

Allocating Scarce Resources: A Contingency Model of Distributive Justice

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Two experiments tested predictions derived from a contingency model of distributive justice that identifies four interrelated categories of determinants of people's allocation decisions: (1) abstract distributive norms; (2) perceived attributes of claimants; (3) resource constraints; and (4) attributes of judges. The model posits that allocations of public resources (e.g., health care or welfare) engage in two types of appraisal: one focused on the adequacy of the resource pool, and the other on the causes of claimants' needs. When resources are inadequate, attributional analysis assumes central importance, and need and efficiency emerge as key distributive values. If claims arise from internal-controllable causes, allocators experience anger toward claimants, devalue their deservingness, and withhold resources. If claims arise from other causes, distributive norms become direct predictors of deservingness and allocation. The experiments manipulated the causes of need, the severity of need, and the likelihood of effective assistance under low and high scarcity (Study I) and no scarcity (Study II). Under scarcity, allocators were much more likely to deny aid to claimants who were responsible for their predicament. Need and efficiency emerged as joint predictors of allocating aid to claimants who were not responsible for their predicament. Politically conservative allocators withheld resources from those personally responsible for their needs regardless of both severity of need and likelihood of

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effective helping, even when there were sufficient resources to satisfy all claimants, whereas liberals tended to provide resources to all claimants. © 1992 Academic Press, Inc.

Who deserves government help in securing health care or in finding a home, or a job? In a world of finite resources, policymakers must frequently weigh competing claims on the public purse. They are expected to represent the "community's interest" and to distribute aid "fairly." However, such nostrums tell us little about the decision rules people actually use in allocating aid. One widely invoked principle is "to each one's due," or as Hospers (1961) suggests, "getting what one deserves; what could be simpler?" (p. 433). A more appropriate question is: What could be more complex?

Psychologists have identified an enormous array of determinants of perceived deservingness and allocation preferences, including equity, need, and equality. They have also found support for each approach to distributive justice in allocations of wages and rewards (e.g., Deutsch, 1985; Lerner, 1975; Leventhal, 1976; Mikula, 1980; Walster, Berscheid, & Walster, 1976). It is less clear, however, whether these theories can be extended to predict allocations of public resources, such as health care or welfare. For example, imagine a drunk driver injures a child walking across the street in a crosswalk, and then crashes and seriously injures himself (cf. LeGrand, 1987). Who deserves priority to scarce emergency care, the child or the driver? Would a doctor who gave priority to the child be acting unjustly if the driver were suffering more than the child? Or would most people think that such an allocation of health care services would, in some sense, be just?

We propose a 4-stage contingency model of allocation decision making that builds directly on past efforts (see Fig. 1). The first stage involves assessing resource availability. If there are sufficient resources to help everyone, the decision-making process ends, and the allocator aids all claimants. If resources are scarce, allocators move to the second stage: attributional analysis. If claimants are perceived to be personally responsible for their predicament (an internal-controllable attribution), allocators consider whether there is a match between the number of personally responsible claimants and the number of claimants who cannot be helped because of resource constraints. If there is such a match, the decision-making process stops, and allocators distribute aid to all but personally responsible claimants. If there is not an exact fit between resource constraints and the number of personally responsible claimants, the allocator appraises claimants' relative deservingness: Are some claimants needier than others? Would providing aid to some claimants be more effective than providing it to others?

Stage four involves setting priorities among claimants as a joint function

of their cause of need and relative deservingness. When there are more resources than there are personally responsible claimants (low scarcity), people will deny aid to those claimants with the lowest overall priority—internal-controllable claimants with less than high need and efficiency. When there are fewer resources than there are personally responsible claimants (high scarcity), people will deny aid to all personally responsible claimants. However, they will have to deny aid to other claimants as well. Claimants with other causes of need will be denied aid to the extent that they have less than high need and efficiency.

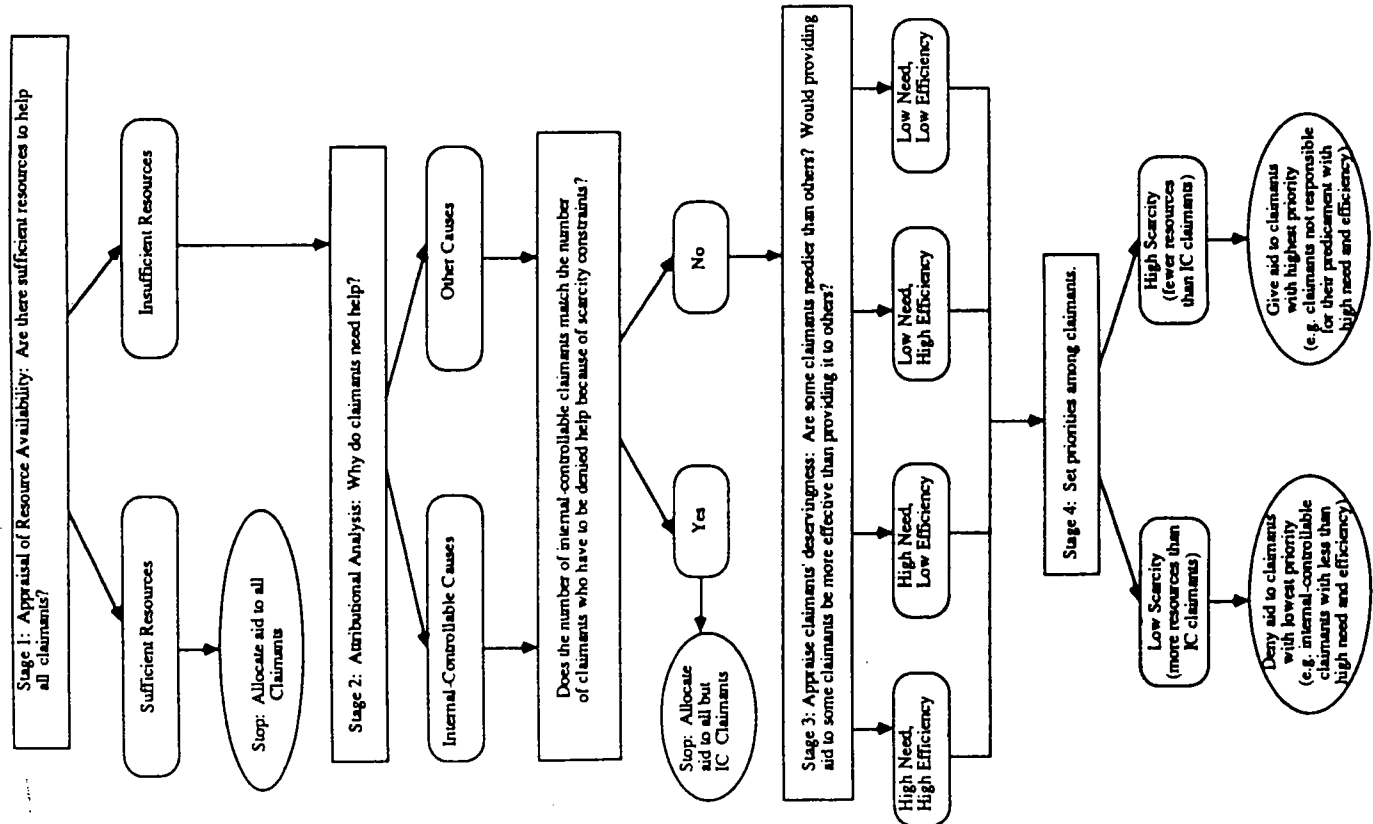
We draw on four broad but interrelated categories of research to provide theoretical support for this model: (1) distributive norms for assessing deservingness, (2) attributes of the claimant, (3) ideological and personality attributes of the allocator, and (4) resource constraints on the capacity of societies to help the less fortunate.

Distributive Norms

Homans (1961) and Walster, et al. (1976) extended a central thesis of Aristotelian ethics: fairness requires dividing outcomes to reflect the relative merits of the participants in an exchange. Although considerable research is consistent with this basic proposition, equity theory is of limited predictive value in complex political-economic settings in which there are sharp disagreements over what counts as an "input" and even over the morality of factoring such information into one's decision making calculus. Who, for example, has a more persuasive claim on access to scarce medical technology: a brilliant 45-year-old scientist who drinks heavily but can pay for his care, or a 6-year-old child of a welfare family who suffers from chronic liver failure? Equity theory offers little guidance here.

Current theories focus on additional distributive principles, such as equality, need, and efficiency. Which principle is activated depends on the social context and goal orientation of the allocator (e.g., Deutsch, 1985; Leventhal, 1976; Leventhal, Karuza, & Fry, 1980; Mikula, 1980), the relationship between the allocator and recipient (e.g., Lerner, 1977), and the personality and political ideology of the allocator (e.g., Major & Deaux, 1982; Rasinski, 1987).

The goal-orientation approach of Leventhal (1976) leads to a number of testable hypotheses. Leventhal argues that allocators determine outcomes by a weighted averaging formula that includes contributions, need, equality, and other distributive norms. The weight attached to each distributive norm varies as a function of the goal orientation of the social system. The goals of providing access to health care and public assistance are based on need norms (the "safety net" of welfare state capitalism). The aim is to minimize suffering due to illness, mishap, or extreme poverty. However, if health care or public assistance is limited by technology or budgetary constraints, efficiency (minimization of waste) will also be



weighted heavily in perceptions of deservingness and allocation decisions (cf. Leventhal, Weiss, & Buttrick, 1973).

Although multivalue contingency theories of justice of this sort organize a wide range of findings, there is no guarantee such theories give the right weights to competing values or capture the conditions under which competing values are primed or activated. For instance, investigators have given considerable attention to both equality (e.g., Leung & Bond, 1984; Tinsdale & Davis, 1985), and need (e.g., Lamm & Schwinger, 1980, 1983; Murphy-Berman, Berman, Singh, Pachauri, & Kumar, 1984), but relatively little to efficiency (see however, Leventhal et al., 1973; Taormina & Messick, 1983). This neglect is surprising, given the prominence of efficiency as a distributive norm in economic theory (e.g., Okun, 1975).

We also know little about how well distributive norms apply to the allocation of nonmonetary resources. Although relationships outside of the employee/employer dyad have been examined, resources besides money are studied only rarely (see Foa & Foa, 1976). And, importantly, are distributive norms *sufficient* to explain allocation preferences in social-political domains?

Attributes of the Claimant (Locus of Responsibility)

Attribution theorists maintain that arousal of normative pressure to help others depends critically on attributions of responsibility. Weiner (1986), for instance, has specified how cognitive appraisal and affect influence decisions to help. According to this 3-stage model, initial explanations (such as "the child needs emergency medical attention because while walking in a crosswalk, she was hit by a car" or "the driver needs help because he was driving under the influence of alcohol") are processed according to the following sequence: (1) causal analysis (attribution of cause along the dimensions of locus and control); (2) affective arousal (different explanations trigger different affective reactions); and (3) behavioral decision (in this case, to provide or withhold resources).

Linkages between causal analysis, affective arousal, and behavioral decision have been demonstrated in several domains, including achievement, helping, and aggression (see review in Weiner, 1986). Experimental research on attributions and helping point to one clear-cut conclusion: People are least likely to help victims whose need is attributed to internal-

FIG. 1. A 4-stage contingency model of allocation. Depending on resource scarcity and the match between resource constraints and the number of personally responsible claimants, allocators go through 1 to 4 stages in deciding how to allocate public aid to a pool of claimants. Personality and ideological variables moderate stages of analysis: Conservatives will be more likely to focus on personal responsibility (Stage 2) and liberals will be more likely to focus on distributive norms (Stage 3).

controllable causes—such as carelessness, laziness, greed, and self-indulgence (e.g., Reizenzein, 1986; Weiner, 1986).

Additional evidence suggests that reactions to needy others are mediated by affect. Attributions of personal responsibility arouse more negative and less positive affect in perceivers (e.g., anger and hostility versus sympathy and pity; Meyer & Mulherin, 1980; Weiner, 1980). These and other studies reveal close connections between cognitive appraisal, affective arousal, and intentions to help (e.g., Batson, Duncan, Ackerman, Buckley, & Birch, 1981; Reizenzein, 1986).

Although there are strong parallels between these studies of helping and distributive justice settings that activate need as a distributive norm, there are also important distinctions: (1) Allocators do not make personal sacrifices to help (they are spending other people's money on other people); (2) Helping someone is a foregone conclusion in allocation contexts; the question is how much aid to provide, and to whom; and (3) Helping typically involves higher potential risk for the provider than allocating. In short, we should not assume everyone considers attributional information *morally* relevant in fairly allocating public resources—a point that brings us to individual differences.

Personality and Ideology of the Allocator

Personality and ideological variables moderate allocation preferences. For example, belief in the Protestant Ethic—that hard work will ultimately be rewarded—is associated with skepticism toward the value of equality, a preference for allocating outcomes according to merit and a tendency to attribute behavior internally to people rather than externally to the system (Garrett, 1973; Greenberg, 1978; MacDonald, 1971).

These individual differences in allocation preferences are rooted in sociopolitical ideology. Drawing on the findings of Carroll, Perkowitz, Lurigio, and Weaver (1987), we expect two clusters of personality and ideological variables to shape allocation preferences: (1) Cognitive conservatism (CC: a combination of political conservatism with personality measures of dogmatism, authoritarianism, and internal locus of control) and liberal humanism (LH: a combination of liberal ideals and the principled stage of moral development). We also expected personality and ideology to moderate the cognition-affect-behavior link. High CCs should experience especially negative affect toward, and withhold resources from, claimants whose needs are due to internal, controllable causes, whereas high LHs should be influenced less by cause of need than by need itself. The moderating effects of personality/ideology should be most evident under no scarcity, when allocators are less constrained by the situation.

Resource Constraints on the Capacity to Provide Aid

Resource constraints pose painful problems for allocators. Scarcity requires “winnowing” the competing claimants to determine who shall receive assistance (Ross & Ellard, 1986). Scarcity also means that justice defined as equality or equity is often beyond our grasp. If everyone is given an equal share, or a “share proportional to his claims and desert,” then some, perhaps all, will be pressed beneath a minimally acceptable level (Greenberg, 1981; Rescher, 1966). For example, imagine it takes 3 mg of Drug X to cure an otherwise lethal disease. What if two people contract the disease, and only 4 mg of the drug are available? An equal or equitable distribution might be “just,” but would save neither life. Consistent with this reasoning, research indicates that equity becomes less important as scarcity increases (e.g., Coon, Lane, & Lichtman, 1974; Lane & Messe, 1972). Attention is hypothesized to shift to need and efficiency and away from equity and equality (Greenberg, 1981). Under scarcity, allocators try to minimize both suffering (a need value) and waste (an efficiency value).

Although receiving some theoretical attention, empirical data on allocations under scarcity are almost nonexistent. Anecdotal evidence, however, suggests that as scarcity increases, there is a parallel increase in concern for efficiency. For example, the World War I concept of *triage* advocates allocating medical attention to those who have a high probability of being saved and withholding treatment from those expected to die, or from those who will recover without medical attention (Ehrlich, 1968). Under scarcity, the values of need and efficiency often conflict. Giving priority to the most urgent claim is often not the most efficient use of resources.

In addition to making need and efficiency more salient, scarcity may motivate cognitive appraisal. Under low scarcity, there is less reason to engage in detailed analysis. Assuming most people are cognitive misers (cf. Fiske & Taylor, 1991) who seek simple solutions to difficult decisions, allocators may simply treat claimants as approximately equal when it is possible to satisfy everyone. But scarcity may promote attributional analysis of responsibility as allocators search for reasons to deny some claims, but not others.

The Present Studies

The experiments reported here test the 4-stage model of allocation preferences. Study 1 investigated allocation preferences under low and high scarcity and Study 2 examined allocations under no scarcity. To examine the generalizability of results across operationalizations of key variables and resources, both studies included three resource domains:

AZT for AIDS victims, organs for people needing organ transplants, and low-income housing for the poor.

STUDY 1

We organize our hypotheses into two classes: first-order and second-order questions. It is possible to test the latter only if support is found for the former.

First-Order Questions

Hypothesis 1

Does attribution of responsibility shape perceptions of *fair* access to scarce resources? Whereas previous research demonstrates that the Cognition-Affect-Action model predicts individual decisions to give or withhold help, it is not clear whether ordinary people consider causal attributions morally relevant or appropriate in a broader societal context. Support for the first assumption of the model (that insufficient resources motivate attributional analysis) will be sought from converging evidence on allocators' reactions to targets who vary in why they need aid. Specifically, locus and control should interact, with internal-controllable reasons for need consistently rated as least deserving, arousing the greatest negative and least positive affect and prompting the least aid.

Hypothesis 2

Is the distributive norm of need primed in public aid domains? And does scarcity activate a concern for efficiency? We predict that concerns for need and efficiency will be higher than alternative values, such as various operationalizations of equality (e.g., equal opportunity); the queue (e.g., first come, first served); and merit (e.g., contributions to society). The allocation norms used were derived from recurring themes in the psychological literature as well as from public policy debates about access to scarce medical technologies.¹

Second-Order Questions

Assuming locus of causality plays an important role in allocational decisions, what is the relative role of attributions and distributive norms in selecting recipients of scarce resources? Study 1 examined allocators' decisions when there is an imperfect match between the number of personally responsible claimants and the number of claimants who must be

¹ Most of these distributive norms have been neglected in psychological research—a legacy of the dominance of equity theory. However, these distributive values are widely recognized in philosophy, economics, and political science. This list is not presumed to be exhaustive, but does represent the range of distributive concerns that arise in debates over the allocation of public resources.

denied assistance because of scarcity constraints. For half of the subjects, there were more resources than personally responsible claimants (low scarcity); for the other half of the subjects, there were fewer resources than personally responsible claimants (high scarcity).

Hypothesis 3

Under low scarcity, allocators are predicted to assist all claimants who are not personally responsible for their predicament. Only internal-controllable claimants with less than high need and efficiency are predicted to be denied assistance under these conditions.

Hypothesis 4

Under high scarcity, allocators are predicted to deny aid to all internal-controllable claimants, regardless of their relative need or efficiency. But because allocators cannot aid all the remaining claimants, only those with the highest need and efficiency will receive help.

Hypothesis 5

Subjects under low scarcity will report that their decisions were determined primarily by the reasons why people need aid. In contrast, subjects in the high scarcity condition will report that their decisions were determined more by complex combinatorial patterns of information—i.e., by reasons why people need aid, need and efficiency taken together—than by any of these sources alone or in lower-level combinations. In other words, we expect movement toward self-reported cognitive complexity in decisions made under higher scarcity.

Hypothesis 6

These previous effects will be qualified by the political ideology and cognitive style of the judge. High conservatism will be related to stronger tendencies to: (a) attribute personal control to all claimants; (b) have negative affective reactions to claimants with internal-controllable causes of need; (c) devalue the deservingness of claimants with internal-controllable causes; (d) choose them less frequently to receive help; and (e) weight reasons why people need help and efficiency as more important determinants of choice. People scoring high in liberalism, on the other hand, are expected to be more likely to (a) have positive affective reactions to all claimants and (b) perceive all claimants to be deserving of assistance.

Method

Subjects

One hundred and ninety-eight undergraduates at the University of California, Berkeley completed questionnaires in partial fulfillment of class requirements for an introductory psychology class.

an organ transplantation, or low income housing) can receive it because there is a limited supply.

Allocation preferences. Each questionnaire then assessed subjects' perceptions of the appropriateness of a number of allocation procedures. Subjects rated these options on an appropriateness scale ranging from -8 (extremely inappropriate) to +8 (extremely appropriate). For example, within the AZT domain:

1. AZT should be allocated to people on the basis of their medical need; those who are the most severely ill should be given priority (*Need*).
2. People should be given equal opportunity to receive available AZT; perhaps by a lottery or by drawing straws (*Equal Opportunity*).
3. People should be given priority on the basis of how long they have been on a waiting list, irrespective of other factors (*Queue*).
4. People should be given priority on the basis of how effective AZT will be for them, since the probability of AZT successfully prolonging their life is higher (*Efficiency*).
5. Priority for AZT should be given to the highest bidder; those people who can afford AZT treatment should be given first priority (*Market*).
6. Priority for AZT should be based on the contributions people have made to their community; those people who have made important contributions to the well being of the community should be given higher priority than people who have not contributed to the community in any important way (*Merit*).

Parallel allocation procedures were rated for appropriateness within the organ and low-income housing domains.

Attributions of causality and affect. Subjects were next asked to rate how they felt about each claimant as a function of locus and control² of their need for resources. For example, within the organ domain, the conceptual manipulations of locus and control were as follows:³

² We modeled our manipulations of controllability and externality after Weiner's (1986) discussion on pp. 49-50. He argued that if we always conceive of controllability from the target perspective (e.g., the successful or failing person), external causes will always be "by definition . . . uncontrollable, for they are not willfully changed by the actor." He notes, however, that because people perceive many external causes as controllable (e.g., teacher bias, unemployment), controllability implies not only "controllable by me" but also "controllable by anyone." In addition, in the attribution of success/failure literature, external controllable causes usually involve negligence of an external actor (teacher bias, lack of help from unwilling friends; again, see Weiner, 1986, 1990 for review). Although our operationalizations of locus of responsibility are consistent with Weiner's theory and operationalizations of locus of control in the attribution research literature, it should be noted that these manipulations do indeed imply a degree of negligence by the external actors (see also Shaver, 1985).

³ Because of space limitations, examples of manipulations are presented rather than manipulations across all three resource domains. A complete set of variable manipulations is available from the first author.

The experiment was a mixed factorial design. There were five within-subject factors: Resource Domain (Organs, AZT, Housing), Locus (Internal, External), Control (Controllable, Uncontrollable), Need (High, Low), and Efficiency (High, Low). Two variables were manipulated as between-subject factors: Scarcity (High, Low) and Target Sexual Orientation (relevant only to the AZT domain: Homosexual, Heterosexual). Six different orders of resource domain were presented.

Primary dependent measures were: (a) ratings of targets' relative deservingness for an available resource, (b) how unfair it would be if a target did not receive an available resource, (c) affective ratings of targets seeking aid as a function of locus and control, and (d) the amount of resources committed to claimants as a function of locus, control, need, and efficiency.

Rationale for the Design

The pros and cons of between- versus within-subject designs are hotly debated. In this case, we chose a primarily within-subject design because we were interested in how people evaluate a pool of applicants competing for insufficient public resources. It follows that subjects need information on the entire population of applicants. Many real world allocation decisions take on within-subject forms (e.g., a hiring committee has access to all applicants' files; a medical ethics committee has the files of all patients waiting for organ transplants).

Procedure

Overview

Subjects participated in a study of "how people make fair allocation decisions." Their task was to fill out a number of confidential questionnaires. Rather than reveal their names, subjects picked a 5-digit sequence of numbers to uniquely identify their materials. Subjects completed parallel questionnaires within each resource domain: a total of three questionnaires (organs available for transplantation, AZT for AIDS victims, and low income housing for the poor) in one of six random orders. The first section of each questionnaire assessed information relevant to the first-order questions, and the second section collected information relevant to second-order questions. Finally, subjects completed a separate questionnaire containing the personality and attitudinal measures last.

First-Order Questions

Each domain's questionnaire was prefaced with basic background information. For example:

AZT is a drug to treat Acquired Immune Deficiency Syndrome (AIDS). AZT is not a cure for AIDS, but it does lengthen the life span of those with AIDS. People who have AIDS hope that AZT treatment will lengthen their lives until a cure is developed.

Subjects also learned that not everyone who wants and needs AZT (or

Internal uncontrollable (IC): Despite his doctor's repeated warnings about the damaging effects on his health and the probability of severe organ damage, this person continued to eat high cholesterol foods, smoke, and not exercise. As a result, he now has severe organ failure.

Internal uncontrollable (IU): This person has a genetically defective organ that is not correctable by any means besides an organ transplantation.

External uncontrollable (EC): This person's employer, even after warnings of the health risks of a chemical used in a production plant, opted to continue using the product despite the availability of comparably priced and effective alternatives. The employees were kept uninformed of the risks, and ultimately this person suffered irreparable organ damage from repeated exposure to the chemical.

External uncontrollable (EU): This drug was prescribed for a mild allergy, which the patient took for a brief period of time. He subsequently suffered severe organ failure, which was traced to this drug. At the time the medication was prescribed, these particular side effects had not been discovered. All previous testing had led everyone to believe it was a safe medication.

Subjects rated each of these targets on the dimensions of pity, sympathy, disgust, and distaste using 9-point scales where 1 represented "Not (none) at all" and 9 represented "A great deal." Also, three questions assessed the effectiveness of the locus and control manipulations:

1. To what extent is this person's disease (need for housing) due to factors that were preventable, by either himself, or someone else?
2. To what extent is this person's disease due to something about the person (e.g., his behavior, personality, or body), rather than something or someone external to the person?
3. How much personal responsibility does this person have for his condition?

Second-Order Questions

Subjects were asked to play the role of a decision-maker who was responsible for allocating organs (AZT or low-income apartments). To examine the second-order hypotheses, we described 16 possible recipients, whose characteristics varied as a function of the same locus and control conditions described earlier, crossed with the efficiency of providing treatment (or housing) and the medical urgency of treatment (or severity of need for housing). For example, high need in the organ context was operationally defined as having a 1% chance of surviving until another organ became available, whereas low need placed that chance at 10%. Efficiency in this context was defined as how long the operation would extend the claimant's life; low efficiency was 1 year, high efficiency was 10 years.⁴

Subjects rated each of the 16 claimants' relative deservingness for an

⁴ These manipulations were based on the typical ranges of need and efficacy for heart transplantees.

available organ (slot in an AZT treatment program, low income apartment) as well as how unfair it would be if the target person were denied treatment. Both deservingness and fairness were assessed by 9-point semantic differentials. Subjects were instructed that the purpose of these judgments was to help them to make their actual allocations later, when they would have to choose a certain number of recipients. Half the subjects were told that there were severe resource constraints, and only 3 out of the 16 (20%) could receive help. The other half of the subjects were told 13 out of 16 (80%) candidates could receive resources. After making their judgments, subjects chose either 3 or 13 of the potential recipients to receive organs, AZT, or low income housing. Last, subjects were asked to report how much weight (in percentages) each factor and combination of factors had on their choice decisions [i.e., need alone (the extent to which the person needed an organ transplantation); effectiveness alone (the extent to which treatment would prolong the person's life); reason why the person needed help alone (e.g., didn't listen to doctor's advice; genetically based organ failure), need and effectiveness combined, etc.].

Manipulation checks on need and efficiency were collected at the end of this section. Subjects responded to semantic differentials regarding their perception of severity of need for each of the need manipulations and the effectiveness of providing resources for each of the efficiency manipulations within each domain.

Subjects then completed parallel questionnaires in the remaining two domains.

Individual difference measures. Subjects also completed a packet of personality and attitudinal measures to assess the cognitive conservatism and liberal humanism clusters found by Carroll et al. (1987). The packet also included Rotter's Internal-External Locus of Control Scale (Rotter, 1966); the Shortened F for Political Surveys (Authoritarianism, Janowitz & Marvick, 1953); and the Short Dogmatism Scale (Trodahl & Powell, 1965), a scale assessing attitudes toward proportional and egalitarian public policies (Rasinski, 1987), as well as a single, bipolar, 10-point measure of liberalism-conservatism.

Principal components analysis (with varimax rotation) created the subscales to be used in the study.⁵ Items with loadings of .40 or greater on components with eigenvalues of 1 or more were retained for the factors. Three factors were retained: (1) *Conservatism*: high dogmatism, authoritarianism, and endorsement of proportionality. (2) *Liberalism*: Dogmatism and authoritarianism both loaded negatively on the component, suggesting greater cognitive flexibility.⁶ As anticipated, egalitarian value

⁵ Several subjects did not have enough time to complete the personality inventories. The sample size for all analyses using personality factor data is $N = 171$.

⁶ The labels of "liberal" and "conservative" were chosen for these components rather than "cognitive conservatism" and "liberal humanisms" for reasons of linguistic simplicity.

orientation and self reports of political liberalism loaded positively on this factor. (3) *Locus of Control*: An unexpected third component emerged that clearly represents locus of control. This analysis replicated (with one major exception) the Carroll et al. (1987) solution. Carroll et al. (1987) found that the cognitive conservatism factor included an internal locus of control component.⁷ We used the regression method to compute subjects' factor scores and to investigate personality and ideological effects.

Results⁸

Checks on the Effectiveness of Manipulations

We checked to ensure that the operationalizations of locus of responsibility were consistent across resource domains. The within-subjects analysis of variance (ANOVA) of domain (3) \times locus (2) \times control (2) was conducted separately with the dependent variables of perceived locus and control. A significant three-way interaction emerged with perceptions of control, $F(2, 388) = 78.00, p < .01$. Examination of partial interactions indicated that the Locus \times Control interaction was not different for the Organ and Housing domains, $F(1, 194) = 6.17, ns$, but did take a different form in the AZT domain [partial interactions of Locus \times Control with pairs of domains: AZT with the Organ, $F(1, 194) = 154.05, p < .01$ and AZT with Housing, $F(1, 194) = 160.17, p < .01$]. Simple main effects analyses of each locus of responsibility manipulation (IC, IU, EC and EU) across domain revealed significant domain effects for only the IU target, $F(2, 388) = 20.68, p < .01$. Tukey tests indicated that AZT claimants with IU needs (AIDS victims who contracted the virus as a result of sexual relations, before AIDS was known to be a sexually transmitted disease) were perceived as more controllable than IU manipulations in the Organ (genetically defective organ) and Housing domains (learning disability). Collapsing across domains yielded no significant differences in the perceived controllability of IU vs EU claimants, or IC vs EC claimants.

The locus \times control interaction did not affect perceptions of locus differently across domains, $F(2, 388) = 1.09, ns$. However, as is frequently the case (e.g., Russell, McAuley, & Tarico, 1987; Weiner, 1986), attributions of locus and control were not independent, as revealed by significant interactions of locus and control to affect perceptions of both

⁷ This result is probably due to the use of different instruments to measure locus of control. Carroll et al. (1987) used 20 items from Collins (1974) Locus of Control scale, whereas the present study used Rotter's (1966) scale.

⁸ It will be recalled that six different orders of resource domain were presented; there were no significant effects for this variable. In addition, the sexual preference of internal claimants was manipulated as a between-subject variable in the AZT resource domain. Interestingly, no significant effects emerged for sexual preference on the dependent measures of deservingness, affect, or choice, a result at odds and with other research that manipulates sexuality as a within-subject variable (e.g., Skitka & Tetlock, in press; Weiner, 1992).

locus [$F(1, 194) = 76.45, p < .01$] and control [$F(1, 194) = 55.32, p < .01$]. Analysis of simple effects indicated no difference in perceived externality of the external locus manipulations, $F(1, 194) = 0.46, ns$, but internal-controllable causes were seen as more internal than internal-uncontrollable causes, $F(1, 194) = 94.68, p < .01$. Regardless, internal causes were seen as in fact as more internal than external causes at both levels of control. Analysis of simple effects with the controllability manipulation check indicated no significant difference in the perceived preventability of controllable causes, $F(1, 194) = 2.34, ns$, but external-uncontrollable causes were perceived as less preventable than internal-uncontrollable causes, $F(1, 194) = 35.64, p < .01$. Regardless, controllable causes were seen as more preventable than uncontrollable causes at both levels of locus.

The manipulation checks for need and efficiency indicated that these independent variables produced the intended effects. Dependent t tests revealed that high need manipulations produced greater perceptions of need than low need manipulations in all three domains, $t(196) = 11.37, p < .001$ in the organ domain; $t(196) = 10.99, p < .001$ in the AZT domain; and $t(196) = 15.32, p < .001$ in the housing domain. Similarly, dependent t tests revealed that high efficiency manipulations produced greater perceptions of effectiveness than low efficiency manipulations in all three domains, $t(195) = 24.22, p < .001$, in the organ domain; $t(194) = 24.85, p < .001$ in the AZT domain; and $t(196) = 19.25, p < .001$ in the housing domain. Analysis of the domain (3) \times need (2) and domain (3) \times efficiency (2) within-subjects ANOVAs revealed no differences across domains in the neediness of high versus low need targets, $F(2, 396) = 0.72, ns$, nor any differences in the relative efficacy of high versus low treatment efficiency manipulations, $F(2, 396) = 0.96, ns$.

Resource Domain

Although some domain effects did reach significance, these results are not emphasized here for five reasons: (1) Resource domain and any interaction involving domain, regardless of significance level, accounted for less than 1% of the variance in each case; (2) none of these effects significantly deviated from the predictions of the proposed model; (3) intercorrelations among ratings in the three resource domains were consistently high, ranging from a low of $r = .60$ to a high of $r = .88$, (4) domain did not qualify the highest order interactions observed with any of our dependent measures; and (5) collapsing across domains allowed for a more reliable assessment of the functional relationships across operationalizations of independent and dependent variables. The major finding is how well the results generalized across domains, despite the considerable range of both resources and operationalizations of the relevant variables.

First-Order Questions

Hypothesis 1. The Cognition-Affect-Action model was supported by converging results across two measures of allocation preferences: (1) average ratings of deservingness and fairness [deservingness and fairness ratings were highly correlated, $r(196) = .89, p < .001$. For ease of discussion, this measure will be referred to as simply deservingness]; and (2) commitment of resources to claimants as a function of locus and control. If the Cognition-Affect-Action model applies to people's perceptions of the fair allocation of assistance, locus and control should interact to determine deservingness, choice, and affective ratings. Internal-controllable claimants should be perceived as least deserving, receive the lowest amount of assistance, and arouse the most negative and least positive affect. Convergence of results across dependent measures provided strong support for the Cognition-Affect-Action model in describing allocations under scarcity. These results are described in more detail below.

Deservingness. The Locus \times Control interaction (collapsing across need, efficiency, scarcity, and domain) with the dependent variable of deservingness was highly significant, $F(1, 197) = 583.16, p < .0001$. Deservingness ratings were lowest when the cause was internal and uncontrollable (IC, $M = 5.05$; IU, $M = 6.30$; EC, $M = 6.06$; EU, $M = 5.42$). Tukey tests indicated that all pairwise comparisons were significant. These results indicate that interpreting the cause of a recipient's need exerts an important influence on assessments of fairness and deservingness, consistent with results reported by Weiner (1980) on helping behavior.⁹

Choice. Locus \times Control interactions (collapsing across need, efficiency, and domain) were also tested with the dependent variable of choice under high and low scarcity (which claimants received aid). Choice conditions varied as a function of the relative availability of resources: some subjects were told there was enough for 13 out of 16 recipients (the "Low Scarcity" condition) and others were told that there was only enough for 3 out of 16 recipients (the "High Scarcity" conditions). Because choice as a dependent measure had different ranges depending on scarcity condition, scarcity could not be included as a variable in analysis, nor could we collapse across scarcity as a variable. Rather, we had to test these hypotheses with two separate analyses of variance.

Choice in the low scarcity condition, after collapsing across resource

⁹ These results are qualified by a significant 5-way interaction of scarcity, locus, control, need, and efficiency on perceptions of deservingness, $F(1, 196) = 11.43, p < .01$. The pattern of results and rank-order preferences for IC versus other targets parallel the results reported for choice (see Hypotheses 3 and 4), although some of the distinctions between IU, EC, and EU targets found with choice were not found with deservingness. In other words, choice evoked sharper distinctions between targets.

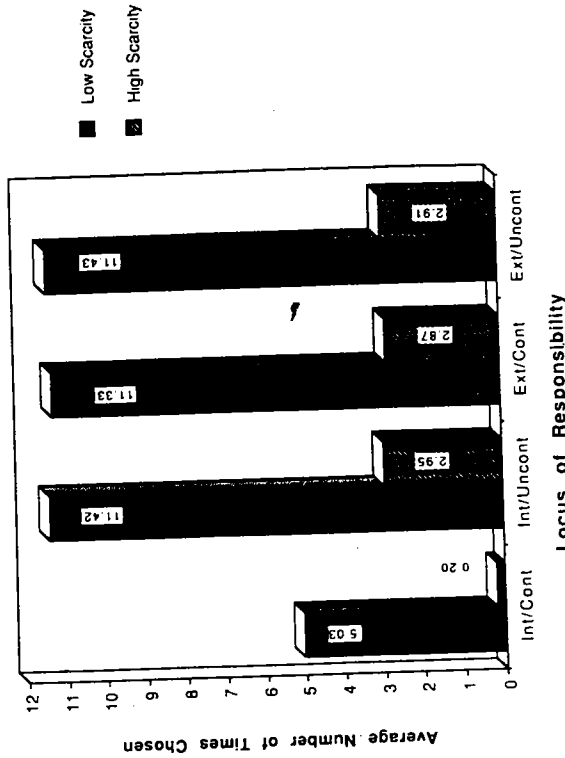


FIG. 2. Choice as a function of locus and control. Claimants could be chosen from 0 to 9 times under high scarcity, and 3 to 12 times under low scarcity as a function of locus and control.

domain, need, and efficiency (but not locus of control), ranged from 3 to 12. As Fig. 2 indicates, Locus and Control interacted to predict choice, $F(1, 84) = 287.45, p < .001$. IU, EC, and EU claimants were chosen on the average more than 11 times each—quite near the ceiling of 12. Tukey tests revealed no differences among these groups. On the other hand, Tukey tests indicated that IC targets were chosen less often than other claimants, on average only 5 out of a possible 12 times each.

Choice under high scarcity ranged from 0 to 9. Once again, the locus by control interaction demonstrated that people withheld resources most from IC claimants, $F(1, 94) = 149.95, p < .001$ (see Fig. 2). Allocators, on average, spread their 9 choices evenly among IU, EC, and EU targets (Tukey tests indicated no significant differences among these groups). However, IC candidates were selected only rarely ($M = .20$) and significantly less than other claimants.

The role of affect in causal analysis and deservingness. We expected that IC causes of need would arouse considerable negative and little positive affect, whereas other causes of need would arouse the opposite reaction. To investigate the influence of locus of responsibility on affect, Locus (2) \times Control (2) interactions were tested with the dependent measures of sympathy, pity, disgust, and distaste. A multivariate test (MANOVA) was conducted first, because these dependent variables were

as the most inappropriate ways to allocate resources ($M = -2.18$ and $M = -3.57$, respectively). All pairwise comparisons were significant using Tukey post hoc tests.

Summary of first-order results. The first-order analyses set the stage for the second-order questions. We have established that need, efficiency, locus, and control were all manipulated successfully; that need and efficiency were the primary allocation values activated in these contexts; and more importantly, that attributions of responsibility and associated affect influence perceptions of deservingness and fairness and allocation choices. We now ask more differentiated questions about the relative and interactive roles of perceptions of personal responsibility, affect, distributive norms, and personality in predicting allocations of scarce resources.

Second-Order Questions

The choice dependent variable had sharply different distributions under low scarcity (when subjects could choose 80% of the claimants) and high scarcity (when subjects could choose only 20% of the claimants). Scarcity was not included as a factor in analyses with choice as a dependent measure because of this difference. Rather, hypotheses involving scarcity and locus were tested by direct examination of the four-way interactions of locus, control, need, and efficiency under different conditions of scarcity.

Hypothesis 3. Under low scarcity it was predicted claimants not personally responsible for their need would receive assistance, and that internal-controllable claimants with anything less than high need and efficiency were most likely to be denied assistance. To test this hypothesis, the Locus (2) by Control (2) by Need (2) by Efficiency (2) interaction with the dependent variable of choice across domains under low scarcity was examined. This interaction was significant, $F(1, 97) = 51.95, p < .001$.

In statistical terms, our hypothesis predicts that need and efficiency will interact within IC causes. IC claimants with high need and efficiency are expected to be much more likely to receive resources than IC claimants with other combinations of need and efficiency. In contrast, all claimants with other causes of need should receive assistance, regardless of the urgency or efficacy of their claims. Therefore there should not be a partial interaction or simple main effects for need and efficiency within IU, EC, and EU claims, because essentially all the claimants are predicted to receive assistance. Consistent with this hypothesis, the need-by-efficiency interaction with the dependent variable of choice within IC claimants was significant, $F(1, 97) = 36.77$. IC claimants with high need and efficiency were selected much more ($M = 2.20$) than IC claimants with low-high ($M = 1.51$), high-low ($M = 0.89$), and low-low ($M = 0.42$) combinations of need and efficiency, all pairwise differences significant with the Tukey test (see Table 1).

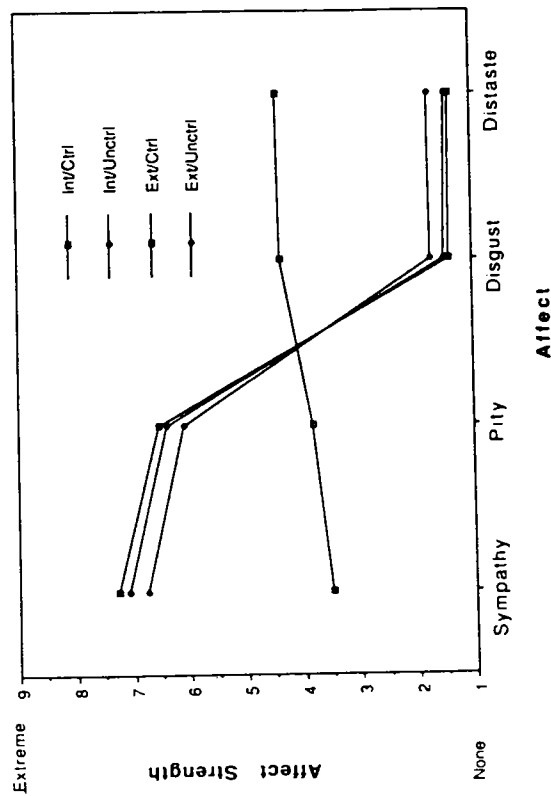


FIG. 3. Affective reactions to claimants as a function of locus and control.

intercorrelated. After passing this initial test [$F(4, 190) = 167.58, p < .001$], univariate analyses of variance were examined. These revealed significant interactions of Locus by Control for each affective measure [Sympathy, $F(1, 196) = 680.85, p < .001$; Pity, $F(1, 196) = 221.78, p < .001$; Disgust, $F(1, 196) = 425.74, p < .001$; and Distaste, $F(1, 196) = 472.40, p < .001$].

Figure 3 indicates the source of the interaction effects: the negative emotional reactions to the IC target. Potential recipients whose needs were rooted in internal and controllable causes aroused half the sympathy and pity accorded to other recipients and over twice as much disgust and distaste.

Hypothesis 2. Subjects rated the appropriateness of various allocation procedures. A one-way within-subjects ANOVA with the independent variable of distributive norms yielded significant differences in perceived appropriateness (collapsing across resource domain), $F(5, 990) = 197.67, p < .001$. Subjects rated need (e.g., allocating resources to those who are the sickest, or in the worst housing) as the most appropriate way to set fair priorities ($M = 3.65$), followed by efficiency ($M = 2.90$). Appropriateness ratings dropped considerably for the next most appropriate norm—the queue ($M = .83$). Equal opportunity, such as a lottery, was rated slightly inappropriate ($M = -.47$) and the values of merit (i.e., priority should be based on the contributions people have made to society) and the market (priority should be given to the highest bidder) were rated

TABLE 1
AVERAGE NUMBER OF TIMES CLAIMANTS WERE CHOSEN TO RECEIVE AVAILABLE AID UNDER HIGH VERSUS LOW SCARCITY AS A FUNCTION OF LOCUS, CONTROL, NEED, AND EFFICIENCY

Locus of responsibility	Need/efficiency			
	High need High efficiency	High need Low efficiency	Low need High efficiency	Low need Low efficiency
	High scarcity			
Internal-controllable	0.16	0.01	0.03	0.01
Internal-uncontrollable	1.97	0.23	0.56	0.19
External-controllable	2.07	0.15	0.58	0.06
External-uncontrollable	2.22	0.12	0.53	0.05
	Low scarcity			
Internal-controllable	2.20	0.89	1.51	0.42
Internal-uncontrollable	2.97	2.72	2.95	2.78
External-controllable	2.95	2.76	2.94	2.54
External-uncontrollable	3.00	2.86	2.91	2.66

Note. Bold-faced numbers highlight claimants predicted to have highest priority under high scarcity, and underlined numbers highlight claimants predicted to have lowest priority under low scarcity.

Within other causes, the Cause (3) by Efficiency (2) and Cause by Need simple interactions under low scarcity revealed no effects. However, the simple interaction of Need by Efficiency within remaining causes was significant, $F(1, 98) = 21.00, p < .001$. Tukey tests indicated that IU, EC, and EU claimants who had high need and efficiency or low need and high efficiency were selected most often to receive aid ($M = 2.97$ and $M = 2.93$, respectively, no significant difference), followed by high need, low efficiency ($M = 2.78$), and then low need and efficiency ($M = 2.66$). To some extent these results are inconsistent with hypotheses. Under low scarcity, need and efficiency were not expected to play major roles in deciding whether IU, EC, or EU claimants would receive assistance. Whereas some significant effects for need and efficiency emerged within these claimants, examination of the means reveals that these differences are very small.

Hypothesis 4. Under high scarcity, claimants not responsible for predicament with high need and efficiency should receive aid, and other claimants should typically be denied assistance. This hypothesis was tested by exploring the four way interaction of Locus (2) by Control (2) by Need (2) by Efficiency (2) on choices made under high scarcity. This interaction was significant, $F(1, 98) = 25.84, p < .001$.

This hypothesis predicts effects of need and efficiency on choice for IU, EC, and EU claimants, but not for IC claimants. Therefore, paralleling the low scarcity analysis discussed earlier, two partial interactions

were tested: (1) the Need by Efficiency interaction within IC causes and (2) the Need by Efficiency interaction within Remaining Causes.

Partially inconsistent with this hypothesis, the Need by Efficiency simple interaction was significant within IC claimants, $F(1, 98) = 9.69, p < .01$. Tukey tests revealed that high need and efficiency IC claimants were selected more ($M = 0.16$) than IC claimants with other combinations of need and efficiency (low-high, $M = 0.03$; high-low, $M = 0.01$; low-low, $M = 0.01$, respectively). This result needs to be examined within the context of Table 1 that reveals an overwhelming tendency to deny IC claimants aid under high scarcity (IC claimants were almost never chosen to receive assistance, with means hovering near 0) and an excellent fit of the data with the priority predictions. Less than 8% of the subjects selected any IC targets to receive aid under high scarcity, regardless of need or efficiency.

The Cause by Need and Cause by Efficiency simple interactions within remaining causes under high scarcity revealed no effects on choice. Consistent with expectations, a simple interaction did emerge for Need by Efficiency within remaining causes, $F(1, 98) = 186.53, p < .001$. Tukey tests showed that high need and efficiency IU, EC, and EU claimants were chosen dramatically more often than claimants with other combinations of need and efficiency ($M = 2.09$). After a large drop, there is a significant secondary preference for low need, high efficiency claimants ($M = 0.56$), followed by high-low and low-low combinations of need and efficiency ($M = 0.17$ and $M = 0.10$, respectively, no significant difference).

In summary, these analyses indicated that when causal analysis yields attributions of low personal responsibility (i.e., IU, EC or EU causes for need), need and efficiency emerge as the best predictors of who receives help. Attribution of IC cause of need is associated with the overall lowest amount of aid (see first order analyses), but to the extent that people do aid IC claimants, they select those with high need and efficiency. Most subjects adhered to the pattern of choices under high and low scarcity predicted by the model.

Hypothesis 5. Analysis of the weights assigned to need, efficiency, and locus of control alone, and combinations of these variables under varying conditions of scarcity (factor weight), provides additional support for the judgmental sequence proposed by our model. A main effect for factor weight, $F(6, 1170) = 28.08, p < .001$ was qualified by an interaction with scarcity, $F(6, 1170) = 4.74, p < .001$ (see Table 2 for more detail). Tukey tests indicated only two simple effects for scarcity: As predicted, reasons alone were perceived as less important under high ($M = 19.03$) than low ($M = 26.49$) scarcity, whereas reasons, need and efficiency—in other words, all factors combined—were perceived as more important under high ($M = 24.72$) than low ($M = 17.09$) scarcity.

TABLE 2
AVERAGE PERCENTAGE OF WEIGHTS ASSIGNED TO EACH FACTOR AND FACTOR COMBINATION
IN MAKING ALLOCATION DECISIONS UNDER SCARCITY AND NO SCARCITY

	High scarcity	Low scarcity
Need alone	12.55	11.25
Efficiency alone	16.65	17.33
Reasons alone	19.03	26.49
Need and reasons	6.43	10.02
Efficiency and reasons	10.04	10.80
Need and efficiency	13.04	10.53
Reasons, need, and efficiency	24.72	17.09

Hypothesis 6. Although the 4-stage model does an adequate job of predicting and explaining how the majority of people allocate aid, there is considerable individual variation in the cognitive strategies underlying allocation decisions. The next analyses explore individual differences in allocation preferences and strategies.

Individual Differences: Correlational Approach

As can be seen in Table 3 and consistent with hypotheses, people high in conservatism were more likely to: (a) attribute personal control to internal claimants; (b) have negative affective reactions (disgust and distaste) to claimants with internal-controllable causes of need; and (c) devalue the deservingness of claimants with internal-controllable causes of need. Conservatives were also expected to be less likely to choose IC claimants to receive help; this result was significant under high scarcity, but not low scarcity.

People scoring high on liberalism, on the other hand, expressed more sympathy and pity to targets with internal causes of need and less disgust and distaste and higher ratings of deservingness for all targets. In other words, our hypotheses were generally well supported.

Although we made no specific hypotheses regarding the relationships between ideology and other causes of need, some other interesting results were found. For example, conservatism was negatively related to deservingness and sympathy ratings of all claimants and greater distaste for all claimants except those with EC causes of need. Conservatism was also associated with higher ratings of personal responsibility to not only IC but also IU claimants and a higher likelihood of choosing EU claimants to receive assistance under high scarcity.

Liberalism, on the other hand, was associated with lower ratings of disgust and distaste, higher ratings of deservingness toward all claimants, and higher ratings of sympathy and pity for claimants with internal causes

TABLE 3
CORRELATIONS BETWEEN PERSONALITY-IDEOLOGY FACTORS AND AFFECTIVE REACTIONS, DESERVINGNESS, PERSONAL RESPONSIBILITY, AND CHOICE

	High scarcity choice	Low scarcity choice	Personal control	Deservingness	Distaste	Disgust	Sympathy	Pity	Internal-controllable causes	Internal-uncontrollable causes	External-controllable causes	External-uncontrollable causes
Conservatism	-.18*	-.03	.12*	-.31**	.25**	-.17*	-.31**	-.28**	-.13*	-.23**	-.17*	-.03
Liberalism	-.02	-.13	-.10	.21**	-.23**	-.15*	.14*	.12	-.17*	.23**	.08	.05
Conservatism	-.24**	-.11	.17*	-.34**	.20**	-.28**	-.23**	-.17*	-.13*	-.25**	-.12	-.15*
Liberalism	.16	.07	-.07	.26**	-.25**	-.13*	.10	.09	-.13*	.07	.12	.07
Conservatism	-.09	-.04	.05	-.25**	.07	-.14*	-.17*	-.01	-.09	-.05	-.17*	-.03
Liberalism	.01	.17*	.04	-.35**	.14*	-.14*	-.15*	-.08	-.09	.04	.07	-.03

Note. N = 171 for all correlations except choice, N = 84 for choices made in low scarcity conditions, and N = 88 for choices made in high scarcity conditions. * p > .05, ** p > .01.

