Reciprocity Among Different Groups in Society

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Abstract. Reciprocity is a behavior which makes human society more harmonious. It is also a common concept in behavioral economics. There are many factors can influence trust and reciprocity between people. In this study, we utilized some previous experiments' results done by predecessors to expect the relationship between gender and reciprocity in certain age group-university students (Teenagers). Combining with game theory, particularly the investment game, our research will exhibit the likelihood of being trusted and trustworthiness level between men and women when they make decision. The overview of this essay comprises four sections: The introduction of reciprocity, the literature review of two articles about age and gender respectively, the experiment design and the conclusion. Our methodology mainly based on the improvement of double blind trials and the hypothesis is: The trust between the same gender is easier to achieve compared to different gender. Furthermore, the final part of this essay will analyze the improvement and suggest some recommendations.

1. Introduction

Over humanity's long evolution and development, the public has consciously or unconsciously developed a 'social default', which may be cultural, consensus, or unwritten rules. In 1960, Gouldner argued that norms of reciprocity are a fundamental dimension of all value systems and play a key role in maintaining a stable social system [1].

Reciprocity is the act of exchanging something with another person for mutual benefit, or of responding to a positive action with another positive step. People can accomplish more by collaborating or exchanging services than if they work alone. In behavioral economics, the human proclivity to reciprocate allows for unrelated human cooperation. Traditional Western economics is predicated on the assumption of rational humans, i.e. brokers are individuals who engage in economic activity for their own benefit. In other words, people want to maximize their economic benefit at the lowest possible cost, and any behavior that falls within this range can be considered rational. Reciprocity has three characteristics: equivalence, immediacy, and interest. The equivalence of reciprocity describes the extent to which both parties give equal value to each other's resources when exchanging; immediacy primarily reflects the time interval between the parties' reciprocity; and interest is the motivation of both parties to the exchange and can be classified into three major categories: self-interest, altruism, and mutual benefit.

According to equivalence, immediacy, and interest, scholars classified the reciprocity into generalized reciprocity, balanced reciprocity, and negative reciprocity. Generalized reciprocity occurs when one party generously assists another party without expecting the recipient to reciprocate with equal value within a predetermined time frame. According to Sahlins eneralized reciprocity is distinguished by low self-interest and no expectations about the timing, quality, or quantity of the return. Balanced reciprocity emphasizes a reciprocal exchange of resources, implying that the party assisting requires a reciprocal gift of equal value from the other party, which cannot be delayed [2]. Finally, negative reciprocity is the polar opposite of the reciprocity norm. It implies that one party sacrifices the interests of others to maximize their own and expects prompt and equal returns from the other party.

Social exchange theory is an essential concept for understanding reciprocity. In the early development of social exchange theory, Blau erstood social exchange not as an exchange aimed at obtaining material benefits but as an exchange aimed at restoring good interpersonal relationships [3]. Social exchange is a long-term oriented socio-emotional resource in which people rely on one another. The existence of reciprocity norms determines the creation of social exchange, while the form of reciprocity determines the form of social exchange. When one person provides resources to another, they are obligated to provide resources of comparable value to the former person at a later time. Reciprocity theory is the primary mechanism that explains the emergence of social

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exchange between people as well as changes in the attitudes and behavior of the exchange parties.

Because social exchange occurs on a daily basis in human societies, scholars must investigate reciprocity, which is inextricably linked to human beings' highly civilized social lives. When scholars study reciprocity, the understanding varies from region to region, depending on the social value system. In Western societies, for example, interpersonal relationships emphasize the transient nature of the reciprocal cycle, i.e., the balance of interests is maintained through timely rewards, and the self-interest of reciprocity is emphasized. However, in some Eastern cultures, there is no explicit requirement for reciprocity, and altruistic behavior is displayed during the reciprocity process. According to the differences, it is necessary to study the reciprocal behavior in various groups.

2. Literature review and hypothesis

There are many social groups that we could test to analyze different levels of trust and reciprocity within them. For instance, age, income and profession, race, geographical location, and gender are all factors that could influence behaviors.

Through literature review, we selected two articles, one discussing the importance of age and one discussing the importance of gender in influencing reciprocity between people. Our aim is to analyze the methodology utilized as well as the conclusions. We will further evaluate if the articles have any shortcomings, and that we could possibly improve in our own designed experiment.

The first is Age and the Development of Trust and Reciprocity, published by Matthias Sutter and Martin G. Kocher. The research was conducted to test how trust and reciprocity differ between age groups. A controlled experiment, the trust game, was carried out, selecting ‘662 subjects from six different age groups. The age ranged from 8 years old to retired ones in their late 60s. Player A will be given an amount of money (10, in this case) and can decide how much to send to Player B. Player B will then receive three times the amount and return a portion to player A. Their decisions will be written on paper.

Hypothesis 1: ‘Trust increases with age from childhood to (early) adult age. Hence, we expect the amount x, sent by the trustor to the trustee in the trust game, to increase with age’.

Hypothesis 2: ‘Reciprocity is prevalent already at an early age. This means that we can expect a significantly positive relation between y and x in the trust game irrespective of age’.

Table 1. Average transfers, returns and profits [4]

Age group	Trustor’s transfer x	Trustee’s transfer y	Relative Return y/3x	Trustor’s profit	Trustee’s profit	Pairs (N)
8 years (2nd graders)	2.00	0.66	0.10	8.64	5.36	45
12 years (6th graders)	3.61	2.04	0.15	8.22	9.00	61
16 years (10th graders)	5.46	5.16	0.32	9.70	11.22	50
Students (avg. age 22)	6.56	7.06	0.31	10.49	12.63	110
Professioinals (avg. age 32)	6.58	9.03	0.39	12.16	11.00	31
Retired Persons (avg. age 68)	5.38	8.65	0.57	13.26	7.50	34
All observations	5.11	5.37	0.29	10.14	10.08	331

Table 1 shows an overall review of the results. On average, player A sends 5.11 out of 10 units of money to player 2, and that player 2 returns 5.37, which is slightly more, than what they have received. Regarding the hypothesis, it could be observed from the table that the average transfer from A to B increases with age but starts to flatten out by the age of 22. Hypothesis 1 is thus supported by the experimental results.

Table 2. Tobit regression of return y on transfer x[5]

Age group	Intercept	Slope	Marginal effect	Adusted R^2	N (x > 0)	#left-censored	#right-censored
8 years (2nd graders)	-1.92	0.74	0.31	0.56	40	23	0
12 years (6th graders)	-2.44	1.00	0.69	0.54	55	17	0
16 years (10th graders)	-0.18	0.97	0.81	0.33	49	5	3
Students (avg. age 22)	-4.26	1.61	1.25	0.48	106	20	4
Professioinals (avg. age 32)	-6.43	2.26	1.73	0.35	30	3	4
Retired Persons (avg. age 68)	4.12	0.94	0.79	0.20	33	0	5
All observations	-3.96	1.62	1.19	0.49	313	67	16

The article then provides data to support hypothesis 2. In table 2 above, it could be identified that ‘the slope of the censored regression, and thus the marginal effect of the transfer r on the return y, is significantly positive’.

Overall, the experiment conducted is successful in supporting both hypotheses raised at the beginning of the article, but there are limitations to the experiment. Although age groups were divided evenly, one may argue that the different levels of trust and reciprocity between different age groups were not merely due to age, but also different backgrounds that people grew up within. For instance, children growing up in different households may have a different attitude toward reciprocity. People in their late 60s may have experienced different matters and events such that their view towards trust varies. These are control factors that are hard to be kept constant, as it is impossible to form an experiment on participants who age the same and have the exact same experience growing up.

The article, nevertheless, still provides a convincing conclusion that trust develops as people become older and that reciprocity is prevalent already at an early age, given the resources that could be utilized nowadays.

The second article is The Gender Pay Gap: Can Behavioural Economics Provide Useful Insights? By Reneta M. Heilman and Petko Kusev. The article addressed the issue that there is an existing gender pay gap, given the evidence that on average men are paid more than women [5]. An estimation has suggested men are paid 23% more than their female colleagues and that the gap is even wider for minorities such as Latinos and Afro-Americans[6].

The article then indicates two possible explanations for this issue. The first is that women tend to avoid salary negotiations, and the second suggests that it is due to gender -elated stereotypes. The article also raises a possible method (the ultimatum game) to test if gender influences trust and reciprocity between women and men – 'that if women are offered salaries and they usually accept lower payments than men'.

The shortcoming of the article is that it did not conduct an experiment. After further research, we have decided to investigate into this topic further. The research question that we would like to focus on is: To what extent and maximum reciprocity be achieved in society, and our hypothesis is: Cooperation between the same gender is conducive to reciprocity.

3. Experiment methodology

3.1 Trust game

In the trust game, there are two players who don't know each other before. Both players are given some quantity of money. The trustor, or player A, is told that he must send some amount of his money x to the second player. The first player is also informed that the money he sends will be tripled. So, when the first player give out some amount of money, the money will be tripled and given to the trustee. The trustee is then told to make a similar choice, give some amount of the 3x money back to the first player, called y. In our investment game, the player A and player B will get 10 dollars at the beginning. In the end, player A will get Ia=$10-x+y, the player B will get Ib=$10+3x-y. Then we set I=Ia+Ib=$20+2x, M=|Ia-Ib|=|2y-4x|. There is a positive correlation between the level of reciprocity and I. So, we use the sum of the players' profit to represent the level of reciprocity.

3.2 Subject

Subjects will be chosen from the University student. For the University students always have spare time and do not require much money. And their age is between the old and children, so they are good subjects for the recepocity experinment.

3.3 Experiment procedure

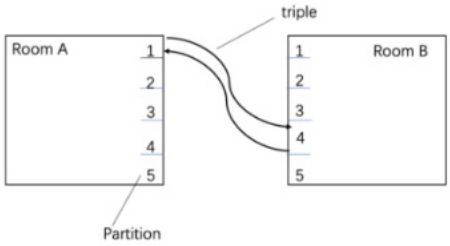

Fig. 1. Physical implementation of the investment game.

Figure 1 shows the physical implementation of the investment game. It involves sending messages between two rooms. There are 5 partitions which are letter1 to 5 in both Room A and Room B. And in every partition, there is a computer that has an initial number 10. An experiment has 10 subjects. In the beginning, 10 subjects go into the two rooms, every partition has one subject. Then the subjects in room A need to input some amount of their money x and it will be tripled are randomly sent to a computer in room B. The subjects in room B are then told to make a similar choice, the number will be sent back to the computer corresponding in room A. In the end, the subjects can get the number of the money on everyone's screen. The data during the experiment is recorded by the computer analysis.

Then we should do 4 groups of experiments. In table 3 below, 10 men subjects are divided into two parts and go to room A and room B in the first group. They should do the experiment as the way mentioned below. Their experiment data is recorded as group A. Next, we change the subjects in room A into 5 women subjects and do experiment as before. The data of this experiment is from group B. Group A is the treatment group and group B is the control group. Then we use 10 women subjects do the experiment as group D and change the subjects in room B into men subjects to do experiment as group C. Group D is the treatment group and group C is the control group.

Fig. 2. Table 3: Treatment group and control group.

Treatment Group	Control Group
A: M-M	
	B: M-F
	C: F-M
D: F-F	

3.4 Experiment outcome

Table 1. The expected outcomes of the experiment.

Expected Outcome	Lend	Total 1	Return	Total 2
Group A				
M1	3	7	/	13
M2	/	19	6	13
Group B				
M1	2	8	/	10
F2	/	16	2	14

Group C				
F1	1	9	/	11
M2	/	13	2	11
Group D				
F1	4	6	/	14
F2	/	22	8	14

4. Conclusion

In this study, four different groups have various expected outcomes of this experiment. In table 4, each column represents each step in the experiment. This experiment could have three possible situations by comparing different groups. By comparing group AB or CD, it proves our original hypothesis is correct and verifies trust is easier to be built among the same gender. Regardless in group A or group D, the initial value of money given by player 1 to player 2 is greater than the value in group B or group C, which is the same as the money returned to player 1 from player 2. Thus, reciprocity is easier to be achieved among the same gender than different genders. Social identity theory advocated that people will be more reliable and trustworthy when paired with the same gender to aggrandize their own identity econdly, when it comes to both same gender groups, it leads to a thought-provoking question which is whether people are more trustworthy toward males than females [7]. By comparing group A and group D, we expected the female group is highly likely to reciprocate more than the male group because of the existence of social norms. One of the most significant discoveries in this experiment is there will be greater trust behavior when people expect more in return. Some studies of discrimination in economic contexts suggest that women are sometimes treated worse than men. Therefore, there is a strong likelihood that women are more united. Different scholars also gave lots of explanations. Anderson and Blanchard dicated women tend to be more sociable than men [8]. In addition, women are more likely to participate in treating their partners in different forms of social interactions and displaying more empathy [9]. Furthermore, in many cultures, equality and harmony in relationships are extremely emphasized by women more than men [10]. Thirdly, when it comes to different genders with both players 1 also being different genders, the behavior of reciprocity extent will also change. By comparing group B and group C, we assume that group B is more likely to give more money to player 2 than group C. There are two plausible reasons that are worth discussing. Because of different social identities, males probably are more generous than females, which is perhaps due to male chauvinism or gentlemanly behavior. Another reason will be females are often less likely to take risks, which means females are more sensitive to lose aversion than males. This comparison shows that it is difficult to construct trust among different gender so the phenomenon of reciprocity among different gender is less likely to be seen in society compared to the same gender.

Every experiment design cannot be perfect. There is something that this experiment can improve and take as a recommendation. The first is about methodology. In behavioral economics, people sometimes make systematic mistakes when they are processing trading or investment with other people. Herbert Simon supported the concept of bounded rationality and cognitive constraints. Trust is linked to the concept of betrayal aversion, so people maintain caution when they first have a transaction game with strangers. But if this experiment change to the form of multiple gaming, the results will probably be different. For example, when testing these fixed groups of people participating in the same experiment each year, it is probable that the extent of reciprocity will increase when people are more familiar with each other. The second point is how to eliminate the occasionality. For instance, there is a relatively high possibility that the samples chosen from a university are acquaintances. To avoid the possibility that two people are good friends, researchers could exert some solutions, such as choosing samples randomly from two different kinds of universities. The third point is about the limitation. While the experiment was taken in the lab, researchers also should not neglect the external validity. People's choices in the experiments may not be correlated well with real-world choices. Moreover, the best choice of experiment group is university students. However, it is just a certain age group in society. For example, we can not guarantee the behavior of an 18-year-old student is similar to a 21-year-old student, but they are all university students. Therefore, further study should be taken to make the whole research more comprehensive, which had better include the children group, teenager group, adult group and the old people group [11]. Finally, besides the factors of age and gender, different localities probably will also cause a difference in social norms. The experiment can be taken in some heavily populated and large cities which have rapid economic growth trends, such as Beijing or Shanghai, and then taken in some rural areas or small towns which have relatively slow economic development. Thus, it will be more apparent to establish the difference in reciprocity among different genders in different geographies.

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