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# Cooperation with Strangers: Spillover of Community Norms

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**Abstract.** Why do leaders of organizations cooperate with players with whom they may never transact again? Such transactions can involve the incentives to exploit the other party because these interactions are not recurrent or embedded in networks. Yet, in a market economy, organizational actors learn to cooperate with strangers; otherwise, they risk closure from new ideas and business opportunities outside of their local community. With a large random sample of CEOs of manufacturing firms in the Yangzi River Delta region of China, we measured social norms using vignettes that describe hypothetical situations illustrating the social mechanisms of norm enforcement in respondents' local communities. Several years later, in a laboratory-in-the-field experiment, we asked the same participants to play a one-shot Prisoner's Dilemma (PD) game with a complete stranger. Our findings suggest that belief in the reliability of robust norm enforcement is positively associated with a higher probability of cooperation with strangers. To our knowledge, this mixed-method study is the first to explore the relationship between social norms and cooperation with strangers using a large sample of leaders of organizations outside the environment of the laboratory. Finally, to explore the generalizability of our behavioral findings, we experimentally manipulated norm vignettes and study the PD game in online experiments with managers in the Yangzi River Delta region.

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**Keywords:** social norms • cooperation with strangers • prisoner's dilemma • organizational actors • China

## Introduction

In a global economy, where economic transactions transcend local communities and networks, interactions with strangers can become a source of competitive advantage. Cooperation with strangers can potentially enable organizational actors to gain access to novel ideas, strategic information, and timely advice about business challenges. It can open pathways for new business opportunities and new ideas and technologies through knowledge sharing and sequential exchange. Yet, social exchange with strangers also involves incentives that make defection a dominant strategy. There is no reputation to be damaged, and yet copious uncertainty. Why, then, do economic actors who do not know each other cooperate in economic transactions? And what type of arrangements render a level of trust to enable a one-shot exchange with a stranger more likely?

We argue that cooperation norms embedded in an organizational actor's business community are key institutional elements that can shed light on why an organization's leader engages in cooperative exchange with a stranger, given uncertainty about future transactions. Organizational actors within close-knit industrial districts learn from previous social interactions in their communities and develop mental scripts about how to behave with others, including strangers (Bicchieri 2006, Nee, Holm and Opper 2018). We maintain that expectations of reciprocity and cooperative behavior are subsequently used as heuristics to guide social behavior with unknown others. We study this in the evolving institutional environment of the Yangzi River Delta region of China's transition economy. China has experienced a rapid transition from a centrally planned economy to a dynamic form of capitalist economic development.

Economic actors experienced daily uncertainty over property right and contract enforcement in the early stage of transition to a market economy (Whiting 2000, Tsai 2007). In the absence of formal institutions safeguarding private property rights and assuring enforcement of contracts, entrepreneurs depended on informal arrangements based on reciprocity, cooperation, and trust, in order to survive and develop outside an established economic order dominated by state-owned enterprises (Nee and Oppen 2012). Trust and cooperative practices were facilitated by spatial proximity in industrial clusters of private enterprise, which enabled and motivated informal arrangements for cooperation. These cooperative practices and the associated informal workaday norms that emerged in the face of uncertainty contributed to rapid capitalist economic development. This bottom-up social dynamic makes the Chinese transition to a market economy a strategic natural research site to test whether cooperation norms in business communities spill over to cooperation with strangers.

We test our argument using pooled data of 412 entrepreneurs who are CEOs of private manufacturing firms in the Yangzi River Delta region, surveyed in 2009 and 2012. In the 2009 survey, we assessed their perception of enforcement of business norms in their community by presenting them with vignettes that described hypothetical contexts of norm violation between two fictitious entrepreneurs. CEOs then were asked to indicate types of norm enforcement to punish opportunism and malfeasance. Their responses revealed the content of social sanctions the player believed to be widely practiced in their business community. We note that the various forms of sanctions point to different exchange structures. For instance, negative gossip heavily relies on reputational costs of opportunism or malfeasance (Macaulay 1963, Ellickson 1991, Bernstein 1992, Provan 1993, Gulati 1998). Retaliation depends more on dyadic interactions that over time can develop norms of reciprocity and provide a foundational basis for trust in economic exchanges (Gouldner 1960, Axelrod and Hamilton 1981, Axelrod 1984, Gambetta 1993, Fukuyama 1995, Uzzi 1997, Westphal et al. 2012, Huang and Knight 2017). To the extent that entrepreneurs select any of these social sanctions, they reveal what exchange structures are operative in their business community.

In the 2012 survey, we measure cooperation with strangers with a laboratory-in-the-field behavioral game using a one-shot prisoner's dilemma (PD) played against complete strangers from outside their local community. Although one-shot successful interactions between strangers cannot predict the type of cooperative endeavors that CEOs would pursue together, they can reveal an important first step toward further cooperative efforts and the beginning of a trusting relationship (Axelrod 1984, Molm et al. 2012,

Cao and Galinsky 2020). The three-year lag between the vignette measure of business norms and the one-shot PD game was during a period of continuous change in the institutional environment of the Yangzi Delta. The National Economic Research Institute (NERI) marketization index shows that a rapid improvement in the quality of economic institutions in the regional economy reflected diffusion of legal-rational organizational behavior in the regional economy (Nee et al. 2017). The rising legitimacy of a private-enterprise-led market economy and improved legal environment in the Yangzi River Delta region offer a challenging stage to assess the effect of normative-cultural beliefs measured three years prior to a one-shot PD game. Such a laboratory-in-the-field behavioral game—conducted in naturally occurring environments where organizational actors keep their social identities, community context, and internalized social norms as much as possible in the context of institutional change—has greater external validity than PD games conducted with students in a university context (Levitt and List 2007, Baldassarri 2015).

Laboratory-in-the-field behavioral studies have identified micro- and meso-level social mechanisms of generalized altruism, group solidarity, reciprocal exchange, and norm enforcement in enabling and motivating cooperation and prosocial behavior in networks (Baldassarri and Grossman 2013, Baldassarri 2015, Nee et al. 2018). In the first large-scale laboratory-in-the-field experimental study involving a random sample of 700 CEOs, Holm et al. (2013) found that entrepreneurs are more willing to enter into multilateral competition than members of a large control group of ordinary people. That study, moreover, showed that entrepreneurs are more willing than ordinary people to trust a stranger—an anonymous other—despite the uncertainties involved. In a follow-up laboratory-in-the-field study with a sample of 200 CEOs, entrepreneurs, and industrialists who participated in prisoner's dilemma, chicken, and battle-of-the-sexes incentivized games were more prosocial than the control group of ordinary people (Holm et al. 2020). They cooperated more and were less hawkish than the control group, no matter how the behavioral game was framed, whether abstractly or as a cultural belief narrative.

Our aim in this article is to explain the propensity of organizational actors—CEOs of private firms—to cooperate with a stranger in a one-shot transaction where both parties of the exchange benefit from cooperation, in the context of uncertainty about opportunism that would result in a suboptimal outcome. We explore whether exchange structures that organize endogenous social exchange in business communities spill over to cooperation with unknown others outside those business networks in a regional market economy. Finally, to explore the generalizability of our

behavioral findings, we extend our laboratory-in-the-field research design to an online setting with two different populations (Chinese and American respondents), aiming to replicate our findings and generalize our hypothesized mechanisms.

## Cooperation, Social Norms, and Their Enforcement

Cooperation presents an intriguing puzzle when the optimal outcome for a rational actor leads to a suboptimal outcome for the group (Axelrod 1984, Kollock 1998a, b). Several mechanisms embedded in on-going social relations help explain cooperation in a community. One of them is direct reciprocity, anchored in the imbalance that the social dynamics of giving and receiving produce in social relations (Molm 1994). Receiving goods and services creates a social obligation to give back and balance accounts (Gouldner 1960; Kollock 1993), which can lead to a stream of reciprocal acts, strengthening mutual commitment to the relationship (Malinowski 1926, Simmel 1950, Mauss 1990, Homans 1974, Lawler and Yoon 1996, Torche and Valenzuela 2011) and setting the building blocks for trust as cooperation overtakes defection (Kollock 1994, Uzzi 1997, Molm et al. 2012). Norms of reciprocity and cooperation that spring from these sequences of social exchange are pervasive in business communities (Macaulay 1963, Cropanzano and Mitchell 2005, Nee and Oppen 2012).

A second mechanism that ensures the flow of resources among organizational actors is generalized or indirect reciprocity (Ekeh 1974, Bearman 1997). An entrepreneur or CEO can give strategic advice and share knowhow and information with others with no expectation that this will be immediately reciprocated, but with the expectation that others will help in the future, when such help is needed. These exchange systems can survive with high levels of community commitment, including mutual trust among its members and strong expectations that others will be cooperative (Yamagishi and Cook 1993, Lawler et al. 2008), which reduces the high risk of nonreciprocation and free-riding (Yamagishi and Cook 1993, Molm et al. 2007). Reputation can also serve to prevent the collapse of systems of indirect reciprocity (Nowak and Sigmund 2005), when organizational actors aim to avoid a poor reputation that can easily reach others through embedded ties, damaging long-term performance and competitiveness in the market (Macaulay 1963, Greif 1989, Provan 1993, Ellickson 1991). Reputation can even make defection costly in one-shot interactions, to the extent that others can share information about past behavior (Ule et al. 2009), as is common now in online markets (Resnick et al. 2006, Diekmann et al. 2014, Kuwabara 2015).

These exchange structures may especially develop in business communities where organizational actors face

high institutional uncertainty (Kollock 1994, Yamagishi and Yamagishi 1994, Molm 2010). However, it remains a challenge to explain why these actors would cooperate with others who are not part of their communities and will likely never be. Why would strangers cooperate, if they have no common history and may never encounter each other again? One-shot anonymous interactions present the PD in its purest form and should always have defection as the equilibrium strategy (Axelrod 1984, Delton et al. 2011). The conditions of strangeness and anonymity that characterize cooperation with unknown others make salient past experience and social learning in the local community as relevant sources of decision making. We argue that this learning process is built upon the exchange structures that organize economic transactions and then are internalized in social norms that are positively linked to higher cooperation with strangers (Nee et al. 2018).

Our measure of social norms uses vignettes with hypothetical scenarios, in which cooperative business norms are violated and respondents choose different norm enforcements that they believe exist in their business community. Previous research in experimental economics found strong effects of norm enforcement on cooperation (Ostrom et al. 1992, Fehr and Fischbacher 2004a, Fehr and Gintis 2007), showing that individuals are willing to incur personal costs when they are given the opportunity to sanction free-riders in public goods games (Fehr and Gächter 2000), even when there is anonymity and they will not directly benefit from the norm enforcement (Fehr and Gächter 2002, Fehr and Fischbacher 2004b). Additionally, research on prosocial behavior toward strangers in natural settings suggests that market integration enables the development of social norms and institutions that sustain exchange with others outside close-knit groups (Henrich et al. 2010, Baldassarri 2020). However, these researchers generally use cultural contexts that are arguably correlated with the emergence of social norms and institutions, but that do not give specific insight into the working mechanics of these social processes and the content of norms (Ellickson 1991). Our study relies instead on mechanisms of norm enforcement that Chinese entrepreneurs expect to be used in their business communities when a particular norm violation occurs. Hence, we establish the following hypothesis:

**Norm Enforcement Hypothesis.** *The greater the commitment to punishment of noncooperators in support of norms of a community, the more likely an organizational actor will cooperate with a stranger.*

## Cooperation in the Emerging Private Economy in China

Our laboratory-in-the-field PD game contributes to a cross-cultural study of organizational behavior in the

context of rapid economic change and societal transformation. Here, to highlight the context of choice for CEOs participating in the PD game, we provide an analytical sketch of the institutional environment.

State-initiated economic reform in 1978 launched China's rapid transition to a hybrid form of capitalist economic development (Nee 1992, Coase and Wang 2012). China's emergent capitalism shared similarities with other East Asian capitalism with respect to the central role of a developmental state, but unlike other capitalist economies, China has a large state-owned sector at the "commanding heights" of the economy with a Communist Party keeping a vigilant eye on administration of legal and regulatory rules of the game (Nee and Lian 1994, Tsai 2007). Notwithstanding this, the private enterprise economy in China evolved rapidly into a dynamic capitalism, propelling "creative destruction," leading to discontinuous change in economic life "not forced upon it from without but aris[ing] by its own initiative, from within" (Schumpeter 1996, p. 63).

Market transition theory explains the emergence of a market society as arising from institutional change linked to a greater reliance on markets in economic life (Nee 1989). As market mechanisms become more dominant, entrepreneurs allocate resources and manufacturing products according to market conditions, as opposed to meeting nonmarket production targets set by the government. Market transition theory argues that the replacement of bureaucratic allocation by market mechanisms involves a shift of power to entrepreneurs and direct producers. The emergence of a market society provides entrepreneurs and producers with a greater set of choices, enabling them to develop new means and modes for cooperation in pursuit of competitive advantage and profitable exchange.

In a market society, there are positive incentives for organizational actors to cooperate with strangers. First is the emergence of markets for innovation, linked to an increasing reliance on innovation as an organizational strategy to gain comparative advantage and survive in competitive markets (Nee et al. 2010). Access to existing knowhow and knowledge leading to novelty require that entrepreneurs learn to trust and cooperate with organizational actors—often strangers—outside their immediate network of friends and business relations (Holm et al. 2020). Hence, embedded in the institutional environment were demand-side mechanisms that rewarded prosocial behavior (Powell et al. 1996, Powell et al. 2005). CEOs of industrial firms in China have a reason to cooperate with players outside the boundary of their firm in order to gain access to information and knowledge useful in innovative activity (Nee and Oppen 2012). Second, industrialists and entrepreneurs not only competed, but also cooperated with strangers in their efforts to grow market share beyond local markets in competitive domestic markets and the global economy. CEOs gain

competitive advantage by reaching out beyond their close-knit industrial cluster to expand their market share through cooperation with distant acquaintances and strangers.

Our hypothesis applies to the Yangzi Delta region as a whole, because this entire geographic location in China saw the emergence of a market economy. Indeed, a sequence of laws enacted in the transition economy on private property rights, intellectual property, contracts, labor markets, and corporate governance, along with a constitutional amendment extending legal equality to private organizational forms, led to a gradual, but cumulative, process of regional improvement in the quality of economic institutions, legal and regulatory enforcement, and rational-legal corporate governance (Guthrie 1999, Clarke et al. 2008, Nee et al. 2017). The National Economic Research Institute index of marketization tracks the quality of the institutional environment of China's provinces using several provincial-level measures (Fan et al. 2011, 2017). With regard to the NERI index, the Yangzi Delta region shows a rise in the quality of institutional environment. In the 2010s, the Yangzi River Delta regional economy emerged as the world's factory, with an institutional environment by 2020 at a level comparable to other advanced regional economies of the global economy, despite differences in political system. Although we do not directly theorize about particular local conditions that shaped social norms, our analysis also centers on city-level heterogeneity in the social norms of business communities and their association with cooperation with strangers. Additionally, we expand our focus on the Yangzi Delta by conducting an online experiment in this regional economy in 2020 to explore the role of reciprocity norms in cooperation with strangers and its variation across cities.

## Data and Methods

### Data

Our main data source comes from the second and third waves (conducted in 2009 and 2012) of the Yangzi Delta Survey of Entrepreneurs and Firms (Nee and Oppen 2012), a decade-long study following a stratified random sample of 700 CEOs and their private companies located in seven cities in China's Yangzi River Delta region: Hangzhou, Ningbo, and Wenzhou (Zhejiang Province); Nanjing, Changzhou, and Nantong (Jiangsu Province); and Shanghai. The recruitment of participants for the survey followed a two-stage procedure. The sample frames came from local private-firm registers provided by China's Bureau of Industry and Commerce. We oversampled medium (100–300 employees) and large (more than 300 employees) industrial firms and limited the inclusion of small firms (10–100 employees) to no more than two-thirds of the sample. About 100 firms were drawn from each of the seven

cities. In addition, the sampling frames were stratified by the industrial sector of the firm, ranging from labor-intensive (ordinary machinery, automobile and vehicle parts, and textiles) to knowledge-intensive (pharmaceutical and electronic and communication appliances) sectors (for a detailed discussion of survey methodology, sampling protocols, and data collection, see Nee and Oppen 2012).

### Dependent Variable: Cooperation with Strangers

Our measure of cooperation comes from a one-shot PD game.<sup>1</sup> This game has been studied by many disciplines under different sets of conditions and has a longstanding tradition in game theory to measure cooperation. As discussed above, a one-shot PD exclusively captures the decision to cooperate or not with strangers and, therefore, removes by design other behavioral mechanisms that foster cooperation.

The payoffs in the game are presented in Table 1. Respondents were randomly assigned to two frames that described the dilemma differently. However, there was no effect of framing on the probability of cooperation (results available upon request). Accordingly, we construct our dependent variable by combining the responses for these two frames.

### Explanatory Variable: Norm Enforcement

To measure norm enforcement in our respondents' local business communities, we used seven scenarios, each involving a standard business conflict between two hypothetical Chinese entrepreneurs (Lao Li and Lao Zhang). The first scenario concerns a refusal to lend money, even when the potential lender could afford to lend. The second is about helping a former employee with advice and assistance to start his own firm. The third refers to the failure to pay back an informal loan given to Lao Zhang to finance an investment in his company. The fourth describes a delay in delivery of supplies that causes Lao Li to lose a contract with one of his customers. The fifth describes the delivery of supplies of inferior quality and the refusal of the deliverer to fix the problem. The sixth relates to the failure to pay for a delivery of goods in a timely manner. The last scenario states that, after maintaining a trusting business relationship over the years, Lao Zhang tries to lure away Lao Li's clients. In each

of these scenarios, Lao Zhang is always the violator, and Lao Li is always the affected party (Nee and Oppen 2012).

In each case (except no. 6), respondents had five choices as to the probable consequences: (i) Nothing will happen, (ii) the affected entrepreneur will tell others about the bad experience (negative gossip), (iii) the affected entrepreneur covers his losses in future transactions by taking action against Lao Li (retaliation), (iv) a change in the business relationship between the entrepreneurs with material consequences (punishment), or (v) other people will treat the violator differently (community sanction). [The sixth scenario excludes choice (iii).] Options (i) and (ii)–(v) are mutually exclusive, but multiple choices were possible among choices (ii)–(v), provided that option (i) was not chosen.<sup>2</sup> Each choice is summed up across scenarios and then multiplied by the inverse of the number of questions in which the choice appeared—thus correcting for the fact that option (iii) appears only six times instead of seven. Each value then signals the extent to which a respondent endorses that choice across different violations of business norms. The difference between retaliation and punishment is grounded in the difference between tit-for-tat and grim trigger (Axelrod 1984). Both reveal cooperative behavior, but they differ in that grim trigger (also known as “the Friedman strategy”) is unforgiving and completely removes future interactions with a defector.

Scenarios (1) and (2) (i.e., lending money and helping a former employee with advice and assistance) relate to norms that could be followed out of good will, but not necessarily out of obligation. Thus, the norm violation does not seriously damage business prospects. The other five scenarios, however, relate to norms to which entrepreneurs are definitely expected to conform. We refer to the former norms as weak norms and to the latter as strong norms, and we conduct analyses for all norms and for strong norms separately (see below). The distinction between the weak and strong norms was also identified through qualitative interviews.

### Control Variables

We also include a battery of statistical controls: gender, age, age squared in case cooperation varies with experience, family income, years of education, the respondent's household status at birth, urban/rural locations, and a set of dummy variables for manufacturing sector (textile industry; medical and pharmaceutical industry; ordinary machinery; transportation industry; and communication equipment, computer, and other electronic manufacturing) and municipality to capture differences in the local business environment (Changzhou, Nanjing, Shanghai,

**Table 1.** The Prisoner's Dilemma

Entrepreneur	Stranger	
	Defect	Cooperate
Defect	100,100	400,50
Cooperate	50,400	250,250

Note. (Payoffs in Chinese Yuan, CNY).

Hangzhou, and Wenzhou). Table 2 reports descriptive statistics for all the measures used.<sup>3</sup>

### Methodological Strategy

We hypothesize that business norms of a close-knit community can enable economic exchange with strangers. When transacting with strangers in a competitive market environment, entrepreneurs learn from experience that cooperation may result in sequential exchange. In particular, those who believe that norm violations will be sanctioned in their business community are more likely to cooperate with strangers. Accordingly, we model the probability ( $P$ ) that entrepreneurs cooperate with strangers ( $C$ ) as

$$P(C_{it} = 1) = \text{logit}^{-1}(\alpha + \beta \times \text{NormEnforcement}_{it-3} + \gamma \times \text{Controls}_{it}), \quad (1)$$

where  $t$  is an indicator of year 2012,  $\beta$  is the parameter that captures the association between norm enforcement and cooperation, and  $\gamma$  is a vector of parameters for the controls. We use a logistic regression to estimate our parameter of interest,  $\beta$ . All measures that relate to norm enforcement were obtained in 2009. This three-year time window stacks the deck against our hypothesis by weakening the signal of the relationship in the data, even if norm enforcement and cooperation with strangers are significantly correlated. For instance, if social norms fade away over time or if there are changes in the population composition of

business communities, the norms may not be statistically associated with our dependent variable. We come back to this point in the Discussion section.

To examine the influence of norm enforcement on cooperation, we focus first on the relationship between the extent to which entrepreneurs think “nothing will happen” when norms are violated and cooperation with strangers. Then, we study the relationship between cooperation and the expectation that different types of sanctions are applied to enforce social norms (i.e., negative gossip, retaliation, punishment, and community sanctions). Because those CEOs who do not endorse any type of sanction will be confused in our data with those who do not endorse a particular type of sanction, we add an indicator that captures the difference between these two types of lack of norm endorsement.

Our data come from self-reports from a single source, which raises concerns about common method bias: an inflation of the relationship between variables of interest attributable to the use of the same method. Separating sources of information to measure our predictor and outcome variables was not feasible, nor was it desirable (Conway and Lance 2010) because entrepreneurs are best suited to self-report the business norms in their communities. Our survey design included several steps to prevent common method biases (Podsakoff et al. 2003, Podsakoff et al. 2012). First, there is a considerable temporal lag between the 2009 survey assessing the entrepreneurs’ attitudes about norm enforcement and the behavioral measure of cooperation with strangers in 2012. To the extent that business norms endure over time, this temporal lag does not eliminate the theoretical relationship under examination. But we believe that a lag of three years is long enough to produce a successful cognitive dissociation between attitudinal and behavioral cues, without masking the signal in the data. This would, for instance, mitigate potential causes of the “consistency motif” and “transient mood state” (Podsakoff et al. 2003). Second, the measurement of the predictor variables uses a different methodology than the response variable (PD), thus avoiding the potential artificial covariance between predictors and responses that comes from using the same measurement medium (also known as “measurement content effects”) (ibid.). Third, vignettes for norm enforcement were designed to avoid social desirability bias in the responses by providing an hypothetical scenario involving two fictitious individuals. Thus, norm-enforcement measures were not designed to capture what entrepreneurs would personally do in such situations, but rather to inform about what is generally done by others in their business communities. And fourth, these vignettes were located at different parts of the questionnaire to eliminate proximity effects. We believe that all these factors combined should significantly minimize common method bias.

**Table 2.** Descriptive Statistics

Variables	Mean	S.d.	Min	Max
Prisoner’s dilemma	0.48	0.5	0	1
Normative sanctions (for strong norms)				
Nothing will happen	0.17	0.29	0	1
Negative gossip	0.49	0.37	0	1
Retaliation	0.36	0.35	0	1
Punishment	0.57	0.34	0	1
Community	0.27	0.29	0	1
Male	0.84	0.36	0	1
Income (thousand Yuans)	42	27	12	250
Rural ( <i>Hukou</i> )	0.6	0.49	0	1
Education (years)	13.5	2.9	0	25
Age (years)	45.8	8.04	29	69
City				
Changzhou	0.2			
Hangzhou	0.2			
Nanjing	0.2			
Shanghai	0.19			
Wenzhou	0.2			
Industry Sector				
Mechanical	0.24			
Medical	0.12			
Textile	0.21			
Transportation Industry	0.26			
Electronics	0.17			

Note. S.D., standard deviation.

**Table 3.** Prisoner’s Dilemma and Norm Enforcement (Weak and Strong Norms)

Predictors	Cooperation									
	M1(a)	M1(b)	M2(a)	M2(b)	M3(a)	M3(b)	M4(a)	M4(b)	M5(a)	M5(b)
Nothing happens	-0.65* (0.34)	-0.59 (0.37)								
Negative gossip			0.21 (0.28)	0.01 (0.34)	0.67** (0.31)	0.62* (0.34)	0.01 (0.31)	0.36 (0.39)		
Retaliation										
Punishment										
Community Sanction										
Constant	0.06 (0.12)	3.58 (2.97)	-0.17 (0.16)	3.25 (2.97)	-0.31** (0.15)	3.34 (2.97)	-0.08 (0.19)	3.16 (2.96)	-0.13 (0.40)	0.05 (0.45)
N	412	412	412	412	412	412	412	412	412	412
Akaike inf. crit.	570.72	565.41	573.96	569.78	569.84	566.49	574.53	568.90	574.43	569.77

Notes. Reference city is Changzhou; reference industry is Electronics. Inf. crit., information criterion; M, model.

\* $p < 0.1$ ; \*\* $p < 0.05$ .

## Results

In all tables,<sup>4</sup> models 1, (a) and (b) have regression coefficients (log-odds) for the expectation that nothing happens when business norms are violated, and models 2–5, (a) and (b) have regression coefficients (log-odds) for the expectation that specific types of sanctions will follow norm violation (i.e., negative gossip, retaliation, punishment, and community sanction). Models (a) have no controls, and models (b) include all controls mentioned in the previous section.

Table 3 presents results for all scenarios of norm enforcement, weak and strong norms combined. Models 1a and 1b show that there is a negative relationship between cooperation with strangers and the belief that norm violations are not sanctioned: the more strongly entrepreneurs believe that nothing will happen when norms are violated, the less likely they are to cooperate with unknown others. However, although the direction of the coefficient is stable across different specifications, this relationship is weak, and its statistical significance disappears, with its  $p$ -value increasing from 0.05 to 0.1, once controls are added. Models 2–5 show regression coefficients for different types of norm enforcement. We observe that only the coefficient for retaliatory punishment (model 3(a)) is statistically significant, revealing a positive association: The more strongly entrepreneurs believe that retaliation will be used as a sanction, the more likely they are to cooperate with unknown others. However, when controls are added, the  $p$ -value of the coefficient increases from 0.03 to 0.07 and is only weakly statistically significant. There are statistically significant differences in cooperation with strangers across cities, which we address below.

We then estimate the same logistic model only for strong norms, where sanctioning mechanisms are the most crucial to prevent opportunism. Table 4 displays regression coefficients (log-odds).

We observe similar patterns as in Table 3. Choosing nothing will happen when business norms are violated is negatively linked to cooperation with strangers, but the statistical significance disappears, with its  $p$ -value increasing from 0.07 to 0.17, after adjustments are included in model 1(b). When we focus on the enforcement of specific social sanctions (models 2–5), we again observe that only the belief that there will be retaliation is positively associated with cooperation with strangers: The more strongly entrepreneurs believe that retaliatory sanctions are prevalent in their business community, the higher the probability of cooperation with strangers. The coefficient in model 3(b) remains statistically significant with controls included. Again, there are also significant differences in cooperation with strangers across cities.

Equation (1) assumes that  $Y_i \sim \text{Bernoulli}(\pi_i)$ , and we model  $\pi_i$  using a logistic regression. But tables 2 and 3



**Table 4.** Prisoner's Dilemma and Norm Enforcement (Only Strong Norms)

Predictors	Cooperation									
	M1(a)	M1(b)	M2(a)	M2(b)	M3(a)	M3(b)	M4(a)	M4(b)	M5(a)	M5(b)
Nothing happens	-0.63* (0.35)	-0.51 (0.37)	0.17 (0.27)	-0.09 (0.32)	0.63** (0.29)	0.63** (0.31)	-0.16 (0.29)	0.10 (0.36)	-0.22 (0.34)	-0.11 (0.38)
Negative gossip										
Retaliation										
Punishment										
Community Sanction										
Constant	0.03 (0.11)	3.47 (2.96)	-0.16 (0.16)	3.35 (2.97)	-0.31** (0.14)	3.31 (2.97)	0.02 (0.19)	3.20 (2.96)	-0.02 (0.13)	3.23 (2.95)
N	412	412	412	412	412	412	412	412	412	412
Akaike inf. crit.	571.12	566.12	574.13	569.71	569.64	565.73	574.21	569.71	574.09	569.70

Notes. Reference city is Changzhou; reference industry is Electronics. Inf. crit., information criterion; M, model.

\* $p < 0.1$ , \*\* $p < 0.05$ .

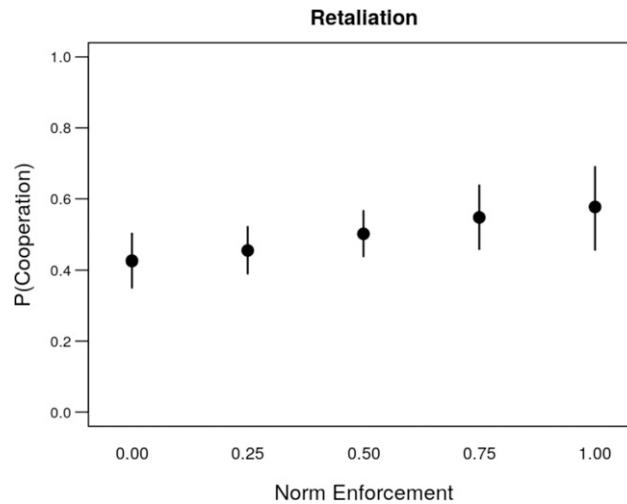
display coefficients in log-odds, which are not very useful because they are not in the scale of the response variable and, hence do not directly inform about the probability of cooperation with strangers conditional on how strongly they endorse retaliatory norms (King et al. 2000). We use simulations to study whether norm enforcement with retaliation makes CEOs more likely to cooperate with strangers. In particular, we use coefficients from model 3(b) in Table 3 and its covariance structure to recover the underlying probability of cooperation with strangers. The main idea behind this approach is to obtain the probability distribution from where we assume our response variable to be drawn and then calculate the expected value of this probability for each observation. The statistical uncertainty of this assumption introduces a source of uncertainty that is due to the fundamental randomness of the process, not to estimation uncertainty due to a limited number of observations. And it therefore accounts for the uncertainty of the model itself, not only the parameter (King et al. 2000). This strategy permits us to estimate the expected probability of cooperation given different levels of strength in the belief of retaliatory enforcement and to compute its standard errors, which would be difficult to obtain otherwise (Gelman and Hill 2007, Breen et al. 2018).

Figure 1 shows the results from our simulations for each level of strength in the belief of retaliatory enforcement, with 95% confidence intervals. We observe that cooperation with strangers increases, conditional on the strength of the belief that retaliation is prevalent in business communities. Entrepreneurs who do not believe that retaliatory sanctions will be used in their local business communities have a probability of cooperation with strangers of 0.4 approximately. But the more entrepreneurs believe that retaliatory sanctions will be applied in their business communities, the more likely they are to cooperate with strangers. When they believe that retaliatory sanctions are applied in all five hypothetical situations of our vignettes, their probability of cooperation with unknown others is approximately 0.55, an increment of about 35% with respect to entrepreneurs who do not believe that retaliatory sanctions are customary in their communities. However, confidence intervals overlap at all levels of norm enforcement, in line with the uncertainty around the coefficient observed in model 3(b), Table 3.

### Local Community Effects

Obviously, exchange structures that organized business practices in the Yangzi Delta River region could have developed differently in the different cities, given diverse local histories and cultures. Table 5 presents results for all models in Table 4 with an interaction term between city and norm enforcement to

**Figure 1.** Probability of Cooperation with Strangers, Based on 1,000 Random Draws from a Normal Distribution Using Coefficients from Model 3(b) in Table 3 and 1,000 Draws from a Bernoulli Distribution with Probabilities from  $\text{Logit}^{-1}(\cdot)$  Function in Equation (1) and Covariates Fixed at Their Mean



Note. Vertical bars indicate 95% confidence intervals.

study whether social norms developed differently in the five cities of the Yangzi Delta region under study. First, we observe a positive and statistically significant relationship between expecting retaliation for norm violation and cooperation with strangers for Nanjing and Wenzhou, but not for the other cities. For Shanghai, we find a statistically significant *negative* link between cooperation with strangers and expecting punishment or community sanctions.

In addition to being in log-odds, these coefficients are marginal to the reference category (i.e., Changzhou) and therefore provide little information other than statistical significance and the direction of the coefficients (Breen et al. 2018). Figure 2 plots probabilities of cooperation with strangers for each city where we find statistically significant coefficients in Table 5: retaliation in Nanjing and Wenzhou (first row, Figure 2) and punishment and community sanctions in Shanghai (second row, Figure 2). As in Figure 1, confidence intervals are estimated by using simulations to reduce model uncertainty, while holding constant the remaining variables at their means (King et al. 2000, Gelman and Hill 2007).

In the case of retaliatory sanctions, we observe that the slopes for Nanjing and Wenzhou are both positive, meaning that stronger support for retaliatory norms increases cooperation with strangers in both cities. Confidence intervals overlap in Wenzhou, but not in Nanjing, suggesting that this relationship is particularly relevant in this city. We also notice that the slope for this relationship is much steeper for Nanjing, where the probability of cooperation with strangers almost doubles between the extremes of the strength of retaliatory

norms. Moreover, we observe that punishment and community sanctions significantly decrease cooperation with strangers in Shanghai, although differences are not statistically significant across values of norm strength (second row, Figure 2).

### Online Experiment

Our regression results do not necessarily imply a causal mechanism, because there is still the possibility that CEOs who were more cooperative with strangers in the past were more likely both to believe that community norms were enforced in 2009 and also to be persistently more cooperative with strangers over time. This may happen in Nanjing and Wenzhou, for instance, if CEOs who are generally more prosocial toward strangers are also more sensitive as regards perceiving the enforcement of cooperation norms in their business communities. To obtain additional insights on the links between social norms and cooperative prosocial behavior, we conducted an online experiment on Credamo, a Chinese crowd-sourcing website (similar to Amazon Mechanical Turk). We experimentally manipulated our norm vignettes and asked respondents to play a one-shot prisoner's dilemma with a stranger (another person who lives in China). Based on our previous results, we assess whether local business norms of reciprocity increase cooperation with strangers. That is, we test the following hypothesis:

**Hypothesis 1.** *Business norms of reciprocity increase cooperation with strangers.*

We primed participants with a brief story about the successful contribution of the private sector to China's

**Table 5.** Prisoner’s Dilemma and Norm Enforcement by City (Only Strong Norms)

Predictors	Cooperation									
	M1(a)	M1(b)	M2(a)	M2(b)	M3(a)	M3(b)	M4(a)	M4(b)	M5(a)	M5(b)
Nothing happens	-1.42 (1.17)	-1.65 (1.21)								
Nothing happens: Hangzhou	0.84 (1.38)	0.97 (1.43)								
Nothing happens: Nanjing	1.74 (1.43)	2.03 (1.49)								
Nothing happens: Shanghai	3.86* (2.10)	4.13* (2.13)								
Nothing happens: Wenzhou	-0.46 (1.46)	-0.15 (1.50)								
Negative gossip	0.54 (0.62)	0.57 (0.63)								
Negative gossip: Hangzhou	-0.66 (1.03)	-0.80 (1.04)								
Negative gossip: Nanjing	-1.21 (0.91)	-1.37 (0.94)								
Negative gossip: Shanghai	-1.13 (0.91)	-1.32 (0.93)								
Negative gossip: Wenzhou	0.10 (0.87)	-0.08 (0.90)								
Retaliation										
Retaliation: Hangzhou										
Retaliation: Nanjing										
Retaliation: Shanghai										
Retaliation: Wenzhou										
Punishment										
Punishment: Hangzhou										
Punishment: Nanjing										
Punishment: Shanghai										
Punishment: Wenzhou										
Community Sanction										
Community Sanction: Hangzhou										
Community Sanction: Nanjing										
Community Sanction: Shanghai										
Community Sanction: Wenzhou										
Observations	412	412	412	412	412	412	412	412	412	412
Akaike inf. crit.	550.15	564.19	558.07	573.66	546.57	562.79	550.13	565.98	554.78	569.15

Notes. Reference city is Changzhou; reference industry is Electronics. Inf. crit., information criterion.

\* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

economic growth and with the violation of two important business norms regarding quality of supplies and repayment of an informal loan. We told them that a recent study had interviewed some of these entrepreneurs and asked for their opinion about hypothetical business scenarios that involved business norm violations between two fictitious businessmen. We used the same framings and names as in our vignettes: Lao Li and Lao Zhang. After reading this story, participants were assigned to either of two experimental conditions: (a) An interviewed entrepreneur of this study says that retaliatory sanctions will be applied in his local business community or b) An interviewed entrepreneur says that nothing will happen in his local business community. The primes highlight two different normative contexts in local business communities: reciprocity norms and the lack of cooperation norms. Participants then played a one-shot prisoner's dilemma with a payoff structure that kept the same proportional differences between payoffs as our laboratory-in-the-field PD game, but that differed in the absolute amounts. We then collected socio-demographic data.<sup>5</sup>

We took three additional steps to make the relevance and locality of business norms more salient to participants in our online experiment. First, all managers and nonmanagers who participated were recruited from the five cities—Shanghai, Nanjing, Changzhou, Wenzhou, and Hangzhou—in the Yangzi Delta region where our original sample was drawn in 2006 (Nee and Oppen 2012). Second, we asked participants for the city they lived in before they read the story and then told them that the interviewed entrepreneur was from the same city as the participant.<sup>6</sup> And third, because online participants of a crowdsourcing website like Credamo are likely different from the CEOs in our original sample and, hence, local business norms may be foreign to them, we recruited both nonmanagers and managers for our study. Together, these steps aim to highlight the locality of these norms of cooperation and to present business-norm violations as more familiar social contexts to participants. However, we note that there are clear differences both in the historical-institutional context and in the business context between our samples in the natural setting at an earlier period of market transition and the online experiment conducted in December 2020. Entrepreneurs in the 2009 survey and who participated in the 2012 prisoner's dilemma behavioral games were CEOs of private manufacturing firms whose “entrepreneurial function” differed from managers and nonmanagers. Entrepreneurs as CEOs are organizational leaders who are expected to lead strategic action in innovative activity and firm performance (Nadkarni and Hermann 2017). Although it would have been ideal to have a comparable sample

of industrial entrepreneurs in our online experiment, the closest organizational actors we could recruit through Credamo were managers.

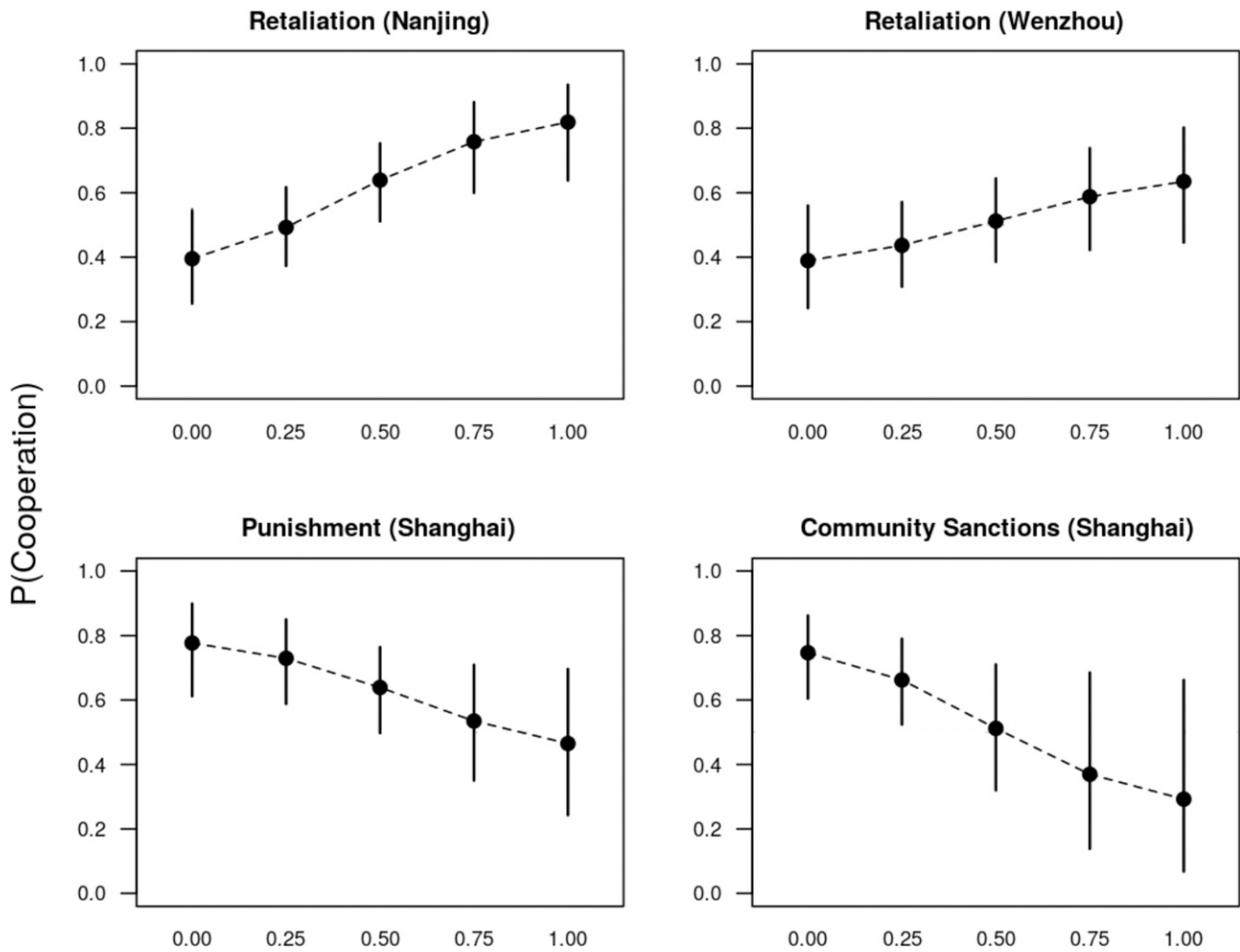
The experimental study was designed to test our main hypothesis about the effect of reciprocity norms on cooperation with strangers and to explore city differences in this relationship, in line with our results in Table 5 and Figure 2. We recruited 599 participants and excluded 11 participants who failed to pass our attention check ( $n = 588$ ).<sup>7</sup> There were 293 participants primed with the lack of cooperation norms and 295 participants primed with reciprocity norms. For each subpopulation of nonmanagers and managers, recruitment was relatively balanced across the five cities.<sup>8</sup>

Table 6 displays results from our analysis using a logistic regression. Model 1 shows results for the effect of priming respondents with reciprocity norms (including covariates) and reveals that our treatment condition is not statistically related to cooperation with strangers for the region as a whole. Models 2 and 3 add an interaction term between our treatment condition and city without and with controls, respectively. We observe that reciprocity norms are statistically related to cooperation with strangers in Nanjing ( $p$ -value = 0.01, one-tailed test) and Wenzhou ( $p$ -value = 0.01, one-tailed test), the same as we observed in Table 5.

To better understand this difference between managers and nonmanagers in the effect of the priming experimental conditions on cooperation with strangers, we conducted the same analysis on managers and nonmanagers separately. Models 4 and 5 display these results. Model 4 (nonmanagers sample) shows that the treatment effect of business norms of reciprocity is weakly significant in Wenzhou ( $p$ -value = 0.05), but not significant in Nanjing, whereas model 5 (managers sample) shows that the treatment effect is statistically significant in Nanjing ( $p$ -value < 0.01, one-tailed test). These findings show that the effects of business norms of reciprocity on cooperation with strangers differ substantially within the Yangzi Delta region.

We follow the same approach as in Figures 1 and 2 to plot confidence intervals and to assess the practical significance of these results. Figure 3 plots predicted probabilities for the treatment and control conditions in Nanjing using model 5 in Table 6. Covariates are fixed to represent the average manager in Nanjing, and confidence intervals are simulated using coefficients and the covariance matrix of model 5. We observed that managers primed with reciprocity norms are 28 percentage points more likely to cooperate with strangers. This difference represents a sizeable increase for the treated that aligns with our finding in Figure 2 (top left panel), where the maximum difference for retaliatory sanctions is near 40 percentage points. However, we note that confidence

**Figure 2.** Probabilities of Cooperation with Strangers, Using Norms of Retaliation (Model 3(b)), Punishment (Model 4(b)), and Community Sanctions (Model 5(b)) from Table 4



Notes. Probabilities were obtained from 1,000 random draws from a normal distribution using coefficients from models 3(b), 4(b), and 5(b), respectively, and 1,000 draws from a Bernoulli distribution with probabilities from  $\text{logit}^{-1}(\cdot)$  function in Equation (1) and covariates fixed at their mean. Vertical bars indicate 95% confidence intervals.

intervals overlap, suggesting that the statistical significance for the treatment effect in Nanjing in model 5 does not exclude that there could be some noise in the finding due to our modeling assumptions (King et al. 2000, Gelman and Hill 2007). We believe that this is due to the small sample size used to estimate this effect and that a larger sample size should replicate our finding (Button et al. 2013, Nuzzo 2014).<sup>9</sup>

## Discussion and Conclusion

Our study makes a contribution by showing that exchange structures sustained by “norms of reciprocity” in respondents’ local communities are positively linked to cooperative acts with strangers. In particular, the results we report with entrepreneurs in the Yangzi Delta region generally suggest that expecting retaliatory sanctions for norm violations in business

communities increases the probability of cooperation with strangers among Chinese entrepreneurs and that this relationship is especially salient in Wenzhou and Nanjing, two cities with strong local markets that faced less resistance from the state than other cities in the region (Nee and Oppen 2012). Moreover, our online experimental study on Credamo—conducted years later with different participants under a more mature legal-rational institutional environment than the earlier stage of market transition—provides additional evidence that reciprocity norms could have evolved differently with the local idiosyncrasies of the cities under study.<sup>10</sup>

Together, our findings help us understand how different structures of social exchange and their associated sanctioning mechanisms affect prosocial behavior toward others who are not part of those forms of exchange. The finding that norms of reciprocity

**Table 6.** Reciprocity Business Norms and Prisoner’s Dilemma (Including City-Level)

Predictors	Cooperation				
	Model 1	Model 2	Model 3	Model 4 (Nonmanagers)	Model 5 (Managers)
Reciprocity	−0.02 (0.17)	−0.48 (0.37)	−0.65* (0.39)	−0.40 (0.58)	−0.98* (0.58)
Hangzhou	−0.47 (0.29)	−0.55 (0.37)	−0.78** (0.40)	−0.01 (0.59)	−1.63*** (0.59)
Nanjing	0.17 (0.28)	−0.34 (0.38)	−0.50 (0.40)	0.30 (0.57)	−1.39** (0.61)
Shanghai	−0.002 (0.28)	−0.07 (0.37)	−0.005 (0.39)	0.61 (0.57)	−0.65 (0.58)
Wenzhou	−0.36 (0.28)	−0.91** (0.37)	−0.98** (0.39)	−1.06* (0.63)	−1.10* (0.57)
Reciprocity: Hangzhou		0.44 (0.53)	0.62 (0.56)	0.09 (0.84)	1.36* (0.82)
Reciprocity: Nanjing		1.17** (0.53)	1.29** (0.56)	0.54 (0.81)	2.26*** (0.84)
Reciprocity: Shanghai		−0.14 (0.53)	0.01 (0.55)	0.56 (0.82)	−0.37 (0.82)
Reciprocity: Wenzhou		1.22** (0.53)	1.26** (0.55)	1.66** (0.85)	1.12 (0.80)
Controls	Yes	No	Yes	Yes	Yes
Observations	587	588	587	293	294
Akaike inf. crit.	810.70	815.75	808.06	411.67	412.99

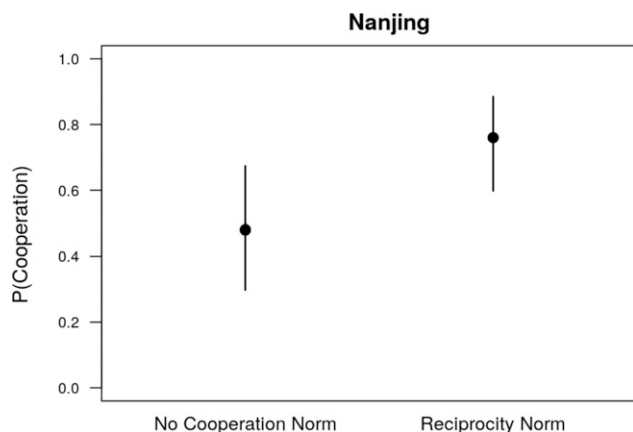
Notes. Reference city is Changzhou. Covariates are omitted. Inf. crit., information criterion.  
 \* $p < 0.1$ ; \*\* $p < 0.05$ ; \*\*\* $p < 0.01$ .

increase cooperative behavior with strangers gives us insight into how certain exchange structures can promote business expansion and social integration by being more inclusive of unknown others. Direct reciprocity differs from other forms of exchange in that it depends more on commitment, mutual positive feelings, and the volume of resources exchanged (Lawler and Yoon 1996, Lawler et al. 2000, Lawler 2001, Willer et al. 2012) and less on a large normative framework that unites participants and encourages feelings of group identification (Ekeh 1974, Lawler et al. 2008). This is important because highly parochial cultures with more reluctance to engage with outsiders have fewer chances to receive new ideas and practices and to create fruitful social relations that can span far-off network clusters of economic activity. When interaction with strangers can translate into new business

opportunities and the spread of innovative ideas, this can be an enormous competitive advantage in rapidly changing markets. Our research design also allows us to link social norms in local business communities and cooperation with complete strangers, while removing an alternative explanation based on face-to-face interactions in one-shot PDs (Frank et al. 1993, Fehr and Gächter 2002, Delton et al. 2011). We show that social learning and commitment in business communities are powerful mechanisms to promote prosocial behaviors with those outside the close-knit groups (Macy 1996, Macy and Skvoretz 1998, Nee et al. 2018).

In addition, our results indicate that expecting community sanctions and punishment to follow norm violations can have a *negative* impact on cooperation with strangers. We observe this negative link in Shanghai, where levels of unconditional cooperation with strangers are relatively higher than in other cities (around 70%) and where there was a different type of regional development that included significant inflow of foreign investment and a close-knit, state-owned economy with little space for domestic private startups (Guthrie 1999, Nee and Oppen 2012). This negative relationship between community-level sanctions and cooperation with strangers was unexpected. The strength of community membership generally has important positive consequences in exchange structures of generalized reciprocity because it helps prevent the high temptation to free-ride; it stabilizes the unilateral flow of resources; and it produces high levels of trust, affection, and commitment among the parties involved (Yamagishi and Cook 1993, Molm et al. 2007, Willer et al. 2012). Nonetheless, it may simultaneously foster ingroup sentiments and discourage exchange with outsiders (Yamagishi et al. 1999). Strong group membership increases categorization of individuals as ingroups and outgroups (Kollock 1998b), and, thus, the social obligations and reciprocal expectations that

**Figure 3.** Probabilities of Cooperation with Strangers for the Treatment and Control Conditions



Notes. Probabilities were obtained from 1,000 random draws from a normal distribution using coefficients from model 5 (Table 6) and 1,000 random draws from a Bernoulli distribution with probabilities from  $\text{logit}^{-1}(\cdot)$  and covariates fixed at values for the average manager in Nanjing. Vertical bars indicate 95% confidence intervals.

emerged through interactions among group members are more likely to align with parochial behaviors (Bernhard et al. 2006). Thus, we speculate that Shanghai's type of development, with a clearer divide between foreigners and locals, may have created a strong group identity among organizational actors that was detrimental to prosocial behavior toward strangers.

Furthermore, we note that our measure of cooperation with a stranger more directly points to the willingness to become vulnerable in uncertain situations and trust in the interaction partner, a key requirement for future interactions with the same partner. In this respect, our measure of cooperation with strangers is closely linked to generalized trust (Kuwabara 2015, Cao and Galinsky 2020). However, compared with the trust game, the prisoner's dilemma takes the players' exposure to vulnerability one step further because they cannot directly rely on conditional reciprocity (see Online Appendix C for more details). In the context of the development of a private economy in the Yangzi Delta region and "demand-side" incentives in place, early cooperative signals are likely to result in long-term benefits as they evolve in fruitful business relationships that make innovation more likely and increase competitive advantage in dynamic markets. Whether these contextual cues can readily turn one-shot interactions into multiple-shot partnerships deserves more attention because cooperation is not simply an output that signals the end of an interaction. Rather, initial signals of cooperation can create cooperative social relations that are sustained over time and, hence, subject to interpretation along the multiple dimensions of cooperative behavior. For instance, to the extent that the prisoner's dilemma reflects willingness to trust that the other party will not sabotage its partner, cooperation in the prisoner's dilemma may align better with some specific dimensions, such as having friendly relationships or helping others, but not with those that need more involvement, as in the case of knowledge sharing (Keller and Loewenstein 2011, Keller et al. 2017). Future studies should focus on what specific cooperative acts can unfold as a consequence of cooperation between strangers in a one-shot prisoner's dilemma.

Moreover, the development of markets and their more extensive integration into social life are thought to be correlated with "market norms" that help sustain large-scale endeavors of cooperation and exchange through individual mechanisms of punishment and reputation. Past research on cultural variation in prosocial behavior toward strangers has found that the emergence of social norms and institutions (e.g., markets and religions) is a powerful force to push individuals beyond their close-knit social circles and promote greater integration with unknown others (Norenzayan and Shariff 2008). Across 15 different cultural contexts, Henrich et al. (2010) found that greater market

integration leads to higher levels of fairness toward strangers and, more recently, Baldassarri (2020) found a strong positive association between market integration and generalized altruism with a stricter test for the market-integration hypothesis using intracultural variation in prosocial behavior. However, this scholarship often leaves unexplained what specific exchange norms and social institutions facilitate cooperation, trust, and fairness with strangers. By measuring different mechanisms of norm enforcement, our vignettes directly capture important cooperation norms behind these market dynamics, particularly in the context of high uncertainty, as regards property rights and enforcement of contracts, which characterizes the origins of the Chinese market economy. As we argued, the institutional uncertainty that came with the transition from a state socialist economy to a market economy motivated Chinese entrepreneurs to rely on social exchange and build organizational structures to make their business success more likely. Thus, our norm measures and their sanctioning mechanisms are a window into the different exchange structures that these business communities used to self-regulate their economic and social transactions.

A potential concern is that our findings are not statistically strong, and  $p$ -values are not small enough, even if robust across different model specifications. This may be related to the three-year time window between our attitudinal measures of social norms and our behavioral measure of cooperation with strangers. As the time lag increases, this relationship between them may also weaken. Despite the fact that this temporal difference gives us some methodological advantages—such as the prevention of common method bias (Podsakoff et al. 2003, Podsakoff et al. 2012)—and that it also shows that norms of reciprocity in local business communities can have lasting consequences on prosocial behaviors toward strangers, we believe that one area of improvement is to shorten this time span so as to increase the signal in the data. A shorter time span guarantees fewer changes in the population composition of business networks, because the growth of the economy sees economic actors enter and leave over time, thus affecting how local communities are defined and how certain social norms can be sustained. Such changes can decrease the density of business networks within which negative gossip and community sanctions function.

Finally, our analysis contributes to understanding the workings of social mechanisms in enabling social processes of exchange and cooperation at the micro-foundation level of economic institutions (Powell and Colyvas 2008, Fine and Hallett 2014, Schilke 2018). Our study gives specific content to social norms of cooperation based on the past experience and social learning of key economic actors, which researchers have long connected to market transactions

and theorized to increase prosocial behavior toward strangers. We found evidence that norms of reciprocity, as revealed by retaliatory enforcement in local business communities, have an important social function to reduce uncertainty, promote market expansion, and increase social integration with strangers.

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## Endnotes

<sup>1</sup> The PD was played along with two other behavioral games (the Chicken and the Battle of the Sexes games) that we do not use here. The order of the games was randomized to avoid order effects. See Holm et al. (2020) for more details about the design.

<sup>2</sup> Each choice is phrased in the same way across scenarios, except for option (iii), which adds an example that makes transparent what “cover losses in future transactions” means in each fictitious scenario. For instance, the retaliatory response for the third scenario about failure to pay back an informal loan is taking away materials or goods; also, the response for the seventh scenario about luring away clients is trying to lure clients away from the violator.

<sup>3</sup> Table A1 and Figure A1 in Online Appendix A display pairwise correlations and a scatterplot between norm vignettes and the prisoner’s dilemma, respectively.

<sup>4</sup> Tables 3–5 are displayed with all covariates in Online Appendix B as Tables B1–B3, respectively.

<sup>5</sup> We preregistered our hypothesis and experimental design before conducting the experiment at the Center for Open Science (for more details, see <https://osf.io/tu8vc>). Our design was reviewed and approved by the Institutional Review Board at Cornell University. The protocol ID for this experimental task was 2006009649. Informed consent was collected from all participants before participation in the study. Socio-demographic variables included: age, highest level of education, gender, *hukou*, annual family income, employment status, company’s industry (if employed), company’s number of employees (if employed or self-employed), and a variable asking respondents whether they have started their own company.

<sup>6</sup> Because these responses were given in the 2009 wave and CEOs were sampled from the five cities under study, the statements used as primes did not involve deception.

<sup>7</sup> We also included two toy practical examples to ensure that participants understood how to play the prisoner’s dilemma. Not all participants answered these two questions correctly. Analyses below use all participants, but their exclusion does not significantly alter our findings—although it does increase *p*-values. Reanalyses using different exclusion criteria can be found at <https://doi.org/10.6077/e8ch-fv97>.

<sup>8</sup> There were 60 managers and 58 nonmanagers in Changzhou; 56 managers and 59 nonmanagers in Hangzhou; 58 managers and 59

nonmanagers in Nanjing; 60 managers and 58 nonmanagers in Shanghai; and 60 managers and 60 nonmanagers in Wenzhou.

<sup>9</sup> Our online experiment on Credamo did not include a power analysis because we did not assume a priori a true difference between the treatment and control conditions. When we conduct a post hoc power analysis with 80% statistical power, we find that we would have needed a conservative sample size of 100 managers in Nanjing to detect a true difference of 0.28—assuming that this is the true effect. Results from Figure 3 rely on the responses from 25 participants in the control condition and 33 in the treatment condition.

<sup>10</sup> We also conducted another experiment with Mechanical Turkers (Mturkers) in the United States (*N* = 610) to validate our measure of norm enforcement using vignettes and their effect on prosocial behavior (see Online Appendix D for more details). We designed three experimental conditions that involved retaliatory sanctions, community sanctions, and no sanctions (as a control group) and had participants play a one-shot PD with another person living in the United States. Our findings do not show differences between the treatment conditions and the control group. We speculate that one possible explanation for this lack of evidence is the key difference between Chinese entrepreneurs and Mturkers. More broadly, all our results combined (our study in a natural setting, and the two online experiments on Credamo and Amazon Mechanical Turk) reinforce our idea that reciprocity norms can affect prosocial behavior in the presence of important contextual and cultural cues.

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