Payback : effects of relationship and cultural norms on reciprocity

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Payback: Effects of Relationship and Cultural Norms on Reciprocity

Abstract

This experimental investigation explores differences in reciprocal norms between friends and strangers and the effects of culture on reciprocity. Based on altruistic and strong reciprocity theories, a hybrid trust-dictator game tested the influence of relationship (i.e., friends vs. strangers), treatment (i.e., positive vs. negative), and culture (i.e., collectivistic vs. individualistic) on reciprocation. The results ($N = 160$) showed that participants reciprocated more positively when treated positively in general. However, the results demonstrated intercultural differences in reciprocal norms, specifically in the negative treatment condition. Participants from the individualistic culture provided stronger punishment to the norm violator, compared to participants from the collectivistic culture. We discuss implications of the impact of relationship and culture on reciprocation with respect to the olive branch response.

Keywords: Altruism, Intercultural differences, Reciprocity, Trust-dictator game, Olive branch

Payback: Effects of Relationship and Cultural Norms on Reciprocity

Found within the doctrines of major world religions (Parliament of the World's Religions, 1993), the principle of reciprocity, or simply, doing unto others what others do unto you, is rooted in social evolution (Hastings & Shaffer, 2008). Although beneficial to the well-being of the group, fair trade and co-operation are in conflict against individuals' desire for maximum self gain (Steen, 1999). In creating an obligation to repay, the principle of reciprocity limits selfish gain and free riding, thereby ensuring social progress (Gouldner, 1960). Reducing the costs of initiating trade and promoting unequivocal exchange between parties fuels co-operative behavior because initiators are assured that their efforts would be met in kind by trading partners (Xiao & Bicchieri, 2008; Yamagishi, Mifune, Liu, & Pauling, 2008). The group-level benefits of reciprocity have been shown in several contexts. Studies of organizational citizenship behaviour-- co-operative actions where colleagues offer help to one another --have uncovered reciprocity as a significant predictor of co-operation (Deckop, Cirka & Anderrson, 2003). In online games, players are more willing to engage in collaborative tasks when mutual benefit is assured (Ducheneaut, Yee, Nickell & Moore, 2006). Even amongst family members, seniors are more willing to offer time and household help when provided financial support (Verbrugge & Chan, 2008).

Given the potential for reciprocity to overcome self-interest, scholars have devoted much time into conceptualising different manifestations of reciprocity (Engelen, 2008; Leimar & Hammerstein, 2001; Rosas, 2008). The two most common reciprocity norms are altruistic reciprocity and strong reciprocity. Altruistic reciprocity is based on long term repayment, and strong reciprocity on short term repayment (Trivers, 1971). Altruistic reciprocity is derived from the theory of kin selection (Hamilton, 1964), which posits that early humans learned reciprocity

through communal living with kin. According to this theory, reciprocity is altruistic since kin co-operate to protect relatives with similar genes, not due to expectations of immediate or calculated repayment (Ashton, Paunonen, Helmes & Jackson, 1998). However, reciprocal altruism has been criticised for being too simplistic to account for the strong co-operative behaviours demonstrated by humans. A common alternative theory cited is strong reciprocity (Eisenberger, Lynch, Aselage, & Rohdieck, 2004; Engelen, 2008). Strong reciprocity posits that humans engage in both positive and negative reciprocity. Positive reciprocity refers to rewarding someone for a favour received, and negative reciprocity refers to punishing someone for a disservice or antisocial act (Engelen, 2008). Contrary to the theory of kin selection, early human ancestors frequently travelled and lived among strangers, making it impossible to learn reciprocity solely through interactions with kinsmen (Engelen, 2008). The rewards and punishments associated with interactions with non-kin required early humans to develop mechanisms of strong reciprocity, which suggests that human beings are biologically predisposed to co-operate with strangers through norms of reward and punishment.

Taken together, the distinctive difference between strong and altruistic reciprocity would be people's responses to the negative treatment. For instance, if an individual punishes a norm violator even at one's own cost, the individual displays strong (negative) reciprocity. If an individual does reciprocate positively, the individual displays altruistic reciprocity for future interaction. Nevertheless, there has not been any empirical study that examined both positive and negative reciprocity (i.e., reward and punishment) within a single study, which is essential to test strong and altruistic reciprocity simultaneously in order to provide a better understanding of how people use the two different reciprocity norms.

Another important concept for a better understanding of reciprocity norms is cultural differences. One important cultural dimension that influences reciprocity behaviours is individualism/collectivism (Chen, Chen, & Portnoy, 2009; Kuwabara, Willer, Macy, Mashima, Terai, Yamagishi, 2007; Yamagishi, Makimura, Foddy, Matsuda, Kiyonari, & Platow, 2005). Individualists are thought to behave according to personal values, while collectivists may sacrifice their own well-being to advance that of the group (Kim, 1994; Ziller, 1965). The effects of culture have been demonstrated in studies of positive reciprocity (Yamagishi et al., 2005) and negative reciprocity (Chen et al., 2009), but have not been shown in a test of both types of reciprocity in the same experiment either. Furthermore, Yamagishi and colleagues (2008) call upon researchers to explore the effects of culture and reciprocity in the presence of strong interpersonal ties, rather than only in the context of a shared national identity.

Therefore, we attempt to consolidate research on both forms of reciprocity as well as explore differences in reciprocity between cultures. In the current study, we will argue that both forms of reciprocity can exist simultaneously, depending on the social relationships existing between the parties and cultural norms. The experiment was undertaken in an individualistic country (i.e., the U.S.) and a collectivistic country (i.e., Singapore), to determine whether culture influences reciprocity. A hybrid trust-dictator game is used to allow for evidence of both forms of reciprocity to be demonstrated in the same experiment. Although a trust game has been used to test both positive and negative reciprocity (e.g., Chen et al., 2009; Yamagishi et al., 2005), keeping the money to oneself by not contributing to the partner in a classic trust game is a weak form of punishment, which cannot reflect the concept of strong negative reciprocity: punishing a norm violator even at personal cost. Incorporating a hybrid trust-dictator game allows us to test various forms of reciprocity simultaneously in both positive and negative directions and helps us

conceptualize altruistic reciprocity and strong reciprocity more clearly (see the method section for a detailed explanation about a hybrid trust-dictator game). As such, the purpose of the present manuscript is to investigate whether people use different reciprocity strategies based on relational types and treatment, and how these relationships are affected by country of origin.

Literature Review

Altruistic Reciprocity

Trivers (1971) introduced the theory of reciprocal altruism, stating that individuals possess inherent altruistic tendencies, resulting in behaviour that "benefits another organism, not closely related, while being apparently detrimental to the organism performing the behaviour" (p. 35). The tendency towards reciprocal altruism may have developed to assist in the survival of genetically related kin (Brown & Brown, 2006; Field, 2004; McGuire & Essock-Vitale, 1987). Because kin share some of the organisms' genetic makeup, altruistic mechanisms that were detrimental to self and beneficial to related others nonetheless helped to preserve the shared genes. Reciprocal altruism can be further broken down into 'hard-core' and 'soft-core' altruism (Field, 2004). Hard-core altruism refers to extreme selfless altruistic acts, such as the willing sacrifice of a parent's life to save a child. Soft-core altruism refers to selfless altruistic acts, usually with a subconscious expectation of reward, though not immediate. Importantly, this soft-core reciprocal altruism exists beyond immediate kin and commonly occurs in everyday interaction. The present manuscript is concerned with the soft-core altruistic reciprocity.

Soft-core altruistic reciprocity commonly occurs between friends (Trivers, 1971), in that non-kin relationships, including those between close friends, are characterised by equivocal social exchange. That is, friends offer help with the knowledge that help will be repaid, but not immediately (Brown & Brown, 2006). Evolutionists see a development of altruistically

reciprocal relationships among friends as not merely beneficial, but in some cases, as absolutely necessary. McGuire and Essock-Vitale (1987) argue that establishing such a relationship with an unrelated other would serve as a safeguard in times of need, especially when kin are not available or appropriate to turn to for assistance. This safeguard underlies individuals' efforts to build and maintain a social support system outside of the family.

Strong Reciprocity

Strong reciprocity can be understood as "a propensity to co-operate and share with others similarly disposed, even at personal cost, and a willingness to punish those who violate co-operative and other social norms, even when punishing is personally costly" (Bowles & Gintis, 2000, p. 37). Strong reciprocity is divided into two concepts: strong positive reciprocity and strong negative reciprocity. The former influences cooperation between individuals who share similar desired outcomes, often involving a personal investment or sacrifice to facilitate a reward for the benefit of the group or dyad (Engelen, 2008). For strong negative reciprocity, when a person violates a norm causing other group members to suffer, members of the group may experience anger or moral outrage at unfair behaviour, and are prepared to punish the norm-violator (Engelen, 2008; Ohmura & Yamagishi, 2005; Shinada, Yamagashi, & Ohmura, 2004). Even when the norm violator is unaware of the outrage caused by his/her unfair action, strong negative reciprocity – in the form of unwillingness to accept an unfair offer – persists (Yamagishi, Horita, Takagishi, Shinada, Tanida, & Cook, 2009).

Several studies suggest that positive and negative reciprocity are two distinct concepts. Eisenberger et al. (2004) note that a belief in strong positive reciprocity may correspond to a weak belief in negative reciprocity norms. In addition, Fehr and Rockenbach (2004) found that different neural circuits in the brain are activated when people choose to reciprocate positively

and negatively. Nevertheless, both aspects of strong reciprocity are used to achieve and maintain co-operation between strangers. Positive reciprocity works because it rewards strangers for pro-social behaviours, encouraging future positive interactions (Perugini & Gallucci, 2001). Negative reciprocity functions as a deterrent, giving strangers and in-group members alike pause before engaging in anti-social behaviours (Fehr & Rockenbach, 2004; Shinada et al., 2004). Taken together, strong rewards and punishments are effective at increasing and maintaining co-operation (Fehr & Gächter, 2002). Strong negative reciprocity functions best when the co-operation is temporal, brief, and anonymous (Engelen, 2008; Ohmura & Yamagashi, 2005). Under these conditions, punishment for engaging in anti-social behaviour may occur without fear that such an action might lead to future repercussions. Bowles and Gintis (2003) also suggest that strong reciprocity is biologically innate in humans. Humans hold a strong sense of fairness; they are willing to punish those who violate group-beneficial norms, even when this reduces their fitness relative to other group members (Shinada et al., 2004; Yamagishi et al., 2009). Therefore, people not only reward and punish out of gratitude and resentment (Smith, 1976), they do so "even if this is costly and provides neither present nor future economic rewards for the reciprocator" (Fehr & Henrich, 2003, p. 3).

Reciprocity and Nature of Relationships

There is support for both strong and altruistic reciprocity theories. In general, friends are more generous reciprocators, repaying amounts more than what they were given (Berg, Dickhaut & McCabe, 1995). By comparison, strangers reciprocate based on the amount initially offered (Boster, Rodriguez, Cruz, & Marshall, 1995) and punish more readily to achieve co-operation (Fehr & Gächter, 2002). Although past empirical tests support the theoretical explanations of both strong and altruistic reciprocity, there is a missing component: past studies did not examine

both positive and negative reciprocity within a single experiment. In traditional trust or dictator games, it is impossible to investigate the degree to which people reciprocate in either positive or negative directions (see the method section for more detailed description of the experimental approach). However, examining them in the same context would aid in better understanding of the interactions between social relationships and reciprocity norms since reciprocity works positively and negatively simultaneously. For example, friends may show strong positive reciprocity when they are initially treated positively, but show altruistic reciprocity when treated negatively. On the other hand, strangers may show altruistic reciprocity by reciprocating based on the amount initially offered when treated positively, but show strong negative reciprocity when treated negatively. This is why we propose a new experimental approach of a hybrid trust-dictator game that allows the measure of both positive and negative reciprocity and their degree of variation.

The first two hypotheses posit that there is a difference in reciprocal norms between friends and strangers and between positive and negative conditions. The third hypothesis tests the direction of effects predicted by theories of strong and altruistic reciprocity. In agreement with past research, we propose that interactions between friends will show a pattern of altruistic reciprocity and interactions between strangers will show a pattern of strong reciprocity.

H1: Regardless of the nature of relationship, people will reciprocate more positively when they have been initially treated positively than when treated negatively.

H2: Regardless of the treatment, people will reciprocate more positively to their friend than to a stranger.

H3: There will be an interaction between social relationships and types of treatment such that when compared to strangers, friends would display a stronger positive reciprocity in

the positive treatment condition and a weaker negative reciprocity (i.e. altruistic

reciprocity) in the negative treatment condition.

Intercultural Differences in Reciprocity

Although the altruistic and strong reciprocity tend to be expressed as universally applicable values (Trivers, 1971; Engelen, 2008), they may be influenced by cultural differences. A recent meta-analysis of ultimatum games (e.g., Oosterbeek, Sloof, & van de Kuilen, 2004) suggested that there is significant unaccounted for heterogeneity in responder's behaviour by country of origin. One important cultural difference that will frame the present investigation is individualism and collectivism. Individualism is the belief that people are independent from one another and should pursue goals and values connected to the self rather than the group. Thus, individualistic societies value independence, self-reliance, personal attitudes and personal rights (Triandis, 1995). In relationships, individualists are believed to behave based on the principle of rational exchange, applying the norms of equity and balancing between the costs and benefits of relationships (Kim, 1994). Because individualists are less affected by a shared in-group identity when making trade-based decisions, they are more likely to take calculated risks with strangers (Kuwabara et al., 2007). For example, past research has demonstrated that individualists (i.e., Americans) were more likely than collectivists (i.e., Japanese) to initiate trade relationships with strangers (Kuwabara et al., 2007). However, once those trade relationships are developed, individualists are more cautious reciprocators. Buchan, Croson, and Dawes (2002) found that Americans, Chinese, Koreans, and Japanese displayed differing trends in initial investments and reciprocated amounts in a trust game. Americans were hesitant reciprocators and Koreans and Chinese were more generous reciprocators. Taken together, past research suggests that relatively

free from group constraint, individualists are likely to display strong reciprocity amongst both friends and strangers.

In contrast, collectivism emphasizes the social over the personal. Instead of acting based on personal goals and successes, collectivistic societies focus on behaving based on norms and obligations of the group (Triandis, 1995). Collectivists are expected to display loyalty to in-groups, even if it places them at a disadvantage. That is, collectivists may sacrifice their own well-being to advance that of the group (Kim, 1994; Ziller, 1965).

Yamagishi and colleagues (Yamagishi et al., 2005; Yamagishi, Hashimoto, & Schug, 2008; Yamagishi, Mifune, et al., 2008; Yamagishi & Yamagishi, 1994) have developed a model that describes how altruism is developed within cultures. Yamagishi and colleagues suggest that collectivism lends itself toward forming committed and durable relationships. The mutual cooperation observed in collectivist cultures is, in part, due to embedded systems that monitor and control the behaviour of individuals. Because of the 'sticky' relationships inherent to a collectivist society, individuals are likely to be particularly attuned to the need to create durable relationships and taken into account social approval beyond the dyadic exchange (Yamagishi et al., 2008). For example, Kuwabara et al. (2007) found that collectivistic tendencies steered Japanese participants toward developing repeated interaction relationships with other in-group members rather than trading with strangers. Following this reasoning, individuals in collectivist societies are likely to express a clear degree of altruistic reciprocity towards both friends and strangers if they are perceived to belong to the same in-group at a cultural or national level. However, as Yamagishi, Mifune, et al. (2008) suggest, in friendships, the obligations of collectivists toward in-group favouritism should be stronger than for individualists. This is

because strong, interpersonal ties both reinforce the need to reinforce durable relationships and to favour in-group members. Therefore, we propose the following hypothesis:

H4a: In comparison to individualists, collectivists will reciprocate more positively than individualists.

H4b: In comparison to individualists, collectivists will display a stronger positive reciprocity toward friends than strangers in the positive treatment condition.

However, less is known about intercultural differences in negative reciprocity. Chen et al. (2009) recently conducted international comparisons on the norms of positive and negative reciprocity. They found that the Chinese participants showed less negative reciprocity to an unfavourable inequitable share compared to the American participants. Chen et al. (2009) measured a negative norm of reciprocity by observing the acceptance rate of an unequal treatment. Rejecting an unequal treatment to give up future earnings is a weak form of punishment, which is somewhat different from negative strong reciprocity by punishing a norm violator even with one's own sacrifice (Ohmura & Yamagishi, 2005).

Strong negative reciprocity is shown when individuals respond to inequitable or unfair treatment by punishing a norm violator at one's own expense. This response essentially regards other-punishment as more important than self-gain. However, another possible response to unfair treatment would be to respond positively or at least neutrally. This act can be seen as an olive branch, offered to prevent further inequitable acts. The expectation of further game play could particularly influence individuals to apply the norm of altruistic reciprocity (i.e., olive branch) rather than that of strong negative reciprocity, even to strangers. The olive branch response offers an explanation for research that indicates that Chinese participants responded less negatively to unfair treatment than American participants (Chen et al., 2009). Furthermore, the olive branch

explanation emphasizes the role of culture in reciprocity. People in collectivistic culture tend to value group goals and norms, which may have result in less negative responses in general, even to strangers (see Gudykunst, Yoon, & Nishida, 1987). By comparison, people in individualistic countries may show stronger negative reciprocity when they have been initially treated negatively. Weber, Kopelman, and Messick (2004) note that individualistic motivations reflect a competitive mindset, wherein success is framed in terms of maximizing gains *in relation to* others' gains. This competitive mindset encourages greater negative reciprocity because being on the losing end of inequity is seen as less desirable than equality, even when equality means no gains for either party. Therefore, we propose the following hypothesis:

H5: Collectivists will demonstrate weaker negative reciprocity than individualists in the negative treatment condition.

Methods

To examine the reciprocal differences between friends and strangers, the experiment combines two well-known game formats, the trust game (Cox, 2004) and the dictator game (Reuben & Winden, 2008), creating a hybrid game that allows for the joint examination of positive and negative reciprocity. A between-subject 2 x 2 x 2 factorial design was employed with relationship (friends vs. strangers), treatment (positive vs. negative), and culture (collectivistic vs. individualistic) as independent variables. The amount participants repaid in the positive treatment condition or destroyed in the negative treatment condition served as the dependent variable.

Participants

In the collectivistic condition 80 students at a university in Singapore participated, and 80 American students at a large public university in the Midwestern U.S. also participated in the

individualistic condition. We used the same procedures for the experiment conducted in the two countries.

The average age of participants from Singapore was 20.13 with a range from 18 to 24 and 21.11 with a range from 18 to 25 from the U.S., respectively. To distinguish between the friend and stranger conditions, a group of randomly selected participants was told to come with a close friend to the laboratory, while others were instructed to come alone. Participants who came alone were told that they would play the game with a stranger from a different college in order to ensure the stranger manipulation. Random exit-interviews confirmed that participants in the stranger condition did believe that they played against a stranger. As an incentive, participants were given entry into a raffle to win gift vouchers.

Procedure

When participants arrived at the laboratory, an experimenter handed them a card explaining the rules of the game (see Appendix A). In the friend condition, participants were told that they would play five rounds of the game with their friend. In the stranger condition, they were told they would play five rounds of the game with a stranger. Although participants in the friend condition believed that they would be playing with their friends, in reality, a confederate played with participants in both conditions. That is, when participants arrived with their friend, the two believed they were playing together but teammates were actually confederates. Two friends in the friend condition were escorted to two separate rooms and were not allowed to directly communicate each other. During the course of the game, the experimenter was the medium through which the participant and the partner communicated. The confederate (i.e., the play partner) always moved first. After a pre-determined amount of time, the experimenter left the room to "receive the offer" from the participant's partner. However, this was a deception.

The initial offer was pre-determined according to the treatment condition to which the participant was assigned. The experimenter then instructed the participant to write down a response to the initial offer. Upon that act, the game ended; the game lasted only for a single round. Although the actual game lasted for only one round, participants were told that they would play five rounds because an expected future interaction could influence people to choose different reciprocal norms, either strong or altruistic reciprocity. The illusion of playing five rounds is important component of this study design because trust games require expected future interaction. For example, the anticipation of future exchange predicts cooperation in past studies using prisoner's dilemma format (e.g., Pruitt & Kimmel, 1977; Wallace, Exline, & Baumeister, 2008; Weber, Kopelman, & Messick, 2004). Once the study was completed, participants were debriefed and asked to keep the true purpose of the experiment secret until the study was completed.

Experimental Design

The experiment used a hybrid trust-dictator game, which is necessary since standalone trust games only measure positive reciprocity (Berg, Dickhaut, & McCabe, 1995; Cox, 2004), while standalone dictator games are better suited for acts of negative reciprocity (Fehr & Rockenbach, 2004; Reuben & Winden, 2008). In a classic trust game in the context of monetary resource exchange, an investor decides how much to keep and how much to give to the play partner (i.e, trustee). Then, the play partner also decides how much to give back to the investor. The amount of money is usually doubled during the exchange between the two parties (see Yamagishi et al., 2005). However, when treated unfairly, keeping the money to oneself by not contributing to the partner is the only option as a weak form of punishment in trust games. Therefore, we used a hybrid game that was primarily a trust game, with the "destroy" option derived from dictator games. In dictator games, an allocator offers some portion of a certain

amount of money to the self and a recipient (e.g., $7 for the self and $3 for a recipient from a total of $10). If the recipient accepts the offer, the allocator and recipient receive their portion of the money respectively. If the recipient rejects the offer, both parties receive nothing. Taken together, a trust game was used as the basis for our hybrid design because trust games allow for more insightful measurements of reciprocity (Cox, 2004). Trust games allow for interval level measurements, whereas dictator games only have a take-or-destroy, nominal level option.

All participants (identified as Player B) were given a total of $50 in their accounts at the start of the game, and were told that the objective of the game was for each individual to gain as much money as possible throughout the course of five rounds. The amount they could give or take/destroy was limited from $1 to $10. During the game, the confederate (Player A) always moved first. In the positive treatment condition the confederate gave money to the participant, and in the negative treatment condition the confederate took money from the participant. However, the actions available for each player differed. Player A (i.e., the confederate) had the option to give and to take. However, Player B (i.e., the participant) could only give and destroy. The take option for Player A is understood simply as choosing to take $1 to $10 from Player B. The destroy option for Player B allows the participant to willingly sacrifice $1 to $10 of the participant's own money to destroy double that amount from Player A. Finally, participants were told that every amount that they decide to give or destroy would be doubled for the other player. Therefore, if Player A chose to give $2, Player A would lose $2 from one's own account, while Player B would gain $4. If Player B decided to destroy $2, Player B would lose $2 from one's own account, while Player A would loose $4.

Experimental manipulation. The confederate gave $5 to the participant in the positive treatment, and took $5 from the participant in the negative treatment condition. In the positive

treatment condition, the experimenter told the participant that the participant's game partner (i.e., the confederate) had decided to give the participant $5. In this case, the confederate willingly sacrificed $5 from one's own account, which resulted in $10 award in the account of the participant. This would leave the participant with a total of $60 in the account, and the confederate with $45. In the negative treatment condition, the experimenter informed the participant that the game partner had decided to take $5 from the participant. In this case, the confederate gained $10, and the participant lost $5. This would leave the participant with a total of $45 in the account and the confederate with $60. The amount given and taken by the confederate is derived from the average amount used in traditional trust games (e.g., 50% of possible scale, Berg et al., 1995).

Dependent Measure

Participants' responses were measured on a scale of -10 to +10. The value in this scale represents the amount of money the participant decided to give or destroy from Player A. A positive value represents the amount that the participant gave and a negative value represents the amount that the participant destroyed. A positive value is indicative of positive reciprocity, and a negative value indicates negative reciprocity.

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Results

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Results: Collectivistic Culture

Firstly, a 2 x 2 factorial ANOVA was conducted to examine the effects of relationship and treatment type on reciprocity in the collectivistic culture. The means and standard deviations for reciprocity as a function of the two factors are presented in Table 1. H1 posited that participants would reciprocate differently under positive and negative treatments, regardless of the nature of their relationship. Results showed that participants in the positive treatment

condition reciprocated more positively ($M = 3.82$, $SD = 6.61$) than participants in the negative

treatment condition ($M = -0.20$, $SD = 7.95$), $F(1,76) = 6.68$, $p < .05$, partial $\eta^2 = .08$. Therefore,

H1 was supported.

H2 posited that friends and strangers would reciprocate differently, regardless of the

treatment. Results showed that participants in the friend condition reciprocated more positively

($M = 3.58$, $SD = 7.23$) than participants in the stranger condition ($M = 0.05$, $SD = 7.52$), $F(1,76)$

$= 5.13$, $p < .05$, partial $\eta^2 = .06$. Therefore, H2 was also supported.

Finally, H3 postulated that there would be an interaction between social relationships and

treatment types. This was supported. Results showed a significant interaction between

relationship and treatment types, $F(1, 76) = 4.84$, $p < .05$, partial $\eta^2 = .06$. Specifically, the results

of simple main effects showed that the amounts given in the positive treatment condition differed

significantly between participants in the friend and stranger conditions, $F(1, 38) = 15.04$, $p < .05$.

When they were treated in a positive way, participants in the friend condition reciprocated more

money ($M = 7.30$, $SD = 2.59$) than the participants in the stranger condition ($M = 0.35$, $SD =$

7.58). However, when they were treated in a negative way, there was no significant difference in

the amounts given between participants in the friend condition ($M = -.15$, $SD = 8.45$) and

stranger condition ($M = -.25$, $SD = 7.64$), $F(1, 38) = .002$, *ns*. Taken together, H3 was partially

supported.

Results: Individualistic Culture

The same 2 x 2 factorial ANOVA was conducted to test the first three hypotheses in the

individualistic culture (see Table 1). Results showed that participants in the positive treatment

condition reciprocated more positively ($M = 0.73$, $SD = 5.38$) than participants in the negative

treatment condition ($M = -4.40$, $SD = 6.13$), $F(1, 76) = 15.96$, $p < .001$, partial $\eta^2 = .17$.

However, there was no significant difference in reciprocity between the friend and stranger conditions, $F(1, 76) = 0.58$, *ns.* Unlike the results in the collectivistic culture, a post-hoc analysis of the simple main effect showed no difference between participants in the friend condition ($M = -0.70$, $SD = 5.92$) and in the stranger condition ($M = 2.15$, $SD = 4.48$) when they were treated positively, $F(1, 38) = 2.95$, *ns.* Therefore, H2 and H3 were not supported in the individualistic culture.

Results: Intercultural Comparison

For a better understanding of cultural impact, we conducted a 2 x 2 x 2 factorial ANOVA with culture (collectivistic vs. individualistic), relationship (friend vs. stranger), and treatment types (positive vs. negative) as three independent variables. Results ($N = 160$) showed significant main effects of culture and treatment and a significant interaction effect among the variables. Specifically, in support of H4a, participants from the collectivistic culture reciprocated more positively ($M = 1.81$, $SD = 7.54$) than participants from the individualistic culture ($M = -1.84$, $SD = 6.28$), $F(1, 152) = 13.01$, $p < .001$, partial $\eta^2 = .08$. Similar to previous results, participants in the positive treatment condition reciprocated more positively ($M = 2.28$, $SD = 6.19$) than the participants in the negative treatment condition, ($M = -2.30$, $SD = 7.36$), $F(1,152) = 20.57$, $p < .001$, partial $\eta^2 = .12$. There was also a significant three-way interaction, which means that the pattern of interaction between relationship and treatment in the collectivistic culture is different from the pattern of interaction in the individualistic culture, $F(1,156) = 6.90$, $p < .01$, partial $\eta^2 = .04$ (see Figure 1). Together, the three independent variables accounted for 24% of variation in the amount of money given or destroyed in game play ($R^2 = .24$).

To understand the significant three-way interaction effect more clearly and to test H4b-H5, we conducted planned comparison post-hoc analyses. Results showed a significant cultural

difference in the way that participants treated friends and strangers in the positive treatment condition. In support of H4b, participants from the collectivistic culture reciprocated more positively to their friend than to a stranger ($M_{diiference}$ = 6.95), compared to participants from the individualistic culture ($M_{diiference}$ = 2.85) when they were treated positively, $t(152)$ = 3.44, $p <$ .01. In support of H5, results showed that participants from the individualistic culture reciprocated more negatively (M = -4.40, SD = 6.13) than participants from the collectivistic culture (M = -0.20, SD = 7.95) when they were treated negatively, $t(152)$ = -2.94, $p < .001$. There was no significant interaction between the nature of relationship and culture when participants were treated negatively, $F(1, 76)$ = 0.06, ns.

Discussion

In support of H1, participants reciprocated more positively when they were treated positively, regardless of relationship. This supports past research on reciprocity, upholding the maxim of tit for tat (Carpenter, Matthews, & Ong'ong'a, 2004; Hirschberger, Ein-dor, & Almakias, 2008). Therefore, people generally regulate their own behaviors and encourage pro-social behaviors in others through reciprocal norms of reward and punishment.

In support of H2, participants reciprocated more positively when they believed their partner was their friend, rather than a stranger in the collectivistic culture. This result implies that reciprocal behaviors are influenced by the nature of the relationship between two people. People are likely to reciprocate more generously to friends than to strangers. This finding supports the theory of altruistic reciprocity, which posits that friends would be more willing to engage in generous reciprocal behavior (Trivers, 1971), while strangers would be more likely to reciprocate based on equal exchange of favours (Berg, Dickenhaut & McCabe, 1995). It also gives credence

to the belief that altruistic reciprocity and positive strong reciprocity are not conflicting concepts,

but rather, parts of a composite whole.

However, the results of a post-hoc analysis and the pattern of interaction showed that the

difference in reciprocal actions between the friend and stranger conditions was significant only

in the positive treatment condition and not in the negative treatment condition, within the

collectivistic culture. Collectivistic participants showed consistently neutral responses to both

friends and strangers when they were treated negatively. On the other hand, participants from the

individualistic culture responded to both friends and strangers negatively when treated negatively.

These two patterns seem to be in conflict with the theories of strong and altruistic reciprocity,

which suggests that strangers are more likely to punish anti-social behaviors and friends are more

likely to forgive violations of social norms. Therefore, it is necessary to understand why there

was equal and neutral negative reciprocity between the two groups. That is, whether (i)

participants in the friend condition did *not* hold back punishment (i.e., strong negative

reciprocity), or (ii) participants in the stranger condition *did* hold back punishment (i.e., altruistic

reciprocity from the olive branch perspective).

In line with the first explanation is the concept that taking may evoke more social outrage

from friends than strangers. Friends expect kindness from each other and do not expect another

friend to take advantage (Buchan & Croson, 2004; Shinada et al., 2004). As such, the

discrepancy between the expected and actual gesture from a friend would be larger than that of a

stranger, which may trigger a stronger sense of moral indignation. In the collectivistic culture,

however, participants did not show the retaliatory behavior of *punishing* their friend for breaking

the custom. Therefore, the second explanation of holding back for strangers better explains the

unexpected non-significant difference between friends and strangers in the negative treatment

condition. People may hold back immediate punishment and use reconciliatory tactics first to encourage cooperation from the partner in future game play. This explanation is partially supported by the observation that a relatively large number of collectivistic participants in the stranger condition ($n = 12$) gave money even when they were treated negatively. This act can be seen as the olive branch that would stop further punishing acts from the partner. Although participants played only one round of the game, they were initially told that the game would last five rounds. The belief that the game would continue past the first round likely contributed to the olive branch offering. The expectation of further game play could influence people to apply the norm of altruistic reciprocity rather than that of strong negative reciprocity, even to strangers.

Further support of the plausible olive branch argument emphasizes the role of culture in reciprocity. In support of H4a-b and H5, results suggest that culture affects reciprocity. Specifically, collectivistic participants reciprocated more positively than participants from the individualistic culture in general. In the negative treatment condition, participants from the collectivistic culture were more neutral in response than those from the individualistic culture. The results from collectivistic participants are consistent with Gudykunst, Yoon, and Nishida (1987) who emphasize that collectivists may respond positively to strangers even when treated poorly. By way of comparison, Weber et al. (2004) would argue that people in individualistic countries may show stronger negative reciprocity when they have been initially treated negatively, which has been confirmed in our study.

Conclusion

In the experiment, theories of strong and altruistic reciprocity were tested. Results showed that collectivistic participants reciprocated more positively than those from the individualistic culture in general: collectivistic participants demonstrated a strong positive

reciprocity for friends over strangers in the positive condition and altruistic reciprocity for both friends and strangers by holding back punishment in the negative condition. In the negative treatment condition, participants from the individualistic culture used stronger negative reciprocity by destroying a larger amount of their own money to punish their play partner than participants from the collectivistic culture.

Friends, Positive Treatment, and Reciprocity

Drawing from the theories of strong and altruistic reciprocity, we were able to identify different uses of reciprocal norms, depending on the nature of relationships (i.e., friends vs. strangers).

Results in the collectivistic culture suggest that friends tended to reciprocate more positively than strangers when they have been treated positively beforehand. Although the norm of reciprocity states that people repay *in kind*, our findings suggest that friends reciprocate with a substantially larger return favor, probably due to a sense of obligation (Cialdini, 2001). For friends, strong reciprocity is most likely to appear after an initial positive act. The results suggest that one of the benefits of friendship, at least in collectivist cultures, is the expectation of particularly favorable treatment (Foddy, Platow, & Yamagishi, 2009).

When testing participants from the individualistic culture, the interaction between relationship and treatment was not found. That is, American participants, unlike Singaporean participants, did not reciprocate more positively to their friends than to strangers. One plausible explanation for this finding is that individuals in collectivistic cultures experience a stronger sense of group norms than do individuals from individualistic cultures. This finding reinforces the importance of close interpersonal ties in exchange relationships in collectivist cultures (Yamagishi, Mifune, et al., 2008). This finding is consistent with the concept that collectivists

seek to form more durable relationships (Kuwabara et al., 2007) and anticipate future mutual cooperation in friendships (Yamagishi & Yamagishi, 1994).

Strangers, Negative Treatment, and Reciprocity

It was expected that individuals would more negatively reciprocate to strangers than to friends when treated negatively. However, the pattern of negative reciprocity was different across two cultures. Participants from Singapore did not punish strangers in the negative treatment condition as much as expected based on strong reciprocity theory. This supports the notion that concern for maintaining an ongoing relationship with other co-nationals, even when they are strangers, influences those in collectivists to avoid conflict (Yamagishi et al., 2005). This finding suggests that collectivists may display altruistic reciprocity even to strangers when future interaction is anticipated. On the other hand, individualistic participants did not withhold their punishment when treated negatively, regardless of the type of relationship. In other words, individualistic participants were more willing to punish their play partner even at a cost to their own play money when they were treated negatively no matter who the play partner was (i.e., friend or stranger). These results imply that the treatment (i.e., positive vs. negative) and the cultural norms of reciprocity both impact the way people reciprocate.

The Olive Branch and Self-Destruct Button

As an explanation for the lack of negative reciprocity in the collectivistic culture, we argued that the expectation of further game play could lead to an olive branch strategy wherein negative behavior is met with a positive (or at least neutral) response. While it was found that participants in the individualistic culture showed stronger negative reciprocity in general, they did not show stronger negative reciprocity to strangers in comparison to friends when they were treated negatively. In fact, individualistic participants did not withhold punishment (i.e., the olive

branch strategy) with either friends or with strangers. A strong sense of independent self (Brewer & Chen, 2007) and competition (Weber et al., 2004) may have motivated participants to respond to a negative action by either type of game partner with a self-destructive response (e.g., "If I can't win, then neither will they"). In fact, the results showed that 23 out of 40 (57.5%) participants from Singapore gave money even when they were treated negatively, while only 6 out of 40 (15%) participants in the U.S. gave money in response to the negative action. That is, for individualists negative reciprocity is less motivated by interpersonal ties (or the lack thereof) than for collectivists. For individualists, negative reciprocity may serve as a publicly indignant response to injustice. Although costly to the self, indignation expresses emotional disapproval in response to poor treatment, which can alert others that the individual is not to be unfairly treated by others in the future (Yamagishi et al., 2009). Perhaps this serves an especially valuable purpose in individualist countries, where the culturally-shared social norms and systems of control do not sufficiently punish norm violators (Yamagishi et al., 2005). Thereby, it is left to the individual to protect his/her reputation and alert others to norm violators through self-destructive acts.

When considering the results from different cultures, there appears to be important cultural differences in whether strong or altruistic reciprocity norms are followed. Participants from Singapore appear to assume the norm of altruistic reciprocity when treated negatively, even to the point of self-sacrifice. Positive game play by a stranger yields strong positive reciprocity and negative game play is met with neutral (or non-negative) reactions. The assumption of good intention appears to be extended even to strangers, and when friends confirm good intentions, they are met with more rewards (i.e., strong positive reciprocity). By comparison, participants from the U.S. appear to assume the norm of strong reciprocity when treated negatively.

American participants were much more willing to use self-destructive tactics (i.e., the destroy option) to ensure that if they were treated poorly, by friends or strangers alike, then neither game player would come out ahead. This finding provides empirical evidence for strong negative reciprocity in that participants spent their own money to punish their play partner for their poor initial treatment. This is uniquely different from giving up future possible earnings when treated negatively as shown in previous research (e.g., Chen et. al., 2009; Yamagishi et al., 2009).

Limitations and Future Directions

The most important limitation and direction for future research is the need to conduct experiments with more rounds of game play using the hybrid trust-dictator game. Since only one round of game play was conducted, it is difficult to determine whether the olive branch response in the collectivistic culture is truly a strategy for increasing future benefits or deterring future punishment. Since this format is unique to the present experiment, future work should continue game play for several rounds using this format to explore the olive branch response. Future work should also pursue whether differences in cultural norms of reciprocity (e.g., altruistic reciprocity for collectivists and strong reciprocity for individualists in the negative treatment condition) hold up using other game formats and samples from different countries.

Future research also needs to investigate cultural differences in reciprocity from the perspective of individual differences. Some researchers have argued that cultures are not exclusively individualistic or collectivistic (e.g., Noguchi, 2007). Since interdependent self-construal is equivalent to collectivistic individuals and independent self-construal to individualistic individuals (Yum, 2004), researchers may induce either high interdependent or independent self-construal to an individual to examine whether individual differences can account for variation in norms of reciprocity.

The findings of this study regarding cultural differences in strong negative reciprocity are of particular interest when exploring theoretical accounts of how reciprocity is affected by culture. Being observed by others may feature prominently in future research on negative reciprocity. According to the model developed by Yamagishi and colleagues (e.g., Yamagishi & Yamagishi, 1994), systems of control in collectivist cultures should deter negative reciprocity because of chronic awareness of the watchful eyes of others (Yamagishi et al., 2008). Therefore, future research on negative reciprocity in collectivist societies should explore whether participants' responses to unfair treatment viewed by others play a role in amplifying the olive branch strategy. It stands to reason that for collectivists, the watchful eyes of others should promote the use of the olive branch. Similarly, for those in individualist cultures, the self-destruct response should be even more prominent when other people are watching because it serves to alert others of a wrong-doer and protect the integrity of one who is treated unfairly. This could serve as yet another test of Yamagishi's work on the role of public monitoring.

To conclude, the results imply that researchers need a more coherent understanding of both strong and altruistic reciprocity theories. One possible refinement to Engelen's (2008) conceptualization of strong reciprocity is a further distinction between positive and negative acts. Engelen (2008) focuses on separating the strong reciprocity theory from other forms of reciprocity theories (e.g., altruistic, simple, and indirect). There is a lack of examination, however, of the difference between the negative and positive aspect of reciprocity that exists within the strong reciprocity theory itself. Nevertheless, there is reason to believe that positive and negative reciprocity function by different rules. Fehr and Rockenbach (2004) found that giving and punishing affected two entirely different parts of the brain. Similarly, Eisenberger et al. (2004) showed that people regarded positive and negative reciprocal norms as two different

concepts, influenced by different motivations. The present studies demonstrated that altruistic and strong reciprocity may function differently when initially treated negatively or positively as well as in collectivistic or individualistic cultures. Future work should pursue a deeper understanding of the contextualized differences between reciprocity norms for more credence in explaining co-operation in general.

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Table 1

Means and Standard Deviations for Reciprocity (N = 160)

Nature of Relationship	Type of Treatment	Collectivistic Mean (SD)	Individualistic Mean (SD)
Friends	Positive	7.30 (2.59)	-0.70 (5.92)
	Negative	-0.15 (8.45)	-3.95 (6.99)
Strangers	Positive	0.35 (7.58)	2.15 (4.48)
	Negative	-0.25 (7.64)	-4.85 (5.26)

Figure Caption

Figure 1. Amount given or destroyed: The simple interaction between relationship and treatment

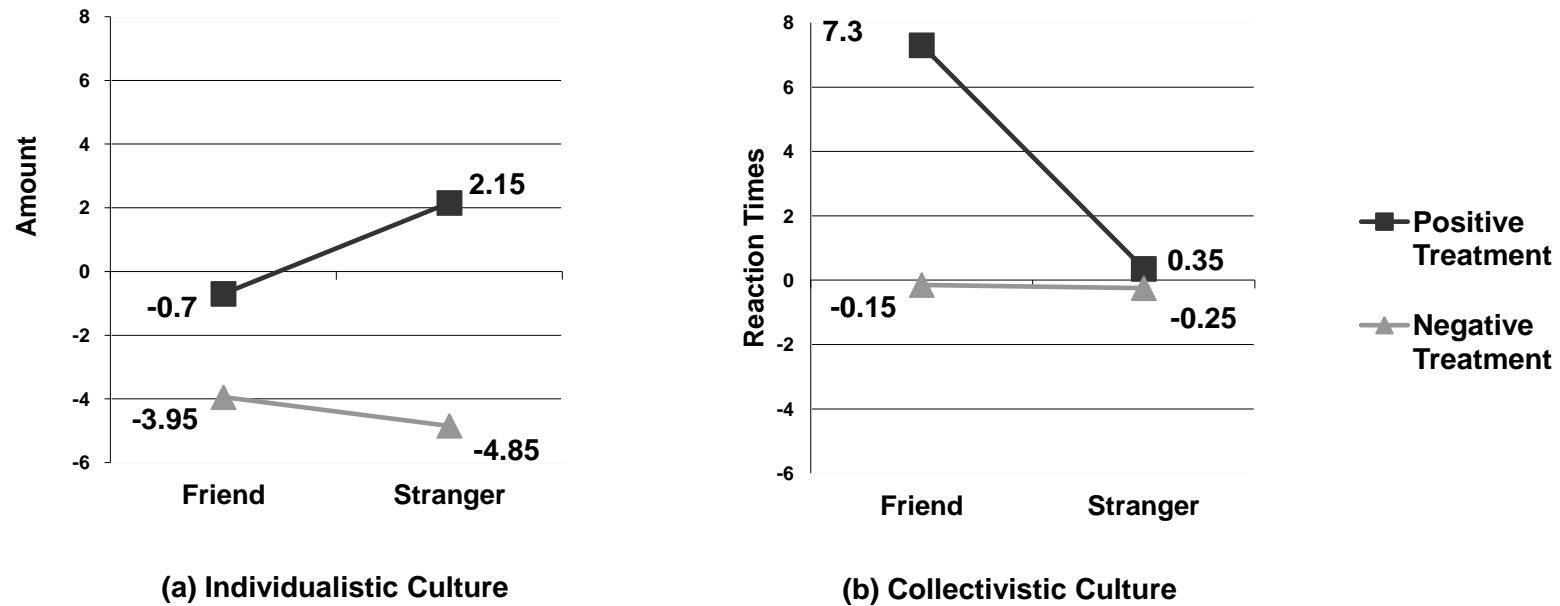types at the different levels of culture (individualistic vs. collectivistic).

Figure 1. Amount Given or Destroyed: The simple interaction between relationship and treatment types at the different levels of

culture (individualistic vs. collectivistic).

Note. (a) Amount as a function of relationship and treatment types in individualistic culture. (b) Amount as a function of relationship

and treatment types in collectivistic culture.

$F(1,156) = 6.90$, $p < .01$, partial $\eta^2 = .04$.

Appendix

Instructions for participants: Participants always played the role of Player B

Player A

RULES OF THE GAME
Both players begin the game with $50. The aim of the game is to gain as much as you can for youself within 5 rounds.

WITHIN EACH TURN
You are player A and you can choose to:
a) Give $1 - $10 to Player B or
b) Steal $1 - $10 from Player B

Any amount given or stolen is doubled for *player B only*.

Example

If Player A chooses to give $2 to player B, player B would gain $4.

$$A \dashrightarrow^{\$2 \times 2} B$$
$$-\$2 \quad Outcome \quad +\$4$$

Alternatively, if he chooses to steal $2 from player B, Player B would lose $2 and Player A gain $4.

$$A \dashleftarrow^{\$-2 \times 2} B$$
$$+\$2 \quad Outcome \quad -\$4$$

Player B

RULES OF THE GAME
Both players begin the game with $50. The aim of the game is to gain as much as you can for youself within 5 rounds.

WITHIN EACH TURN
You are player B and you can choose to:
a) Give $1 - $5 to Player A or
b) Sacrifice $1 - $5 of your own money to destroy Player B's money

Any amount given or destroyed is doubled for *player A only*.

Example

If Player B chooses to give $2 to player A, player A would gain $4.

$$B \dashrightarrow^{\$2 \times 2} A$$
$$-\$2 \quad Outcome \quad +\$4$$

Alternatively, if he chooses to destroy $2 of his own money, Player A would lose $4.

$$B \dashrightarrow^{\$2 \times 2} A$$
$$-\$2 \quad Outcome \quad -\$4$$