Chapter 49

SOCIAL DISTANCE AND RECIPROCITY IN DICTATOR GAMES

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1. Defining Variations on Perceived Social Distance in Dictator Games

We define social distance as the degree of reciprocity that people believe is inherent within a social interaction. The greater the social distance, or isolation, between a person and others, the weaker is the scope for reciprocal relations.

2. Experimental Design

Our examination of this issue begins with the dictator experiments reported by Forsythe et al. (1994). Their motivation was to test the hypothesis that the tendency toward an equal split of the pie in ultimatum games was driven by a desire for fair, or equal, division. The test was effected by comparing dictator game results, where the recipient does not have the power to reject the proposer's offer, with corresponding ultimatum game results. Forsythe et al. (1994) report a significant reduction in dictator game offers, as compared with ultimatum game offers and conclude that "fairness" alone cannot account for the generosity of ultimatum offers.

Yet, 80% of the subjects gave positive amounts of money to their anonymous counterparts in the Forsythe et al. (1994) dictator games. Why should this occur? We conjectured that this was because of two key features of the instructions, used originally by Kahneman, Knetsch, and Thaler (1986, pp. 105–106), and duplicated by Forsythe et al. (1994), whose concern was to replicate the earlier procedures. However, these two features introduced additional treatments: (1) a subject and his or her anonymous counterpart had been "provisionally allocated" $10; and (2) the task is to decide how to "divide" the $10. Since the experimenter provisionally allocated the $10 pie to both members in each pair, the entitlement was shared, which might suggest they are part of a social exchange community where "fairness" norms apply. Similarly, the term "divide" suggests sharing or even equal division (see the definition of "divide" in Webster).

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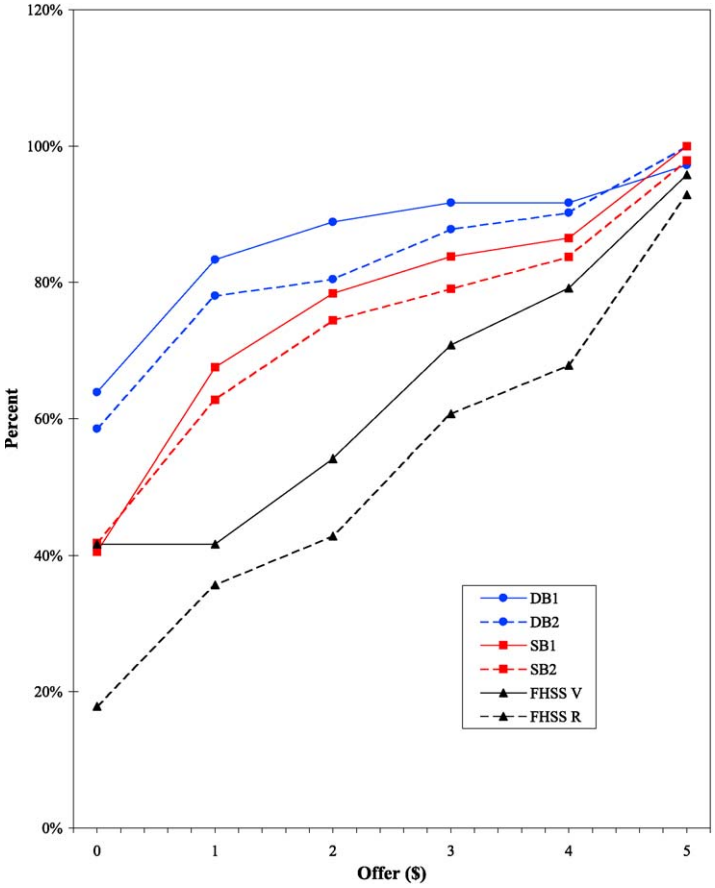

Figure 1.

2.1. *Replicating Forsythe et al. (1994)*

We begin by noting that we applied these same instructional elements to $N = 28$ pairs of University of Arizona subjects, and found no significant difference between the data reported by Forsythe et al. (1994) and our replication, denoted FHSS-R (see Figure 1) showing that the Forsythe et al. (1994) results extend to different subjects and experimenters. (From this point on, we are referring to data reported in Hoffman, McCabe, and Smith, 1996.)

Figure 1. In DB1, fifteen subjects are recruited to room A and fourteen subjects are recruited to room B. In the following description, (i)–(iv) represent conditions that are altered in subsequent instructional treatments. (i) One subject from room A is chosen to be the monitor. (ii) The subjects are informed that there are fourteen envelopes. Twelve envelopes contain ten one dollar bills and ten blank slips of paper, two envelopes contain 20 blank slips of paper. Subjects in room A are called one at a time, and select an unmarked opaque envelope chosen at random from the box of 14 envelopes. The subject takes the envelope to the back of the room, and sits behind a large cardboard box which maintains his or her privacy. (iii) The subject opens the envelope, and decides how many one dollar bills to keep and how many bills to leave for a person in room B; the bills taken are replaced by blank sheets of paper, so that the envelopes are all the same thickness. (iv) After a subject has made a decision, he or she is asked to seal the envelope and return it to a box near the exit door. The subject then leaves the experiment. This is repeated until all subjects have left room A. The experimenter next takes the box of envelopes to room B. Upon arriving at room B, the monitor and experimenter sit outside the room, and the subjects are called one at a time. In the subject's presence, an envelope is chosen, opened, and the envelope's contents are recorded by the monitor on plain paper containing no names. The subject is then given the envelope's contents, and he or she leaves the experiment. This is repeated until all subjects have left room B. In a second treatment (DB2), we omit (i) the paid monitor and (ii) the two blank envelopes. Complete anonymity is now no longer guaranteed, but is highly likely as long as someone leaves money. In SB1, everything is the same as in DB2, except that we modify (iv), so that the experimenter now learns each decision maker's decision. SB2 is identical to SB1, except that we now modify (iii). The envelope now contains a decision form for making the decision (as in FHHS), instead of money. Money is received when the form is presented to the instructor. FHSS-R is a pure replication of Forsythe et al. (1994). FHSS-V is a treatment variation on the instructions for FHSS-R. We simply omit the phrase: "has been provisionally allocated" $10, and the description that the task is to "divide" the $10 in FHSS-R.

2.2. *FHSS-V*

Next consider a treatment variation on the instructions for FHSS-R. The object is to subtly increase the social distance between proposer and receiver in the dictator game. We implement this objective very simply by just omitting the phrase: "has been provisionally allocated" $10, and the description that the task is to "divide" the $10. Our instructions simply state that there are 10 one dollar bills, and each person in room A is to decide how many one dollar bills to keep and how many to send to a person in room B. The hypothesis is that the indicated elements together suggest a closeness or community of sharing, and the existence of a social exchange framework, which subtly triggers greater reciprocity (more generous proposal) behavior.

We conjecture that the FHSS-V treatment defines a minimal increase in the social distance between proposer and recipient, as compared with the FHSS-R treatment. At the other pole, which we use to define the maximal social distance (Double Blind 1 below), the experiment is operated "double blind," meaning that the procedures make it evident to all subjects that the experimenter, who makes and retains no record of the data by subject name, and any person who subsequently sees the data, can never know who made what decision. The objective of this procedure is to remove all social context in a manner that is transparent to the subjects.

After implementing the Double Blind 1 (DB1) procedure, which is a large step-out variation on FHSS-R, we use the social distance reasoning to relax one or two elements

at a time in the instructional language of DB1 and define three other treatments: Double Blind 2 (DB2), Single Blind 1 (SB1), and Single Blind 2 (SB2), which we predict move the data sequentially closer to the conditions of our FHSS-V treatment, and form an ordered series.

In our original Double Blind Dictator experiments, fifteen subjects are recruited to room A and fourteen subjects are recruited to room B. Subjects are met by an experimenter, paid a $5 show up fee, given a set of instructions, and asked to sit at assigned seats which are positioned so as to keep subjects as separate as possible. Subjects are also reminded that there should be no talking or other attempts to communicate during the experiment. The instructions are reproduced in the Appendix of Hoffman et al. (1994) under "Dictator, Divide $10, Double Blind 1."

In the following description, sentences labeled (i)–(iv) represent conditions that are altered in subsequent instructional treatments. (i) One subject from room A is chosen to be the monitor and will be paid $10. The experimenter than reads aloud the instructions. By reading the instructions aloud, the subjects can verify that they all have the same instructions. After the instructions are read, the decision making part of the experiment begins. (ii) The instructions inform the subjects that there are fourteen envelopes. Twelve envelopes contain ten one dollar bills and ten blank slips of paper, and two envelopes contain 20 blank slips of paper. Subjects in room A are called one at a time and are asked to bring personal belongings with them. This insures a clean exit. Once called, a subject is handed an unmarked opaque envelope chosen at random from the box of 14 envelopes. The subject takes the envelope to the back of the room, and sits behind a large cardboard box which maintains his or her privacy. (iii) The subject opens the envelope, and decides how many one dollar bills to keep and how many bills to leave for a person in room B; all bills taken are replaced by blank sheets of paper, so that the envelopes are all the same thickness. (iv) After a subject has made a decision, he/she is asked to seal the envelope and return it to a box near the exit door. The subject then leaves the experiment. This is repeated until all subjects have left room A. The experimenter next takes the box of envelopes to room B.

Upon arriving at room B, the monitor (and experimenter) sits outside the room, and the subjects are called one at a time. In the subject's presence, an envelope is chosen, opened, and the envelope's contents are recorded by the monitor on plain paper containing no names. The subject is then given the envelope's contents, and he or she leaves the experiment. This is repeated until all subjects have left room B. At this point the monitor is paid and the experiment is over.

In our DB1 experiments, we guarantee complete anonymity by including the two envelopes containing 20 blank slips (ii). Without this precaution, if everyone in room A takes all $10, then each person's decision is clearly known by the experimenter, and perhaps others. However, with the existence of two dummy envelopes, the experimenter and the receivers in room B cannot know whether any one person in room A has left no money, or merely received a dummy envelope. The blank envelopes (ii) are expected to magnify the dictator's sense of isolation, and the existence of a monitor (i) removes the experimenter as an executor of the procedure (although as noted in

Hoffman et al., 1994, paying the monitor $10 may help the subjects to justify keeping the money).

2.3. Double Blind 2 (DB2)

We examine these hypotheses in a second treatment that omits (i) the paid monitor and (ii) the two blank envelopes (DB2). Complete anonymity is now no longer guaranteed, but is highly likely as long as someone leaves money. Offers in DB2 are expected to increase, since we have weakened the sense of social isolation. It was in conducting DB2 that we first observed aspects of subject behavior that sensitized us to the subtle features of anonymity and social distance (Hoffman et al., 1994, footnote 9). Not all of the subjects in room A sealed their envelopes as instructed, and both of the experimenters (in this case McCabe and Smith) noted that, most revealingly, there was a pronounced tendency for those leaving no money to seal their envelopes, and for those leaving money to not seal their envelopes. We had not had the opportunity to observe this in DB1 because we used a subject monitor. This experience brought home to us the features of detectability, and reduced privacy, made possible by the presence of an experimenter.

2.4. Single Blind 1 (SB1)

In our next treatment, SB1, everything is the same as in DB2, except that we modify (iv), so that the experimenter now learns each decision maker's decision. The appendix to Hoffman, McCabe, and Smith (1996) contains the instructions for SB1. This is done by (a) having the subject return to the experimenter after deciding what to leave in the envelope; and (b) having his or her unsealed envelope opened behind a large cardboard box at the experimenter's desk. This insures isolation with respect to other subjects, but not with respect to the experimenter. (c) The amount he or she has offered is then recorded on a sheet by the subject's name, (d) the envelope is sealed, and (e) the subject drops it in the return box and leaves. We predict that allowing the experimenter to know the decision makers' decisions reduces their social isolation and increases offers. Except for the use of envelopes containing the money, we have moved closer to the procedures used by Forsythe et al. (1994) and others.

2.5. Single Blind 2 (SB2)

Our last condition, SB2, is identical to SB1, except that we now modify (iii). The envelope now contains a decision form for making the decision (as in FHHS), instead of money, and we use the following procedure. (a) A subject fills out the form in the back of the room behind a cardboard box. (b) The subject returns to the experimenter in the front of the room, where (c) his or her envelope is opened behind a cardboard box, and (d) the subject is paid the amount he or she has decided to keep. This is recorded opposite the subject's name on a data sheet. (e) If the decision gives money to a subject in room B, the money is placed in the envelope, the envelope is sealed, and (f) the subject

Table 1

	Experiment	Number of observations	Anonymity condition	Decision type
1	DB1	36	Double blind and blanks[a]	Dollars
2	DB2	41	Double blind	Dollars
3	SB1	37	Single blind	Dollars
4	SB2	43	Single blind	Form
5	FHSS-V	28	Single blind	No Sharing Language
6	FHSS-R	28	Single	Sharing Language

[a]Includes two envelopes with 20 blank slips and a monitor paid $10.

drops it in the return box as he or she leaves the room. The actual instructions are in the appendix to Hoffman, McCabe, and Smith (1996). This treatment corresponds to the standard way that subjects are paid in experiments, but the use of an intermediate form further socializes the transaction. We ask whether it makes a difference that the envelope contains a credit (or IOU), to be exchanged for money with the experimenter, instead of the actual money to be divided. Since SB2 creates a direct transaction between the subject and the experimenter (in order to get paid) social distance is narrowed, and we predict that offers will increase relative to SB1.

While SB2 is expected to provide the shortest social distance, and yield the most generous offers among the above four treatments, there remain important instructional differences between SB2 and FHSS-V. Particularly important for creating transparency, is that in SB2, as in SB1, DB1, and DB2, all subjects in room A act out, and observe others acting out, the privacy conditions described in the instructions. The decision form is in an envelope, the subject chooses an envelope and carries it to the privacy box, returns it to the experimenter (the monitor in DB1), and so on. Therefore, we expect offers to be less generous in SB2 than in FHSS-V.

3. Experimental Design and Research Hypothesis

The experimental treatments described above are summarized in the design shown in Table 1. Letting $F(\bullet)$ be the population distributions of offers for each of the six treatments, DB1, DB2, SB1, SB2, FHSS-V, and FHSS-R, the hypothesis is:

$$\text{HR: } F(\text{DB1}) > F(\text{DB2}) > F(\text{SB1}) > F(\text{SB2}) > F(\text{FHSS-V}) > F(\text{FHSS-R}),$$

which we test against the null hypothesis that the treatment samples come from population distributions that are identical.

4. Results

Figure 1 plots the cumulative distribution of offers for all six treatments. As the social distance conditions are weakened from DB1, progressively through FHSS-R, we observe, as stated in HR, that the offer probability distributions decrease. Using the Jonchkeere non-parametric order test statistic, as reported in Hoffman, McCabe, and Smith (1996), the null hypothesis that the distributions are indistinguishable across treatments, is rejected in favor of HR. The results for DB1 have been independently replicated by two other researchers: Burnham (2003) and Eckel and Grossman (1996).

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