

**TRUST, RECIPROCITY AND SOCIAL DISTANCE IN CHINA:
AN EXPERIMENTAL INVESTIGATION**

Fei Song*

Ted Rogers School of Business Management

Ryerson University

350 Victoria St., Toronto, Ontario, Canada M5B 2H3

Tel: 416-979 5000

Fax: 416-979 5266

Email: fsong@ryerson.ca

C. Bram Cadsby

Department of Economics

University of Guelph

Yunyun Bi

Department of Economics

University of Guelph

* Corresponding Author. The two first authors, Song and Cadsby, made equal contributions to this paper.

Acknowledgements: We thank participants at the Economic Science Association meeting and the Trust Manuscript Workshop at the 2007 Academy of Management Conference for their helpful comments and suggestions. We are also grateful to Rachel Croson, Steve Currall, and Bill McEvily for many important suggestions that helped improve this paper substantially. In addition, Song would also like to acknowledge generous funding from the Social Sciences and Humanities Research Council of Canada, grant #2006-410-138.

ABSTRACT

We examine the impact of social distance on trust and reciprocity decisions in China. The central importance of social distance in Chinese culture is captured by the indigenous notion of *guanxi*, literally meaning relationship. Our study employs naturally occurring relationship levels to investigate the effects of social distance on both actual trusting and reciprocity behavior and beliefs about such behavior. In particular, some participants participated in two financially salient trust games to measure behavior, one with a classmate and the other with a student who was a stranger, while others drawn from the same population completed hypothetical surveys to gauge beliefs and intentions. The behavioral decisions of the first group were statistically indistinguishable from the hypothetical beliefs of the second group about both their own behavior and the behavior of others. The results together corroborated the expected negative relationship between trust and social distance. However, reciprocity, while proportional to trust, was not responsive to social distance. Thus, while non-classmates were actually as trustworthy as classmates, and furthermore expected to be so, they nonetheless received less trust. This suggests a potential to extend the boundaries of trust in China, creating benefits for individuals and organizations both as trustors and trustees.

Key words: Trust, reciprocity, *guanxi*, China, behavioral decision-making, social distance, belief.

The significance of trust and reciprocity in social life has long been recognized by various social sciences: anthropology, psychology, economics, sociology, and business studies. Across disciplines there is a consensus that trust and reciprocity as forms of social capital are critical to our society. As noted by Buchan, Johnson, and Croson (2006): “Trust and reciprocity are integral elements in economic transitions between companies, customers and retailers, between employees and employers, as well as in determining economic performance.” Nobel Laureate Kenneth Arrow (1972) cogently remarked: “Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can plausibly be argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence.” The logic underlying this statement is that in high-trust societies individuals need to spend fewer resources to protect themselves from being exploited in economic transactions.

Building upon this notion, Francis Fukuyama (1995) argues that the culture of trust is the source of spontaneous sociability that allows enterprises to grow beyond family into professionally managed organizations. Fukuyama further suggests that in each society there exists a boundary of trust, such that people in relationships within that boundary are trusted and trustworthy, while those outside the boundary are not. In the economic literature, a similar notion is often described in terms of social distance (Akerlof, 1997). Unlike the boundary idea, which implies a binary distinction, social distance denotes a continuous measure of closeness versus distance. As applied by Buchan and Croson (2004), social distance is a measure of the closeness between interacting parties in a strategic interaction. It has been argued that it is an important variable in explaining individual decisions bearing social consequences. For example, Glaeser et al. (2000), in a trust game conducted in the United States, demonstrate that lower levels of trust and reciprocity emerge as social distance, represented in their work by less demographic similarity between two parties, increases. Similarly, Hoffman, McCabe and Smith (1996) observe a negative relationship between dictators’ offers and social distance in a dictator game.¹

¹ The dictator game involves a simple act of a participant (the dictator or allocator) dividing a resource, typically money, between him/herself and a passive recipient.

In this paper we focus on the influence of social distance on trust and reciprocity in one particular country, China. We focus on China for several reasons. First, Chinese culture is often described as highly collective (e.g., Hofstede, 1991), with boundaries of trust that are quite narrowly drawn (Bond, 1991). Second, several previous studies have presented some intriguing observations summarized below that merit further investigation (e.g. Buchan et al., 2006; Buchan & Croson, 2004). Third, the role of social distance is generally considered especially salient in the dealings that Chinese people have both with each other and with non-Chinese. The central importance of social distance is captured by the indigenous notion of *guanxi*, which literally means relationship, but more broadly refers to the existence and importance of direct or indirect particularistic ties based on both demographic and long-standing experiential factors between an individual and others (Tsui & Farh, 1997). Thus, the primary goal of this paper is to extend past work on trust and reciprocity by examining the impact of social distance, represented empirically by naturally-occurring relationship levels, on trust and reciprocity behavior in China.

A second goal is to explore the convergent validity of behavioral (see Camerer, 2003, pp. 83–100, for an extensive review of the large empirical literature using behavioral measures) and intentional (e.g. Mayer, Davis, & Schoorman, 1995; Robinson, 1996; Rotter, 1967) measures of trust and reciprocity, both of which are widely employed in the current empirical literature. It is unclear whether these two types of measures produce identical results, and more importantly, whether researchers can directly compare the data collected using these two methodologies. This issue is not only important for empirical research, but has potential theoretical implications as well. In particular, whether behavioral and intentional data on trust and reciprocity are comparable is directly related to whether the intra-personal psychological distance effect is operative in such circumstances. Earlier research shows that the psychological distance between one's current state and the focal situation can make it difficult for people to imagine accurately how their behavior might be influenced by emotional or visceral forces that can be felt only in the actual situation (Loewenstein, 1996; Van Boven, Dunning, & Loewenstein, 2000). In such circumstances, people may not be able to predict correctly how they are going to act. By comparing behavioral and intentional data, we will extend research on the psychological distance effect by examining its impact in

the context of social and strategic interactions, where trust and reciprocity play an important role. Specifically, under the framework of the widely adopted trust game, we both observe actual behavior from one set of participants and collect behavioral intentions from another, randomly selecting both sets of individuals from the same subject pool. We then examine the relationship between actual behavior and reported behavioral intentions.

A third goal of the paper is to compare both behavior and behavioral intentions with expectations about the behavior of others. Earlier research has demonstrated that people's impressions and expectations of themselves and others are often biased (e.g., Alicke, et al., 1995). On the one hand, people typically believe that they are morally superior, i.e. more selfless, kind, just, brave and generous than average (e.g., Miller & Ratner, 1998). On the other hand, people's impressions and expectations of others are often negatively biased (e.g., Diekmann, et al., 1996; Tenbrunsel, 1998). By comparing actual behavior and behavioral intentions with expectations about the behavior of others, we examine the extent to which such biases are present in the context of trust and reciprocity interactions. If such biases are related to social distance, they may influence the relationship between social distance and trusting behavior since trusting behavior may well depend upon expectations about the trustworthiness of others. Thus, an understanding of peoples' expectations of others is intimately related to the primary focus of this research on the impact of social distance on trust and reciprocity behavior.

The paper will proceed as follows. In the next section, we discuss how social distance may influence the dynamics of trust and reciprocity in interpersonal relations in China. The specifics of our experimental study design are reported in the third section, while the results are presented in the fourth section. Conclusions and discussion are offered in the last section.

Theoretical and Empirical Background

In the current literature, various definitions of trust have been proposed. We adopt the widely used definition of trust by Rousseau et al. (1998) as: "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al., 1998, p.395). In our study, this definition is broadened to include both the expression of an intention to accept such vulnerability and explicit behavior resulting from such an intention. Correspondingly, we

adopt a definition of reciprocity as the act of “voluntarily repaying a trusting move at a later point in time, although defaulting on such repayment is in the short-term self-interest of the reciprocator” (Gunnthorsdottir, McCabe, & Smith, 2002, p. 50).

Guanxi is an idea familiar to virtually every Chinese person. It expresses the central importance of the degree of social distance within Chinese society. Literally, it means "relation" or "relationship". Of course, interpersonal relationships exist everywhere. Indeed, the importance of personal relationships in socio-economic life has been well documented in both Western and Chinese societies (e.g., Burt 1992, Luo 2000, Tsui & Farh 1997, Xin & Pearce 1996). However, it is argued that in China they are ubiquitous in that the whole society is structured around webs of *guanxi*, i.e. social relationships (Bian, 1997). Chiao (1982) and King (1991) suggest that Chinese *guanxi* is often based on factors that promote shared social experience between and among individuals, such as being part of the same family, attending the same class, studying the same major, and living in the same village or district. According to Yang (1994), *guanxi* also implies "social connections" built implicitly, without the need for explicit discussion or arrangements, upon mutual interest and benefits. Once two people have established a sufficient level of *guanxi*, each can request a favor from the other knowing that the opportunity to reciprocate will arise at an appropriate time in the future. Tsui and Farh (1997) note further that such interpersonal favors and acts of generosity are rendered with the anticipation that they will be reciprocated. A later extension of this research (Xin & Pearce, 1996) found that local private business executives made use of their *guanxi* connections to reduce threats to their business such as extortion or appropriation. Generally speaking, *guanxi* is used as a substitute for more formal institutional forms such as contracting.

How does *guanxi* affect trust and reciprocity in social exchanges? According to Butterfield (1983), Chinese people have a much stronger tendency to divide people into categories and treat them accordingly. As such, *guanxi* critically affects behavior toward others in Chinese societies. Moreover, it is argued that the most important outcome of a *guanxi* connection may be trust between two individuals since trust toward members of one's ingroup and distrust toward others is one of the strongest characteristics of interpersonal relations in China (Yang, 1994). Following this logic, we hypothesize that

social closeness or the strength of a *guanxi* connection between two people is positively correlated with the extent of trust and reciprocity between those two people in Chinese society.

Two prior studies have examined these issues empirically in the context of a trust game in China. The first is by Buchan and Croson (2004), who examined the effect of social distance on trust and reciprocity in both the United States and China. The authors conducted questionnaire surveys in both countries to examine “the interaction of trust and reciprocity with naturally-occurring social institutions of family and social networks”. Results showed persistent sensitivity to social distance for both trust and reciprocity in both countries based on hypothetical intentional/belief data. As discussed above, it is both theoretically interesting and empirically important to investigate whether these findings will be corroborated using behavioral data collected in the context of salient financial incentives. Moreover, the methodology used by Buchan and Croson (2004) involved presenting to their trust game participants an ordered list of hypothetical counterparts organized by increasing social distance as parent, sibling, cousin, fellow student you know well, student from a near-by university, stranger from your home town, and stranger from another country. The order of the social distance manipulation was not reversed or counterbalanced in their study. As the authors pointed out, an order effect could have contributed to the monotonic reduction of trust and reciprocity with increasing social distance found in their study. This potential confound warrants further investigation. Lastly, rather than using the conventional measure of reciprocity, Buchan and Croson (2004) used a different measure. Due to the different properties of these two measures, it is unclear whether their conclusions concerning reciprocity would be replicated using the more conventional measure. If not, the issue of how to interpret each measure must be confronted. Details of these two kinds of reciprocity measures will be discussed in the methods section.

The second paper is by Buchan, Johnson, and Croson (2006), who conducted a trust-game experiment in four countries, China, Japan, Korea, and the United States, to examine the influence of social distance and communication on trust and reciprocity. Using an *ad hoc* group-formation procedure in an attempt to create ingroups and outgroups in the laboratory, the authors found that, contrary to the hypothesized social-distance effect, Chinese participants actually exhibited more trust and reciprocity toward outgroups. This is a puzzling result, given that studies using a similar methodology, i.e. the minimal group paradigm,

in North America (e.g., Brewer & Brown, 1998; Tajfel and Turner, 1986) have showed compelling evidence that categorization into groups, even when based on the most arbitrary and transient criteria, can lead group members of one group to perceive members of another group as less trustworthy, less honest, and less cooperative than members of their own group. Indeed, the American participants in the Buchan et al. (2006) study reacted to the manipulation as expected, exhibiting more trust and reciprocity to the *ad hoc* ingroups as expected. The unexpected reaction to this manipulation by the Chinese participants may have arisen from the failure of the manipulation to capture the essence of Chinese *guanxi*, which requires deeper commonality than that achievable in an *ad hoc* laboratory manipulation. A natural extension of Buchan et al. (2006) is to explore the social-distance effect on trust and reciprocity behavior in China using naturally occurring social groups that are more likely to reflect differing levels of *guanxi*.

Our study makes four important methodological innovations that contribute toward a deeper understanding of the relationship between trust, reciprocity and social distance in China. First, we focus on the importance of *guanxi* in China, and empirically implement different levels of *guanxi* by using a naturally occurring social institution rather than an experimental manipulation to investigate the effects of social distance not only on hypothetical beliefs about behavior but also on actual financially salient trust and reciprocity decisions. Specifically, each participant in our study was asked either to respond to a hypothetical questionnaire about how s/he would play the trust game or actually to play the trust game both with a fellow classmate whom the participant knows very well (labeled ingroup hereafter) and with another student from the same university whom the participant does not know (labeled outgroup hereafter). Thus, each participant made two decisions. Each decision involved a different anonymous counterpart, representing different levels of *guanxi* or social distance, thus creating the within-person treatment condition that is the focus of our investigation. Second, we examine the possibility that the order in which social distance levels are presented to participants might affect beliefs and behavior by reversing this order for half of the interacting parties. Third, we examine the relationship between beliefs about behavior and actual behavior. We compare actual behavior in the trust game with both behavioral intentions and expectations about the behavior of others, and test whether there is a disconnection between intentions, expectations, and actual decisions. Furthermore, we examine how any such

disconnections affect the relationship between social distance and trust or reciprocity. Finally, we compare two different measures of reciprocity, the conventional one used by many researchers in the context of the trust game, and the contrasting one used by Buchan and Croson (2004) and Buchan et al. (2006) in the two previous studies on trust and social distance in China, and explore whether these different ways of operationalizing reciprocity in the trust game literature can produce different conclusions.

Methods

Methodological Framework and Background

We use widely employed game-theoretic experimental framework, the “trust” or “investment” game (Berg et al., 1995), to model and measure trust and reciprocity. This framework is consistent with the conceptual notions of trust and reciprocity. The trust game is played as follows. Participants are randomly assigned to be either trustors or trustees and given a monetary endowment at the beginning of the game. Each trustor decides how much of his/her endowment to send to an anonymous counterpart (trustee), with whom s/he is paired at random. All participants are informed that each dollar sent will be tripled by the experimenter before it is passed on to the trustee. After receiving the money, each trustee then decides how to split his/her total wealth, i.e., the sum of his/her initial endowment plus the tripled amount received, between him/herself and the trustor as an act of reciprocity. This game, in accordance with Rousseau et al.’s (1998) psychological definition of trust, creates in a parsimonious way the mixed-motive nature of a trustful act: expecting that the other party will honor the trust while simultaneously making oneself vulnerable to exploitation. Behavioral trust in this game is represented by the amount sent by the trustor.

As discussed earlier, there are two ways of measuring reciprocity in the context of this trust game in the literature. Many researchers have used the ratio between the amount sent back by the trustee and the amount sent by the trustor (hereafter Ratio 1) (e.g., Berg et al., 1995; Camerer, 2003; Meidinger et al., 1999; Song, 2007 and in press)², while others, notably the authors of the two papers which have

² In some cases, researchers have used the ratio of the amount sent back to the amount received by the trustee, the latter of which is three times the amount sent. Ratio 1 is just three times this ratio, and is thus essentially the same measure with the identical properties.

previously examined trust and social distance in China, have used the ratio between the amount sent back and the total wealth of the trustee, i.e., the sum of his/her initial endowment plus the tripled amount received (hereafter Ratio 2) (Buchan et al., 2006; Buchan et al., 2002; Buchan & Croson, 2004). These two measures have rather different properties. First, Ratio 1 excludes cases of zero trust. Since the level of trust is in the denominator of Ratio 1, Ratio 1 is undefined when no money is sent. Conceptually, this may be thought of as reflecting the notion that reciprocity is impossible when no trust has been forthcoming. Second, if Ratio 1 is constant regardless of the level of trust offered, Ratio 2 will necessarily be positively correlated with the level of trust³. Consider the following simple example. Suppose that the trustor and trustee are each given an initial endowment of 20. Imagine that the trustor sends 10 to the trustee. If the trustee in turn sends 10 back to the trustor, Ratio 1 equals $10/10 = 1$. Ratio 2 equals $10/50 = 0.20$, recalling the 10 sent to the trustee is tripled by the experimenter and that the trustee is also endowed with an additional 20. For 20 sent and 20 returned, Ratio 1 also equals 1. However, Ratio 2 now equals $20/80 = 0.25$. Thus for a constant level of reciprocity as measured by Ratio 1, Ratio 2 has increased with the higher level of trust. This turns out to be important when comparing the reciprocity results of our study with those of Buchan and Croson (2004). To facilitate this comparison, we report both reciprocity measures in our paper.

A standard starting point for the analysis of behavior in such a game is based on non-cooperative game theory with its fundamental assumption that individuals are both rational and self-interested. The trust game captures a one-shot, anonymous exchange in which one party acts without any knowledge of the person with whom s/he is paired at random (hereafter referred to as one's counterpart). Furthermore, the experimental setting involves no institutional mechanism other than the abstract setting of the experimental laboratory. Non-cooperative game theory predicts that trustees, self-interested and motivated to maximize their utility as assumed, would send no money back to trustors. Using backward induction, and given that there is no way of penalizing such self-interested behavior, rational trustors

³ Let E = Endowment of the Trustee, S = Amount Sent by the Trustor, and R = Amount Returned by the Trustee. Then $R1 = R/S$ and $R2 = R / [(E+3 \cdot S)]$. Suppose $R1$ is a constant, i.e. it does not change as S changes. Then $\frac{\delta R2}{\delta S} = R1 \cdot \left[\frac{E}{(E + 3 \cdot S)^2} \right] > 0$. Thus, a constant $R1$ implies that $R2$ increases with the amount sent.

should then expect trustees to send nothing back. Thus, trustors have no motivation to send anything to trustees. This subgame perfect Nash Equilibrium predicts neither trust nor reciprocity behavior in such an experimental setting. In stark contrast, many empirical studies using this trust game have produced robust results indicating that many trustors send nontrivial amounts to trustees, who in turn send nontrivial amounts back. Average amounts sent have been documented to range from 40 to 60 percent, while amounts returned average 110 percent of the amount originally sent (measured as Ratio 1) (cf., Camerer, 2003, p. 86). Such findings have been attributed to individual propensities to trust and to reciprocate, social norms and moral sentiments.

Experimental Manipulation, Participants and Procedure

Using the experimental framework of the trust game, this study examines the effects of three manipulated factors. The first is a between-person factor: the random assignment of participants to the hypothetical questionnaire session or the actual behavioral session. The between-person random assignment permits the gathering of these two types of data separately with no cross-contamination, allowing expectation/belief data from one randomly selected group of participants to be compared with the behavior of another. Note that gathering such data from the same individuals would render any such comparison of belief and behavioral data suspect since people would quite likely report beliefs consistent with their behavior. The second factor is a within-person repeated-design social-distance manipulation. Specifically, there are two levels of social distance in both the behavioral and the hypothetical sessions involving interaction with an ingroup versus an outgroup counterpart. This within-person factor is an important feature of the study. It is adopted to control for individual differences in trust/reciprocity preferences when examining the impact of social distance on trust and reciprocity. The third manipulation is a between-person factor: the order of the within-person social distance manipulations. The order of these conditions is reversed and counterbalanced to isolate the social distance effect from the order effect. In the behavioral session both the trustor and the trustee receive a ¥20.00 RMB endowment at the beginning of each experimental round. Only one of the two experimental rounds was randomly chosen for payment at the end of the behavioral session to prevent wealth effects. Each participant in the hypothetical session was paid a fixed participation fee of ¥10.00 RMB for about 45 minutes.

Undergraduate business students at the Dongbei University of Finance and Economics (DUFE) in Dalian, China were randomly recruited to participate in the study. At DUFE, as at most other Chinese universities, four classmates generally share a dorm room during the four years they spend at university. Females from the same class are all in adjacent rooms as are males. They take almost all of their classes together. Participants in our experiment were midway through their undergraduate education. They thus had both ample time to build *guanxi* and ample time left to utilize it. Although two students from the same university who are from different classes and do not know each other might share some *guanxi* by virtue of attending the same university, the level of such *guanxi* would be considerably lower than between two classmates. Note that whether two students were classmates or not was the only difference between the two levels of the social distance treatment. At both levels, the counterpart was a student taking similar courses in the same year of study. Thus, although demographic differences between participants can certainly have an important impact on *guanxi*, they cannot do so in our study. Moreover, at both levels, the specific identity of the counterpart was unknown. Thus, although personal feelings between two individuals who know each other can also have a strong impact on *guanxi*, no such feelings can play a role in our study either. The only difference between the two levels of our social distance treatment was the *guanxi* category of the counterpart: at one level a classmate and at the other level a non-classmate at the same university. We thus examine whether simply knowing that one is interacting with an anonymous individual in a closer *guanxi* category, but in all other respects the same, can influence trust and/or reciprocity behavior in a one-shot interaction. Buchan et al. (2006) showed that a laboratory manipulation in the spirit of the minimal group paradigm produced perverse effects on trust and reciprocity in China. We are interested in whether a small naturally occurring difference in *guanxi* category creates an ingroup bias on trust and/or reciprocity. Hence, we focus on a simple naturally occurring difference in *guanxi* categories that involves neither personal feelings between two particular individuals nor demographic differences such as age, occupation, religion, wealth, region or nationality that might influence trust and/or reciprocity in their own special ways. In other words, we ask whether a naturally occurring “minimal-*guanxi* paradigm” treatment can produce ingroup/outgroup effects on trust and/or reciprocity in China.

A total of 234 participants participated in our experiments. Participants primarily majored in Business English or Public Administration. All participants in both majors had taken similar courses including introductory economics. Thus we assume that their levels of exposure to game theory were equivalent. Participants in the behavioral session and in the hypothetical session were from the same population with identical demographic characteristics. The behavioral session consisted of 116 (79 women and 37 men) participants with average age of 20.79 (SD=0.95). The hypothetical session consisted of 118 participants (80 women and 38 men) with average age of 20.41(SD=0.93). Everyone directly involved in conducting the experiment was Chinese to avoid any effect of foreign involvement on behavior.

Behavioral Session Procedure

Upon arriving at the experiment site, participants were asked to pick an identification card out of a box, which determined their participant codes and assignments to either the “Party A” or “Party B” role (trustor and trustee respectively). In order to avoid possible framing effects, the word “trust” was not mentioned at all during the experiment and the neutral terms “Party A” and “Party B” were used instead of trustor or trustee. Participants were then escorted to the assigned “Party A” or “Party B” room, where they stayed for the remainder of the experiment. Thus, trustors and trustees never met each other throughout the experiment. All participants received the same general instructions about the trust game. They were informed that the experiment involved a game about social interactions, in which they would either play the “Party A” or “Party B” role. The game was illustrated with several numerical examples in the instructions. The instructions were read aloud to the participants and they were then given time to ask questions. Participants were also told that they would remain anonymous during the experiment (they were only identified by their unique participant codes), and that they would get paid in cash at the end of the game based on the decisions they made and those made by another participant during the game. Participants were asked to complete a numerical example quiz to make sure that they completely understood the game.

The experiment formally began at that point. A decision record form was employed for trustors and trustees, who were seated in two separate rooms, to communicate their decisions to each other. The decision record forms were delivered in envelopes. There were three research assistants, two of whom

were in the two rooms where participants were seated, while the third sat in the control room recording all the decisions. This decision communication procedure ensured double-blind anonymity, an important experimental control to minimize confounding effects emanating from self-presentation and/or social desirability motivations. Participants made two decisions sequentially: for half of the participants, first toward an ingroup counterpart and then an outgroup counterpart; while for the other half, the order of these two decisions was reversed (IO and OI order hereafter). In addition to this reversal, the following procedures were implemented to mitigate multiple-round effects. First, participants were not told the number of decisions they would be asked to make at the beginning of the experiment, nor were they informed in the second condition that it was the last condition in the experiment. Second, the outcomes for the first condition were not revealed to the trustors till the very end of the experiment, i.e., after they completed the second condition and the post-experiment questionnaire. However, due to the game structure, a trustee always knew the result of an interaction as soon as he/she made a decision.

At the end of the experiment participants were asked to complete a short post-experiment questionnaire for information on gender and age. After completing the questionnaire, participants were paid individually in the experimental control room to protect their anonymity. Each session took approximately one hour and participants earned on average ¥27.50 RMB. This has purchasing power equivalent to about \$18 US dollar and is equal to or higher than the average wage of ¥10 RMB to ¥ 15 RMB an hour for jobs on campus.

Hypothetical Questionnaire Session Procedure

The hypothetical questionnaire session followed the same procedures employed in the behavioral session as much as possible. Participants were required to complete two separate questionnaire surveys one by one. In each questionnaire, after following along as the experimenter read aloud the instructions for the trust game, participants were asked to respond to the following:

Trustors: Imagine you were playing this game as “Party A”. Please state how much you would send to a randomly-paired “Party B”, who is your fellow classmate/someone from your university; and how much would you expect to receive back from him/her.

Trustees: Imagine you were playing this game as “Party B”. Please state how much you

would expect to receive from a randomly-paired “Party A”, who is your fellow classmate/someone from your university, and how much you would return to him/her.

Half of the participants received two questionnaires in the IO order, while the other half received two questionnaires in the reversed order. At the end of the experiment participants were asked to complete the same post-experiment questionnaire as in the behavioral session.

Data Analysis and Results

Overview

Insert Table 1 about here

Table 1 summarizes the results of both the behavioral and hypothetical survey sessions. *Behavioral trust* is the amount the trustor sent to the trustee in the behavioral session. There are two measures of behavioral reciprocity. *Behavioral Ratio 1 reciprocity* is the ratio between the amount sent back by the trustee and the amount sent by the trustor, while *behavioral Ratio 2 reciprocity* is the ratio between the amount sent back and the total wealth of the trustee, i.e., the sum of his/her initial endowment plus the tripled amount received. Correspondingly, there are six dependent variables in the separately run hypothetical survey session: 1) *self-forecast of trust* is the amount the trustor believed s/he would send to the trustee if s/he were actually playing the game; 2) *other-forecast of trust* is the amount the trustee believed s/he would receive from the trustor in such circumstances; 3) *self-forecast of Ratio 1 reciprocity* is the ratio between the amount the trustee believed s/he would send back and the amount s/he expected to receive from the trustor; 4) *other-forecast of Ratio 1 reciprocity* is the ratio between the amount the trustor expected the trustee would send back and the amount s/he believed s/he would send to the trustee; 5) *self-forecast of Ratio 2 reciprocity* is the ratio between the amount the trustee believed s/he would send back and his/her total wealth i.e., the sum of his/her initial endowment plus the tripled amount s/he expected to receive from the trustor, and 6) *other-forecast of Ratio 2 reciprocity* is the ratio between the amount the trustor expected the trustee would send back and the trustee’s total wealth, i.e., the sum of the trustee’s initial endowment plus three times the amount the trustor would send to the trustee. For each session, the table shows behavioral or self-/other-forecast of trust and reciprocity toward both an ingroup

and an outgroup member. The results for each treatment are further partitioned by the two orders of IO and OI.

Behavioral Session Results

Initially, we examined the potential impact of social distance on behavioral trust and reciprocity using non-parametric Wilcoxon Signed Rank tests. The tests showed that the distributions of both trust and Ratio 2 reciprocity toward an ingroup versus an outgroup counterpart were significantly different ($z = -2.719, p = 0.007$, and $z = -2.500, p = 0.012$ respectively). However, no significant difference was found for Ratio 1 reciprocity ($z = -0.441, p = 0.659$). We examined the distribution of Ratio 1 reciprocity more closely for both the ingroup and outgroup cases in Table 2. The table divides the distribution into six categories: sending back nothing ($x=0$), sending back less than the trustor sent ($0 < x < 1$), sending back exactly the amount the trustor sent ($x=1$), sending back more than the trustor sent, but keeping a higher proportion of the surplus for oneself ($1 < x < 2$), equally splitting the surplus between the trustor and oneself ($x=2$), and sending back more than half of the surplus to the trustor ($x > 2$). The modal ratio for ingroups was 2, chosen by 21 (36.2%) participants. Thirteen (22.4%) chose ratios between 1 and 2, while another 7 (12.1%) chose a ratio of 1. The modal reciprocity ratio for outgroup reciprocity was also 2, chosen by 13 (26%) participants. The lower percentage of participants at the outgroup mode of 2 corresponded to somewhat higher percentages choosing ratios equal to 1 or between 1 and 2. However, these small distributional differences were not enough to establish a significant difference between the two distributions.

Insert Table 2 about here

We next analyzed the social distance effect on trust, Ratio 1 and Ratio 2 reciprocity, using regression analysis, and controlling for both order and gender. The dependent variables, within-person differences in trust or reciprocity, were measured as the within-person difference between trust or Ratio 1 and Ratio 2 reciprocity toward an ingroup versus an outgroup counterpart. For order and gender, we adopted effects coding with the IO order as -0.5, the OI order as 0.5, male as -0.5 and female as 0.5. This allows the

intercept to be interpreted as the main treatment effect of the social-distance level on trust or reciprocity, averaged over the two presentation orders and over the male and female participants. The following two regressions were run for trust and the two reciprocity ratios respectively:

$$\text{Within-person Differences in Trust} = \beta_0 + \beta_1 (\text{Order}) + \beta_2 (\text{Gender}) + \varepsilon \quad (1)$$

$$\text{Within-person Differences in Reciprocity} = \beta_0 + \beta_1 (\text{Order}) + \beta_2 (\text{Gender}) + \beta_3 (\text{Difference in Trust Received}) + \varepsilon \quad (2)$$

Insert Table 3 about here

Regression results are summarized in Table 3. For behavioral trust, we found that the main effect of social-distance level remained significant ($p = 0.011$) after controlling for gender and order. Moreover, neither of the control variables had a significant impact on the size of the social-distance effect. In contrast, Ratio 1 reciprocity was not responsive to differences in social-distance levels ($p = 0.742$). Neither order, nor gender nor the level of trust received had a significant impact on the lack of social-distance effect for Ratio 1. For Ratio 2 reciprocity, the social-distance effect was also insignificant ($p = 0.224$). Although gender had no impact, there was a significant order effect ($p = 0.016$).

In contrast to the results for Ratio 1 reciprocity, the individual differences in Ratio 2 reciprocity between the two social-distance levels were significantly influenced by the differences in the levels of trust received at the two levels ($p = 0.000$). This is not surprising. As discussed earlier in the paper and proven in footnote 3, if differences in the level of trust received do not affect reciprocity as measured by Ratio 1, they must positively affect Ratio 2 as observed in these results. Since the level of trust was significantly and systematically different between the two social-distance levels, comparing Ratio 2 reciprocity without controlling for the level of trust received produces apparent differences in reciprocity between the two levels as well. This is consistent with the apparently significant social-distance effect found using the non-parametric Wilcoxon Signed Rank test reported above. It is important to note that Buchan and Croson (2004), who reported a significant effect of social distance on Ratio 2, did not control for within-person differences in the levels of trust received in their analysis.⁴ When we removed this

⁴ Since Buchan and Croson's (2004) data are hypothetical, trustees made decisions based on what they expected to receive from trustors at the specified levels of social distance.

control from our Ratio 2 reciprocity regression, the *guanxi* effect became significant in our data as well ($p = 0.039$), consistent with our non-parametric analysis and reflecting the systematic difference in trust received at different levels social distance rather than any systematic social-distance effect on reciprocity.

Since we found a significant effect of presentation order on the relationship between social-distance level and Ratio 2 reciprocity, we examined whether the treatment effect of social distance on reciprocity differed under the two different presentation orders. Given that gender did not have any significant impact on the effects of social distance, we controlled only for the difference in trust received in this analysis. There was no significant order effect for Ratio 1 reciprocity. Correspondingly, in both the IO and OI orders a change in social-distance level had no significant effects. However, for Ratio 2 reciprocity, there was an apparently significant effect of social-distance level in the IO data ($p = 0.045$), but not in the OI data. Together, these results suggest that the significant declines in reciprocity observed by Buchan and Croson (2004) with an increase in social distance, a finding that contrasts with ours, could be the cumulative result of two factors: first Ratio 2 was used to measure reciprocity without controlling for the within-person difference in trust received at different levels of social distance, and second, all the data were collected in the IO order.

Hypothetical Survey Session Results

Regressions (1) and (2) were then run for each of the following six dependent variables: Self-forecast of trust and of Ratios 1 and 2 reciprocity; and other-forecast of trust and of Ratios 1 and 2 reciprocity. These regression results, summarized in Table 4, reveal a similar pattern to the one that emerged from the behavioral data. First, there was a social-distance effect on the level of trust exhibited toward an ingroup versus an outgroup counterpart both in self-forecasts and other forecasts ($p = 0.000$ in both cases). Second, neither order nor gender had a significant impact on the social-distance treatment effect for self-forecast of trust. Thus, self-forecasts and actual behavioral data yielded qualitatively the same result. In contrast, there were significant effects of both order and gender on the social-distance treatment effect for other-forecast of trust. In particular, trustees expected a significantly bigger difference in trust from ingroup versus outgroup counterparts when they played in the OI order and when they were male.

Insert Table 4 about here

Third, echoing our behavioral results, neither participants' own predicted levels of reciprocity nor those expected of others (measured by both Ratios 1 and 2) were influenced by different levels of social distance with counterparts (ingroup versus outgroup). Fourth, there was a significant order effect ($p = 0.049$) for other-forecast of Ratio 1 reciprocity. In addition, the difference in level of trust received also significantly influenced the difference in both self- and other-forecasts of Ratio 2 reciprocity ($p = 0.000$ for both cases) between the two social-distance levels, consistent with the mathematical relationship between Ratio 1 and Ratio 2 discussed in footnote 2 above. In sum, these results show that participants' expectations of the influence of social distance on trust and reciprocity for both themselves and others were qualitatively consistent with what we observed in actual behavior: trust decreases when social distance decreases whereas reciprocity is not responsive to a change in social distance. Finally, three further tests were run to compare the size of the social-distance effect on trust between the behavioral and self-forecast data, between the behavioral and other-forecast data, and between the self-forecast and other-forecast data. In none of these cases was there a significant difference.⁵

Comparing Self- and Other-Forecast Trust and Reciprocity Levels with Each Other and with Behavior

Although there are no significant differences in the effects of social distance on either trust or reciprocity when comparing self-forecast, other-forecast and behavioral data, there may nonetheless be differences in trust and reciprocity levels between these three sets of data. In particular, self-forecasts and other-forecasts may differ if a "holier-than-thou" bias is present in the context of trust and reciprocity interactions. Table 5 presents a between-person comparison of self- and other-forecast trust and reciprocity levels towards ingroup and outgroup counterparts.⁶

Insert Table 5 about here

⁵ In each case, we appropriately controlled for order and gender. Since there were no significant social-distance effects on reciprocity in either the behavioral or hypothetical data, there was no need to do similar tests comparing the size of reciprocity effects in the different data sets.

⁶ We also ran all of these tests in a regression framework controlling for order and gender. The results were statistically identical to those reported in Table 5.

The comparison revealed that self-forecasts of trust by hypothetical trustors were significantly higher than other-forecasts of trust by hypothetical trustees toward both ingroup- and outgroup- counterparts ($p = 0.043$ and $p = 0.002$ respectively). We then examined whether this difference reflected an overestimation of how trusting a person would actually be, or an underestimation of how trusting other people would be relative to actual behavior. Contrasting self- and other-forecasts with the actual behavior of different participants from the same population, we found that 84% of the holier-than-thou bias concerning trust toward ingroup counterparts came from an overestimation of how trusting participants believed they themselves would be toward an ingroup person, while only 16% came from an underestimation of others. However, this apparent self-overestimation bias was not significant at conventional levels ($p = 0.075$), so this result is suggestive only. In contrast, for trust toward outgroup participants, 67% of the bias came from an underestimation of how trusting others would be toward an outgroup person relative to actual behavior and this underestimation was significant ($p = 0.026$).

In contrast, there were no such effects in reciprocity forecasts. Although it initially appears that hypothetical trustors thought other people would be more reciprocating to an outgroup person than hypothetical trustees thought they would be themselves when measured by Ratio 2 ($p = 0.049$), this anomalous result disappears when we control for trust received. As stressed earlier, this control is essential for Ratio 2. Without it, other-forecast Ratio 2 reciprocity will be higher than self-forecast Ratio 2 reciprocity simply because self-forecast of trust is significantly higher than other-forecast of trust.⁷ Surprisingly, other-forecast of Ratio 2 reciprocity is significantly higher than actual behavior, even after controlling for trust received ($p = 0.042$). As there is no theoretical explanation for this isolated result, we suspect it may be due to Type 2 error.

Conclusion and Discussion

The primary goal of this paper was to investigate how social distance between exchange parties may influence trust and reciprocity behavior in China. The China setting is directly related to the choice of

⁷ Recall that the hypothetical trustor gives a self-forecast of trust and an other-forecast of reciprocity based on that self-forecast, while the hypothetical trustee gives an other-forecast of trust and a self-forecast of reciprocity based on that other-forecast. Thus, it is the level of the self-forecast of trust that affects the bias of other-forecast Ratio 2 reciprocity, and the level of the other-forecast of trust that affects the bias of self-forecast Ratio 2 reciprocity if the trust control is omitted.

social-distance treatment, which exploits the strong camaraderie among classmates at Chinese universities who live and work so closely together. However, the reader is reminded that like most studies, this one is set in just one country. Thus, we make no claim that our results are unique to China or depend uniquely on Chinese notions of *guanxi*. Rather the central importance of *guanxi* in China and the perverse results arising from attempts to establish ingroups through a laboratory manipulation akin to the minimal-group paradigm in Buchan et al. (2006) provide part of the motivation for undertaking this study.

Building on the work of both Buchan and Croson (2004) and Buchan et al. (2006), we conducted a study in which participants either participated in a financially salient one-shot trust game or completed a hypothetical survey. We measured the changes in actual behavior and self- /other-forecasts of trust and reciprocity due to differences in social-distance levels using naturally occurring differences in *guanxi* categories. We extended past work in the following five ways. First, we collected both actual behavioral and hypothetical intentional data within the same methodological framework and explored whether and to what extent these two methods of gathering data yield different results. Second, we used naturally occurring *guanxi* categories rather than an experimental manipulation in the laboratory to investigate the impact of social distance on trust and reciprocity behavior in China. In particular, counterparts were anonymous and demographically identical except for being either classmates or non-classmates. Third, we controlled for possible order effects, which may have influenced previously reported results, by reversing the presentation order of social-distance levels between interacting parties. Fourth, we explored the implications of two reciprocity measures used in earlier research employing the trust game. Fifth, we investigated potential holier-than-thou effects by comparing self-forecasts and other-forecasts both with each other and with the actual behavior of participants from the same population. Key findings are summarized and discussed below.

Our Chinese participants exhibited significantly more trust toward ingroup than toward outgroup members. This social-distance effect was present and statistically indistinguishable in magnitude in both our behavioral and hypothetical self-forecast data. However, it contrasts with Buchan et al.'s (2006) finding of significantly more trust toward outgroup members. One key methodological difference was likely responsible for these contrasting results. Buchan et al. (2006) employed a laboratory manipulation

akin to the minimal-group paradigm for the manipulation of social-distance levels between the interacting parties. In contrast, in our study no such laboratory manipulation was used. Instead we employed a naturally occurring “minimal-*guanxi* paradigm” treatment in which counterparts were anonymous and demographically identical except for being either classmates or non-classmates. There is evidence in cross-cultural research suggesting that the minimal-group paradigm may not work as well in some countries as in others (Mann et al., 1985) and more importantly, that while the ingroup-outgroup boundary is salient among natural groups in collective societies, it may be less pronounced for *ad hoc* groups that are temporarily constructed in a laboratory setting (Triandis, 1995). Thus, as Buchan et al. (2006) themselves conjectured when discussing their results, it might be more difficult to form temporary *ad hoc* ingroups among Chinese participants due to China’s collectivist culture. Moreover, it is possible that the very manipulation used to form *ad hoc* groups caused some discomfort among the Chinese participants, thus influencing their mood and hence their behavior. Although this latter point is speculative, the distinction between naturally occurring *guanxi* categories versus temporarily constructed *ad hoc* groups in China was almost certainly responsible for the differing results in the two studies. The fact that our results concerning trust were consistent with Buchan and Croson’s (2004) survey data, which also employed naturally occurring *guanxi* categories, lends further support to the notion that this is a critical factor in the examination of the impact of social distance on trust in China.

In contrast to trust, reciprocity behavior was not sensitive to social distance as measured by the two *guanxi* categories in our study. This result is contrary to the results of Buchan and Croson (2004), who found a significant drop in reciprocity as social distance increased. Buchan and Croson (2004) used hypothetical questionnaire data. However, this was not the reason for the discrepancy in results. Indeed our own questionnaire self-forecast data gave identical results to our behavioral data regarding the lack of social-distance effect on reciprocity. Instead, our results point to a combination of two other factors that is likely responsible for the difference in results. First, Buchan and Croson (2004) define reciprocity using Ratio 2 and do not control for the trust their hypothetical trustees expected to receive. Although the level of trust received has no significant impact on reciprocity as defined by Ratio 1, it does have a significant impact on reciprocity as defined by Ratio 2. Indeed, we have both shown mathematically that this must be

the case, and verified that it is the case in both our behavioral and hypothetical data. Omitting a control for the difference in trust received causes an apparent social-distance effect on Ratio 2 reciprocity. However, this apparent effect is the result of specification error resulting from a missing control variable in the statistical model, and is merely a reflection of the social-distance effect on the level of trust. Second, the order in which the social-distance levels are presented to participants can significantly affect their choices. In the ingroup-outgroup order, a significant fall in reciprocity emerged as social distance increased in both Buchan and Croson (2004) and in our study. Conversely, in the outgroup-ingroup order in our study, trustees reciprocated as much toward outgroup as toward ingroup members. The reduction in reciprocity in the ingroup-outgroup order may have been affected by the order and manner in which the levels of social distance were presented. Specifically, in the ingroup-outgroup order, a trustor is given a justification to trust less when s/he is presented with an outgroup counterpart after playing with an ingroup member. In contrast, s/he may not feel similarly motivated to trust more in the reversed order, when presented with an ingroup counterpart after playing with an outgroup member. In addition, the simultaneous monotonic presentation of multiple levels of social distance from closest to farthest in the Buchan and Croson (2004) study may have implicitly motivated a monotonic reaction both for reasons of psychological consistency and because participants may have believed that this was what was expected of them.

Of course, Buchan and Croson (2004) had more levels of social distance in their study. The ability to examine trust and reciprocity at many different levels of social distance is one of the big advantages of a hypothetical over a more costly salient behavioral study. We cannot of course rule out an impact of social distance on reciprocity when the difference between levels of social distance is larger than in our study or when such differences include such demographic factors such as age, occupation, wealth, religion, language, or region. This is a matter for future research.

Comparing self-forecast and other-forecast data, we found a significant holier-than-thou effect for trust at both social-distance levels, but no such effects for reciprocity. Importantly, there were no such discrepancies regarding the effect of social distance on either trust or reciprocity. Moreover, participants' assessments of both themselves and others regarding the effect of different social distance levels on both

trust and reciprocity were statistically indistinguishable from the behavior of other participants drawn from the same population who actually played a trust game with salient financial incentives. This is a comforting result. That both the social-distance effect on trust and the lack of such an effect on reciprocity were robust to different investigative approaches gives added support to the important relationship between social distance and trust in China.

Our results are however puzzling in one important respect. While non-classmates were actually as trustworthy as classmates, and furthermore expected to be so, they nonetheless received less trust. If trustors pass more money to ingroup members even though ingroup members are expected to be no more trustworthy than outgroup members, it might be argued that the motive for doing so must be other-regarding preferences or altruism biased towards the ingroup. However, if other-regarding preferences are biased in this manner, it is difficult to explain why the same bias is not exhibited by trustees who return money in proportion to the amount received without any such ingroup bias. One possible explanation is that while point predictions of ingroup versus outgroup reciprocity are no different statistically, the unobserved confidence intervals surrounding these predictions might differ. If risk-averse trustors are less certain about how much will be sent back by outgroup trustees, they might decide to send them less even though the expected value of outgroup reciprocity may not differ from that of the ingroup. Whether or not this is the case cannot be determined by the point estimates of reciprocity gathered in our study. However, it should be pointed out that the standard deviations of actual reciprocity behavior reported in Table 1 are no larger for outgroup reciprocity than for ingroup reciprocity. Thus, there appears to be little behavioral foundation for such a lack of confidence in predictions of outgroup reciprocity. This issue requires further study.

Building closer and deeper *guanxi* relationships engenders trust. This in turn promotes the creation of social surplus. At the levels of reciprocity observed in our study, both trustors and trustees benefit from this surplus even though the level of reciprocity is not itself directly affected by social distance as measured by the naturally occurring *guanxi* category of one's counterpart⁸ This suggests a potential to

⁸ The average level of Ratio 1 reciprocity ranged from 1.33 to 1.92 in our behavioral treatments and 1.66 to 1.95 in our hypothetical treatments. As long as this ratio is above 1, the surplus will be shared between the trustor and the trustee.

extend the boundaries of trust in China, creating benefits for individuals and organizations both as trustors and trustees. Meanwhile, investing in *guanxi* is an important priority for those doing business in China.

References

- Alicke, M. D., & Klotz, M. L. (1995). Personal contact, individuation, and the better-than-average effect. *Journal of Personality and Social Psychology*, 68, 805–825.
- Arrow, K., (1972). Gifts and exchanges. *Philosophy and Public Affairs*, 1, 343-367.
- Akerlof, G, (1997). Social distance and social decisions. *Econometrica*, 65, 1005-1027.
- Alexrod, R. (1984). *The evolution of cooperation*. New York: Basic Books.
- Berg, J., Dickhaut, J., & McCabe, K., (1995). Trust, reciprocity, and social history. *Games and Economic Behavior*, 10, 122–142.
- Bian, Y. (1997). Bring strong lies back in: Indirect ties, network bridges, and job searchers in China. *American Sociological Review*, 62, 366-385.
- Bond, M. H. (1991). *Beyond the Chinese face: Insights from psychology*. Hong Kong: Oxford University Press.
- Buchan, N., & Croson, R. (2004). The boundaries of trust: Own and others' actions in the US and China. *Journal of Economic Behavior and Organization*, 55, 485-504.
- Buchan, N., Johnson, E., & Croson, R. (2006). Let's get personal: An international examination of the influence of communication, culture and social distance on other regarding preferences. *Journal of Economic Behavior and Organization*, 60, 373-398.
- Burt, R. S. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Butterfield, F. (1983). *China: Alive in the Bitter Sea*. London, UK: Coronet Books.
- Camerer, C. (2003). *Behavioral game theory: experiments in strategic interaction*. New York: Russell Sage Foundation. Princeton, N.J.: Princeton University Press.
- Chiao, C. (1982). *Guanxi: A Preliminary Conceptualization*. In K. S. Yang and C. I. Wen (Eds.), *The Sinicization of Social and Behavioral Science Research in China*. Taipei, R.O.C.: Academia Sinica: 345-360, (in Chinese).

- Diekmann, K. A., Tenbrunsel, A., Shah, P., Schroth, H., & Bazerman, G. (1996). The descriptive and prescriptive use of previous purchase price in negotiations. *Organizational Behavior and Human Decision Processes*, 66, 179–191.
- Fukuyama, F. (1995). *Trust: The Social Virtues and the Creation of Prosperity*. New York: The Free Press.
- Glaeser, E., Laibson, D., Scheinkman, J., & Soutter, C. (2000). Measuring trust. *Quarterly Journal of Economics*, 115, 811–846.
- Gunthorsdottir, A., McCabe, K., & Smith, V. (2002). Using the Machiavellianism instrument to predict trustworthiness in a bargaining game. *Journal of Economic Psychology*, 23, 49-66.
- Hoffman, E., McCabe, K., & Smith, V. (1996). Social distance and other-regarding behavior in dictator games. *The American Economic Review*, 84, 653–660.
- Hofstede, G. (1991). *Cultures and Organizations: Software of the Mind*. New York: McGraw-Hill.
- King, A. Y. (1991). Kuan-hsi and Network Building: A Sociological Interpretation. *Daedalus*, 120, 63-84.
- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes*, 65, 272-292.
- Luo, Y. D. (2000). *Guanxi and Business*. River Edge, NJ: World Scientific.
- Mann, L., Radford, M., & Kanagawa, C. (1985). Cross-cultural difference in children's use of decision rules: A comparison between Japan and Australia. *Journal of Personality and Social Psychology*, 49, 1557-1564.
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20, 709-734.
- Miller, D. T. & Ratner, R. K. (1998). The disparity between the actual and assumed power of self-interest. *Journal of personality and social psychology*, 74, 53-62.
- Robinson, S. L. (1996). Trust and breach of the psychological contract. *Administrative Science Quarterly*, 41, 574-599.
- Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality*, 35, 651-665.

- Rousseau, D., Sitkin, S., Burt, R., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *The Academy of Management Review*, 23, 393–404.
- Song, F. (2007). The Effect of the Consensus-Making Process on Intergroup Trust and Reciprocity in Strategic Interactions. *Working Paper*.
- Song, F. (*In press*). Trust and reciprocity: The differing norms of individuals and group representatives. *Games and Economic Behavior*.
- Tenbrunsel, A. (1998). Misrepresentation and expectations of misrepresentation in an ethical dilemma: The role of incentives and temptation. *Academy of Management Journal*, 41, 330–339.
- Trandis, H. (1995). Individualism and Collectivism. Westview Press. Co: Boulder.
- Tsui, A. S. & Farh, J. L. (1997). Where *Guanxi* Matters: Relational Demography and *Guanxi* in the Chinese Context. *Work and Occupations*, 24, 56-79.
- Xin, K. & Pearce, J. L. (1996). *Guanxi*: Good Connections as Substitutes for Institutional Support. *Academy of Management Journal*, 36, 1641-1658.
- Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: Misperceptions of the endowment effect. *Journal of Personality and Social Psychology*, 79, 66-76.
- Wang, F., & Yamagishi, T. (2005). Group-based trust and gender differences in China. *Asian Journal of Social Psychology*, 8, 199-210.
- Yang, M. M. (1994). *Gifts, Favors and Banquets: The Act of Social Relationships in China*. Ithaca, NY: Cornell University Press.

Table 1**Data Summary: Means, Standard Deviations, and Within-Person Treatment Effects**

Variable	Ingroup (S.D.)		Outgroup (S.D.)	
	IO order	OI order	IO order	OI order
Panel A: Behavioral Session Data				
Behavioral Trust (n=58)	9.98 (6.35)	9.34 (6.44)	7.41 (6.50)	7.27 (6.25)
Behavioral Reciprocity – Ratio 1 (n=50)	1.92 (1.37)	1.40 (0.70)	1.33 (1.38)	1.57 (0.55)
Behavioral Reciprocity – Ratio 2 (n=58)	0.33 (0.23)	0.25 (0.16)	0.18 (0.18)	0.22 (0.14)
Panel B: Hypothetical Survey Session Data				
Panel B-1: Data from the Trustors				
Trust Self-Forecast (n=59)	11.58 (6.17)	11.15 (6.79)	8.68 (5.42)	7.43 (5.62)
Reciprocity Other-Forecast– Ratio 1 (n=59)	1.76 (0.47)	1.78 (0.57)	1.46 (0.59)	1.81 (1.21)
Reciprocity Other-Forecast– Ratio 2 (n=59)	0.34 (0.12)	0.33 (0.14)	0.26 (0.13)	0.28 (0.20)
Panel B-2: Data from the Trustees				
Trust Other-forecast (n=59)	8.00 (5.82)	10.69 (6.76)	5.62 (4.10)	5.14 (4.63)
Reciprocity Self-Forecast– Ratio 1 (n=59)	1.95 (0.62)	1.80 (0.48)	1.66 (0.69)	1.69 (0.60)
Reciprocity Self-Forecast– Ratio 2 (n=59)	0.32 (0.20)	0.33 (0.13)	0.23 (0.14)	0.20 (0.13)

Table 2**Behavioral Session: Distribution of Reciprocity Ratio 1 (Percentage in parentheses)**

	Ingroup	Outgroup
x=0	3 (5.2%)	4 (8.0%)
0<x<1	8 (13.8%)	6 (12.0%)
x=1	7 (12.1%)	10 (20.0%)
1<x<2	13 (22.4%)	12 (24.0%)
x=2	21 (36.2%)	13 (26.0%)
x>2	6 (10.3%)	5 (10.0%)
Total	58 (100%)	50 (100%)

Table 3

Behavioral Data: Within-Person Social-Distance Effect

DV Within-Person Difference	Constant β_0 (p)	Order B_1 (p)	Gender B_2 (p)	Diff. in Trust Received B_3 (p)	Overall Fit F -stat. (p)
Trust (n=58)	2.549 (0.011)	-0.705 (0.709)	-1.848 (0.344)	N/A	0.492 (0.614)
Ratio 1 (n=50)	0.066 (0.742)	-0.671 (0.069)	0.198 (0.619)	-0.007 (0.743)	1.203 (0.319)
Ratio 2 (n=58)	0.042 (0.224)	-0.114 (0.016)	0.052 (0.699)	0.015 (0.000)	7.307 (0.000)
Ratio 2 (n=58)	0.80 (0.039)	-0.121 (0.079)	0.042 (0.585)	Removed	1.652 (0.201)

Table 4

Hypothetical Survey Data: Within-Person Social-Distance Effect

DV Within-Person Difference	Constant β_0 (p)	Order B_1 (p)	Gender B_2 (p)	Diff. in Trust Received B_6 (p)	Overall Fit F -stat. (p)
Trust self-forecast (n=58)	3.411 (0.000)	0.559 (0.646)	-0.788 (0.532)	N/A	0.455 (0.637)
Trust other-forecast (n=58)	4.841 (0.000)	3.133 (0.031)	-3.818 (0.020)	N/A	5.361 (0.007)
Ratio 1 self-forecast (n=50)	0.206 (0.084)	-0.201 (0.221)	-0.262 (0.178)	0.016 (0.352)	1.772 (0.164)
Ratio 1 other-forecast (n=58)	0.067 (0.618)	-0.440 (0.049)	-0.244 (0.285)	0.029 (0.234)	1.852 (0.149)
Ratio 2 self-forecast (n=50)	0.028 (0.119)	-0.031 (0.225)	0.038 (0.188)	0.022 (0.000)	36.607 (0.000)
Ratio 2 other-forecast (n=58)	0.019 (0.348)	-0.040 (0.216)	-0.003 (0.930)	0.016 (0.000)	7.074 (0.000)

Table 5
Contrasting Behavioral and Belief Data

Variable	1. Behavior (n=58)	2. Self- Forecast (n=59)	3. Other- Forecast (n=59)	2 - 3 t-stat. (p- value)	2 - 1 t-stat. (p-value)	1 - 3 t-stat. (p-value)
Ingroup Trust	9.65 ^ψ	11.36 [§]	9.32 ^φ	1.727 (0.043)	1.448 (0.075)	.278 (0.390)
Outgroup Trust	7.34 ^ψ	8.05 [§]	5.38 ^φ	2.921 (0.002)	0.649 (0.258)	1.955 (0.026)
Ingroup Ratio 1	1.65 ^η	1.88 ^φ	1.77 [§]	1.080 (0.141)	1.409 (0.080)	-.755 (0.226)
Outgroup Ratio 1	1.46 ^η	1.67 ^φ	1.64 [§]	0.216 (0.414)	1.308 (0.097)	-.961 (0.169)
Ingroup Ratio 2	0.29 ^η	0.32 ^φ	0.34 [§]	-0.012 (0.328)	0.037 (0.142)	-0.049 (0.060)
				0.009* (0.394)	-0.051* (0.069)	0.052* (0.069)
Outgroup Ratio 2	0.19 ^η	0.22 ^φ	0.27 [§]	-0.047 (0.049)	0.020 (0.239)	-0.067 (0.016)
				0.009* (0.677)	0.038* (0.159)	-0.059* (0.042)

Note: ^ψ Data collected from Trustors in the Behavioral Session.

^η Data collected from Trustees in the Behavioral Session.

[§] Data collected from Trustors in the Hypothetical Survey Session.

^φ Data collected from Trustees in the Hypothetical Survey Session.

* Adding trust received (or forecasted trust for hypothetical survey data) as a control variable in the analysis. The control variable was significant ($p=0.000$) in all six Ratio 2 regressions. It was never significant for Ratio 1, and did not change any of the statistical inferences. To save space, these Ratio 1 results are not reported here.