Abstract

While previous studies have applied Group Threat theory to explain differences in behavior across racial groups, we examine group threat within the same racial group. We conduct an experiment in which low-income, African-American, Houstonian subjects participate in a multi-level public goods game with low-income, African-American, Katrina evacuees. We hypothesize that Houstonian subjects will exhibit non-racial group threat by providing fewer public goods to groups dominated by Katrina evacuees. We find weak evidence of non-racial group threat, which suggests that Group Threat theory might have a specific non-racial component. Additionally, we explore the relationship between non-racial threat and prejudice by analyzing behavior in a dictator game, and find that these two concepts may be less intertwined than traditionally assumed when the context is non-racial. Our findings have significant implications for how group threat affects policy preferences that are seen to benefit groups construed as ‘other’.
Introduction

Group Conflict Theory provides one window into how in-group and out-group conflict arises. A group threatened by the influx of a new out-group is likely to lash out. This study directly tests one aspect of Group Conflict Theory – the sources of group threat. In doing so we offer several novel adjustments to the standard approach. First we use a set of laboratory field experiments to collect behavioral data asking subjects to make costly decisions about themselves and their group. Second, we control for the race and economic status of the two groups via our sampling method. Third we collect data concerning perceptions of group threat. These data are from low-income African American Houstonians who make decisions with recently arrived evacuees from Hurricane Katrina. While an unusual data source, this experimental design and these data allow us to consider whether this group of Houstonians felt threatened by the Katrina evacuees and how they responded when forced to make costly decisions.

Our findings suggest that group threat may be integrally tied to racial competition rather than purely economic competition. Our data only weakly support the primary prediction from Group Conflict Theory. These findings call into question some of the larger issues associated with group threat.

Literature Review

We use a mid-level theory, Group Conflict Theory, to generate hypotheses about which groups in society will come into conflict with one another.¹ The core assumption of Group

¹ Obviously this is not the sole theoretical approach to in-group and out-group conflict. In political science there is an extensive literature that turns to hypotheses about the level of contact between groups that might mediate increasing competition. See for example Sigelman and Welch (1993), Ellison and Powers (1994), Jackman and Crane (1986), Kinder and Mendelberg (1995) and Sigelman et al. (1996). In the political economy literature there is a finding that group heterogeneity leads to a decline in the provision of public goods (Alesina and La Ferrara 2000; Posner et al. 2007).
Conflict Theory is that groups in society compete over limited resources (Levine and Campbell 1972; Bobo 1988; Bobo and Hutchings 1996; Taylor 1998). Examples include whites concerned that blacks are granted advantages through affirmative action or blacks concerned about job loss to latino immigrants in their communities. This core assumption has spurred a literature on Group Threat suggesting that those in the majority are likely to feel more threatened, as well as make greater use of stereotypes, in the presence of a growing out-group (Hero and Tolbert 1996; Hill and Leighley 1999; Branton and Jones 2005; Quillian 1996; Glaser 1994; Giles and Evans 1986). Many scholars have claimed that this threat manifests itself in feelings of economic competition as well as competition for control of government resources (Saideman et al. 2002).

The literature on Group Threat has a long history and has been applied in many arenas. Scholars have frequently applied it to analyses of voting turnout (Bobo and Gilliam 1990; Tate 1991; Hill and Leighley 1999; Gay 2001; Barreto et al. 2004), as well as of racial attitudes and policy preferences (Giles and Evans 1986; Branton and Jones 2005; Taylor 1998; Bobo and Hutchings 1996; Quillian 1996; Glaser 1994; Bobo and Kluegel 1993; Glaser 2003). Other studies assess the degree to which racial voting (including white strategic cross-over voting) is a function of group threat between Black and White racial groups (Giles and Buckner 1993; Voss 1996; Giles and Buckner 1996; Citrin et al. 1990; Vanderleeuw et al. 2004; Liu 2001a, 2001b).

While the work in this field is substantial, the findings are mixed. Sometimes there is clear evidence that the dominant majority is responding as if threatened. In some elections whites turn out at higher rates, they cast strategic votes or they vote against ballot propositions that are seen as racially charged. However the results disappear when applied to other elections or when different statistical techniques are used. Two critiques of this literature have emerged:
A primary critique is that group size is used as a proxy for the main variable of interest: threat. Most studies employ the percentage of group size at various levels of analysis to investigate the presence of threat. The assumption is that this efficiently taps shifting levels of threat and enables ecological inferences about the threat experienced by the majority group. However, this only indirectly measures threat and it forces scholars to make inferences about individuals from aggregate results. As Dixon (2006) argues, it would be more useful to measure threat directly in order to bring out its effects fully.

There is some work that tries to directly measure threat. For example Nadeau et al. (1993) investigate perceived group size and Huddy and Sears (1995) look at policy preferences. Neither study, however, investigates the effect of directly measured threat on behavior. Bobo and Hutchings (1996) construct a threat measure at the individual level based on survey responses to four questions concerning job, political, housing, and economic competition. They find that group position, as measured by racial alienation, is the strongest predictor of threat. However, at best they find that threat is related to attitudinal perceptions and not costly behavior. One aim of our research is to take a direct measure of threat and link it to the provision of public goods.

A second critique of the group threat literature is that it has almost exclusively focused on Black-White relations. While historically the relation between these two groups is conflictual and merits significant investigation, some scholars ask whether Group Threat extends to other groups. If the concept is general, then do minority groups feel the same degree of threat from one another?

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2 Giles & Evans (1986) also use directly measured threat, but do not look at its effects on behavior.
Gay (2006) finds support for group threat among both African Americans and Latinos. She varies the economic context for respondents in order to tap threat and its influence on stereotypes and support for Affirmative action. Related work investigates Latino threat by African Americans (Morris 2000), Hispanic threat by Anglos (Huddy and Sears 1995; Hood and Morris 1997) and threat and prejudice within Latino groups (Pantoja and Segura 2003; Hood 1997) all in terms of policy opinion rather than behavior.

Some recent work has investigated general group threat that is non-racial. Glaser (2003) tests for non-racial group threat with an experiment embedded in a survey, but fails to find evidence of generalized group threat that is non-racial (urban-rural group threat). However, since the measure of threat is based on hypothetical cities with varying group sizes, it is likely that a more direct measure of threat, as stated above, would yield different results. Whitt and Wilson (2007) look at how different pairings of ethnic groups in Bosnia allocate resources to one another. This is a setting in which threat was more than economic, but they find only weak evidence for threat. In sum the evidence supporting generalized group threat is mixed.

We turn to the question of group threat using a controlled experiment. In doing so we try to improve on measures of threat by observing both behavior and attitudes. At the same time we turn away from black/white competition and instead look at same race competition. To do so we look at two groups which are African-American and drawn from the same socio-economic level. One group is made up of long-term residents of Houston, while the other group is composed of recent evacuees from Louisiana.
Background

We use a sample of low-income, African-Americans who have lived in Houston for some time. These long-term residents participated in an experiment and answered a questionnaire. The chief aspect of the study was to measure attitudes toward a recent refugee population made up of low-income, African-American who were bused to Houston from New Orleans in the aftermath of Hurricane Katrina in September 2005. Both groups had similar (low) status in their respective cities. The status of the Katrina evacuees, however, changed rather quickly.

In early September 2005 the local Houston population showed considerable support for the Katrina evacuees (Stiles and Mack 2005). The City of Houston and Harris County joined together to throw open shelters welcoming evacuees who had been transported from various staging areas in New Orleans after the hurricane, the breached levee walls and massive flooding of New Orleans. In a survey of Houstonians, 80 percent supported the efforts by the Mayor of Houston in housing the evacuees. Moreover, Houstonians were split about whether the influx of evacuees was good for Houston. Overall 27.7% indicated that if the evacuees remained in Houston, this would be a good thing. Another 30.9% indicated that it would be bad for the Houston area. African-Americans were split evenly, with 32.2% indicating that it would be good for the Houston area and the same percentage indicating that it would be bad.\(^3\)

In short order City and County officials, working with various relief agencies, moved evacuees from shelters and into hotels throughout the area. By late October and early November the evacuees were lodged in Apartment complexes throughout Houston and surrounding counties. An estimated 90,000 low income Katrina evacuees were housed in Houston.

\(^3\) These data are taken from a poll conducted by Dr. Robert M. Stein for the Houston Chronicle from Sept. 11-13, 2005. A total of 501 respondents were interviewed via telephone. Of these respondents, 115 self-identified as African-American.
Houston experienced an up turn in violent crime in December 2006 and January 2006. Several of the offenders were from New Orleans and the media was quick to predict that a crime epidemic was about to start. The evacuees received a great deal of attention and blame for what was being labeled as a “crime wave.” At the same time the City and County were worried about continued FEMA subsidies for evacuees living in Apartments. Numerous neighborhood associations began complaining about decreased property values in neighborhoods that were near Apartment complexes with large numbers of evacuees. By the spring of 2006 it was being widely reported that the evacuees were putting a strain on the City and citizens of Houston (e.g. (Steinhauer 2006)). This is reflected in a poll of Houstonians conducted in March 2006. Respondents were asked whether Houston will be better or worse off if Katrina evacuees remained. Bu now public opinion shifted, with 52.8% of Houstonians believing the city would be left worse off. African-Americans also shifted in their opinion with 53.3 percent believing the city would be worse off. Blacks and whites, alike, agreed that Houston’s increase in crime was due to Katrina evacuees (72.1% agreeing to the statement). By March the evacuees were regarded as a problem for the city.5

In short, this group of newcomers was viewed as a threat to many in Houston. That group was homogeneous along racial, educational and income lines. What is especially interesting to us is whether people of the same race and in similar educational and economic conditions, felt threatened. If so, did this manifest itself in ways suggested by Group Conflict Theory?

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4 See the conflicting accounts in different media outlets, e.g., Lee (2006) and Khanna (2006).
5 Data taken from the Annual Houston Area Survey conducted by Dr. Stephen Kleinberg, Rice University. The survey was conducted via telephone with a sample size of 754 (22.7% were African-American).
Hypotheses.

The prediction from Group Conflict Theory is straightforward. The dominant group is expected to oppose the minority as competition between the two groups is seen as increasing. This gives rise to the following hypothesis:

H1) individuals in dominant group will act to protect group interests, exhibiting group threat

In their discussion Bobo and Hutchings (1996) point out that feelings of competitive threat are particularly likely among those who “face unemployment, who are concentrated in low-status occupations, who have low incomes, or who face racially changing neighborhoods and workplaces, are most likely to feel threatened by competition from members of other minority groups… indicating a direct personal vulnerability to displacement, loss, or the imposition of costs of adaptation resulting from racial change in one’s social environment.” (p. 953). While Bobo and Hutchings (1996) are justified in pointing to the racial component of threat, it is not a necessary condition for the Group Threat hypothesis. Our interest, then, is with personal vulnerability due to an influx of equally poor, low-status individuals who are viewed competing for limited resources. Low-income Houston blacks, we argue, consider themselves the in-group, while low-income Louisiana blacks are considered as an out-group. We expect to find low-income black Houstonians feeling threatened by Katrina evacuees and responding by protecting their interests.

Group Threat & Prejudice

Although our primary concern is the extent to which Houstonians felt group threat from Katrina evacuees, we can also examine the relationship between group threat and prejudice. In the literature to date, there is a significant amount of theoretical ambiguity concerning the
relationship between these two concepts. Some scholars contend that prejudice leads to threat (Bobo and Hutchings 1996) whereas others contend that threat leads to prejudice (Dixon 2006; Dixon and Rosenbaum 2004). Because we are looking at two groups with the same racial composition, we can remove the effect of racial prejudice.

As Huddy and Sears (1995) argue, prejudice and realistic threat are competing explanations for opposition to racial policies. Specifically, they point out that these two explanations offer differing predictions concerning the attitudes that drive opposition to group-targeted policies. They explain that “the prejudice approach is based on the idea that such opposition originates from negative group affect or the endorsement of negative group stereotypes. However, realistic interest theories contend that opposition to group-targeted policies stems from the perception of real or perceived threat to one’s own or one’s group’s current standard of living, work opportunities, or children’s education,” (Huddy & Sears, 1995, p. 135).

The conceptual distinction between feelings of prejudice and threat seems particularly relevant to our discussion in that members of the same racial group can feel competitive threat with one another and act to protect their group’s interests. This feeling of threat may not be accompanied by prejudice against the out-group, something that is often conflated with concepts of threat in the literature.

As such, we also test competing hypotheses concerning the extent to which prejudicial behavior and threatened behavior are linked as opposed to independent phenomena.

\[ H2a) \text{ If prejudicial behavior and threatened behavior are linked, then we should observe evidence of both types of behavior when individuals feel threatened} \]
Support for H2a would not yield particularly surprising information since most of the literature contends that there is a link between prejudice and threat, although the causal direction between these two concepts remains unclear. The competing hypothesis is:

\[ H2b) \text{ If prejudicial behavior and threatened behavior are not always linked, then we should observe evidence of the presence of one of these behaviors in the absence of the other type of behavior, when individuals feel threatened} \]

Support for H2b distinguishes between these two behaviors. Either threatened feelings lead to threatened behavior but not prejudicial behavior or vice versa. It suggests that these two concepts that traditionally are assumed linked can exist independent of each other. Such a finding implies that threatened behavior alone does not necessarily require prejudice.

While our data do not allow us to conduct a full and definitive test of the relationship between these two concepts, as we discuss below, we are able to investigate whether feelings of threat manifest in threatened behavior as well as in prejudicial behavior or whether they are distinctly occurring phenomena.

**Data**

We use a controlled experiment that was conducted in the field. The experiment uses techniques from experimental economics asking subjects to allocate money between themselves and others. In this sense we measure behavior in which subjects bear costs for their actions. We
supplement the behavioral measures with a questionnaire that taps attitudes toward the out-group.

A convenience sample of 210 subjects was recruited from low income and public works housing in Houston in July 2006. These subjects were Houston residents and were selected to match a sample of Katrina evacuees living in Houston. The subjects were homogeneous along race, education and income. Table 1 provides an overview of the sample. For purposes of comparison, the same design was run on a sample of 363 Katrina evacuees conducted at the same time. Unlike many experiments that rely on homogeneous populations of students who are brought into the laboratory, this project went into the field to find the population. Care was taken to get a cross section of individuals living in public housing. As can be seen from the table, females are oversampled, but otherwise the sample fits our target group of poor, largely unemployed African-Americans.

Description of Experiments

We want to test both attitudes toward others as well as behavior toward others. To this end we rely on several experimental games that ask people to make monetary choices. In some choices a subject allocates money between himself and another, anonymous, person. In other settings the subject makes a choice that involves different groups. In all instances a subject’s decisions affect their own payoffs and the earnings of others.

Subjects participated in a number of different tasks in a fixed order in the experiment. Subjects were recruited in groups ranging from 9 to 20 and the session lasted approximately 90 minutes. A total of 12 sessions were run, with an average of 17.5 subjects per session. Subjects earned $35.00 on average for their participation. Unlike many experiments, subjects were not
brought into the laboratory. Instead the laboratory was brought to them. The sessions were conducted in a variety of public housing and low priced rental apartments in public spaces.

The general protocol for the experiment was as follows (the script for the experiment is given in Appendix 2). Participants first received a sheet of paper asking them to note their emotional state using 11 emotion words. Once these forms were collected the experiment began. Four distinct tasks were run: a dictator game; a dictator game elicitation; two multi-level public goods games; and a risk instrument. All tasks were conducted using paper and pencil and the same experimenter read from a fixed script. The tasks were performed in the same order. Once the decision tasks were completed, and while subjects were waiting for their payoffs, they completed a questionnaire asking about demographic information and eliciting attitudinal information. The following discussion details only the dictator game and the multi-level public goods game.

In the “dictator game,” subjects are given ten one dollar bills, ten green slips of paper, an envelope labeled SEND, and an envelope labeled KEEP. Subjects are told that they must place ten items in each envelope, whatever is put in the KEEP envelope they keep and whatever is put in the SEND envelope was sealed and that envelope went to either a Houstonian or a Katrina evacuee. Those recipients were not people in the same room. The SEND envelopes had either an orange or a green dot in the lower right hand corner and were randomly distributed. An orange dot indicated the envelope would be given to someone who had lived in Houston for a long time, while an envelope with a green dot would go to a Katrina evacuee. Once everyone made their decision, the sealed SEND envelopes were collected and participants were told to put the KEEP envelope to the side.

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6 For a discussion of the standard dictator game see Forsythe et al.(1994) or Camerer (2003). The variant used here has been employed by Bahry and Wilson (2006) and Whitt and Wilson (2007).
The multi-level public goods game was a bit unusual. The subject had a choice of allocating 10 tokens between three envelopes. The first envelope, labeled PERSONAL, was equivalent to a private good and the return rate was $.50 for each token they placed in the envelope. The second envelope, labeled HOUSTON, was equivalent to a contribution to the public good in which the marginal per capita rate of return was .5 units. Subjects are told they would be randomly remixed with three other people to make a new group of four. They received an equal share of whatever was put into the HOUSTON public good (with all tokens being doubled). Finally, there was a third envelope labeled EVACUEE. For this envelope the group of four Houston subjects were mixed with a group of eight Katrina evacuees. Whatever the group of 12 put into this third envelope was tripled (for a marginal per capita rate of return of .25) and everyone was given an equal share. This design, first used by Blackwell and McKee (Blackwell and McKee 2003), is a multi-level public good that enables us to focus on in-group and out-group investments in public goods.

Of course, it was nearly impossible to run these groups simultaneously. Consequently subjects were mixed with people who had previously made a decision but who were not in the room. Subjects not in the room had their decisions entered into a computer and they were matched via a randomizing algorithm. Subjects in the room made choices that affected their own payoffs and the payoffs of others who participated in future sessions.

Following the completion of the tasks, subjects were given a self-administered questionnaire. The questions not only tapped a variety of demographic characteristics for the

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7 An equivalent design was used for the Katrina subjects. Their four person group envelope was labeled “Evacuee” and the third envelope was labeled “Houston.” A group of four evacuees and eight Houstonians were combined to form the large out-group.
8 Approximately six percent of our subjects were functionally illiterate and the questionnaire and other items were read to them.
individual subjects, but also queried them about their experiences with and attitudes toward Katrina evacuees.

**Public Goods Game and Findings**

A one-shot public goods game is often used to measure the level of cooperation within a group. The structure of the game is such that each individual in the group has a private incentive to withhold contributing to the group. However, everyone is better off if everyone contributes to the group. The multi-level public good game creates a tension between individual interests and the interests of two other groups. While the private incentive for not contributing is still strong, the game now produces a problem for individuals when considering which group is likely to be most cooperative.

Dawes et al. (1986) and Simpson (2003) note that public goods games include both fear and greed. Greed underlies the private interests of subjects when not contributing to the group. But at that same time subjects may also fear being taken as a sucker if contributing when no one else does so. In the multi-level public goods game we use the difference between what is contributed to the in-group and what is contributed to the out-group as a way of sorting out fear of the two groups. If subjects are driven by fear of being a sucker, then less will be contributed to the out-group with Katrina evacuees than to the in-group with only Houstonians.

Overall we find that subjects contribute more to the out-group, which is the opposite of what we predict given Hypothesis 1. Figure 1 shows the distribution of what subjects kept in their private pool and what was contributed to the in-group and out-group pools. The figure shows that the distribution of tokens placed in the larger, out-group pool, shifts to the right. This means that more is being contributed to the out-group rather than the in-group. On average
subjects put 3.30 tokens in their private envelope. By comparison they put 3.01 tokens in the smaller in-group envelope and 3.70 tokens in the larger out-group envelope.\(^9\) Using a paired t-test it is clear that less is being put into the in-group envelope than into the out-group envelope \((t=-4.36, \text{ df}=209, p<.001)\). From these aggregate data it does not appear that subjects are responsive to threat.

\(<\text{Figure 1 About Here}>\)

**Dictator Game and Findings**

We also measure contributions in the dictator game. This experiment has been used to test altruistic behavior, norms of fairness and aspects of social preferences (see the discussions by Camerer (2003) and Camerer and Fehr (2004)). The dictator game is a one-stage game in which Player A decides how to allocate a sum of money between him/herself and a second person, Player B. The game is so named because Player A can “dictate” the outcome of the game without fear of what Player B might do. As such, Player A should keep all the money, transferring nothing to Player B. However, considerable research finds that subjects transfer a nontrivial sum of money to the corresponding Player B under a wide variety of experimental conditions.\(^{10}\)

While the public goods game directly taps group threat, the dictator game involves only two individuals, self and other. Accordingly, this game should reveal individual feelings of prejudice towards individual members of the out-group rather than feelings of group threat.

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\(^9\) It might be the case that subjects were only attentive to the marginal per capita rate of return (MPCR). The MPCR for the out-group was half that of the in-group. However, if this is the case, one would expect that there would be fewer contributions to the out-group than the in-group. This clearly was not the case. A second point is that Katrina evacuees behave opposite to the results reported here. Katrina subjects on average put 3.68 tokens in their private envelope, 3.29 tokens in the small in-group envelope and 3.03 tokens in the larger out-group envelope. Under a one-tail test, less is put into the out-group envelope than in the in-group envelope \((t=1.65, p=.05, \text{ df}=361)\). Consequently this is not an artifact of the experiment, but due to the choices by Houstonians.

arising from an invoked sense of group benefits. Others have used the Dictator game to capture the effect of ethnicity on norms of fairness. For example, Fershtman and Gneezy (2001) use it to calibrate fairness when analyzing trust behavior between ethnically mixed Israeli students. Bahry and Wilson (2004) use the dictator game to calibrate commitments to norms by different ethnic groups in Russia. Finally, Whitt and Wilson (2007) find that people who experienced a bloody civil war use ethnicity when allocating money in a dictator game. Although participants exhibit high levels of fairness toward one another, when a subject has strong prejudice about the out-group, allocations drop dramatically. We expect overt prejudice to be revealed in the allocation decisions collected here. In particular, we predict that out-group Katrina evacuees will be sent less than in-group Houstonians.

Finding evidence of prejudice in the dictator game in conjunction with finding no threat in the public goods game would suggest that the two concepts are not always linked. This would allow us to sort between the two competing corollary hypotheses concerning the relationship between group threat and prejudice.

Two points are notable from the dictator game. First, we find that Houstonians send a considerable amount of money to other people. Modally, subjects send half of their money to someone else (37.5 percent). On average $3.61 is sent (with a standard deviation of $2.52). While this amount is well above what is normally observed with student populations, it is not out of line with what non-student samples ordinarily send. For example, Whitt and Wilson (2006) find that Bosnians modally send about half in an equivalent experiment and Bahry and Wilson (2004) find an even stronger propensity toward equal splits in the Russian population.

The second finding is that there is a difference in what is sent to members of the in-group and to the out-group. However, that difference is opposite of what a “prejudice” model would
predict. Houstonians are likely to send more to Katrina evacuees than to their own in-group. On average $3.10 is sent to Houstonians while $4.17 is sent to Katrina evacuees ($t=-3.17, p>.999$ for a one tailed test that Houstonians receive more than Katrina evacuees). Figure 2 shows the difference in the distributions. While the modal choice was to send half, there is a large difference between what Houstonians sent to other Houstonians and what was sent to Katrina evacuees. Houstonians were more likely to keep everything when sending money to their in-group members. As well, Houstonians were more likely to send less than half to the in-group. By contrast Houstonians were much more likely to split $10 with Katrina evacuees (44.7 percent) than with Houstonians (30.5 percent). As well, almost 10 percent of Houstonians were willing to send either $9 or everything to Katrina evacuees, but were unwilling to do so for in-group members.

Overall, it appears that in the dictator game there is a positive out-group bias by Houstonians. As such neither the public goods game nor the dictator game provide support for the threat hypothesis or for the corollary hypotheses concerning the link between threat and prejudice. However, it may be premature to reach this conclusion. There is a good deal of evidence that charitable giving boosts contributions in the dictator game. For example Eckel and Grossman (1996) show that when charities are used, people are willing to send more. As well, Branas-Garza (2006) finds that when the target is labeled as poor, subjects react by giving more

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11 Given the discrete nature of the possible contributions, a more appropriate test might be a non-parametric Kruskall-Wallis test. Here too the differences between the two distributions is significant, chi-square=7.88, df=1, $p<.005$.

12 The Katrina subjects show the opposite pattern. They tend to send less ($3.28$ on average). Modally they also send half of their money (27.1% do so). Unlike the Houstonians, they send more to the in-group ($3.69$) and less to the out-group ($2.87$). This difference is statistically significant ($t=2.94$, df=360, $p<.01$).
(also see Holm and Engseld (2005)). While we conjecture that Katrina evacuees constitute a threatening out-group, at the same time, they also have charitable claims. These claims may overcome the prejudice that is often thought to accompany circumstances that may lead to feelings of threat.

It might be the case that subjects have mixed motives. We find that there is considerable heterogeneity in what these subjects choose to do. Some subjects may have enormous empathy for Katrina evacuees while others may feel threatened. We need to sort between different attitudes and we are able to do so using a post-experiment questionnaire. At the same time we use other individual-specific characteristics in order to test whether a group threat model has any merit.

**Multivariate Models**

In this section we focus on multivariate models that estimate what people did in the two tasks. The first dependent variable is a measure of bias in the public goods game. We use the difference between what was contributed to the in-group (Houston) pool and what was contributed to the out-group (Katrina) pool. This difference ranges from -10, which indicates a bias in favor of the out-group to +10 which indicates bias to the in-group. In the first instance a subject would put nothing in both the private envelope and the in-group envelope and put all 10 tokens into the out-group envelope. If the same amount is put in both the in-group and out-group envelopes, then there is no bias. Finally, if the difference is positive it means that more was put into the in-group rather than the out-group envelope. As is clear from the summary statistics noted in Table 2 there is a bias toward the out-group – a point already noted in the previous
section. Our second dependent variable involves the amount sent in the dictator game. This could range from $0 through $10.

Our main theoretical variable of interest concerns the perceived threat by Houstonians to the influx of evacuees. This is tapped by two items from the post-experiment questionnaire: one attributing an increase in the crime rate to Katrina evacuees and the other noting that resources given to Katrina evacuees should have gone to Houstonians (see Appendix 1). The items are given as statements and responses are in a 5-point Likert scale ranging from Strongly Disagree to Strong Agree. The items are summed and divided by the number of responses for each subject (Cronbach’s alpha=.55). A low score is interpreted as having little threat, while a high score indicates the subject feels threatened.

We control for a number of other variables. We noted above that Houstonians might regard Katrina evacuees as deserving. To account for charitable actions, we include a measure of the obligation that subjects felt toward Katrina evacuees. This is an item taken from the questionnaire (see Appendix 1) and is structured such that a low score means that subjects feel little obligation. We also introduce a control for whether the subject was employed (a rough proxy for need). We use employment rather than income because three-quarters of the subjects reported an income of less than $15,000. We also include controls for the sex and age of the subject. Others (Eckel and Grossman 1998; Bahry and Wilson 2006) have noted effects for both sex and age in a variety of bargaining games.

The first model, given in Table 3, uses OLS to estimate whether threat matters for contributions in the public goods game. The dependent variable measures the difference between what was put into the in-group and the out-group envelopes, it is approximately
normally distributed and is biased toward giving more to the out-group. In the model we find clear effects for threat and for obligation. Subjects who feel threatened by Katrina evacuees are likely to contribute more to their in-group. The positive coefficient indicates a larger number of tokens are put into the Houston envelope. By contrast, those who feel some obligation to the Katrina evacuees are less likely to put tokens into the Houston envelope. The negative coefficient indicates a bias toward the Katrina evacuees. None of the other controls have any impact on what subjects contribute. We next estimate a model for the dictator game. These results allow us to note that there is an effect for group threat, but only among those who feel threatened by Katrina evacuees.

<Table 3 About Here>

The second model, given in Table 4, estimates what subjects sent in the dictator game. Because the data are heavily censored, we use TOBIT. It is not surprising that the type of recipient matters for subjects. We have already shown that those who were paired with Katrina evacuees gave more. We find, however, that subjects who feel threatened by Katrina evacuees give less. At the upper bound of the measure (those who feel most threatened) there is a decrease of almost $2.35 – more than offsetting the charity bump.\(^{13}\) On the other hand we do not find any evidence that an obligation to Katrina evacuees makes any difference. The coefficient is negative, although insignificant. We find no other correlates with sending money in the dictator game. Those who are employed are likely to send a little more, but the effect is not significant. Neither the age nor the sex of the subject has any effect as to what is sent.

<Table 4 About Here>

\(^{13}\) It should be noted that these are main effects only. In other estimates, not reported here, there is no interaction between threat and being matched with a Katrina evacuee. At the same time, it is not the case that the threat measure is a proxy for distrust in government or some other attitude reflecting general alienation from politics. We included a variety of attitudinal measures as part of our check of the robustness of this model. None of those other measures detracted from the independent effect of threat.
Discussion

At best the two models provide weak evidence for group threat. The first model shows a weak effect for subjects who feel most threatened by the Katrina evacuees. Threatened subjects are likely to contribute less to the pool that includes the out-group. We regard our measure of bias as tapping a sense of group and find that it is related to a general feeling about the out-group. The second model provides weak evidence that prejudice and threat are not linked. While subjects are willing to send less when they feel threatened, they do not specifically target Katrina evacuees. In this decision they do not punish a specific (but unknown) evacuee for their sense of being threatened. The main effects for a Katrina evacuee work opposite of what might be expected, there is a main effect for feeling threatened, and there is no interaction effect between the two. This means that those who are threatened are not targeting Katrina evacuees.

We speculate that Houstonians who feel threatened by Katrina evacuees behave as they should in the public goods game, but they did not act in a prejudicial manner in the dictator game. This supports the claim that economic considerations and protecting group interests can lead to threatened behavior and this can be independent of prejudicial feelings.

These findings also suggest that many of the strong findings about group threat are derived from racial animosity and not purely economic considerations. In this study we have controlled for race and income through our experimental protocol. We have given group threat its best shot by asking a low income group to make costly decisions with another low income group. The Katrina evacuee group is viewed as a group making claims on resources that might be available for others. As such they pose a threat.
What is surprising from these findings is just how weak the effect of threat is for our low-income sample. This is a group of people at the margin of society, that are living in public housing and whose income and educational levels are quite low. They are a group that heavily depends on limited federal, state and local resources. When those resources are seen as being diverted to another group, this ought to be a group that is threatened. Yet what we find is that this group is generous toward the out-group. At the same time they are willing to join with the out-group in provisioning the public good. It appears that only those who feel most threatened pull back their contributions. That this behavior is not more widely shared indicates the weakness of the threat findings.

Clearly there is additional work to be done. We find some evidence that suggests disentangling race and ethnicity from threat is important. It might well be that prejudice is necessary in order to instill group threat in the sense that Group Conflict Theory has conceptualized the problem. If so, then researchers must pay careful attention to what is measured and how it is measured. To this end we need careful measures of concepts relating to prejudice and stereotyping in order to understand the sources of threat.
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Table 1. Demographic Characteristics of Houston Subjects.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Houstonian Sample</th>
<th>Katrina Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lived in Houston 20 or more years</td>
<td>83.5%</td>
<td>0.0%</td>
</tr>
<tr>
<td>Renter</td>
<td>94.7%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Average Age</td>
<td>40.5</td>
<td>39.3</td>
</tr>
<tr>
<td>Percentage Female</td>
<td>66.3%</td>
<td>54.6%</td>
</tr>
<tr>
<td>Percentage African-American</td>
<td>99.2%</td>
<td>96.1%</td>
</tr>
<tr>
<td>Percentage with Income Less than $15,000</td>
<td>74.6%</td>
<td>73.9%</td>
</tr>
<tr>
<td>Percentage Full Time Employed</td>
<td>22.0%</td>
<td>11.8%</td>
</tr>
<tr>
<td>Percentage High School Diploma or less</td>
<td>70.0%</td>
<td>64.8%</td>
</tr>
<tr>
<td>Number of Subjects</td>
<td>210</td>
<td>363</td>
</tr>
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</table>
Table 2. Descriptive statistics of variables used in the models.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount Sent in Dictator Game</td>
<td>209</td>
<td>3.61</td>
<td>2.52</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Bias in Public Goods Game</td>
<td>210</td>
<td>-.68</td>
<td>2.28</td>
<td>-10</td>
<td>8</td>
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<tr>
<td>Threat Measure</td>
<td>204</td>
<td>3.98</td>
<td>.98</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Target in Dictator Game (0=Houstonian 1=Katrina)</td>
<td>209</td>
<td>.50</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Obligation Measure</td>
<td>204</td>
<td>3.52</td>
<td>1.34</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Employed (1=Yes)</td>
<td>207</td>
<td>.43</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Age</td>
<td>202</td>
<td>40.92</td>
<td>14.89</td>
<td>18</td>
<td>82</td>
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<tr>
<td>Sex (0=Female 1=Male)</td>
<td>205</td>
<td>.33</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Variable</td>
<td>Coef.</td>
<td>Standard Errors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------</td>
<td>-----------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threat Measure</td>
<td>.34*</td>
<td>(.18)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obligation Measure</td>
<td>-.32***</td>
<td>(.12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed (1=Yes)</td>
<td>.42</td>
<td>(.34)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Age</td>
<td>-.01</td>
<td>(.01)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sex (1=male)</td>
<td>.08</td>
<td>(.36)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-.54</td>
<td>(.99)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj. R²</td>
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<td></td>
<td></td>
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<tr>
<td>N</td>
<td>195</td>
<td></td>
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</tr>
</tbody>
</table>

Note: * p<.10, ** p<.05.
Standard errors are in parentheses. The dependent variable is the difference in number of tokens contributed to a group of Houstonians versus a group mixed with Katrina evacuees. Values range from -10 to 8, positive values indicating a Houston/ingroup bias.
Table 4: Model 2 -- Tobit regression for the amount sent in the Dictator game.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target (1=Katrina)</td>
<td>1.14***</td>
</tr>
<tr>
<td></td>
<td>(0.45)</td>
</tr>
<tr>
<td>Threat Measure</td>
<td>-0.47**</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
</tr>
<tr>
<td>Obligation Measure</td>
<td>-0.16</td>
</tr>
<tr>
<td></td>
<td>(0.17)</td>
</tr>
<tr>
<td>Employed (1=Yes)</td>
<td>0.56</td>
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<tr>
<td></td>
<td>(0.46)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.01</td>
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<td></td>
<td>(0.02)</td>
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<tr>
<td>Sex (1=Male)</td>
<td>0.37</td>
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<tr>
<td></td>
<td>(0.48)</td>
</tr>
<tr>
<td>Constant</td>
<td>5.43***</td>
</tr>
<tr>
<td></td>
<td>(1.39)</td>
</tr>
<tr>
<td>Sigma</td>
<td>3.01</td>
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<tr>
<td></td>
<td>(0.19)</td>
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<tr>
<td>Pseudo R²</td>
<td>0.02</td>
</tr>
<tr>
<td>N</td>
<td>193</td>
</tr>
</tbody>
</table>

Note: * p<.10, **p<.05, ***p<.01.
Standard errors are in parentheses. The dependent variable is the amount of money sent, ranging from 0 to 10.
Figure 1. Distribution of contributions for the multi-level public goods game. The first panel displays contributions to the private pot, the second displays contributions to the large group, including out-group members and the third panel displays contributions to the in-group.
Figure 2. Distribution of money sent in the Dictator game by Houstonians. The left panel indicates what is sent to Katrina evacuees and the right panel is what is sent to Houstonians.
Appendix 1

Questionnaire Items

Wording for “threat” items:

Crime – “The crime rate seems to have gone up since so many people moved to Houston after Hurricane Katrina”

Resources – “Hurricane Katrina evacuees have taken resources that should be devoted to Houstonians”

Wording for “obligation” item:

“The people of Houston have an obligation to help Katrina evacuees,”

Five Response categories ranging from 1= Strongly Disagree to 5= Strongly Agree
Appendix 2

*Coordinator’s Script – Paper-and-Pencil Version*

**BEFORE THE SESSION**

1. Coordinator fills out “context sheet”.
2. Coordinator prepares consent forms.

**CHECK-IN**

1. Check-in. Coordinator will pass out consent forms.
2. Coordinator hands respondents who agree to stay their ID numbers.

**INTRODUCTION.**

Welcome. Thank you for coming today. My name is ***. You will have an opportunity to receive money based on a number of different decision tasks.

Before we begin there are several rules I would like you to keep in mind:

1. First, you should not talk with one another or look at anyone else’s work.
2. Second, please listen to all instructions that I give you. This is very important. If you follow the instructions carefully you can make a considerable sum of money.
3. Third, we will be handing out many different forms to you. Please do not begin filling out or looking at those forms until I ask you to do so.
4. Fourth, please turn off your cell phones.
5. Finally, you received stickers of the same ID number on them. Keep your stickers handy because you will be using them a great deal.

Now, let me tell you a little about this research project. We are interested in the ways in which people make different decisions about money. We are going to ask you to make decisions about money. Some decisions will involve only yourself. And some decisions will involve you and other people from.

This is a project involving people from Rice University and sponsored by the National Science Foundation. Several people are helping me with this research including: <name everyone and have them acknowledged.>

You will participate in a number of different tasks. In many of these tasks, you will decide how to allocate money. The money you allocate to yourself will be yours to keep.

Do you have any questions?

<If there are questions, refer to the sheet. Most questions will be answered by stating that full instructions will be given later.>
**Task 1 – Emotion Inventory**

<Assistant hands EMOT. Once filled out, the Assistant collects each sheet and checks to make certain that the Respondent’s ID number is attached to the upper right corner. Items are handed over to the record keepers. Items should be 3-hole punched and placed in that session’s binder.>

First, we would like you to answer a few questions about yourself. A sheet of paper has been passed out. The first thing you will need to do is to take one of your ID stickers and put it in the upper right corner of the paper. <Illustrate this> Next, please read each item and check your answer. Please check one box only to each question. You will see that the first word is INTERESTED. You have 5 different responses across the row: “Slightly or not at all,” “A Little,” “Moderately,” “Quite a bit,” and “Extremely.” When you are finished, turn the paper over and put the pen on top. When everyone is finished, we will pick up the sheet of paper.

**Task 2 – DG 1**

Your second task is to decide how to allocate a sum of money between yourself and someone else who is not in this room. You are going to receive 2 envelopes, 10 one dollar bills, and 10 blank slips of paper. You will decide how to allocate the money and the slips of paper between yourself and another person. To ensure your privacy there is a screen in front of you in which you can do your work. Remember please keep your decisions private.

<Assistant gives each respondent an envelope marked “KEEP,” an envelope marked “SEND,” 10 one dollar bills and 10 blank pieces of paper.>

You will see that there are two envelopes. One is labeled “KEEP” and the other is labeled “SEND.” Please take a look at your materials and make certain you have 10 bills and 10 slips of paper. I want you to put 10 bills and/or slips of paper in the envelope labeled “KEEP” and the remaining 10 things in the envelope labeled “SEND.” You will keep whatever you put in the “KEEP” envelope. Whatever is put into the “SEND” envelope will be given to another person who is not in this room. You may allocate the money and slips of paper in any way that you please.

<pause for a little bit>

Before you make your decision I want you to put your ID sticker in the upper right corner of the “send” envelope. You will also notice that your “SEND” envelope has a blue or a red dot on it. If you have an ORANGE dot then your envelope will be given to a person living in an Apartment in Houston but who is not a Katrina evacuee. The person will be someone who has lived in Houston for a while. If you have a GREEN dot then the envelope it will be given to a Katrina evacuee living in an Apartment in Houston.
You can do anything you wish. This means any mix of dollars and slips of paper. Just remember that each envelope must have 10 things in it. It may have any combination of bills and paper slips. Also keep in mind that whatever you put in the “SEND” envelope will be given to someone else who is not in this room. Remember if you have a ORANGE dot it will be given to a Houstonian. If you have a GREEN dot it will be given to a Katrina evacuee. Please decide how to allocate the money and the slips of paper. When you are done, seal the “SEND” envelope and put it on top of your box. You may put the “KEEP” envelope beside you on the table. It is yours to keep. Please begin. If you have any questions, please raise your hand and I will try to answer your question in private.

<Wait until everyone is finished. Assistant picks up the “SEND” envelope from each respondent. While doing so, make certain the subject’s ID is in the upper right corner of the envelope. If not, have them do so. The envelopes should be handed to the record keepers.>

**DG 2.**

The next task is somewhat different. You are going to receive an envelope from someone else who previously did the same task that you just completed. You will keep the contents of the envelope. However, please do NOT open the envelope until we are finished here today. You can pick up the envelope and look at it. You will now be given your envelope and a sheet of paper.

<Assistant gives each respondent two things, an envelope and form DG2. The envelope is labeled “send” just like the envelopes that were picked up in the earlier decision. There will be a sender number in the upper right corner. Form DG2 asks respondent to predict how much is in the envelope. The envelopes will have either EVACUEE or HOUSTON on them.>

Now that you have the materials, I would like you to first put an ID sticker on the upper right corner of the sheet. You will see from your envelope that there is a GREEN sticker. This means that it was sent to a Katrina Evacuee. We have put another label on top of the sticker indicating whether an Evacuee or a Houstonian put material into the envelope. I would like you to circle on your sheet of paper whether your envelope came from an Evacuee or from a Houstonian. Then I want you to predict how many dollars you think the other person left in the envelope. Just give us your best guess. Please check one box.

Do you have any questions? If so, I will come around and answer them individually. Once you have finished filling out your sheet of paper, please put it on top of your box. It will be collected when everyone else is finished. You may keep your envelope, but please do not open it.

<Assistant picks up Form DG2 from each respondent. Make certain EVACUEE or HOUSTON is checked and the ID of the predictor is in the upper right corner. Check that only one answer is given on the prediction sheet. Give the prediction sheets to the record keepers who 3 hole punch the sheets and put them in the binders.>
Task PPG

We are now switching to a different task. In this task you are going to be asked to make decisions with other people. Some will be Houstonians (but probably not people in this room) and some will be with Katrina EVACUEES. Many people have already made their decisions and your choices, and the choices by others, will be matched on a computer when you are finished. You will be paid in cash at the end of this research for the decisions that you and the people you have been matched with made.

All of the decisions are similar, so please pay attention to these instructions. At the outset of each decision you will be given 10 colored tokens. Everyone will get the same materials that you get. It will be important to keep in mind that tokens are worth <$.50> each to you.

Again, keep in mind that you are being matched with other people (some of whom are Houstonians and some of whom are Katrina evacuees). What those people have decided to do and what you will decide to do affects how much you can make. When your decisions are submitted, they will be matched using our computer to calculate your payments.

After a pause, begin the instructions...

Your task is to decide how you want to allocate your tokens between different envelopes. You will have several options, sometimes two and sometimes three. Here I will explain the simplest decision where there are only two ways to allocate your tokens.

PPG ONE.

In first decision you will be given 10 tokens, and you can put your tokens into your “Personal” envelope or into your “Houston” envelope. The number of tokens you put into any envelope is entirely up to you.

What’s the difference between the envelopes? Whatever you put into the “Personal” envelope is yours and will not be shared with anyone else. As mentioned before, for every colored token you put into that envelope is worth $.50 to you regardless of the other people’s decisions. Now, what about the Houston envelope? Any colored tokens that you and three other people put into your Houston envelopes will be doubled by me. You and the other three people will get an equal share of that amount.

Where do these three other people come from? As I mentioned, you are going to make this decision with 3 other people. They are probably not in this room, but they are Houstonians like yourself. I do not know which people you will make decisions with because you will be mixed with lots of other people in order to make a group of four. All of the people you are mixed with are Houstonians.
At this point the local helper should begin passing out the materials (including the example sheet for Decision 1). This material should all be bundled together, except for the comprehension sheet, to make it easy to pass out.

I am now going to pass out your materials. You should have an envelope marked “Personal” and an envelope marked Houston. You should have 10 green tokens (each of which are worth $.50 to you and everyone else). Your tokens are in your “Personal” envelope. Please take them out and count them to make certain you have 10.

The first thing I would like you to do is take two stickers off your ID card and put it on the upper right corner of both your envelopes. Please make certain you do this. This is the only way we can make certain you will be paid.

At this point the experimenter can demonstrate how this is done on a blank envelope.

Before you make your decision, I want to make certain you understand how you get paid. Please make certain you know exactly how you can receive money. You will be paid based on the decisions that you and the others you are mixed with make.

Once I am finished with the examples you will make your own decision about how many green tokens you will put in your “Personal” envelope and how many tokens you will put in your Houston envelope.

Please follow along with the examples that have been handed out to you. For example #1, suppose that you put 10 green tokens in your “Personal” envelope and the other three people put a total of 12 red tokens in their Houston envelopes. In that case, the 12 tokens in the Houston envelopes will be doubled (to 24) and shared equally among you and the other three people (6 each).

**Example 1**

You put 10 green tokens in your “Personal” envelope. Others put a total of 12 red tokens in their Houston envelopes. Those Houston envelope tokens are doubled and you get an equal share.
You would then receive a total of 16 tokens: 10 from your personal envelope that you kept, and 6 from your share of the Houston envelopes; given that there were 12 green tokens in the Houston envelopes, that amount would be doubled to 24 by me and you would get an equal share, which is 6 green tokens. You would end up with 16 tokens worth $8.00. Is anyone uncertain about how this happens?

To take another simple example (#2) suppose you put 8 of your green tokens in the Houston envelope and no one else put any green tokens in the Houston envelope. What would you receive? If you like you can write in the blanks on the example.

**Example 2**

You put 2 green tokens in your “Personal” envelope. Others put 0 green tokens in their Houston envelopes.

![Diagram](https://via.placeholder.com/150)

Wait while participants make calculations; look around to see if they are attempting to come up with the answer; encourage someone to give an answer.

You would receive a total of 6 tokens. First you would have 2 green tokens in your “Personal” envelope. Given that there were 8 green tokens in the Houston envelopes (all put there by you) that amount would be doubled to 16 and you would get an equal share, which is 4 green tokens. The other people in Houston group also get 4 green tokens. You would end up with 6 tokens worth $3.00.

*At this point pass out the comprehension sheet.*

A sheet is being handed out to you with three questions on it. Please do not answer the questions until I read them aloud.

*When the sheets are handed out, begin the instructions.*

Before you do anything, please remove one of your stickers and put it in the upper right hand corner of the sheet that was just handed out.

*Pause until everyone has done so.*
I am going to read the questions one at a time. Please check the answer you think is most appropriate. When everyone is done I will read the answers.

1. What happens when a green token is put into the Houston envelope? (Nothing; The token is cut in half; The token is doubled; The token is tripled)

2. How many people, including you, are in the Houston group? (Two people; Three people; Four people; Five people)

3. Everyone gets an equal share of the Houston envelope. (True or False?)

Pause until everyone is finished. These sheets will be collected with the envelopes.

Now that you are done, I will read the answers.

1. What happens when a green token is put into the Houston envelope? The green token is doubled and your get an equal share along with the other people in the Houston group.

2. How many people, including you, are in the Houston group? There are a total of four people in the local group. This includes you. This means each of you will get a one-quarter share of the green tokens that are put into the Houston envelopes and doubled.

3. Everyone gets an equal share of the Houston envelope. This is true – everyone gets an equal share.

Now it is time for you to make your decision. You can put any combination of tokens into the 2 envelopes. Remember that the green tokens you put into your “Personal” envelope are yours and will not be divided among any others. Whatever you and the three other people from around this area put into the Houston envelopes will be doubled. Each of you will get an equal share of that amount. Please make your decision and then place the envelopes on your [box/desk]. DO NOT seal the envelopes. My assistant will come around and collect your envelopes and all your materials. The assistant will check to make certain you have put your ID number in the upper right corner of your envelopes. When you have finished put your envelopes on top of your [box/desk] so we will know you are finished. If you have any questions please raise your hand.

The envelopes will be collected. The assistant should double check each envelope to make certain that it has an ID number attached to it. The comprehension sheet should also have an ID on it. If not, ask the subject to do it before the envelopes are placed in the box. Also collect any other materials from the subjects.

Take the envelopes outside the room. The counter should open the envelopes and enter and record the number of red tokens for each subject. The data for each participant’s choices and payment should also be entered onto the session spreadsheet.
Now that everyone’s decision has been made, the envelopes will be matched with other people and how much money you receive will be calculated. It will take a while to do this. At the end of the session you will be given an envelope with your payment.

**PPG TWO.**

You have now finished the first decision. The second decision is slightly different, so please listen very carefully. In this decision you will have 10 blue tokens and 3 envelopes. Once again you will be paid $.50 for each blue (colored) token.

In this decision you will be randomly mixed with different groups of people. The first group will be similar to the first decision. You will be mixed with three other people who are from Houston. It is very likely that this will be three different people than the first time. The second group will be composed of 12 people. It will include three people from Houston, plus two other groups of four people who are Katrina Evacuees.

As with the first decision, the blue tokens you put in your “Personal” envelope will be yours and not divided with anyone else. Second the blue tokens you and the others put into the Houston envelope will be doubled and you will get a 1/4 share from the Houston group. Finally you have an Evacuee envelope. The blue tokens that all 12 people put into those envelopes will be tripled. You will get an equal share of the tripled amount.

*The assistant hands out the bundle of materials (including the example sheet for Decision (2); Ss each get a bundle.*

Your task is to put 10 tokens in the envelopes. You can put them in any combination that you please. My assistant will now hand out these materials. You should get 10 blue tokens (which are worth $.50 each) and 3 envelopes. Your tokens are in your “Personal” envelope. Please take them out and count them to make certain you have 10.

Please remove an ID sticker and put one on each of the three envelopes. Please do this now and make certain it is in the upper right corner.

Please follow along with the examples that have been handed out to you. For example 1 suppose you put 10 blue tokens in your “Personal” envelope, others put 10 blue tokens into their HOUSTON envelopes and 12 blue tokens were put into the EVACUEE envelopes. How much would you receive?

*Example 1*
You put 10 blue tokens in your “Personal” envelope. Others put a total of 10 blue tokens in their HOUSTON envelopes. Finally, 12 blue tokens are put in the EVACUEE envelopes. Those EVACUEE envelope tokens are tripled and you get an equal share.
This is a little complicated, but is easy to figure out. First you would get 10 tokens from your “Personal” envelope. Second you would get 5 tokens from the HOUSTON share (the 10 tokens would be doubled and your share is 5). Finally you would get 3 tokens from the EVACUEE share (the 12 tokens would be tripled to 36 and divided by 12, you get 3). Your total is 18 blue tokens and for that you would receive $9.00. Note that every other member of your HOUSTON group would get 5 tokens from the HOUSTON share and 3 from their share of the EVACUEE one, but the total tokens received by each of them would depend on the number of tokens allocated to the Personal envelope.

Here’s another example (#2). Suppose you put your 10 blue tokens in the EVACUEE envelope and 2 other tokens were put into the EVACUEE envelope. No tokens were put into the HOUSTON envelopes. How much would you receive? Go ahead and write on your example if you would like.

**Example 2**

*You put 0 blue tokens in your “Personal” envelope. Others put 0 blue tokens in their HOUSTON envelopes. Finally, 12 blue tokens are put in the “EVACUEE” envelopes.*

Pause and wait for participant to come up with an answer...
You would get nothing from your “Personal” envelope. Because no one else put anything into their HOUSTON envelopes you would get no share from that. Finally, the 12 blue tokens in the EVACUEE envelopes would be tripled and your share would be 3 tokens. You would receive $1.50.

Now it is time for you to make your decision. You can put any combination of tokens into the 3 envelopes. Remember that the blue tokens you put into your “Personal” envelope are yours and will not be divided among any others. Whatever you and the three other people put into the HOUSTON envelopes will be doubled. Each of you will get an equal share of that amount. Whatever you put into the EVACUEE envelope will be tripled. You and 11 others will get an equal share of that amount. Please make your decision, DO NOT seal the envelopes and put the materials on top of your [desk/box]. My assistant will come around and collect your envelopes. The assistant will check to make certain you have put your ID number in the upper right corner of all three of your envelopes. When you are finished, please put all of your materials on top of your [box/desk].

The envelopes will be collected and the assistant should double check each envelope to make certain that it has an ID number attached to it. If not, ask the subject to do it before the envelopes are collected. Collect all materials.

The envelopes should be taken outside the recorder should open the envelopes, enter and record the decision for each subject. The group total and the Ss share should be filled out on the decision slip and the session log.

Now that everyone’s decision has been made, the envelopes will be matched with other people and how much you money you receive will be calculated. It will take a while to do this. At the end of the session you will be given your payment in an envelope.

**Task – EG**

In this new task you will not be making money allocations for you and other people. Instead you will make a choice that matters only for yourself.

In this task you will be given a sheet with 6 different choices. Each choice has two possible outcomes and each has an even chance of occurring. Your earnings are determined by (1) which of the six choices you select and (2) whether you draw a red chip or a blue chip.

We will now hand out the form you will use to make your choice. Please look at it when you get it.

<The assistant hands out form EG.>
Take a look at the form. Before you do anything, please put an ID sticker in the upper right corner. Now, suppose you picked choice #5 and you draw a red chip. How much would you earn? You would earn $55. If you draw a blue chip you would get -$5. This amount will be subtracted from your earnings. Now, suppose you picked choice #2 and you draw a red chip. How much would you earn? You would earn $25. If you draw a blue chip you would get $10. This amount will be added to your earnings. The same is true for the other choices.

There will be 10 blue chips and 10 red chips dropped into the hat. You will make your choice on the paper and then draw a chip. There is a fifty-fifty chance of getting one of the outcomes in each row.

<Display the chips and drop them into the hat.>

Please mark your choice.

**Task – Questionnaire.**

While you are waiting for the decisions to be matched, we are handing out a questionnaire. Please put your ID sticker in the upper right hand corner. Go ahead and fill it out. While you are doing so, I will come around to each of you and let you draw a chip from the hat. This will determine how much you earn for the last task. At the same time the record keepers will be working to make the matches and pay you for your previous tasks.

<Go around to a person at a time. First do the 10 red/10 blue draw. Circle the outcome either R or B on the EG form and pick it up. At the same time collect signatures on receipt forms. The Assistant should take this back to the record keepers, who will record how much was earned/lost. This amount should be added/subtracted from the amount they’re being paid.>

**Task -- DONE**

I want to thank everyone for your participation. The tasks that you engaged in here are valuable for our research. We are interested in how people make decisions when they have gone through a disaster like the one you experienced.

Once you receive your last envelope you are free to leave. That envelope will have money in it from the two tasks where the tokens went into different envelopes and money that has your earnings from the Blue/Red chip draw. Please take all of the envelopes that have money in them. You can open the envelopes once you leave. Please open them in private. Please leave all of the other materials here.

Your payment from the last task is being returned to you in an envelope. Please do not open it, but put it over to the side.
An envelope will have been prepared for PG and the gamble. These should be filled with the appropriate cash or some slips of paper. As well, there will be a slip of paper announcing whether the allocation was accepted or rejected. The Assistant passes out the envelopes, matching them to each respondent by respondent’s ID number marked in the upper right corner.