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Confidence, Power and Distributive Preferences

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Abstract

This study investigates behaviors of donors who expect to be named donor positions in a dictator game and shows that they tend to allocate more to themselves than who don't expect, even though they know that their positions are given completely by chance. Results from a *dictator game* wherein donors have absolute power to redistribute a sum they stipulate and a *random dictator game* wherein their stipulated distributions are chosen by computer are compared. Roles of donor and recipient were assigned by lots in both experiments. The confident donors made self serving redistribution decision than unconfident donors in both games, and the difference was more significant in the dictator game. Compared with the preferences exhibited before being informed their roles, confident donors decreased their redistribution after learning their roles, and the declines in the dictator game were conspicuously larger than that in the random dictator game. In

short, confident subjects were greedy and became greedier when their distributive power was unconditional, even though their confidence had no rational basis.

Keywords: inequity aversion, redistribution preferences, dictator game, experimental study

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1. Introduction

Economic inequality has been becoming an important problem in many countries. The cause of the inequalities much depend on somewhat individuals can't control, e.g. social stratifications they are born, economic trends they face and many life choices one can't see what lies ahead at all, as well as their personal abilities and efforts. Nevertheless there are barely any studies that investigate the effect of confidence in individuals' own luck on their distributive preference. It would be important because people who are in the positions to decide the others' income like policy makers or company executives would be confident in their luck to be elected or to success in their business. If the confident individuals are more greedy, income gap can be more severe.

Psychological studies show that one's psychological traits affect the preferences of their distributive justice. For example, donors with high self-esteem are more apt than donors with low self-esteem to allocate rewards on the performance based equity standard. (Brockner, O'Malley, Hite and Davis 1987). Major and Adams (1983) shows that individuals of high Interpersonal Orientation (IO) scale (individuals who are interested in the interpersonal aspects of their relationships) allocate rewards more equally than low IO individuals (individuals who don't care the interpersonal aspects of relationships and interested in maximizing their own gain). Greenberg (1983) shows that high private-self-

conscious subjects, who are attuned to their own feelings and internal standards, distribute reward in accordance with the equity standard whereas high public-self-conscious subjects, who concern about the impressions on others, tend to divide the rewards equally.

Iida (2015) found that donors who expected to have a higher initial income by their task performance made more self-serving income redistribution than the donors who didn't expect in a dictator game. Considering on the basis of the psychological studies, the result is understandable; Individuals with high self-esteem are confident in their ability and expect to perform better to win the higher initial income. Once they get the donor position, they believe that they actually implemented their task better than one's partners and allocate rewards much to themselves on the basis of equity standard, as Brockner et. al (1983) pointed out.

This drives us to the question what will happen if the initial income distribution is decided completely by chance. Are the subjects who expect to be donors also more selfish than the subjects who don't expect, even though they know that the donor positions are given as windfalls? Compared with the income gap caused by subjects' abilities or efforts, the gap by their own lucks provides no reason to receive higher rewards with the equity standard. If confident subjects are the individuals whose principles of distributive justice are equity, they can't reserve for themselves more than their partners. However,

studies about better-than-average effect (e. g. Taylor and Broun 1988) suggest another possibility. Most people evaluate themselves more favorably than average peers. This better-than-average effect is found not only in the evaluation of their behaviors and traits but also in the expectation of future life events like winning the lottery, job satisfaction, enduring marriage and so on. (Weinstein 1980, Baker and Emery 1993). Brown (1986) found that individuals with high self-esteem tend to evaluate themselves more favorably. It suggests that receiving the donor position by chance can make confident individuals who have strong tendency to rate themselves as “better-than-average” to believe that they have better traits than their partners and that they are deserved to receive higher rewards. In addition, their confidences for the luck are less-grounded than confidences in their ability; many people have experienced competitions with others in a school and/or an office and have chances to realize their own relative dominance of abilities but regularly anyone can’t have any experience that provide objective information how relatively lucky they are. Some studies show that individuals are more self-serving when making subjective or ambiguous judgments (Allison, Messick, and Goethals 1989, Rothbart and Park1986). Therefore, the serf-serving behavior of donors who is confident in their luck can be conspicuous.

To provide some policy implication about the income gap resulted in the decision

of confident individuals, this study controls the power of redistribution of donors. A dictator in a standard dictator game enjoys two advantages over recipients: higher initial income (the role of donor) and uncontested power to redistribute it (the position of dictator). This study examines how the latter affects redistribution preferences.

Redistributive power potentially affects donors in contrasting ways. On one hand, subjects might regard their redistributive power as a fortunate happenstance and not as a tool for self-benefit. Experiments show that donors who received higher incomes randomly were less greedy than those who earned it by performing simple tasks (Hoffman et al., 1994; Cherry et al., 2002; Oxoby and Spraggon, 2008; Rousu and Baublitz, 2011). Like subjects who regard those higher initial incomes as a gift of chance, subjects who are granted distributive power randomly are less likely to use it primarily to benefit themselves.

On the other hand, donors may interpret it as their personal property and use it to benefit themselves by allocating less to others. Rode and Le Menestrel (2011) and Oxoby and Spraggon (2008) show that dictators (subjects assigned power) grant themselves considerable proportions of incomes—even incomes earned only by recipients—and distribute to others almost nothing of what they themselves earned. In other words, distributive power can reinforce avariciousness and self-serving interpretations of

fairness.

The way to interpret the distribution power can be different by the individual's confidence for oneself. This study compares results of subjects with and without confidence in their luck in a dictator game (DG) and a random dictator game (RDG). In both games, participants drew lots to determine allocations of initial income and therefore to assign donor and recipient roles. Before informed whether the lottery had assigned them donors or recipients, subjects were asked whether they thought their scores of lots were higher than their partners'. In the DG experiment, subjects possessing higher initial income (donors) also are empowered to redistribute it to recipients possessing less initial income (in effect becoming dictators). In the RDG experiment, donors and recipients declare their distributional preferences, but one is randomly implemented. Donors in DG know that their redistributive power is unconditional; however, donors in RDG know that their power is not.

The experimental procedure unarguably establishes that chance alone determines initial income and roles. Therefore, the issue that immediately arises is how participants with and without confidence perceive themselves and make redistributive decisions when their positions of the power are established randomly. For example, Rode and Le Menestrel (2011) and Oxoby and Spraggon (2008) expect DG donors to have self-serving

notions of distributive justice and to distribute less to others. However, higher initial incomes and distributive power bestowed randomly might encourage donors to be generous. That might be the case with donors in DG experiments if they do not regard their redistributive power as a personal property right. It might not be so with donors in RDG experiments, because they lack the unconditional power to dictate redistributive outcomes.

Experimental results show confident donors—participants who expected the game to favor them at the outset—were greedier than unconfident donors. They awarded more income to themselves before learning what role they had been assigned, and they slashed distributions to recipients even further after learning they were donors. The greediness of donors are more conspicuous when they had uncontested power of redistribution (DG experiment). The difference between confident and unconfident donors of DG experiment was clearer than that of RDG experiment, and the slash was also more evident in DG experiment.

Unconfident DG and RDG donors were relatively generous and did not notably alter their distributions after being named donors. The average redistribution preferences of the treatments were close both before and after they had been assigned the role; even donors of DG had greater motivations toward avarice than donors of RDG because they

did not need to face the disappointment of their redistribution preferences being not chosen. This result suggests that exclusive power affirmatively affected unconfident donors.

Section 2 shows the experiment design, Section 3 reports the results, and Section 4 discusses and concludes.

2. Experiment design and procedures

The experiment was programmed by and conducted using z-Tree software (Fischbacher, 2007). Over a period of four days, 110 undergraduates (89 men and 21 women) recruited from different departments of Kyoto Sangyo University[1] were seated at individually partitioned computers. Subjects were paired randomly with one anonymous partner. Communication was prohibited. The experimenter read distributed instructions[2] to the participants.

Initially, subjects drew lots via computer entry. Each entry produced a single score with a probability of 0.25. Lots were drawn 12 times. The higher-scoring partner received a larger sum of initial income (X)[3] and was designated the donor. Donors were asked to

[1] Four participants' results are omitted because they had participated in a similar experiment earlier.
[2] Instructions appear in Appendix A.
[3] I set X = ¥500.

indicate via computer how much they would give to their partner (maximum = 0.5X). Lower-scoring partners were designated recipients and asked how much they wished to receive from their donor (maximum = 0.5X).

A dictator game (DG) and a random dictator game (RDG) were conducted. Subjects in the DG experiment received higher initial income, and one was designated a dictator with uncontested power to redistribute it. In the RDG experiment, the computer randomly chose the donor's or the recipient's designated distribution with a probability of 0.5. During the experiment, after approximately 40 min, departing participants were paid the actual amounts determined for the experiment and a participation fee.

Before learning whether the lottery had named them donors or recipients, subjects were asked to estimate their scores, whether they thought their scores were higher than their partner's, how much they would donate if designated as donors, and how much they wished to receive if they were designated recipients. After learning their results, designated donors were asked what amount they actually would redistribute and designated recipients what amounts they wished to receive. In the DG experiment, donors' declared sums were distributed. In the RDG experiment, donors' or recipients' stipulated distributions were chosen randomly and distributed.

3. Experimental results

3.1. General results

In the questionnaire implemented before subjects was informed their role, 27 of 57 donors (fifteen of 30 DG donors and 12 of 27 RGD donors) answered that they expected that their lottery scores was higher than their partner's. Hereafter, those who expected higher scores are called "confident donors" and the others are called "unconfident donors." The confident donors were significantly greedy than unconfident donors. The average confident donors redistributed 11.9% of the permitted maximum, whereas the unconfident donors redistributed 31.6%. ($t = 2.46$, $p = 0.017$, $N = 57$).

Were confident (unconfident) donors selfish (generous) from the beginning, or did they become so after being informed that they were the winner? Before the subjects were notified about the roles, they were asked how much they would donate if they were donors and how much they would want to receive if they were recipients. Confident donors answered to redistribute 20% of the permitted maximum in the pre-informed stage. That is lower than the unconfident donors' redistribution (36.3%). The difference was not significant ($t=1.83$, $p=0.07$) but it was close to 5% level. Confident donors reduced their redistribution it to 11.9% after learning their roles. The reduction attained 5% statistical significance ($t = 2.3$, $p = 0.03$, $N = 27$) whereas the reduction of unconfident donors are

much moderate (t = 0.99, p = 0.32, N = 30).

There is barely any difference between confident and unconfident recipients. Confident recipients, who expected to be donors, asked for 81.8% of the maximum permitted redistribution and Unconfident recipients asked for 80.3% (t = 0.18, p = 0.85, N = 53).

3.2. Distributive power

DG donors knew that they had unconditional redistributive power when they declared how much they would give their partners; RDG donors knew that they had no such power. The former distributed 20.1% of the permitted maximum and the latter distributed 24.5% (t = 0.53, p < 0.6 N=57). Thus, an overview of the unparsed experimental results revealed no striking statistical differences between preferences of DG and RDG donors.[4]

As shown in figure 1, in the DG experiment, confident (unconfident) donors on average distributed 8.5% (31.7%) of the allowed maximum. The difference between

[4] The average redistribution of RDG donors in this experiment（24%, N = 27）is a bit higher than RDG donors who won the higher initial income by a intellectual test (18.1%, N = 28) and by simple repeated tasks (18.7%, N=28) (Iida2015). The differences between this experiment and task based income gap experiments are not significant, though the trend is similar to the former studies that compare the effect of the cause of the initial income gap and redistribution preferences (Hoffman et al., 1994; Cherry et al., 2002; Oxoby and Spraggon, 2008; Rousu and Baublitz, 2011).

confident and unconfident were significant at 5% (t = 2.13, p = 0.042, N = 30). In the RDG experiment, confident (unconfident) donors on average redistributed 16% (31.4%) of the allowed maximum (t = 1.25, p = 0.22, N = 27).[5]

Before learning their roles, confident DG donors intended to redistribute 19.7% of their income, but they reduced it to 8.5% after learning their roles. That reduction approached 5% statistical significance (t = 1.99, p = 0.066, N = 15). Confident donors in the RDG experiment on average reduced allocations to recipients from 20.3% to 16% (t = 1.16, p = 0.27, N = 12).[6] The result suggests that unconditional power to redistribute turned confident DG donors much greedier when they got informed that they had won to their partner.

Recipients in the DG experiment (RDG experiment) asked for 73.4% (88.3%) of the maximum permitted redistribution. The difference was not quite significant at 5% (t = 1.89, p = 0.066) but was close to it. Contrary to the recipients of RGD, recipients of DG did not have any serious motivation to exhibit greedy demands that would never be realized. Hence, it is not surprising that requests of DG experiment were lower than that

[5] Average redistribution of confident donors in this experiment (16% N= 12), is also higher than that of the intellectual test treatment (2.4%, N = 10) and the simple task treatment (11.2%, N = 19) but the differences aren't significant, either. Though the number of the samples is not sufficient to conclude, the average redistribution of each result suggests that initial income gap caused by chance can elicit rather moderate greediness than the gap by abilities and efforts.

[6] Comparative statistical studies not referenced here are mentioned in Table B1 in Appendix B.

of RDG. As shown in figure 2, Recipients revealed any behavioral features like donors shown. RDG recipients have a partial power of actual redistribution decision but confident recipients (recipient who expected to be donors) were not greedy as confident donors. There aren't any significant differences between confident and unconfident recipients of RDG experiment ($t = 1.32$, $p = 0.19$, $N = 27$), either recipients of DG experiment ($t = 0.8$ $p = 0.42$, $N = 26$). Confident recipients also didn't change their request for the redistribution significantly after they got informed their role. ($t = 1.35$, $p = 0.2$, $N = 10$ in RD, $t = 0.26$, $p = 0.79$, $N = 15$ in RDG)

3.3. Confident subjects

In both experiments, confident donors were greedier than unconfident donors and unconditional redistributive power turned them much greedier, but their confidence had no apparent basis beyond their own psychology. Before learning their roles, subjects were asked to evaluate the importance of each of the factors of effort, ability, and luck in seven digit scale[7] for receiving a higher score. Their average answers were 2.98 for effort (the average of their answers was around "Not very important"), 4.3 for ability ("Neither

[7] The scales are 1 (Not important at all), 2 (Not important), 3 (Not very important), 4 (Neither important nor unimportant), 5 (Slightly important), 6 (Important), and 7 (Very important).

important nor unimportant"), and 6.6 for luck ("Very important"). In short, subjects knew that their lottery scores—and therefore their status as donors or recipients—were determined entirely by luck. There is no significant difference between the confident and unconfident donors' evaluations of the causes of the income gap. Subjects who expected to win were confident about their luck, albeit for no apparent reason. In that sense, it was a species of overconfidence.

In a sense, both confident and unconfident donors have overconfidence. As noted, subjects drew computer-generated lots 12 times. Each draw awarded a single score with a probability of 0.25.[8] Hence, the expected total score was 3, and average actual scores of confident and unconfident donors were 4.03 and 3.7, respectively. Being assigned donor roles for winning higher scores in their groups, the actual average scores of the donors were higher than the expected score[9]. Before learning their roles confident and unconfident donors had estimated their scores would be 4.7 and 4.4 on average and the difference is insignificant ($t = 0.6$, $p = 0.5$, $N = 57$). Both confident and unconfident donors overestimated their score higher than the expected score, but it is not unusual. I

[8] Subjects were shown four radio buttons on their PCs, told that each registers a single score, and asked to choose one. Subjects could have reasoned that the probability was 1/4.

[9] Average actual scores of confident and unconfident subjects (donors and recipients) were 3.07 and 3.0, respectively.

asked them to conjecture their score, not to calculate the expected value of their score. Physiological studies (e.g., Lichtenstein and Fischhoff, 1977; Ronis and Yates, 1987) show that individuals tend to be overconfident about their choice. Moore and Hearly (2008) points out that research literatures used the term “overconfidence” in three distinct way: (1) overestimation of one’s actual performance, (2) over placement of one’s performance relative to others and (3) excessive precision in one’s beliefs. The authors also note that many articles use the term “better-than-average” for the second definition. According to the definition, both confident and unconfident donors of this study overestimated their performance to draw a winning lottery to a similar extent, but the extent of over placement is different: confident donors over placed themselves than their partners whereas unconfident donors’ didn’t. An experimental study of Moore and Hearly (2008) shows that the overconfidence of first and second definition is not always observed simultaneously. The result of this experiment is in line with the study.

It would be noted that the greediness of confident subjects was evident only in *donors’* behavior. As Figure 2 indicates, confident and unconfident *recipient*s asked for similar redistributions before and after learning their assigned roles.[10]

If individuals’ traits about their confidence are critical for their distributive

[10] Results of statistical studies are in Table B2 Appendix B.

preferences, it would be needed for experimental economists to pay attention the ratio of confident and unconfident subjects before the experiments start. Can experimenters identify confident subjects in advance? Subjects in this study were nearly homogenous; all were undergraduates, around 20 years old, and Japanese. Although previous studies show that men are more overconfident than women in situations of uncertainty and women are more inequality averse (e.g., Croson and Gneezy, 2009), this study documented no such gender differences. As per Table 1, confident donors redistributed less income than unconfident donors of the same gender. This result suggests experimenters have no reliable clue for pre-identifying confident subjects.[11]

4. Conclusion and Discussion

This study shows confident donors—subjects who are expected to be donors—show significantly greater self-serving behaviors than unconfident donors and that possessing unconditional power to redistribute income more striking difference between confident and unconfident donors. The result suggests that the power can stimulate self serving behavior of confident donors.

Self-serving behaviors of donors has been found in Rode and Le Menestrel

[11] Average lottery scores expected by men (4.91) and women (4.71) indicate similar degrees of confidence.

(2011) and Oxoby and Spraggon (2008). In their study the role of the donor/recipient is given by experimenters. This could make donors to believe they are entitled or authorized by the experimenters (I received this power by the game master!) and that the power is their property. In this study, the role is decided by a lottery; hence donors can't believe it is authorized or entitled by any means.

Why were confident donors greedy? There is no doubt that donors who are confident in their luck are the individuals who apt to evaluate themselves more favorably than their partner without any apparent reason, in other words, the individuals who has stronger tendency of better-than-average bias. Alicle and Govorun (2005) surveyed numbers of studies about the better-than-average effect and degignated that various lines of evidences indicate that self-enhancement motives contribute the effect. Self enhancement is a motivation that works to maintain self-esteem (e.g. Sedikides and Strube, 1995). It seems reasonable to suppose they are also the individuals with high self-esteem. The result of Brockner, O'Malley, Hite and Davis (1987) shows that subjects with high self-esteem allocate rewards to themselves more than subjects with low self-esteem when they believe the income gap is caused by their performance. The study explained it is because subjects with high self-esteem adopted the equity principle as their distributive justice. The result of this study suggests that subjects who are confident with their luck

evaluate their traits favorably and apply the equity principle even though there aren't any rational bases. On the other hand, such self-serving evaluations vanish when they are informed that their partner is luckier than them. Alicke (1985) found that the better-than-average effect increases with positive controllable traits and decreases negative uncontrollable traits (In short, people think as "I make me good, fate make me bad"). Confident subjects in this study can also have similar recognition; they thought as "I attracted the good result (assigned as a donor) therefore I am deserved to receive much." or "Failing to get the donor position is not my fault, but at least I have no reason to believe I am deserved to receive a lot."

To the question why confident donors are greedy, it would also be instructive to ask why unconfident donors were generous. Generosity before learning their assigned roles could be explained by the theory of disappointment aversion (Loomes and Sugden, 1986). Unconfident donors declared generous redistributions to avoid the future experience of the disappointment of losing. It is reasonable that unconfident donors of RDG kept exhibiting high redistribution preferences after learning their roles because the actual redistribution remained in doubt. Note that donors of DG treatment did not significantly decrease their redistribution even though they did not have to be afraid of losing; therefore, they should have a stronger motivation to decrease their donations. As

a result, unconfident donors of DG and RDG treatments were equally generous, awarding 31.7% and 31.5%, respectively, of the maximum permitted redistribution. The generosity of the unconfident donors of DG could be explained by that, as the introduction noted, redistributive power was a windfall for donors of DG, and unconfident donors might not have regarded it as a personal property right to be used for their greater self-enhancement. In contrast, results of confident donors of DG treatment suggest that they regarded redistributive power as rightfully theirs once bestowed.

There are several studies that focus on what the better-than-average effect, that is in a form of the overconfidence, would causes in a market. Camere and Lovallo (1999) shows that individual's overconfidence for own ability causes excess entry to a market and lower the profits of them. Oden (1998) suggests that the confidence cause excessively high rate of trading in the stock market. This study shows that the confidence has some effect on the other important aspect of economy, the income gap and distributive preferences. The result of this experiment can explain extremely high rewards of company executives and low rewards for employees. Those who set out for a challenging business usually have some sort of self-confidence. Successful executives can justify high rewards for themselves even if it is too high to compensate the risk they had taken and their marginal productivities. The result also suggests the distortion would be enhanced when

executives have exclusive power. To evade severe wage differentials, development of laws that provide negotiation power to employees would be desirable.

Similarly, when elected policymakers were candidates for office, they must have had some confidence they could be elected, and their confidence presumably was reinforced by being elected. It is at least reasonable to surmise that they then act like the confident donors in this research when setting policy for the weak, e.g., low minimum wages, limited wage bargaining, and restrictive income redistribution policies. Results of this study suggest they will institute harsher policies than those that would be chosen by the populace generally.

Alicke et. al. (1995) shows that the better-than-average effect is reduced when people compare themselves with a person in the same room regardless whether actual interaction takes place. In this study, subjects sat in a same laboratory room and are informed that they play with a partner in the room. The result of Alicke et. al. (1995) suggest that company executives or policymakers who imagine many of anonymous employees or citizens as recipients can be much influenced by the better-than-average effect than the subjects in the laboratory.

Although observations of this study did not indicate statistically significant differences between confident donors' redistribution preferences of DG and that of RDG

(8.5% versus 16%) ($t = 0.77$, $p = 0.44$, $N = 27$) yet, the ratio between confident and unconfident subjects can present a problem for related studies of income redistribution. If by happenstance nearly all subjects in a baseline treatment are confident and most subjects in a controlled treatment are unconfident, then that disproportion could contaminate experimental results and offset experimental controls. Section 3.3 noted it is difficult to pre-identify confident participants. It would be desirable for experimenters to check the ratio of confident/unconfident subjects during the experiment.

When many subjects are confident, another experimental design problem arises. To earn a much data with various conditions and evade a reward accumulation effect, it is popular to try several treatments in a single experimental procedure and to pick one (or two) randomly for final payments (e.g., Eckel and Grossman, 2000). In that case, a dictator (or subject in a controller position) cannot believe that they have exclusive power because the actual payment of awards might be determined in a manner unrelated to their preferences. However, in experiments finished with a single treatment and paid for that, dictators can believe that they alone have power. Therefore, even if experiments are designed identically, results can differ when payment mechanisms differ.

Further investigation is needed to specify how and why confident (unconfident) donors become greedy (generous). Focusing on the viewpoint of economic aspect of

distributive justice, though the psychological theory and experimental results are adopted to interpret the result of this study, psychological scales of subjects are not measured. There could be more detailed investigation in relation to the psychological traits of subjects. In this section I noted that the strong distributive power could affect positively unconfident donors' distribution preferences and cancel the negative effect, but whether it is true or the difference of conditions between treatments did not work at all for unconfident donors is unclear. Therefore, the respective consequences of possessing redistribution power need to be isolated. Additionally, various studies show the cross-country differences of psychological traits (for example, Heine et al. (1990) shows the difference of extent of self-esteem between North American Caucasian and Japanese) and also social and cultural differences affect the greediness of confident donors. Multinational studies would be needed to discover whether the greedy confident donors are general in different countries.

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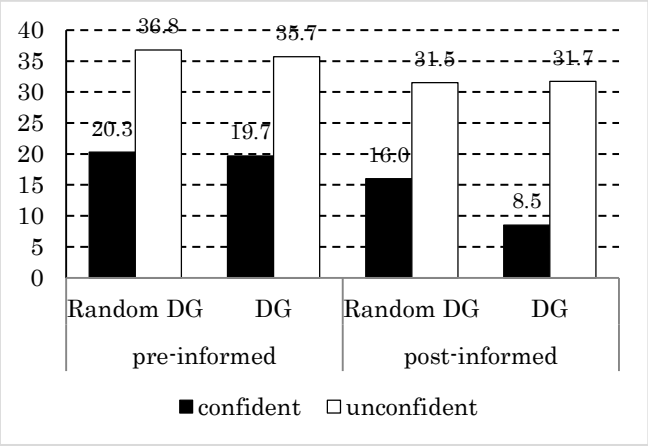

Figure 1. Redistribution preferences of donors

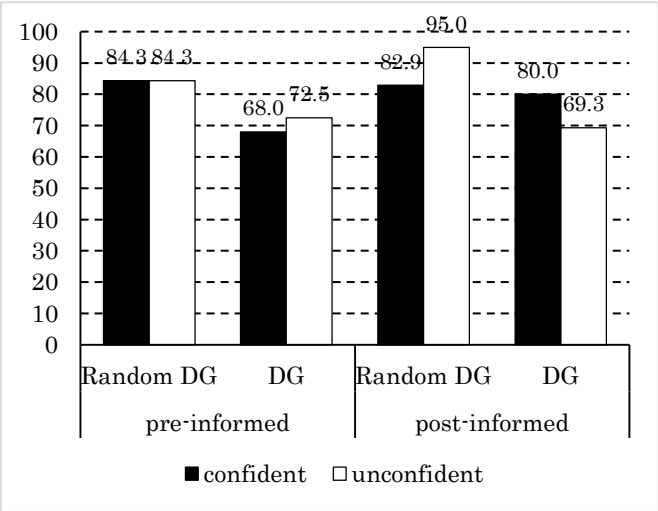

Figure 2. Redistribution preferences of recipients

Table 1. Donors' redistribution based on gender

	Male		Female		
	N	Distribution	N	Distribution	t-value
All	46	22.8	11	20	(0.25)
Confident	22	12.4	5	9.6	(0.22)
Unconfident	24	32.3	6	28.7	(0.23)

Appendix

A: Instructions translated into English
Note: Parentheses indicate DG games. Brackets indicate RDG games.

Instruction

Thank you for participating in this experiment. Please switch off your cellphone and keep it in your bag. Do not speak with each other until the experiment is finished. Read the following instructions carefully and raise your hand if you cannot understand anything. We will attend to your question promptly.

Outline of the experiment

The outline of the experiment is as follows: first, you are made a member of a group of two. Members of both the groups take the procedure independently. The result of the procedure decides the amount of your reward. Next, you answer a question about how you want to change the distribution of rewards. (Finally, the demand of the better result in the procedure is accepted.) [Finally, one of the two will be randomly chosen and the demand of the chosen person is accepted.]

First stage

In the first stage, you take a procedure. Your result in the procedure becomes the source of your reward. You will be given instructions for the procedure when the experiment starts. Please follow the instructions on your PC screen. The person with the higher score receives a reward of 500 yen, and the lower-scoring one receives 0 yen. If the result is a tie, the quickest person to get the last single score gains 500 yen.

After the procedure is finished, please answer some questions regarding how you feel about the procedure. Finally, your score along with the result is displayed on the screen.

Second stage

In the second stage, you have a question regarding redistribution. If you are the person to have received a higher reward, you are questioned about what amount of your own reward you will give to your group member.

(The maximum amount you can answer is ¥250. The actual transfer will be the

amount you determine. If you have received the lower reward, you will be asked what amount you wish to receive from your partner. Although your requested sum will not be paid to you, please assume it will be.)

[If you are the person to have received the lower reward, you are questioned as to what amount you wish to receive from the higher reward winning group member. The maximum amount you can answer is 250 yen. Your group member also answers the same question.

After both group members have answered, one of the demands of either member is chosen with a probability of ½ for either of the demands.

For example, if your reward was 500 yen, and you answered that the amount you would give to your group member was 50 yen and if your group member wants 150 yen, then your final reward could be either 450 yen or 350 yen—with 1/2 probability in each number.

If both you and your group member quote the same amount, the final reward is same—whether or not you are the one to be chosen.

You cannot know the answer of your group member. Please form your decision only on the basis of what you want to do.]

Your final profit is the amount of the reward decided from the experiment plus 500 yen as the participation fee.

Please feel free to ask in case you have any questions.

B. Statistical tests between phases/characteristics

Table B1. Redistribution preferences: donor

		Confident		Unconfident		
		N	average	N	average	
All	pre	27	20	30	36.2	(1.83)
	post		11.9		31.6	(2.46*)
			(2.3)		(0.99)	
Random DG	pre	12	20.3	15	36.8	(1.25)
	post		16.0		31.4	(1.26)
			(1.16)		(1.29)	
DG	pre	15	19.7	15	35.7	(1.28)
	post		8.5		31.7	(2.13*)
			(1.99^)		(0.46)	

Note: Numbers in parenthesis are t-values. ^ p< 0.1, * p< 0.05, ** p< 0.01

Table B2. Redistribution preferences: recipient

		Confident		Unconfident		
		N	average	N	average	
All	pre	25	78.1	28	77.6	(0.06)
	post		81.8		80.3	(0.18)
			(0.81)		(0.64)	
Random DG	pre	15	84.3	12	84.3	(0.006)
	post		82.9		95	(1.33)
			(0.26)		(1.45)	
DG	pre	10	68.0	16	72.5	(0.26)
	post		80.0		69.3	(0.80)
			(1.35)		(0.7)	

Note: Numbers in parenthesis are t-values. ^ p< 0.1, * p< 0.05, ** p< 0.01