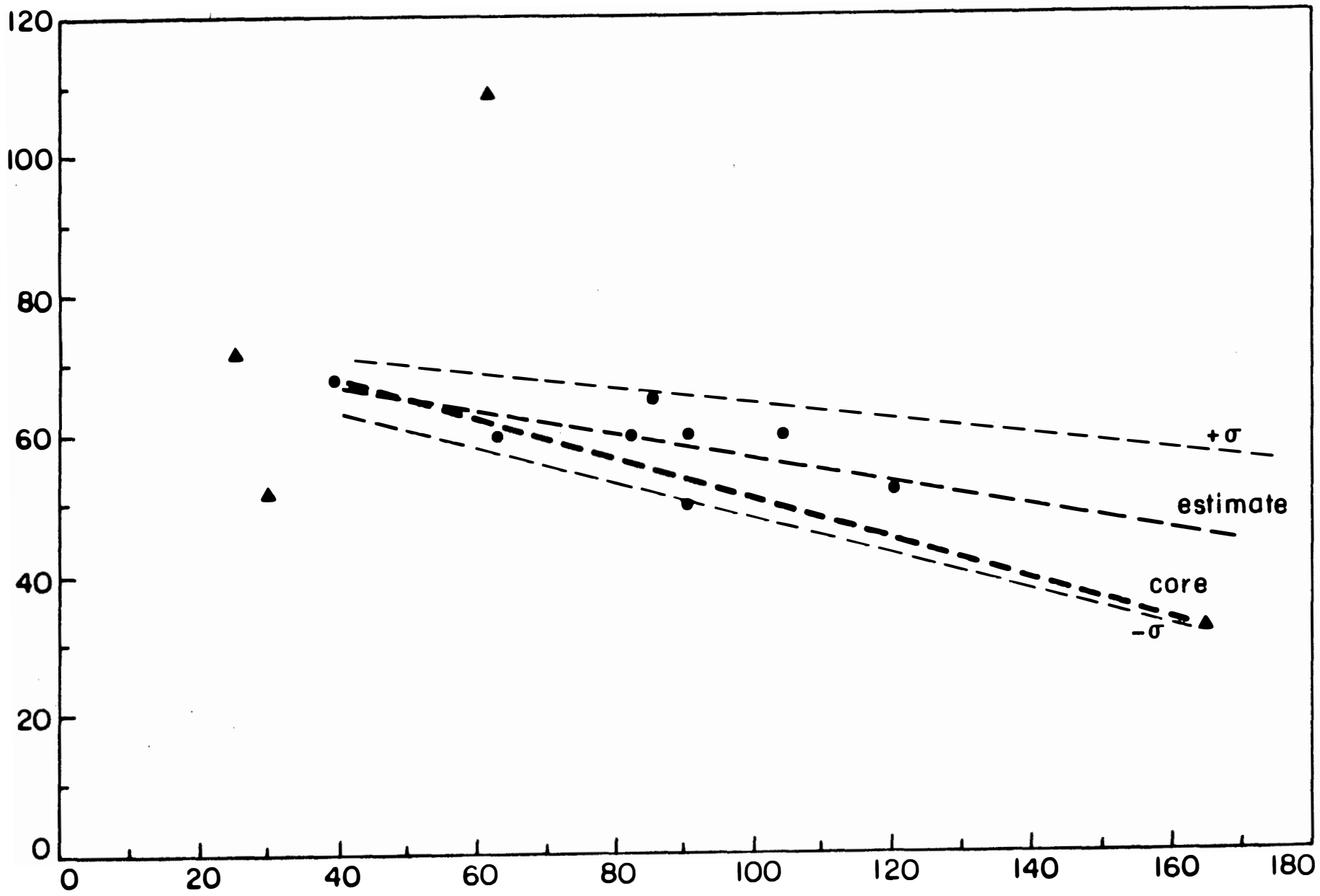


FIGURE 6 Core Regression and one Standard Error for CR4 Committees

The data across all experiments have one pattern which is not the same as that generated by another experiment. Whereas the outcomes in Hoffman and Plott (1980) were Pareto optimal relative to the set of people who voted in the final motion, this is not true in these data. Finally, we can detect no differences in the results generated by Class I or Class II groups.

V. CONCLUSIONS

The idea that group choices are systematically influenced by procedures receives substantial support in this study. The pattern of committee decisions changes systematically as the decision process is changed from simple majority rule to the closed rule and as the authority granted by the closed rule is changed. Not only do institutions systematically influence group choice, the influence observed to date conforms closely to that predicted by the core of a cooperative game model without side payments. In this respect our experiments provide a set of independent data to be added to those of Isaac and Plott (1978) which support the hypothesis that the core is in general the appropriate model for committee decision making under the closed rule.

The nonmonetary medium reward employed in this study appears to have successfully induced preferences and definitely promises to open up experimental methods and research to many more potential researchers. We cannot conjecture at this point as to the relative importance of the potential grade versus the "natural competitiveness" in motivating performance. The position scoring (or duplicate scoring)

method, however, did seem to translate successfully what was basically a zero sum conflict from an individual committee point of view into a nonzero sum conflict. Naturally the control experiments are critical for any such interpretation. For others who do not otherwise have access to the necessary financial support, we recommend the substantial use of controls to tie the results back to studies in which money was used.

The introduction of a new reward medium adds one additional dimension of interest to the results. Researchers have worried about the possible existence of special effects due to the use of money. The payoff gradients, the absolute magnitudes of money involved, and even the use of money may engender behavior which is unique to the laboratory. These experiments tend to reduce the importance of this line of inquiry since monetary rewards were not involved at all but the pattern of results relative to the models involved is virtually identical to those in which money was used.

APPENDIX

INSTRUCTIONS

The instructions for the MR committees are those used by Fiorina and Plott (1978) and are reproduced there. The only changes involved the removal of references to money.

Instructions for CR3 and CR4 committees were the same as those for MR committees except for page 3. They were the same for each other except for the blank on page 3 which indicated the conveners.

CR4

Check List

Committee Number _____

Individual Number _____

_____ Read Instructions

_____ Prepare individual payoff chart

_____ Take test

_____ Attend meeting

_____ Maintain individual record of meeting

_____ Compute individual payoff

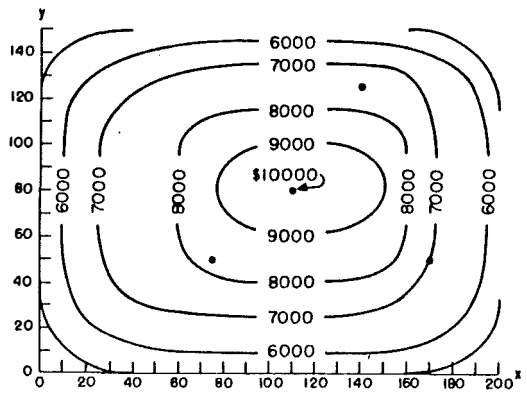
_____ Enter payoff into committee choice record held by individual _____

_____ Return all materials

INSTRUCTIONS CR4-1

General. You are about to participate in a committee process experiment in which one of numerous competing alternatives will be chosen by majority rule. The purpose of the experiment is to gain insight into certain features of complex political processes. The instructions are simple. If you follow them carefully and make good decisions, you might earn a considerable improvement in your grade.

Instructions to Committee Members. The alternatives are represented by points on the blackboard. The committee will adopt as the committee decision one and only one point. Your compensation depends on the particular point chosen by the committee (see attached payoff chart). For example, suppose your payoff chart is that given in Figure 1 and that the committee's final choice of alternatives is the point (x,y) = (170,50). Your compensation in this event would be 7,000. If the policy of the committee is (140,125) your compensation would be computed as follows:



CR4-2

The point (140,125) is halfway between the curve marked 7,000 and the curve marked 8,000. So, your compensation is halfway between 7,000 and 8,000, i.e., 7,500. If the policy is one-quarter of the distance between two curves, then your payoff is determined by the same proportion (i.e., at (75,50) which is one-quarter of the way between 8,000 and 9,000, you get 8,250).

The compensation charts may differ among individuals. This means that the patterns of preferences differ and the payoff amounts are not comparable. The point which would result in the highest payoff to you may not result in the highest payoff to someone else. You should decide what decision you want the committee to make and do whatever you wish within the confines of the rules to get things to go your way. The experimenters, however, are not primarily concerned with whether or how you participate so long as you stay within the confines of the rules. [Under no circumstances may you mention anything quantitative about your compensation. You are free, if you wish, to indicate which ones you like best, etc., but you cannot mention anything about the actual credit amounts. Under no circumstances may you mention anything about activities which might involve you and other committee members after the experiment, i.e., no deals involving side payments afterward or no physical threats.]

CR4-3

Parliamentary Rules. The following parliamentary procedures must be followed. Individual number ____ of the committee has been designated as a convener. The option chosen by the committee will be the one proposed by the convener and ratified by a majority of the committee (three or more people). Any failure of the committee to act will automatically result in a committee choice of option (-200,-200).

The convener may propose any option he/she wants or he/she can refuse to propose any option if he/she so desires. Proposals or amendments to proposals must be stated formally and clearly by the convener. Any proposal by the convener automatically cancels any previous, unratified proposals.

A proposal is ratified if it is approved by a simple majority, That is, a proposal becomes ratified if it is formally proposed by the convener and if the number of votes in favor of the proposal is greater than the number which oppose the proposal. A proposal once ratified is final and all participants will receive points accordingly. A proposal which is not ratified and is then canceled by another proposal may be proposed again and again.

Are there any questions?

We would like you to answer the questions on the attached page. These should help you understand the instructions.

MR-3

Parliamentary Rules. The process begins with an existing motion (200,150) on the floor. You are free to propose amendments to this motion. Suppose, for example, (170,50) is the motion on the floor and you want the group to consider the point (140,125). Simply raise your hand and when you are recognized by the chair, say "I move to amend the motion to (140,125)." The group will then proceed to vote on the amendment. If the amendment passes by a majority vote, the point (140,125) is the new motion on the floor and is subject, itself, to amendments. If the amendment fails, the motion (170,50) remains on the floor and is subject to further amendment. Thus, amendments simply change the motion on the floor. You may pass as many amendments as you wish.

At any time during the consideration of an amendment or the motion on the floor a motion to end debate is in order. If there are no objections, an immediate vote will take place. If there are objections, the motion to end debate will itself be put to a majority vote. If the motion to end debate fails, the amendment process continues. If it passes, a vote on the amendment or motion will take place.

To sum up, the existing motion on the floor is (200,150). You are free to amend this motion as you wish. The meeting will not end until a majority consents to end debate and accept some motion. Your compensation will be determined by the motion on the floor finally adopted by the majority. However, should the committee fail to reach an agreement, the committee choice will be designated as the point (-200,-200).

Are there any questions?

We would like you to answer the questions on the attached page. These should help you understand the instructions.

CR4-4

TEST

1. At _____ I would receive the most possible credit. The number of credit points I would receive is _____.

2. At _____ I would receive the least possible credit points. The number I would receive is _____.

3. Suppose (200,150) is the motion on the floor and an amendment to move to point (199,149) passes (fails), then the new motion on the floor is _____(_____)?

4. Suppose an amendment to move to (100,100) passes and no further amendments pass. If the motion on the floor is then adopted by a majority, my payment in point credits is _____.

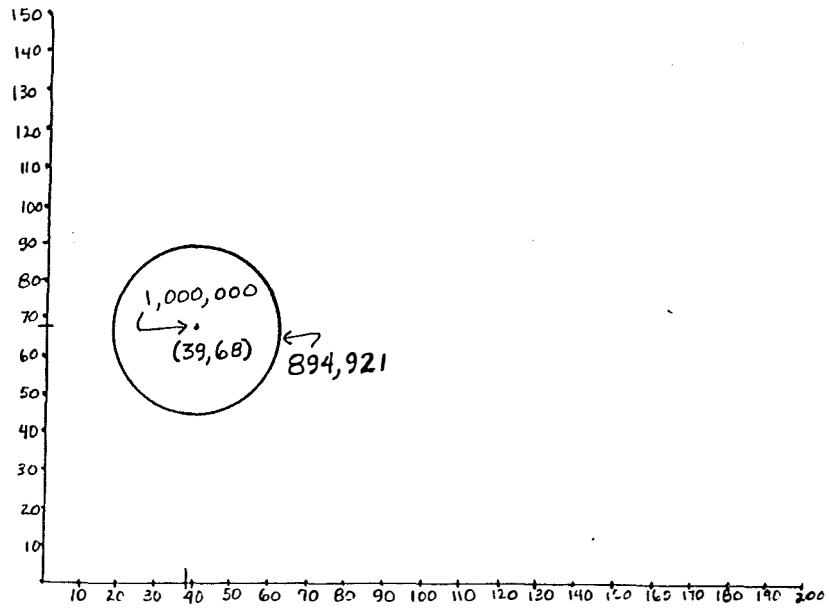
CR4-5

Payoff Sheet

Committee Number _____

Individual Number 2

Type 2 points = $1{,}000{,}000 - 5000\,[(x - 39)^2 + (y - 68)^2]^{1/2}$



RECORD

CR4-6

Committee Number Individual Number

Committee Member _____ Time beginning _____

Name _____ Time end _____

Motion on Floor	Amendment	Voting in Favor	Motion on Floor	Amendment	Voting in Favor

CR4-7

Time for Decision _____

Committee Number _____

Committee Choice _____

	Name	Points	
Person 1	_____	_____	Type 1 points
Person 2	_____	_____	Type 2 points
Person 3	_____	_____	Type 3 points
Person 4	_____	_____	Type 4 points
Person 5	_____	_____	Type 5 points

FOOTNOTES

* The financial support of the National Science Foundation and the Caltech Program for Enterprise and Public Policy is gratefully acknowledged.

1. In a different theoretical context it has also been studied by Brown (1975).

2. The status quo differs. It was (200,150) in the Fiorina and Plott experiments. Under simple majority rule the outcome should be independent of the status quo as well as the initial motion on the floor.

3. Kormendi was the professor.

4. The control committees in Class II operated under a 180 degree translation in the space with no other changes in the $p^j(x,y)$ functions. The status quo, however, did not undergo the same translation. The results of these experiments, other experimental results, and the theory itself suggest that this should make no difference under simple majority rule. The actual parameters

and outcomes are reported below. The outcomes are entered in Table 1 and the figures, after a retranslation of indices.

Individual	Class I	Class II
1	(30,52)	(160,68)
2	(39,68)	(151,52)
3	(62,109)	(128,11)
4	(165,32)	(25,80)
5	(25,72)	(165,48)

Committee	Outcome	Retranslation
MR 6	(150,50)	(40,70)
MR 7	(151,55)	(39,65)

REFERENCES

Berl, J.; McKelvey, R. D.; Ordeshook, P.C.; and Winer, Mark. "An Experimental Test of the Core in a Simple N-Person Cooperative Nonsidepayment Game." Journal of Conflict Resolution 20 (September 1976):453-479.

Brown, D. J. "Aggregating Preferences." Quarterly Journal of Economics 89 (1975):456-469.

Fiorina, Morris P. and Plott, Charles R. "Committee Decisions under Majority Rule: An Experimental Study." American Political Science Review 72 (June 1978):575-598.

Hoffman, Elizabeth and Plott, Charles R. "Pre-Meeting Discussions and the Possibility of Calition-Breaking Procedures in Majority Rule Committees." Social Science Working Paper no. 281, California Institute of Technology, 1980.

Isaac, R. Mark and Plott, Charles R. "Cooperative Game Models of the Influence of the Closed Rule in Three Person, Majority Rule Committees: Theory and Experiment." In Game Theory and Political Science, edited by P. C. Ordeshook. New York University Press, 1978.

Plott, Charles R. "The Application of Laboratory Experimental Methods to Public Choice." In Collective Decision Making: Applications from Public Choice Theory, edited by Clifford S. Russell. Washington, D.C.: Resources for the Future, 1979.

Smith, Vernon L. "Experimental Economics: Induced Value Theory." American Economic Review 66 (May 1976):274-279.