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4 **COMPARING STUDENTS TO**
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6 **WORKERS: THE EFFECTS OF SOCIAL**
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8 **FRAMING ON BEHAVIOR IN**
9
10 **DISTRIBUTION GAMES**

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17 **ABSTRACT**

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19 *To investigate the external validity of Ultimatum and Dictator game behavior*
20 *we conduct experiments in field settings with naturally occurring variation in*
21 *“social framing.” Our participants are students at Middlebury College, non-*
22 *traditional students at Kansas City Kansas Community College (KCKCC),*
23 *and employees at a Kansas City distribution center. Ultimatum game offers are*
24 *ranked: KCKCC > employee > Middlebury. In the Dictator game employees*
25 *are more generous than students in either location. Workers behaved distinctly*
26 *from both student groups in that their allocations do not decrease between*
27 *games, an effect we attribute to the social framing of the workplace.*

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30 **1. INTRODUCTION**

31 It is widely acknowledged among experimentalists that the framing of interactions
32 in the laboratory can have significant effects on subjects’ behavior. People often
33 follow different norms and rules for behavior in different social contexts, and how
34 they behave in the laboratory may depend on their beliefs about which social
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1 context most closely corresponds to the experimental situation. Experimentalists
2 have typically explored the effect of framing by varying the verbal cues given in
3 the descriptions of games, holding constant the underlying payoff structures. But
4 such verbal cues are not the only factor that shapes subjects' beliefs about which
5 set of behavioral rules should be invoked. Subjects' beliefs are also influenced
6 by the real-life social context in which the laboratory is embedded – by their
7 relationship to the people they are playing against and to the experimenter and
8 by the set of norms and habits that dominate the cultural life in the institution in
9 which the experiment is carried out. We refer to this broader set of influences as
10 the *social framing* of the experiment, distinct from the *verbal framing* given in the
11 experimenter's verbal description of the game.

12 The vast majority of economic experiments have had one particular social
13 framing: the subjects are college students, playing against other college students,
14 in a laboratory on campus. The ability to randomize subjects into treatment and
15 control groups and to hold the experimental environment constant (or very nearly
16 constant) has enabled experimenters to draw internally valid conclusions about
17 the causal effects of different experimental procedures.¹ But because experiments
18 have tended to be limited to a particular subject pool in a particular social context,
19 the extent to which their results generalize to other groups of people in other social
20 contexts – the *external validity* of the experiments – remains open to question.
21 One way to explore the external validity of experiments is to examine the extent
22 to which results are robust to variations in changes both in the characteristics of
23 subjects and in the social framing of the experiments.

24 In this paper, we explore the external validity of experimental results in two
25 simple bargaining games, the Ultimatum Game (UG) and the Dictator Game (DG),
26 by comparing experiments conducted with the standard social framing – among
27 undergraduates at Middlebury College, a small liberal arts college in Vermont –
28 to experiments with identical procedures conducted in the field environment of
29 a workplace – a publishing distribution warehouse in Kansas City, Kansas. We
30 expect the social framing of the workplace to have a quite different effect on
31 subjects' behavior than the social framing of the college campus, controlling for
32 individual characteristics. Workers in the distribution center see each other every
33 day, often work together in teams, and can expect to continue working together for
34 long periods of time. Students, even on a small tight-knit campus like Middlebury,
35 are more likely to be in competition for grades, are likely to have less frequent
36 interactions, and know that their time together on campus is limited.

37 A thorny issue in comparing experiments in the two settings is that the
38 experiments may differ along two dimensions: both the social framing and the
39 individual characteristics of subjects may vary. This means that differences in
40 behavior may be attributed to cultural or national differences when they are really,

1 at least partially, attributable to differences in the demographic characteristics
2 of the participant populations (e.g. age or income). To estimate separately the
3 effect of social framing from the effect of differences in individual characteristics,
4 we conducted a third round of experiments at Kansas City Kansas Community
5 College (KCKCC), a junior college near the warehouse. The advantage of KCKCC
6 is that the social framing is similar to that of Middlebury, while the observable
7 demographic characteristics of the participants are similar to those of employees
8 in the distribution center.

9 Our results indicate that proposers in the UG in the two experiments in Kansas
10 City made more generous offers than proposers in the experiment at Middlebury,
11 even controlling for differences in demographic characteristics. This result is
12 consistent with the hypothesis that regional differences (for example, variations
13 in regional cultural norms) affect behavior; we refer to this as the “Kansas City
14 effect.” We also find that our KCKCC students offer significantly more than our
15 KC workers in the UG, while in the Dictator game, the employees allocated more
16 than the students in either location. Perhaps most distinctive is that both groups
17 of students exhibit a large drop in mean allocations between the UG and DG
18 experiments, while the workers offer the same amount, on average, in both games.
19 Together, these facts suggest that social framing matters.

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2. RELATED WORK

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Interest among economists in framing was stimulated by the work of Daniel Kahneman and Amos Tversky, who noticed that responses to decision problems depended on whether the problem was framed in terms of losses or gains. This recognition later became a component of prospect theory (Kahneman & Tversky, 1979, 2000). Subsequently, this work led to a standard way of looking at differences in the framing of choice problems in the experimental lab. A common subject pool was presented the same problem, but with distinct frames, and then the results were compared for framing effects.

This basic method has been applied in many areas of experimental and behavioral economics. Abbink and Hennig-Schmidt (2002) find no difference between a neutrally worded treatment of a bribery game and a contextualized treatment of the same game. Many experiments on the effect of framing have been conducted in the context of a voluntary contribution game. Elliott et al. (1998) conduct a two stage experiment in which the first stage frames the free riding problem in terms of autonomous business standards or teamwork and the second stage is a voluntary contribution game. They show that cooperative work frames elicit more cooperation. In the dictator game, Eckel and Grossman (1996) find that

1 subjects behave more generously toward a partner described as the Red Cross than
2 a partner described as an anonymous student. In the ultimatum game, Hoffman
3 et al. (1994) show that changing the instructions so that participants are called
4 buyers and sellers (i.e. adding a market frame) significantly reduces offers. Other
5 related experiments include Willinger and Ziegelmeyer (1999), Park (2000), and
6 Cookson (2000).

7 A small number of studies have examined the results of particular games across
8 different subject populations in different real-life social contexts. Murnighan and
9 Saxon (1998) conduct ultimatum games with children of different ages. They
10 find that young children behave more fairly than older children when proposing a
11 distribution, but were less likely to enforce fairness norms when offered a small
12 amount. The authors conclude that small children have a keener sense of fairness
13 and are less competitive than older children and many adults. Carter and Irons
14 (1991) show that economics students offer less and are willing to accept less
15 in the UG; according to the authors, this result may be explained by the fact that
16 more self-interested students study economics. In perhaps the most comprehensive
17 study, Henrich et al. (2001) conducted ultimatum games in 15 different small-scale
18 communities in developing countries. They found significant variation in behavior
19 across communities, more variation than is typical in cross-population studies in
20 industrialized countries (e.g. Roth et al., 1991).² A small related literature has de-
21 veloped on using simple experiments to measure behavioral norms or propensities
22 across cultures or communities (e.g. Camerer & Fehr, 2001; Carpenter, 2002).

23 24 25 **3. EXPERIMENTAL PROCEDURES** 26

27 Our instructions and survey appear in the appendix. What follows is a brief
28 description of our methods. In the Ultimatum Game (UG), first discussed in Gueth
29 et al. (1982), one person is designated as the first-mover or proposer and another as
30 second-mover, or responder. The proposer proposes a split of a sum of money given
31 by the experimenter, and the responder can accept or reject the proposer's offer. If
32 she accepts, the offer is implemented; if she rejects, both players receiving nothing.
33 If both proposer and responder were motivated only by monetary payoffs and this
34 were common knowledge, then the proposer would know that the responder would
35 accept any positive offer and hence would offer the smallest possible amount. A
36 series of experiments have shown that results do not conform to this subgame-
37 perfect prediction. Proposers tend to send significantly more than the minimum
38 positive amount, and responders tend to reject low offers (Binmore et al., 1985;
39 Gueth & Tietz, 1990; Gueth et al., 1982). Typically the modal offer in the UG is a
40 50–50 split.

1 There are two popular explanations for the fact that proposers offer significantly
 2 more than the smallest positive amount. One is that the proposers have non-
 3 selfish preferences and are concerned with the outcomes of the responders. The
 4 other is that the proposers have selfish preferences, but are afraid that responders
 5 will spitefully reject low offers. The Dictator Game (DG), developed in Forsythe
 6 et al. (1994), is a variant of the UG designed to discriminate between these two
 7 explanations. In the DG, the responder does not have veto power over the proposed
 8 split; she simply receives whatever she is allocated by the proposer. The subgame-
 9 perfect outcome does not change substantially from the UG: the proposer receives
 10 all the money instead of nearly all the money. Forsythe et al. (1994) showed that
 11 although proposers in the DG typically offer significantly less than proposers in the
 12 UG, they still offer non-trivial positive amounts. In terms of the two explanations
 13 just mentioned, this suggests a polymorphic population. That is, some subjects
 14 (those who might make high offers in the UG but zero in the DG) are risk averse
 15 and have selfish preferences, while other subjects (those that might make high
 16 offers in both experiments) do indeed have other-regarding preferences, that may
 17 be governed by altruistic norms or fairness concerns.

18 To assure our participants were highly motivated, the stakes in both games
 19 were \$100. Both games were one-shot, to eliminate reputation effects. Table 1
 20 presents a summary of demographic characteristics of our participants in the three
 21 contexts, Middlebury College, Kansas City Kansas Community College, and the
 22 Kansas City distribution center. Table 2 summarizes our design. The numbers
 23 of observations were 20 for the UG and 21 for the DG at Middlebury, 30 for
 24 the UG and 37 for the DG at the warehouse, and 18 for the UG and 26 for the
 25

26 **Table 1.** Demographic Summary Statistics for First-Movers in the Ultimatum
 27 and Dictator Games.

Variable	Summary Statistics for Participant Demographics (Firstmovers in Both Games)								
	Middlebury			KCKCC			KC Workers		
	<i>n</i>	Mean	Std. Dev.	<i>n</i>	Mean	Std. Dev.	<i>n</i>	Mean	Std. Dev.
Age	41	19.44	1.34	44	26.91	8.73	67	37.13	10.18
Female	41	0.54	0.55	44	0.66	0.48	68	0.53	0.50
Schooling	41	13.40	1.24	43	13.79	2.04	66	13.08	3.31
Income	41	151,463	97,728	44	36,250	20,349	66	41,287	20,853
Black	41	0	0	44	0.25	0.44	68	0.12	0.32
Hispanic	41	0.07	0.26	44	0.09	0.29	68	0.09	0.29
Non-white	41	0.12	0.34	44	0.41	0.50	68	0.28	0.45
Mach	41	96.31	12.54	44	85.29	13.95	68	87.37	11.56

40 *Note:* KC means Kansas City and KCKCC means Kansas City Kansas Community College.

Table 2. Experimental Design.

		Social Context	
		College	Work
Demographics			
Younger, more affluent	Middlebury	20 UG observations	
		21 DG observations	
Older, less affluent	KCKCC	18 UG observations	KC Warehouse
		26 DG observations	30 UG observations
			37 DG observations

Note: KC means Kansas City and KCKCC means Kansas City Kansas Community College.

DG at KCKCC. The Middlebury students were younger, had dramatically higher family incomes, and were more likely to be white, than both the distribution center employees and the KCKCC students ($p < 0.01$, $p < 0.01$, and $p = 0.05$ respectively for Middlebury vs. the distribution center; $p < 0.01$, $p < 0.01$, and $p < 0.01$ respectively for Middlebury vs. KCKCC).

The distribution center employees and the KCKCC students were broadly similar on a number of demographic dimensions. Average family incomes were statistically equal ($p = 0.21$). Both subject pools included a significant number of African-American participants (the difference is not significant, $p = 0.16$), which was not true of the Middlebury students. In addition, KCKCC is located within a few miles of the distribution center; so if there are any distinctive features of this geographic region (for example, regional cultural norms), it is likely that the KCKCC students and the warehouse workers share them. However, the demographic characteristics of the KCKCC students and distribution center employees were not identical. In particular, the KCKCC students were younger. The mean age of the KCKCC students (26.91) was between that of the Middlebury students (19.44) and that of the distribution center employees (37.13). Although the demographics of our KCKCC participants do not match our warehouse participants perfectly, and although it is of course possible that the two groups differ in other unobservable ways, the demographic similarities make it reasonable to consider the hypothesis that differences in the behavior of these two groups might be due, at least in part, to differences in the social framing of the experiments.

We also had our participants fill out a personality scale called the *Mach scale*, first developed by Christie and Geis (1970). The Mach scale consists of 20 statements based on Machiavelli's *The Prince* to which subjects are asked to agree or disagree, on a seven-point Likert scale. Their scores are summed over the 20 statements, and a constant of 20 is added, to generate a measure that ranges between 40 and

1 160, with the neutral score at 100. Those who tend to agree with the Machiavellian
2 statements (i.e. have scores above 100) are termed “high Machs,” and those who
3 tend to disagree (i.e. who score less than 100) “low Machs.” The Mach scale is
4 designed to capture three components of an individual’s behavioral dispositions:
5 (1) the extent to which a subject has a cynical view of human nature, believing
6 that others are not trustworthy; (2) the willingness of a subject to engage in
7 manipulative behaviors; and (3) the extent of the subjects’ concern (or lack thereof)
8 with conventional morality (Christie & Geis, 1970; Fehr et al., 1992). The Mach
9 scale is well-established in the social psychology literature (McHoskey et al.,
10 1998). Researchers have found both that the scale is reliable, in that individuals’
11 scores vary little from one administration of the test to another and that it generally
12 accords with other personality assessment tools (Fehr et al., 1992; McHoskey
13 et al., 1998; Panitz, 1989; Wrightsman, 1991).

14 We included the Mach scale with the goal of controlling for variations in inherent
15 predispositions toward engaging in manipulative or exploitative behaviors. In
16 previous related work, Meyer (1992) found evidence suggesting high Machs are
17 less likely to reject low offers in the ultimatum game, while Gunthorsdottir,
18 McCabe and Smith (2000), using a modified trust game, found high Machs
19 reciprocated less.

20 The procedures we followed for our visit to the distribution center were as
21 follows. Prior to the experiment we posted flyers to recruit participants (see the
22 Appendix). On the day of the experiment we walked through the facility to recruit
23 participants in person. We recruited blue-collar workers from the warehouse, white-
24 collar workers from the customer service and accounts receivable departments, and
25 a few supervisors from all three departments.³ Each session was run at the end of
26 the workday and we designed the protocol to minimize the time commitment of our
27 participants. We gave participants a survey to fill out before the experiment when
28 we recruited them, before the experiment was conducted; most filled out the survey
29 during their afternoon break, approximately two hours before the experiment. This
30 allowed us to keep the experiment to half an hour, on average.⁴ At the beginning
31 of the survey we stressed that the responses would be anonymous and not shared
32 with the employer.

33 At the experiment, participants handed in their surveys, were paid a \$10 show-
34 up fee and given a participant number that they were told to keep to themselves.
35 Participants were then given written instructions and told to follow along as one
36 of the experimenters read aloud. After any questions were answered, we flipped a
37 coin to see whether the people with odd or even participant numbers would become
38 proposers. Responders were taken to a different break room and waited silently for
39 the proposers to make their decisions. Proposers were asked to choose between 11
40 discrete allocations of the hundred dollars: (0, 100), (10, 90), (20, 80), . . . , (100, 0).

1 When all the proposal forms were completed, one experimenter brought them to
2 the other room and distributed them, face down, randomly to the responders. In
3 the UG, responders circled either Accept or Reject. When all the responders were
4 finished, the proposal forms were collected and the responders were paid, one at
5 a time. In the DG, recipients were allowed to see what had been allocated to them
6 by the dictator, the forms were collected, and then each recipient was paid, one at
7 a time. Each second-mover was then free to go. After paying the second-movers,
8 the proposal forms were given back to each first-mover. First-movers were then
9 paid one at a time and allowed to leave.

10 The procedures for the student sessions (both at Middlebury and at KCKCC)
11 were similar, except for the following minor variations. Because it was not obvious
12 what convenient times for sessions would be at KCKCC, the students there were
13 recruited by posters on bulletin boards which asked students to return a response
14 card indicating interest at a choice of particular dates and times. Letters or phone
15 calls were used to confirm participation.⁵ The Middlebury students were recruited
16 by email rather than by flyers. However all recruiting materials contained the same
17 information (the dates and anticipated length of the experiment, the amount of the
18 show-up fee, etc.).⁶ Second, all students filled out their surveys once they arrived
19 at the experiment (before making decisions), rather than a few hours prior to the
20 experiment as in the warehouse.

21 22 23 **4. COMPARING DISTRIBUTIONS** 24 **ACROSS LOCATIONS** 25

26 In this section, we compare the distributions of responses across locations. The
27 comparison of the Middlebury distribution with the KCKCC distribution gives
28 us a rough estimate of the effect of demographic differences, holding social
29 framing constant. The comparison of the KCKCC distribution with the workplace
30 distribution gives us a rough estimate of the effect of social framing, holding
31 individual characteristics constant. In the next section we will augment this analysis
32 by adding demographic controls.

33 Consider first the results for the UG. [Table 3](#) presents summary statistics and
34 [Fig. 1](#) presents histograms for the distribution of offers in each location, with the
35 fraction of the initial \$100 offered by the proposer to the responder on the horizontal
36 axis, and the fraction of proposers making the offer on the vertical axis. It appears
37 that proposers at both KCKCC and the distribution center made higher offers
38 overall than the Middlebury students. All 18 offers at KCKCC were for 50–50
39 splits. There were a few less generous offers at the distribution center, but over
40 70% of proposers offered the 50–50 split. At Middlebury, by contrast, although

Table 3. Data Comparisons for the Ultimatum Game.

	Summary Statistics for Ultimatum Games		
	Middlebury	KCKCC	KC Workers
Observations	20	18	30
Mean offer	0.41	0.50	0.45
Median offer	0.45	0.50	0.50
Minimum offer	0.10	0.50	0.00
Maximum offer	0.60	0.50	0.70
Standard Deviation	0.13	0.00	0.15
Rejection rate	1 of 20	0 of 18	2 of 30
Highest Rejected offer	0.10	NA	0.10

Note: KC means Kansas City and KCKCC means Kansas City Kansas Community College.

the 50–50 split was the mode, fewer than half of proposers made this offer. Table 4 reports statistical tests of these differences. We employ two tests: the Wilcoxon test of differences in central tendencies and the Kolmogorov-Smirnov test for differences in cumulative distributions. The tests indicate that the Middlebury distribution is significantly different from the KCKCC distribution. The difference between the Middlebury distribution and the workplace distribution, however,

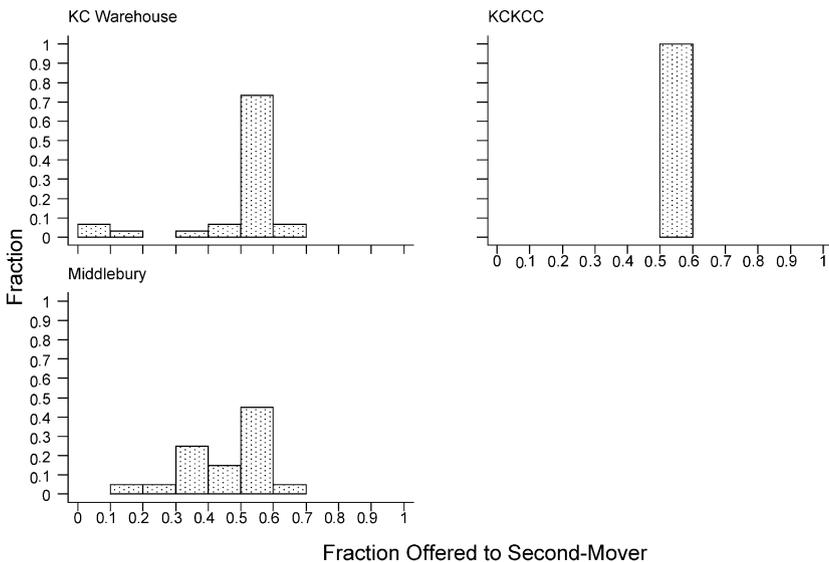


Fig. 1. The Effect of Social Framing on Offers in the 100 Dollar Ultimatum Game.

Table 4. Wilcoxon (Z) and Kolmogorov-Smirnov (KS) Tests for Differences in the Ultimatum Game.

	Difference Tests for Ultimatum Games	
	KCKCC	KC Workers
Middlebury	$Z = -2.94, p < 0.01$ $KS = 0.50, p = 0.01$	$Z = -1.82, p = 0.07$ $KS = 0.30, p = 0.20$
KCKCC		$Z = 1.16, p = 0.24$ $KS = 0.20, p = 0.70$

Note: KC means Kansas City and KCKCC means Kansas City Kansas Community College.

is only marginally significant according to the Wilcoxon test, and insignificant according to the Kolmogorov-Smirnov test. The KCKCC and distribution center results are not significantly different from each other.

Consider next the results for the DG. [Table 5](#) presents summary statistics and [Fig. 2](#) presents histograms of the distributions of offers. In this case, the distribution of KCKCC offers appears to be intermediate between that of the Middlebury students and the Kansas City workers. The mean and median offers, for instance, fall between those of the other locations. [Table 6](#) presents statistical tests of the differences in distributions. In this case, the distribution center results are significantly different from both the KCKCC and the Middlebury results, while the KCKCC and Middlebury results are not significantly different from each other.

What can we take away from these comparisons? First, the fact that Middlebury proposers appear to have made lower offers in both games than proposers in the other locations – in particular, lower than proposers at KCKCC, with similar social framing – suggests that there may indeed be an effect of individual characteristics. The older subjects in Kansas City with less experience with higher education

Table 5. Data Comparisons for the Dictator Game.

	Summary Statistics for Dictator Games		
	Middlebury	KCKCC	KC Workers
Observations	21	26	37
Mean allocation	0.25	0.33	0.45
Median allocation	0.20	0.45	0.50
Minimum allocation	0.00	0.00	0.10
Maximum allocation	0.50	0.50	0.70
Standard deviation	0.19	0.20	0.12

Note: KC means Kansas City and KCKCC means Kansas City Kansas Community College.

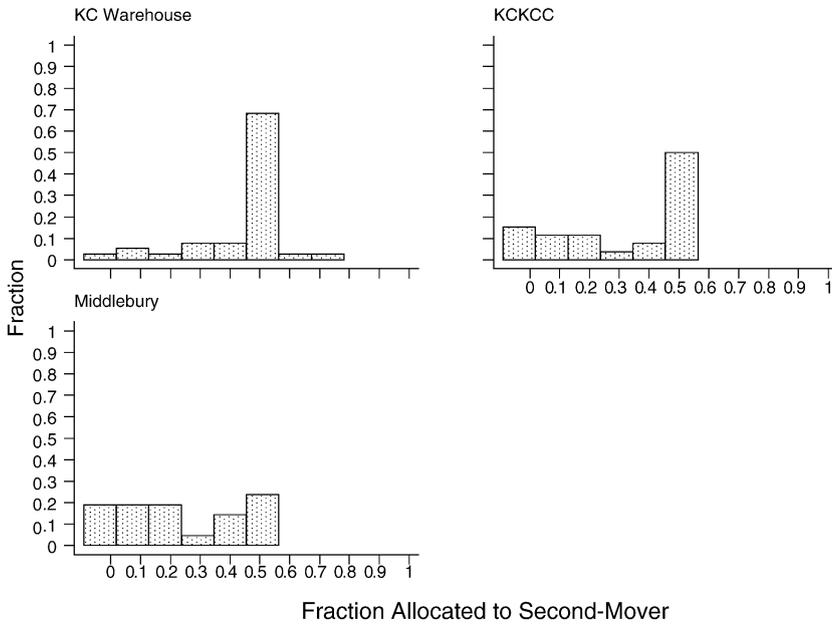


Fig. 2. The Effect of Social Framing on Allocations in the 100 Dollar Dictator Game.

appear to make higher offers than the elite college students in Vermont, although we should keep in mind that the difference between Middlebury and KCKCC is only significant in the UG. Second, the fact that KCKCC proposers made less generous offers than the distribution center workers in the DG suggests that social framing may be important as well.

Table 6. Wilcoxon (Z) and Kolmogorov-Smirnov (KS) Tests for Differences in the Dictator Game.

	Difference Tests for Dictator Games	
	KCKCC	KC Workers
Middlebury	Z = -1.43, p = 0.15 KS = 0.26, p = 0.33	Z = -4.17, p < 0.01 KS = 0.52, p < 0.01
KCKCC		Z = -2.63, p < 0.01 KS = 0.30, p = 0.09

Note: KC means Kansas City and KCKCC means Kansas City Kansas Community College.

Table 7. Wilcoxon (Z) and Kolmogorov-Smirnov (KS) Tests for Differences Between the Ultimatum and Dictator Games.

	Tests for Differences Between Ultimatum and Dictator Behavior	
	Wilcoxon	Kolmogorov-Smirnov
Middlebury	$Z = 2.66, p < 0.01$	$KS = 0.47, p < 0.01$
KCKCC	$Z = 3.47, p < 0.01$	$KS = 0.50, p < 0.01$
KC Workers	$Z = 0.34, p = 0.73$	$KS = 0.07, p = 1.00$

Note: KC means Kansas City and KCKCC means Kansas City Kansas Community College.

As in Forsythe et al. (1994), we can also compare behavior in the UG to behavior in the DG within each subject population. In Table 7 we see that the workers behave differently from both groups of students on this dimension, because their allocations do not drop between the UG and the DG. That is, once the threat of veto by the second-mover is taken away, and choices solely reflect the generosity of the proposers, the workplace framing appears to lead subjects to allocate more to the recipient. It is important to note that, because the demographics between KCKCC and the distribution center do not match exactly and because there may be subtle differences in social framing between Middlebury and KCKCC, these results comparing overall distributions remain suggestive. To better tease apart the effects of individual characteristics and social framing we now turn to regression analyses.

5. REGRESSION RESULTS

As mentioned above, the advantage of having run the same experiment at KCKCC as well as at Middlebury College and the distribution center is that we can use the variation in subject pools between KCKCC and Middlebury to estimate the effect of individual characteristics separately from the effect of social framing. There are a variety of ways in which the relationship between the individual characteristics and the social framing could be modeled econometrically. In our baseline estimates, we take the simplest, most straightforward approach, and assume that the effects of observable individual characteristics and social framing are additively separable. That is, we estimate a model of the following form:

$$f_i = \beta_0 + T_{1,i} \cdot \beta_1 + T_{2,i} \cdot \beta_2 + x_i' \cdot \beta_3 + \varepsilon_i$$

where i indexes individuals, f is the fraction offered to the responder by the proposer, T_1 is an indicator for KCKCC, T_2 is an indicator for the KC distribution center, and x is a vector of demographic characteristics (age, sex, years of schooling,

1 family income, dummy variable for African-American and a dummy variable for
2 non-white, non-African-American) and ε_i is an error term.

3 Note that we do not explicitly include a term for geographic region. If we were
4 to include, for instance, a dummy for Kansas City, it would be exactly collinear
5 with T_1 and T_2 . Rather, if we are correct in seeing the social framing of KCKCC
6 as similar to the social framing of Middlebury, and if our observed demographic
7 variables adequately capture the remaining variations in individual characteristics,
8 then the coefficient T_1 can be interpreted as the regional “Kansas City effect,” and
9 the difference $T_2 - T_1$ can be thought of as the difference between the “college
10 student” frame and the “warehouse employee” frame.

11 We think it is important to be careful when interpreting differences between
12 subject groups. Implicit in our formulation are two key assumptions. The first is
13 that the coefficients on the demographic terms do not vary across locations.⁷ The
14 second is that the treatment variables, T_1 and T_2 , are uncorrelated with the error
15 term. This amounts to an assumption that conditional on observable characteristics
16 (and unobservable characteristics exactly collinear with T_1 and T_2 , as discussed
17 above) the unobservable characteristics of individuals are not related in a systematic
18 way to the location of the experiment. This assumption is admittedly restrictive.
19 Ideally, we would be able to conduct an experiment in which we could randomly
20 assign subjects to different locations and social contexts, but since that experiment
21 is infeasible, we feel that the assumption that subjects’ unobservable characteristics
22 are ignorable, conditional on differences in their observable characteristics, is a
23 reasonable first step.

24 An additional word of caution about the “Kansas City effect.” There have been
25 many recent economics experiments that seek to explain variations in subject
26 behavior in terms of “culture.” However, most such studies use a definition
27 of culture that is quite loose, and ours is no exception.⁸ While we think our
28 interpretation of the difference $T_2 - T_1$ as a social framing effect can be straight
29 forwardly linked to existing experimental work, we have no developed theory
30 about why Kansas City should be regionally distinctive, and so we are essentially
31 using the idea of regional cultural differences as black box in our interpretation
32 of T_1 .

33 We first consider results for the UG. Column 1 of Table 8 presents Tobit results
34 of our baseline model. We use the Tobit procedure to account for the fact that our
35 dependent variable (the fraction of the pie offered) is bounded between 0 and 1.
36 The coefficient on T_1 is significant at the 98% level, and indicates that, conditional
37 on demographic characteristics and being uncensored, proposers at KCKCC on
38 average offered 14% more of the initial sum to responders than did proposers
39 at Middlebury, the omitted category. The coefficient on T_2 is also positive, and
40 indicates that on average proposers at the warehouse offered 10% more than

Table 8. The Determinants of Offers in the Ultimatum Game.

Analysis of Ultimatum Game Offers (Dependent Variable Equals Fraction of Endowment Offered to the Second Mover)		
	(1) Tobit	(2) Interval
T_1 , KCKCC	0.14 (0.02)	0.14 (0.00)
T_2 , KC Worker	0.10 (0.11)	0.10 (0.00)
Mach Score	-0.0002 (0.88)	-0.0002 (0.77)
Age	-0.003 (0.21)	-0.003 (0.00)
Female	-0.04 (0.31)	-0.04 (0.00)
Schooling (years)	-0.009 (0.20)	-0.009 (0.02)
Family Income	7.6e-8 (0.78)	8.0e-8 (0.13)
African American	0.05 (0.48)	0.05 (0.40)
Not African American, Not White	-0.03 (0.56)	-0.03 (0.66)
Intercept	0.60 (0.00)	0.63 (0.00)
N	65	65

Notes: p -values in parentheses; we report marginal effects conditional on being uncensored for the Tobit regression; intervals for the dependent variable in the interval regressions were constructed such that a choice of x was put into an interval of $[x, x + 0.09]$; errors for the interval regression are clustered by location).

proposers at Middlebury, although the p -value of 0.11, while suggestive, is just below the 90% conventional significance level. More importantly, the coefficients on T_1 and T_2 are not statistically different from each other ($p = 0.38$) which suggests that location differences matter in the UG.

Note that the Tobit estimator treats the fraction sent as continuous within the unit interval. In fact, proposers were constrained to choose among 11 discrete offers, between \$0 and \$100. Given the discrete and cardinal nature of the dependent variable, we think that the interval regression estimator is more reasonable. Column 2 of Table 8 presents interval regression results for the same model. To create the intervals for each participant's choice we assumed that decision-makers always choose an allocation that is at the bottom of the interval in which their true choice

1 lies. For example, if a participant really wants to allocate 25% to the second-mover,
 2 we assume they will pick 20% instead of 30%. Therefore, the interval assigned to
 3 a 20% allocation is [0.20, 0.29].⁹ Switching to the interval estimator also allows
 4 us to better deal with heteroskedasticity by clustering our errors by location. The
 5 results are stronger than the Tobit results and the interval regression, in general, is
 6 a better fit. Both the coefficient on T_1 and the coefficient on T_2 are now significant
 7 at better than the 99% level and a number of other demographic effects become
 8 significant. We see that offers are decreasing in age and years of schooling and
 9 that women offer less than men. Our more precise interval regression results now
 10 suggest a significant difference between the coefficients on T_1 and T_2 ($p < 0.01$).
 11 KCKCC students offered more than the warehouse workers, and the warehouse
 12 workers offered more than the Middlebury students. These results suggest that

13
 14 **Table 9.** The Determinants of Allocations in the Dictator Game.

15 Analysis of Dictator Game Allocations (Dependent Variable Equals Fraction of Endowment
 16 Allocated to the Second Player)

	(1) Tobit	(2) Interval
19 T_1 , KCKCC	0.03 (0.67)	0.02 (0.23)
20 T_2 , KC Worker	0.14 (0.05)	0.12 (0.00)
21 Mach Score	-0.003 (0.02)	-0.003 (0.03)
22 Age	0.003 (0.20)	0.003 (0.11)
23 Female	-0.008 (0.83)	-0.01 (0.74)
24 Schooling (years)	-0.007 (0.38)	-0.007 (0.01)
25 Family Income	-1.5e-7 (0.70)	-1.9e-7 (0.13)
26 African American	-0.14 (0.01)	-0.12 (0.22)
27 Not African American, Not White	0.10 (0.11)	0.09 (0.00)
28 Intercept	0.64 (0.00)	0.65 (0.00)
29 N	81	81

30
 31
 32 *Notes:* p -values in parentheses; we report marginal effects conditional on being uncensored for the
 33 Tobit regression; intervals for the dependent variable in the interval regressions were constructed
 34 such that a choice of x was put into an interval of $[x, x + 0.09]$; errors for the interval regression
 35 are clustered by location).
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1 behavior is not dominated by location differences in the UG. There appear to be
 2 countervailing forces at work. Location increases offers, but the social frame of
 3 the workplace partially reduces them.

4 We now turn to the DG results. Column 1 of Table 9 reports the Tobit results for
 5 the DG. The coefficient on the KCKCC dummy is no longer significant, suggesting
 6 that in the DG there is no “Kansas City” effect. The coefficient of the warehouse
 7 treatment is quite a bit larger than the coefficient on the KCKCC treatment and
 8 significant at the 95% level. Furthermore, we can reject the hypothesis that the
 9 coefficient on the KCKCC and warehouse treatments are equal ($p = 0.03$). As in
 10 the UG, our DG interval specification (Column 2) fits the data better. The coefficient
 11 on the warehouse treatment is significantly different from both the Middlebury and
 12 the KCKCC treatments at better than the 99% level. While these results should not
 13 be overstated, they provide some evidence that the social framing of the workplace
 14 is important in the DG game.

15
 16 **Table 10.** Controlled Tests for the Difference in Ultimatum and Dictator
 17 Behavior.

18
 19 Analysis of Allocations in Both Games (Dependent Variable Equals Fraction of Endowment
 20 Allocated to the Second Player)

	(1) Middlebury College	(2) KCKCC	(3) KC Workers
21 DG indicator	-0.15 (0.001)	-0.13 (0.00)	0.005 (0.87)
22 Mach score	-0.003 (0.13)	-0.004 (0.01)	-0.001 (0.26)
23 Age	-0.07 (0.06)	0.006 (0.004)	0.0004 (0.83)
24 Female	-0.03 (0.57)	0.09 (0.02)	-0.01 (0.68)
25 Schooling (years)	0.04 (0.33)	0.001 (0.93)	-0.01 (0.14)
26 Family income	-8.8e-08 (0.72)	-2.1e-07 (0.84)	-1.1e-06 (0.25)
27 African American		-0.24 (0.00)	0.01 (0.73)
28 Not African American, Not White	0.11 (0.07)	0.08 (0.02)	-0.04 (0.59)
29 Intercept	1.60 (0.00)	0.67 (0.00)	0.79 (0.00)
30 N	41	43	62

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 39 Notes: p -values in parentheses; intervals for the dependent variable in the interval regressions were
 40 constructed such that a choice of x was put into an interval of $[x, x + 0.09]$; errors are robust).

1 Among the demographic factors in our interval regression, both the Mach score
2 ($p = 0.03$) and the years of schooling ($p = 0.01$) variables are associated with a
3 lower fraction offered and being neither white nor African American ($p < 0.01$)
4 is associated with being more generous.¹⁰ In addition, the positive effect of age
5 on allocations is on the boundary of conventional significance ($p = 0.11$). The
6 result for the Mach score is particularly noteworthy, since it corresponds to our
7 theoretical expectation: high Machs may offer a fair split in the UG, even if they
8 have selfish preferences, because they believe responders will reject fair offers, but
9 once they no longer have to worry about the veto power of responders, they will
10 reduce their offers.¹¹

11 As a final exercise we examine how robust our comparisons of the UG and DG
12 are when we control for demographic factors. In Table 10 we regress the fraction of
13 the \$100 endowment sent on an indicator variable for the DG and the same personal
14 characteristics as in Tables 8 and 9.¹² We organize our analysis by location. We
15 see that, controlling for demographic factors, Middlebury college students allocate
16 15% less in the DG than in the UG ($p < 0.01$), KCKCC students allocate 13%
17 less ($p < 0.01$), but workers in Kansas City offer the same amount, roughly half
18 the pie, in both games ($p = 0.87$). Considering demographic determinants *within*
19 *a population*, we see that few factors matter in Middlebury and at the warehouse,
20 while among KCKCC students a number of our regressors are significant. At
21 KCKCC, controlling for the effect of the rules of the game, higher Machs and
22 African Americans allocate less and older students, women, and people who
23 describe their ethnicity as neither white or African American all allocate more
24 to the second-mover.

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28

6. CONCLUDING REMARKS

29 What do our results suggest about the external validity of results in the Ultimatum
30 and Dictator Games? In the UG, we have two results: we find a “Kansas City”
31 effect, a label we give to the fact that differences across regions (which could
32 be cultural in origin) appear to affect behavior in the UG, and we find a social
33 framing effect in which warehouse workers offer more than college students in
34 Vermont, but less than college students in Kansas city. Combined, and controlling
35 for demographic differences, we can order offers in the UG from highest to lowest
36 KCKCC > KC Warehouse > Middlebury. In the DG, we find a highly significant
37 effect of social framing: dictators are more likely to choose an equal allocation
38 in the warehouse, even controlling for observable demographic characteristics. In
39 addition, the mean offers of students drop significantly from the UG to the DG,
40 while those of workers do not.

1 What is the economic significance of these results? We offer two answers, a
2 narrow one and a broader one. Although the range of variation in observed behavior
3 across our subject groups and social framing treatments is much smaller than that
4 found across fifteen small societies by [Henrich et al. \(2001\)](#), a narrow conclusion
5 would be that, while our results qualitatively suggest the external validity of
6 standard UG results, they also show some limitations in the precision of external
7 extrapolation: call this a “limitation in calibration.” We observe enough variation
8 in UG behavior to suggest that, even within an advanced industrial society, the
9 specific patterns observed in trials with young, four-year, full-time college students,
10 under an intra-collegiate social framing, should not be automatically assumed to
11 translate precisely into the patterns of UG behavior to be expected among other
12 subject groups or with other frames. However, we feel less comfortable explaining
13 our DG differences in terms of calibration. By comparing students to workers in
14 the DG where normative behavior is un-confounded by strategic considerations
15 we see that in interactions with a more economically significant frame (e.g. within
16 the workplace), altruistic norms affect behavior to a greater degree than in the
17 classroom.

18 More broadly, our results may be of some interest to those (like us) who find
19 other-regarding, or “social preference,” explanations for UG and DG behavior
20 attractive. Placed in this interpretive framework, our results suggest an interesting
21 and consistent story. High offers in the UG are here taken to be a mixture of
22 strategic avoidance of rejection by selfish but risk-averse subjects, along with fair-
23 mindedness by subjects with social preferences. The DG then provides a check
24 on the extent to which these two different motivations are at work. In this regard
25 the two student subject groups are essentially similar – there is an extremely sharp
26 drop in offers from the UG to the DG. This shows that few high offers in the UG are
27 made by fair-minded student subjects; most are made by selfish subjects worried
28 about rejection (In this context, the fact that the KCKCC students offer more in
29 the UG than do the Middlebury students would be most parsimoniously explained
30 by higher risk aversion among the KCKCC student group).

31 However, the KC warehouse workers are quite distinctive in comparison,
32 because their offers do not change from UG to DG. Conditional on the social
33 preference interpretation of subject behavior in these experiments, this suggests
34 that something about the social framing of the warehouse has shifted the behavior
35 of worker subjects sharply towards fair-mindedness: many more of the high offers
36 by workers in the UG are due to an intrinsic preference for sharing gains with their
37 co-workers. Because the overlap in demographic characteristics across our subject
38 pools is imperfect (in particular, with respect to age between KCKCC and the
39 KC warehouse), as well as because of the always present potential for significant
40 unobservable differences, this evidence is only suggestive, but it is nonetheless
quite interesting.

1 Our findings suggest a few directions for future research. We should continue
2 experimenting in the field to get a better sense of the size of the variations in
3 external validity “calibration” mentioned above. At this point we have only one
4 observation of a 10% difference in the UG (and a 13% difference in the DG). We
5 have no idea how robust this estimate is. Second, we might well ask what is it about
6 the nature of social interactions in workplaces that reinforces prosocial behavior
7 in these experiments, presumably through reinforcing prosocial norms? Does this
8 happen in all workplaces, or is there something distinctive about our particular
9 warehouse? Do all groups of workers behave similarly, or do boundaries within
10 the workplace, such as between blue collar and white collar, or between labor
11 and managers, ever matter? There is substantial field and experimental evidence
12 that norms against free-riding and in favor of cooperation are particularly strong
13 among work groups (e.g. Acheson, 1988; Ostrom, 1990). It would be interesting to
14 investigate whether this is especially true in cases where workers produce in teams
15 and their individual contributions to group productivity are difficult to distinguish,
16 as suggested by Tyler and Blader (2000).

NOTES

21 1. We have the most straight-forward definition of internal validity in mind (a la Campbell
22 & Stanley, 1963)– through the proper use of experimental control one can assign causality
23 to independent variables.

24 2. However, it is hard to directly compare Henrich et al., and Roth et al., because of
25 procedural differences. For a critical view of the methodological issues raised by the work
26 reported in Henrich et al., see Ortman (this volume).

27 3. Approximately 60% of participants were from the warehouse and the remainder from
28 the office. More than 75% of the employees had worked for the company for more than
29 a year at the time we conducted our study. Approximately 45% earned less than \$30,000,
30 45% earned between \$30,000 and \$50,000, and 10% earned more than \$50,000.

31 4. Having subjects fill out the survey prior to the experiment is not standard practice, but
32 we followed the same procedure in all treatments and we do not expect this procedure to
33 have had differential effects on the different subject pools.

34 5. In addition, the response cards asked for basic demographic information, as we
35 hoped to be able to select subjects to demographically match the KC warehouse. However,
36 since almost all KCKCC students were attending night classes part time, schedule-induced
37 limitations on student attendance meant we accepted all who showed interest.

38 6. In the Kansas City flyers (reproduced in the appendix) we mentioned the range of
39 possible earnings because our contacts at KCKCC and the distribution center thought it
40 was important for recruitment. Advertising the maximum possible earning might have
encouraged low offers in our Kansas City experiments compared to our Middlebury
experiments. However, our results suggest that this was not a problem.

7. Botelho et al. (this volume) provide an insightful discussion of the pitfalls of this
assumption. To examine the validity of our assumptions about the additive separability of
the effects of demographics and social framing, we also estimated an OLS model with a

1 complete set of interaction terms of KCKCC and KC Worker with all other independent
2 variables. We then tested the restriction that all the interactions are jointly zero, and could
3 not reject this hypothesis at conventional levels of significance.

4 8. For an example of an experimental study which sets a higher standard, see [Nisbett
and Cohen \(1996\)](#).

5 9. Two referees suggested that this model of choice was consistent with expected utility
6 theory given the discrete set of allocations. Our first instinct was to allow decision-makers
7 to move in both directions. Specifically, we simply assumed that people picked whichever
8 allocation was closest to their true preference. In this case, an observed allocation of 20%
9 was assigned the interval [0.15, 0.25]. As one would expect, the difference in the results is
10 miniscule.

11 10. A referee hypothesized that our years of schooling variable might have been better
12 modeled as an exposure to college indicator variable. The idea was that exposure to college
13 might affect behavior more than simply adding another year of schooling. Because some of
14 our warehouse participants have been exposed to college the indicator is not collinear with
15 our treatments. However, adding this variable or replacing the years of schooling variable
16 does not improve our estimates. In the UG, the variable is significant but its coefficient is
17 similar in magnitude to the years of schooling regressor in the original specification. In the
18 DG, the college variable is not significant (either with the years of schooling variable or
19 on its own). Further, the log likelihoods are worse in the new regressions. Based on this
20 evidence we think the current specification is appropriate.

21 11. These results, consistent with prior expectations about Machiavellian behavior,
22 contrast with our results in a trust game reported in [Burks et al. \(2003\)](#), in which high
23 Machs were not less trustworthy than others, although we would have expected high Machs
24 to behave opportunistically and not reward other players who had trusted them.

25 12. We continue to use the interval regression procedure. Notice that the African
26 American regressor has been dropped in the Middlebury regression because none of the
27 participants at the college fell into this category.

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APPENDIX A

Recruitment flyer (at the distribution center)

EARN CASH ON THE SPOT!
 ANSWER SOME QUESTIONS & PLAY A GAME
 30 MINUTES AFTER WORK
 TUESDAY & WEDNESDAY (8/15/00 & 8/16/00)

On Tuesday and Wednesday, August 15th and 16th, people from the University of Minnesota, Middlebury College and University of California will conduct a decision making game here at the Distribution Center. To take part, all you have to do is fill out a brief survey and make a few decisions in a situation when real money is at stake. The decisions are easy, the game is fun and there are no right or wrong answers. The survey will take 10 minutes to complete and can be done at break time or on your lunch hour. The decision making game will last about 30 minutes.

If you choose to take part, you will immediately receive \$10.00 in cash. Some people could receive as much as \$110.00 in cash depending upon the decisions they make (The money is provided by a grant from the MacArthur Foundation and is not connected with AMU in any way).

1 The survey will be given to you for completion during the day on Tuesday
 2 or Wednesday based upon your indication to participate. The games will start
 3 promptly at 3:00 pm, 4:00 pm and 4:30 pm in the office break room at 110th
 4 Street on Tuesday and 3:00 pm and 4:30 pm in the break room at 99th Street on
 5 Wednesday. There is no limit on the number of people who can participate.

6 Come earn some cash for playing in a decision making game. More information
 7 will be available on game day.

8 9 10 **APPENDIX B**

11 Recruitment Flyer (KCKCC Students)

12 13 **Earn CASH on the spot!** 14 **One Hour of Your Time, Plus Fill Out a Survey**

15 Participate in an Economic-Decision-Making Research Experiment at KCKCC

16 On Monday and Tuesday evenings, either March 11–12 or March 25–26,
 17 researchers from the University of Minnesota and Middlebury College will conduct
 18 an economic decision making experiment here at KCKCC. If you take part you
 19 will be paid.
 20

21 For filling out a survey in advance and spending one hour in the experiment,
 22 each participant will receive a *minimum* of \$10 in cash. *Many participants will*
 23 *receive a lot more, and some people could receive as much as \$110 in cash.* The
 24 amount you will get above the minimum depends on the decisions made by the
 25 participants.

26 To take part, you must *be a currently registered KCKCC student*, and you must
 27 *fill out one of the reply forms below, and return it.* If you are selected to take part,
 28 you will be sent a consent form to sign that explains the study, and a survey to fill
 29 out. Then you will be asked to come to a KCKCC classroom for one hour on a
 30 specific evening, to make a few economic decisions (using our money).

31 This study is completely voluntary. It is open only to current KCKCC students,
 32 who are eligible only during times other than their scheduled class periods.

33 34 **APPENDIX C**

35 Recruitment Email (Middlebury Students)

36 Dear Students,

37
38
39 I am conducting a series of economic decision-making experiment and I would
 40 like your help. The help I seek is your participation in one of the experiments that
 will take place between now and the end of the semester.

1 You need no prior economics training to participate and I encourage non-
2 economics majors to sign up. To entice you, I will pay everyone who participates
3 \$10 in cash for just showing up. In addition, you will have the chance to earn more
4 money depending on the decisions you make in the experiment. I can never say
5 exactly how much money you will go home with, however I can say that 99% of
6 those who participate want to do it again. Finally, I anticipate that each session
7 will last less than one hour.

8 When participating, all you will be asked to do is to fill out a short survey and
9 then make a number of decisions that will determine the total amount of money
10 that you go home with.

11 To sign up for a session just reply to this message. When you reply please
12 include your PHONE NUMBER. The ONLY reason I need your phone number
13 is because I will call you the night before to remind you about the experiment.
14 Once a sufficient number of people have signed up for a session, I will randomly
15 pick the number that are needed and send those picked a message that confirms
16 participation.

17 18 **APPENDIX D** 19

20 21 *Ultimatum Game Instructions*

22 *PAYMENT AND CONFIDENTIALITY*

23 You have been asked to participate in an economics experiment. For your
24 participation today and for filling out the survey we have already paid you \$10.
25 You may receive an additional amount of money depending on your decisions in
26 the experiment. This additional amount will be paid to you in cash at the end of
27 the experiment.

28 In this experiment each of you will be paired with another person. You will
29 not be told who this person is and the other person will not be told who you are,
30 either during or after the experiment. Your decisions in this experiment and your
31 answers on the survey will be confidential; none of the other participants nor your
32 employer will ever know the decisions you make or answers you give.

33 *THE EXPERIMENT* 34

35 After we finish reading the instructions together, you will be randomly split into
36 two groups, group A and group B. The groups will be separated, and each member
37 of group A will be randomly paired with a member of group B. We have allocated
38 a sum of \$100 to each pair. The person in group A will propose how much of the
39 \$100 each person is to receive. The person in group B will then decide whether to
40 accept or reject the proposal. If the group B person accepts the proposal, then the
money will be divided according to the group A person's proposal. If the group B

1 person rejects the proposal, then both people will receive zero dollars. Let's now
2 go through the procedure in more detail.

3 If you are in group A, you will be given a copy of a form titled "Proposal
4 Form." As you entered, you were given a "Participant Identification Number" on
5 a small slip of paper. On the first line of the proposal form you will write your
6 identification number. Leave line [2] blank; the person in group B will write his or
7 her identification number on that line. The amount to be divided, \$100, is already
8 printed on line [3]. You will then make your proposal. Choose one of the eleven
9 possible divisions of the \$100 between person A and person B, labeled (a) through
10 (k) on line [4]. Choose a proposed division by circling one letter.

11 You will have five minutes to come to a decision about your proposal. At the end
12 of five minutes, a buzzer will sound. Do not talk to the other people in your group
13 until the experiment is completed. Do not be concerned if other people make their
14 decisions before you, we will not collect the forms until the buzzer sounds.

15 If you are in group B, you will receive a Proposal Form from a person in group
16 A. Write your Participant Identification Number on line [2]. If you wish to accept
17 the proposal, check "Accept" on line [6] of the Proposal Form. The money will
18 then be divided according to the proposal. If you wish to reject the proposal, check
19 "Reject" on line [6] of the Proposal Form. Both you and the person in group A
20 will then receive zero dollars.

21 You will have five minutes to come to a decision about whether to accept or
22 reject. At the end of five minutes, a buzzer will sound. Do not talk to the other
23 people in your group until the experiment is completed. Do not be concerned if
24 the other people in your group complete their proposal forms before you, we will
25 not collect them until the buzzer sounds.

26 Once both groups have made their decision, we will pay each group separately,
27 beginning with group B. Each person in a group will be called, one at a time, to a
28 separate location to ensure privacy. Once everyone has been paid the experiment
29 will end.

30 *ARE THERE ANY QUESTIONS?*

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34 **APPENDIX E**

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36 Dictator Game Instructions

37 *PAYMENT AND CONFIDENTIALITY*

38
39 You have been asked to participate in an economics experiment. For your
40 participation today and for filling out the survey we have already paid you \$10.
You may receive an additional amount of money depending on your decisions in

1 the experiment. This additional amount will be paid to you in cash at the end of
2 the experiment.

3 In this experiment each of you will be paired with another person. You will
4 not be told who this person is and the other person will not be told who you are,
5 either during or after the experiment. Your decisions in this experiment and your
6 answers on the survey will be confidential; none of the other participants nor your
7 employer will ever know the decisions you make or answers you give.

8 9 *THE EXPERIMENT*

10 After we finish reading the instructions together, you will be randomly split into
11 two groups, group A and group B. The groups will be separated, and each member
12 of group A will be randomly paired with a member of group B. We have allocated
13 a sum of \$100 to each pair. The person in group A will propose how much of the
14 \$100 each person is to receive. The sum of \$100 will then be allocated according
15 to the group A person's proposal. Let's now go through the procedure in more
16 detail.

17 If you are in group A, you will be given a copy of a form titled "Proposal Form."
18 As you entered, you were given a "Participant Identification Number" on a small
19 slip of paper. On the first line of the proposal form you will write your identification
20 number. If you took part in the experiment yesterday, please write an "R" after
21 your participant number. Leave line [2] blank; the person in group B will write
22 his or her identification number on that line. The amount to be divided, \$100, is
23 already printed on line [3]. You will then make your proposal. Choose one of the
24 eleven possible divisions of the \$100 between person A and person B, labeled (a)
25 through (k) on line [4]. Choose a division by circling one letter.

26 You will have five minutes to come to a decision about your proposal. At the end
27 of five minutes, a buzzer will sound. Do not talk to the other people in your group
28 until the experiment is completed. Do not be concerned if other people make their
29 decisions before you, we will not collect the forms until the buzzer sounds.

30 If you are in group B, you will receive a Proposal Form from a person in group
31 A. Write your Participant Identification Number on line [2]. If you took part in
32 the experiment yesterday, please write an "R" after your participant number. As
33 a member of group B, you will not have a decision to make, but you will see the
34 decision made by the person you are paired with.

35 Once all forms have been completed, we will pay each group separately,
36 beginning with group B. Each person in a group will be called, one at a time, to a
37 separate location to ensure privacy. Once everyone has been paid the experiment
38 will end.

39
40 *ARE THERE ANY QUESTIONS?*

APPENDIX F

Pre-experiment Survey Questions

- (1) What is your year of birth? _____
- (2) Are you male or female? Male _____ Female _____
- (3) How many years of schooling have you completed? _____
(For example, count completing grade school as 6 years, high school as 12 years, and college as 16 years).
- (4) Which range best fits your family's present annual household income?
 - (A) \$0-\$20,000
 - (B) \$20,000-\$30,000
 - (C) \$30,000-\$40,000
 - (D) \$40,000-\$50,000
 - (E) \$50,000-\$70,000
 - (F) more than \$70,000
- (5) Which of these racial or ethnic groups describes you best?
 - (A) African-American
 - (B) American Indian
 - (C) Asian-American
 - (D) Latino/Hispanic
 - (E) White/Caucasian Something else; (you can specify: _____)

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APPENDIX G

Mach Scale

1) Never Tell anyone the real reason you did something unless it is useful to do so.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
2. The best way to handle people is to tell them what they want to hear.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
3. One should take action only when sure it is morally right.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
4. Most people are basically good and kind.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
5. It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
6. Honesty is the best policy in all cases.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
7. There is no excuse for lying to someone else.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
8. Generally speaking, people won't work hard unless they're forced to do so.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
9. All in all, it is better to be humble and honest than important and dishonest.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree
10. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving the reasons which might carry more weight.	Strongly Disagree	Somewhat Disagree	Slightly Disagree	No Opinion	Slightly Agree	Somewhat Agree	Strongly Agree

Uncited reference

References cited in the text must appear in the reference list; conversely, each entry in the reference list must be cited in the text . . . The author must make certain that each source referenced appears in both places and that the text citation and reference list entry are identical in spelling and year.

Camerer & Fehr (forthcoming).

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