Business Drinking: Evidence from A Lab-in-the-Field Experiment

Jianxin Wang and Daniel Houser

March 2021

Discussion Paper

Interdisciplinary Center for Economic Science
4400 University Drive, MSN 1B2, Fairfax, VA 22030
Tel: +1-703-993-4850 Fax: +1-703-993-4851
ICES Website: http://ices.gmu.edu
ICES RePEc Archive Online at: http://edirc.repec.org/data/icgmuus.html

Business Drinking: Evidence from A Lab-in-the-Field Experiment

Jianxin Wang and Daniel Houser*

Abstract

Although alcohol consumption is an important component of business negotiations across many cultures, this behavior remains unmodeled. Here, we develop a theory that combines guilt-aversion with a canonical alcohol myopia framework. Our GAAM (guilt aversion and alcohol myopia) model predicts that intoxication increases promise-making, but has no effect on promise-breaking. We test these predictions using a prisoner's dilemma game with pre-play communication in a lab-in-the-field experiment. Among males, we find behavior consistent with predictions. We do not observe intoxication to impact female promise-making or promise-breaking behaviors, consistent with previous empirical findings that females are relatively insensitive to alcohol-induced myopia.

Key words: business drinking; communication; guilt aversion; alcohol myopia; gender difference

JEL: D91, C78, C93

* Wang: School of Business, Central South University, Changsha 410083, People's Republic of China, and Interdisciplinary Center for Economic Science, George Mason University, VA 22030, USA (Email: jianxin.wang@csu.edu.cn); Houser (Corresponding author): Interdisciplinary Center for Economic Science, George Mason University, VA 22030, USA (Email: dhouser@gmu.edu). We thank Lawerance Choo, Cary Deck, Lina Diaz, Cesar Martinelli, Kevin McCabe, Johanna Mollerstrom, Erkut Ozbay, Daniela Puzzello, Sudipta Sarangi, Jian Song, Roberto Weber, Weiwei Zheng and participants at 89th Southern Economic Association Annual Meeting, 2019 Shanghai Workshop of Behavioral and Experimental Economics and 2020 ESA Global Meeting for their helpful comments. We thank Lu He, Qingyang Hu, Siyu Xiong, Fan Yang, Shu Yan and Xiaoqin Wang for their assistants. We are grateful for the financial support from the National Natural Science Foundation of China (Grants No. 71501193, 71910107001 and 71631008). This study was reviewed and approved by George Mason University's Human Subjects Internal Review Board, protocol no. 862819–1.

1. Introduction

Shared consumption of alcohol is essential in building business relationships in many cultures. In Western countries, drinking is often reserved for celebrations that follow successful negotiations. In Russia, Asia and other areas, however, drinking is regularly used to initiate business proceedings, and to symbolize each party's commitment to a mutually beneficial outcome (Schweitzer and Kerr, 2000). While there are anecdotal reasons for doing this (e.g., alcohol makes one more relaxed, approachable and willing to approach), there are also detrimental effects, including cognitive impairment.

Recent theoretical findings (Haucap and Herr, 2014) and experimental evidence (Au and Zhang, 2016) suggest that alcohol consumption promotes collaboration. Though many studies demonstrate the "lubricating" effects of social drinking (Kirchner et al., 2006; Fairbairn et al., 2015 a, b), these results do not immediately inform reasons for business drinking. This paper takes a step towards filling this gap by studying, both theoretically and empirically, the way communication under intoxication might impact cooperation and communication efficiency.

We study the impact of mild alcohol intoxication on communication using a Prisoner's Dilemma (PD) game with pre-play communication[1]. Before making decisions, players engage in non-binding (cheap talk) communication. Our interest is in participants' promise-making during this communication, as well as their subsequent promise-keeping behaviors.

To develop our hypotheses, we build the GAAM model by combining guilt-aversion with the well-known alcohol myopia model (AMM, Steele and Josephs, 1990). The AMM suggests alcohol intoxication leads people to focus on an alternative's immediate benefits and heavily discount (or

[1] As detailed below, we consider the behavior of people with blood-alcohol concentrations below 0.08g/dl.

ignore) its possible future costs. The model has received empirical support, though evidence suggests myopia affects male more than female behaviors (Fillmore and Weafer, 2004).

Our study includes an experiment conducted in two stages: pre-play communication, and then decisions. Consider first the communication stage: Following the literature on guilt-aversion (e.g., Charness and Dufwenberg, 2006; Battigalli and Dufwenberg, 2007; Miettinen and Suetens, 2008; Ellingsen et al., 2010; Charness and Dufwenberg, 2011; Charness et al., 2013; Battigalli, Charness and Dufwenberg, 2013; Khalmetski, 2016), we posit that promises are enforced by a desire to avoid guilt arising from promise-breaking. Consequently, forward-looking guilt-averse players can be deterred from making promises. The AMM, however, implies that future guilt is discounted by intoxicated males, leaving them more likely than sober males to make promises. In view of the evidence that intoxicated females display less alcohol-induced myopia than males (Fillmore and Weafer, 2004), this framework predicts less effect of alcohol consumption on female promise-making, as compared to male promise-making.

At the decision stage, a promise is either kept or broken. Here, guilt cannot be discounted, as it is the immediate consequence of breaking a promise. As such, the AMM predicts no effect of alcohol intoxication on either male or female promise-keeping decisions.

To test these predictions from our GAAM model, we conducted a lab-in-the-field experiment at an establishment that serves alcohol (a bar). We collected 240 observations among the establishment's patrons, many of whom had consumed alcohol. We measured each participants' blood-alcohol content (BAC) prior to beginning the experiment.

As detailed further below, while we did not exogenously assign alcohol consumption, our design nevertheless effectively quasi-randomizes alcohol consumption across participants. We recruited exclusively people at tables with alcohol in front of them, indicating they were willing to drink.

The type of alcohol and rate at which a person consumed alcohol varied widely, however, we show this leaves level of intoxication uncorrelated with time spent in the restaurant or other demographic factors we measured. This means that, on average, the characteristics of our sample of intoxicated participants is statistically identical to the characteristics of those not intoxicated.

Nevertheless, because we did not randomly assign alcohol consumption, it is possible that our results could be impacted by selection. To address this concern we use an instrumental variable approach based on random genetic variation (alcohol intolerance) that is known to correlate with alcohol consumption. Our results are robust to controlling for possible selection effects.

We find, consistent with our hypotheses, that intoxicated males make economically and statistically significantly more promises than sober males. We further find that alcohol consumption increases communication efficiency in male groups, but not female groups. In particular, the rate of people who made a promise and also kept their promise is significantly higher in groups of intoxicated versus sober males. There is, however, no significant difference in communication between intoxicated and sober female groups. Also, we observe intoxicated males to make significantly more promises than intoxicated females. Finally, consistent with our model's predictions, we find no alcohol effect on either males' or females' promise-keeping.

Our results indicate that intoxication increases promise-making during negotiations, but does not impact promise-keeping. Consequently, intoxication increases overall communication efficiency. Our data thus suggest that alcohol consumption impacts economic decisions primarily through the channel of cheap-talk that occurs prior to any decision.

We also offer convergent support for previous findings that alcohol induced myopia is more apparent in male versus female behavior. While reasons for this remain poorly understood, it is possible this stems from biochemical differences between the sexes. Alternatively, differences may

be due to gender-specific social norms surrounding alcohol use. While alcohol consumption by males is typically tolerated or even encouraged, consumption by females is often discouraged (Nolen-Hoeksema, 2004)[2]. Further, visibly intoxicated women often face severe social sanctions (DE Boer et al. 1993). In view of this, women may have developed strategies to avoid displaying symptoms of intoxication, and these strategies might also attenuate alcohol myopia.

The remainder of this paper is organized as follows. Section 2 reviews the related literature. Section 3 introduces the business drinking culture in East Asia. Section 4 develops our theoretical prediction. Section 5 describes the experiment design and procedures. Section 6 reports the results and tests of the hypotheses. Section 7 concludes.

2. Literature Review

2.1 Alcohol Consumption and Economic Decision Making

Many studies examine the impact of alcohol intoxication on economic decision making, and with mixed results. One heavily studied area is risk tolerance[3], though even here no consensus has been reached regarding alcohol's effects. Both Lane et al. (2004) and George et al. (2005) find alcohol intoxication increases risk-taking. However, Corazzini et al. (2014), Au and Zhang (2016) and Bregu et al. (2017) find no significant effect of alcohol on risk tolerance. While both Burghart et al. (2013) and Proestakis et al. (2013) find that alcohol consumption has no effect on males, the

[2] This is supported by the fact that there are much fewer female drinkers and that female drinkers drink much less than male drinkers. For example, in East and South Asia region where we conduct our experiments, there are more than 4 times the number of male drinkers versus female drinkers (WHO, 2014).

[3] Here we only focus on direct measure of risk decision making but not risk-taking behavior such as drunk driving, gambling and risky sexual behavior.

former finds alcohol intoxication increases female risk-seeking. The latter study, however, reports the opposite.

Studies have also sought to identify alcohol's impact on time preference, cooperation and altruism. Corazzini et al. (2014) find that alcohol intoxication leaves people more impatient and less altruistic. In an ultimatum game, Morewedge et al. (2014) report lab and field evidence that alcohol intoxication increases responders' probability of rejecting unfair proposals, while intoxicated and sober proposers behave consistently when making offers. Au and Zhang (2016) find that a moderate amount of alcohol consumption makes people more willing to cooperate, yet has no effect on altruism. Bregu et al. (2017) experimentally examine alcohol's effect in multiple domains, including math and logic, uncertainty, overconfidence, cooperation in strategic games, food choices, anchoring, and altruism. They report that only cooperation and altruism are influenced by alcohol consumption (both are increased).

In addition to our own, we are aware of only one study, Au et al. (2018), that considers the impact of alcohol consumption on cheap-talk communication in economic decision making. There are at least four important differences between their paper and our study. First, the research questions are fundamentally different. While Au et al (2018) studies the influence of alcohol intoxication on communication under asymmetric information, we investigate how intoxication influences promises and cooperation under full information, a question directly relevant to business negotiations. Second, the different questions give rise to different theoretical foundations. While they concentrate on lying aversion, we instead build a model based on guilt-aversion. Third, to better capture business negotiations we use two-way free-form communication, while their communication is one-way and uses a fixed-format (a simple quality signal). Finally, while they conducted a lab experiment using a convenience sample we conduct a field experiment where

alcohol consumption occurs in a natural environment and among a population that is relevant to our research question.

2.2 Alcohol and Negotiation

Schweitzer and Gomberg (2001) use experiments to test the effect of alcohol intoxication on negotiations. In their experiment, an employer and an agent negotiate over the compensation of a prospective employee. They report that intoxicated negotiators use significantly more aggressive tactics than sober negotiators. In particular, the former was more likely to insult, mislead, and threaten their negotiation partner.

Our study differs from theirs in three important ways. First, in their experiment, the negotiation is the focus. By contrast, our experiment considers both communication and economic decision processes. This allows us to investigate alcohol's effects on both promise-making during communication and promise-keeping during decisions. Second, unlike Schweitzer and Gomberg (2001), our study has a specific focus on gender differences in the effect of alcohol, a topic that has received substantial attention in the literature (Giancola and Zeichner, 1995; Hoaken and Pihl, 2000; Giancola et al., 2002; Giancola et al., 2009; Wilson and Lawson, 1976, 1978). Third, while Schweitzer and Gomberg (2001) used face-to-face communication, we instead employ online chat, to maintain anonymity. We believe this is crucial, as our study involves decisions about whether to keep or break promises.

2.3 Alcohol Consumption, Gender Difference and Expression

Studies demonstrate that intoxication leaves males, but not females, more open-minded. For example, Caudill et al. (1987) report that alcohol consumption increases a male's willingness to self-disclose, even at a moderate blood alcohol level, while intoxicated women become less willing

to disclose information about themselves. Fairbairn et al. (2015a) find that intoxication increases speech volume in all-male groups, but not in groups containing females. Fairbairn et al. (2015b) find that groups that consumed alcohol were more likely to reciprocate a smile than a placebo group, and this effect was more pronounced for men than for women. To explain this, they suggest that men derive more pleasure than women from alcohol consumption, and this manifests as a contagious sense of happiness.

It is worth noting that, with the exception of Au and Zhang (2016) and Au et al. (2018), all of the above studies analyzed data collected from Western countries. Our study complements this literature by analyzing data collected in China where social use of alcohol is prominent, as it is in many other dramatically understudied East Asian cultures.

3. Business Drinking in East Asia

In many cultures, drinking is considered an essential element in building business relationships. Alcohol has accompanied business transactions for centuries, and drinking is considered by many to be a normal and natural part of organizational behavior (Schweitzer and Kerr, 2000).

In China, social networking often takes the form of having dinner together and drinking Baijiu, a drink with high alcohol content (Zhu, 2012). Many Chinese people believe that going to dinner parties and drinking until heavily intoxicated is necessary to develop both personal and business relationships (Ding and Xu, 2015; Wang et al., 2017)[4].

The current generation of Chinese business people report that it has become common practice for business to be negotiated and finalized over drinks, and that it is not possible to avoid drinking

[4] Females, however, do not face the same expectation to consume alcohol in China. For example, Muramatsu T, et al. (1995) found that females' average monthly alcohol consumption is significantly lower than that of males (6.6 ml vs 188.6 ml). Wang et al. (2017) also found that females are less frequently exposed to environments that include drinking. Additional discussion of gender differences in drinking behaviors in China can be found in Wang et al. (2017).

in business-related settings (Martinic and Measham, 2008). Based on an extensive survey of business owners, Ding and Xu (2015) find that the vast majority of business in China is discussed over meals including liquor. Another indication that alcohol plays an important role in this regard is that some Chinese universities now offer courses focused on ways to use alcohol to generate greater business success (Florcruz, 2013).

Drinking to build connections occurs not only in China, but also in many other Asian countries. Meyer (2014) investigates communication across cultures and finds that many Japanese use drinking to forge business relationships, as captured by their expression "nomunication," which stems from the Japanese verb nomu ("to drink"). Japanese salespeople frequently woo their clients over drinks, knowing that although explicit deal making is uncommon during this type of socializing, an agreement is rarely reached absent this prelude. Meyer (2014) also notes that drinking to build trust is common across East Asia. In China, Thailand, and Korea, drinking with customers and collaborators is a common step in the process of building business relationships.

In sum, substantial previous research reveals the importance of alcohol in building business relationships throughout East Asia. The cheap-talk communication that goes hand-in-hand with business drinking is not only widely accepted, but indeed a required part of forging business connections in these regions.

4. Theory and Hypotheses

We develop our guilt-aversion and alcohol myopia model (GAAM model) and hypotheses under a prisoner dilemma game with pre-communication. Two matched players choose either to cooperate or defect simultaneously. The equilibrium is (Defect, Defect), but (Cooperate, Cooperate) leaves both better off. We use T, R, Q, S to represent the corresponding payoffs in the

PD game, where T > R > Q > S. Before making decisions, the two players will communicate with each other. During this time, they can make promise to choose to Cooperate.

		Player 2	
		Defect	**Cooperate**
Player 1	**Defect**	**(Q, Q)**	**(T, S)**
	Cooperate	**(S, T)**	**(R, R)**

For each player, the strategy sets include {NP, D}, {NP, C}, {MP, D} and {MP, C}. NP (MP) indicates does not make a promise (makes a promise) to cooperate. D (C) indicates *Defect* (*Cooperate*). (An alternative approach is to define strategies conditional on whether one receives a promise. This approach results in similar equilibria and identical predictions. See Appendix A for a formal analysis from the alternative approach.).

To solve for equilibrium, we start with the case where both players are sober.

This simultaneous game can be summarized in the following matrix.

a_i/a_j	*NP, D*	*NP, C*	*MP, D*	*MP, C*
NP, D	***Q, Q***	*T, S*	*Q, Q - G_1*	*T, S*
NP, C	*S, T*	*R, R*	*S, T - G_2*	*R, R*
MP, D	*Q - G_1, Q*	*T - G_2, S*	*Q - G_3, Q - G_3*	*T - G_4, S*
MP, C	*S, T*	*R, R*	*S, T - G_4*	*R, R*

If one player plays {NP, D} and the opponent plays either {NP, D} or {MP, D}, her utility is *Q*. If the opponent plays {NP, C} or {MP, C}, her utility is *T*.

If one player plays {NP, C} and the opponent plays either {NP, D} or {MP, D}, her utility is *S*. If the opponent plays {NP, C} or {MP, C}, her utility is *R*.

If one player plays {MP, D}, by choosing *Defect*, she breaks her promise to choose *Cooperate*, leading her to suffer a utility loss due to guilt. The level of guilt depends on how much she believes she let the opponent down. If the opponent does not make a promise and choose to defect, she suffers guilt, G_1. If the opponent does not make a promise and choose to cooperate, she suffers guilt, G_2. If the opponent also makes a promise but choose to defect, she suffers guilt, G_3. If the opponent also makes a promise and chooses to cooperate, she suffers guilt, G_4. Note that depending on opponent's strategy, the amount of guilt one suffers could differ. We assume here that $0<G_1<G_2<G_3<G_4$. Note though that the equilibria and predictions are invariant to the ordering of the different levels of guilt, as long as all guilt levels are strictly positive.

If one player plays {MP, C} and the opponent plays either {NP, D} or {MP, D}, her utility is *S*. If the opponent plays {NP, C} or {MP, C}, her utility is *R*.

From the matrix, we can easily solve the Sober Equilibrium: $a_i^*, a_j^* = \{NP, D\}, \{NP, D\}$

Now we solve equilibrium when players are intoxicated. We first start with the case that both players are intoxicated.

We use the alcohol myopia model to predict the effect of consuming alcohol on promise-making and promise-breaking behavior. AMM posits that alcohol intoxication impairs information processing, restricting the range of cues that we can perceive in a situation. In particular, if one is intoxicated, the resulting myopia allows the influence of salient provoking cues, but reduces the influence of inhibiting cues and meanings that require further processing. When further processing

is required to access inhibiting pressures, the myopia of alcohol intoxication should disinhibit the response (Steele and Josephs, 1990).[5]

In our case, when communicating with the matched player (promise-making stage), the aim or the provoking stimuli is to persuade the matched player to choose to cooperate, while the inhibiting cue is possible future guilt. Alcohol myopia causes intoxicated subjects to ignore inhibiting cues. Therefore, if one is intoxicated and plays {MP, D}, she will not suffer from the guilt. The game now is described in the following matrix.

The Intoxicated Equilibrium:

a_i^*, a_j^* = {NP, D}, {NP, D}; {NP, D}, {MP, D}; {MP, D}, {NP, D}; {MP, D}, {MP, D}

a_i/a_j	*NP, D*	*NP, C*	*MP, D*	*MP, C*
NP, D	***Q, Q***	*T, S*	***Q, Q***	*T, S*
NP, C	*S, T*	*R, R*	*S, T*	*R, R*
MP, D	***Q, Q***	*T, S*	***Q, Q***	*T , S*
MP, C	*S, T*	*R, R*	*S, T*	*R, R*

Now we consider the case that one player is intoxicated and the other is sober. Assume player i is intoxicated and player j is sober. Then only player i's guilt is blocked if she plays {MP, D}. Therefore, we have the following matrix. In this case the equilibrium a_i^*, a_j^* = {NP, D}, {NP, D}; {MP, D}, {NP, D}.

[5] Zeichner and Phil (1979) provide an illustrative example of AMM. The subjects were given a noxious tone delivered by another "partner" subject. Subjects can stop the tone by giving the partner an electric shock. There are 25 rounds. In one of the treatments, the noise level of the tone in a round is greater if the shock was given by the subject in the previous round. The salient cues for the subject are the noise, while the inhibiting cues are the stronger noise in the next round. The alcohol myopia allows the subjects to attend to the provoking stimuli, but ignore the delayed inhibiting contingency, which leads intoxicated participants to be more aggressive in their use of the shock.

a_i/a_j	*NP, D*	*NP, C*	*MP, D*	*MP, C*
NP, D	***Q, Q***	*T, S*	*Q, Q - G_1*	*T, S*
NP, C	*S, T*	*R, R*	*S, T - G_2*	*R, R*
MP, D	***Q, Q***	*T, S*	*Q, Q - G_3*	*T , S*
MP, C	*S, T*	*R, R*	*S, T - G_4*	*R, R*

From the sober and intoxicated equilibrium, we find that when the players are sober, they will never make a promise. However, when either one of the players is intoxicated or both are intoxicated, {MP, D} can also be an optimal strategy. Therefore, it is clear that when players are intoxicated, they are more likely to make promises. On the other hand, *Cooperate* never appears in either the sober or intoxicated equilibria, and hence theoretically there should be no difference in sober and intoxicated groups in terms of promise keeping (cooperation).

We noted, however, that previous research has revealed males to be more sensitive to alcohol myopia than females. For instance, Fillmore and Weafer (2004) used a cued go/no-go task to measure the ability to inhibit and execute behavioral responses, and found that men displayed greater impairment of inhibitory control under alcohol than women. In the go cue condition, men displayed significantly greater inhibition failures under alcohol, compared with placebo. By contrast, women showed no significant difference in inhibition failures between alcohol and placebo conditions. Weafer and Fillmore (2012) further found that alcohol impaired men's inhibitory system significantly more than women's. In particular, in relation to intoxicated women, intoxicated men demonstrated significantly more failures on a go/no-go task.

According to AMM, alcohol consumption may increase aggressive behavior due to the impairment of inhibitory control. Studies using Taylor Aggression Paradigm also find gender differences in the effect of intoxication on level of aggression. Giancola and Zeichner (1995)

showed that intoxication increased direct aggression (shock intensity) in men, but not in women. Giancola et al. (2002) further found that, under low provocation, alcohol increased aggression for men but not for women. Hoaken and Pihl (2000) found that for men, there was a significant effect of alcohol, producing heightened aggression, in both low and high provocation conditions. However, there were no significant differences between drunk and sober women, in low or high provocation conditions. Similarly, Quinn et al. (2013) found within-person increases in alcohol intoxication are associated with increases in the probability of aggression, but this association was significantly stronger among men than women.

In light of previous experimental evidence, we assume an intoxicated female will suffer from guilt if she plays {MP, D}. Therefore, the intoxicated equilibrium for females will be the same as the sober equilibrium: $a_i^*, a_j^* = \{NP, D\}, \{NP, D\}$. Hence, by combining a standard model of aversion with a canonical model of alcohol myopia, we obtain the following hypothesis:

H1a: Intoxicated males are more prone to make promises than sober males, while no such difference exists among females.

H1b: If males and females make promises at the same rate when sober, then intoxicated males are more likely to make a promise than intoxicated females.

H2: Promise-keeping behavior does not differ between intoxicated and sober males or females[6].

[6] Note also that, in the PD game's promise-keeping stage, the salient cue becomes the consequences of keeping the promise. Since guilt is a direct consequence of that decision, alcohol myopia is not expected to block that guilt. The result is that there is no difference in expected utility between intoxicated and sober males or females. This is consistent with Ederer and Schneider (2020) who find the effect of non-binding promise holds even when the real decision to cooperate is delayed.

5. Experiment Design

5.1 Prisoner's Dilemma with Pre-play Communication

Our participants made decisions in a Prisoner's Dilemma (PD) game[7]. The PD is used widely to study pre-play communication and cooperation, and also has the advantage of being easy to understand. This latter is particularly valuable when studying intoxicated participants. In the experiment, we set these parameters as follows: T=60, R=40, Q=20, S=10. We use Up, Down, Left and Right to represent Cooperate and Defect in the experiment. For demonstration purpose, we will use Cooperate and Defect hereafter in the paper.

		Your match chooses	
		Left	Right
You choose	Up	You earn **20 Yuan** Your match earns **20 Yuan**	You earn **60 Yuan** Your match earns **10 Yuan**
	Down	You earn **10 Yuan** Your match earns **60 Yuan**	You earn **40 Yuan** Your match earns **40 Yuan**

Before making decisions, paired participants communicated with each other for at most 90 seconds using the experimenter's laptop, on which was installed chatting software QQ[8]. Communication consisted of free form text messages, although identifying information including name, gender, location, appearance or contact information was not allowed. Since (Cooperate, Cooperate) is good for both, there was an incentive to indicate a willingness to choose "Cooperate," though any such indication was non-binding.

[7] Instructions are in Appendix F.

[8] QQ is the most popular instant messaging software in China operated by Tencent, one of the largest Internet corporations in China. We registered two QQ accounts for the experiment.

Ensuring effective randomization of BAC among participants is crucial, and our approach to this was as follows. First, the experiment was conducted in bars or barbecue restaurants[9] near the university campus. However, the majority of our participants, roughly 5/6, are from BBQ restaurants. The reason is that we found it difficult to run experiments in the commotion of a bar. Chinese BBQ restaurants – somewhat analogous to Western beer gardens – offered a much improved environment. In addition to a generally more subdued atmosphere, they afforded us control on sample selection, ensuring quasi-randomization, as we explain below.

We recruited exclusively people sitting at tables with alcohol in front of them. The implication is that our participants are willing to drink alcohol. As a practical matter, this means that our sample of intoxicated and sober participants are all drawn from the same pool of "potential drinkers".

Next, we did not restrict participation to only one type of alcohol. Indeed, our participants consumed a variety of alcoholic beverages, ranging from beer to a Chinese liquor called "baijiu", which is quite heavy (typically above 50% alcohol) and routinely consumed among friends or colleagues. In light of variation in the rate of drinking, as well as differences in type of alcohol consumed, we expect no correlation between the amount of time spent in the restaurant and one's level of intoxication, and no systematic differences between our sober and intoxicated sample.[10]

In sum, our procedures and evidence indicate that we were effective in quasi-randomizing BAC levels across participants, while at the same time ensuring ecological validity by allowing alcohol to be consumed in a natural environment. Finally, as we detail below, our results are robust to controlling for possible selection effects within an IV regression.

[9] People usually will consume alcohol at barbecue restaurants.

[10] We do not, however, have a record of the amount of time participants in our study spent at the bar or BBQ. Absent this information, we returned to Chinese BBQ restaurants and measured BAC and self-reported time in the restaurant, in order to determine whether time in the restaurant predicts whether one is intoxicated. As detailed in **Appendix B Table A1**, among people who are potentially willing to drink, we find no evidence that time one has spent in a BBQ restaurant predicts whether one is intoxicated. Neither do we find any evidence that observable characteristics predict one's level of intoxication.

In each session, the same number of participants were recruited from two different bars or restaurants. After signing the consent form, each participant at one bar was randomly matched with a participant at the other bar. Once all participants were matched, instructions were read aloud and followed by a quiz. After this, each participant privately completed the following procedure.

1. The participant's BAC level was measured by breathalyzer and recorded, but the result was not provided to any participant (including themselves);

2. The two matched players communicated via QQ;

3. Decisions were made in the PD game.

When all of the participants finished the three steps above, they then completed a survey asking questions regarding demographics, drinking behavior and beliefs about their own and their counterpart's level of intoxication.

To control for potential experimenter effects, all experimenters who directly interacted with participants were males. Two female experimenters were also present in both locations to provide logistical support. All groups in all locations followed identical experiment protocols.

Each session consisted of 2-5 participants in each bar. The experiment lasted for around 30 minutes and the average payoff was 41.8 RMB. We recruited a total of 240 participants.

5.2 Message Classification

To determine whether a participant made a promise during communication, we used the Houser and Xiao (2011) message classification game.[11] We considered the following three categories for each message:

Strong promise: Based on the whole conversation, this person certainly stated a promise.

[11] Instructions for the message classification are available in Appendix F.

Weak promise: Based on the whole conversation, this person expressed a statement of intent.

Empty talk: Any other type of message that is neither a strong nor weak promise.

We recruited coders, who read both the instructions for the classification game, as well as the instructions for the PD game with pre-play communication[12]. This latter gave them context for the messages. They were not, however, provided any information regarding any actual decisions made in the PD game.

The Houser and Xiao (2011) method involves a coordination game. In particular, each coder earned 10 RMB if they evaluated all of the messages. In addition, at the end of the experiment, three messages were randomly chosen. If one's evaluation matched the most common evaluation for that message, he or she earned 10 RMB for that evaluation. Thus, each participant could earn up to 30 RMB in bonus payoffs.

The classification experiment was implemented at Central South University. Given that we had a large number of messages (120 conversations), we divided the conversations into two groups of 60, and asked each coder to evaluate only one of these groups of 60 conversations. We recruited 86 coders in total, and each message was evaluated by 43 coders. The experiment's duration was about an hour, and the average payoff was 38.1 RMB.

Finally, for the purpose of our analysis, we label a message as a promise if more than 50% of the coders classified it as a promise (either strong or weak)[13].

[12] The coders were required to answer all the quiz questions of the PD game correctly before starting the coding task.

[13] For message samples and classification results see Appendix C.

6. Results

6.1 Sample Distribution

We recruited 240 participants: 173 males and 67 females. 168 participants had consumed some alcohol, while 72 had not. This is summarized in Table 1. Males were more likely to have consumed alcohol (78.6%) than females (47.8%). However, we observed no significant difference in BAC level between males (0.041g/dL) and females (0.040g/dL) who consumed alcohol (p=0.541, two-sided Mann-Whitney U-test).

Table 1. ***Sample Distribution***

Consumed Alcohol	Male	Female	Total
No	37	35	72
Yes	136	32	168
Total	173	67	240

Also, to validate our quasi-randomization of BAC, we compared observable demographic characteristics including age, education level, height, weight and whether one is intolerant to alcohol, between the sober and intoxicated groups. The results are shown in Table 2. We find no systematic differences within male or female groups.

Table 2 Summary statistics over Intoxication and Gender

	Male			Female		
	Sober	Intoxicated	P-value	Sober	Intoxicated	P-value
	N=37	N=136		N=35	N=32	
Age	22.73	22.87	0.806	22.06	21.84	0.756
Education	2.22	2.14	0.434	2.31	2.09	0.059
Height	174.03	173.82	0.832	162.61	164.69	0.146
Weight	68.49	68.25	0.924	52.99	55.45	0.412
Intolerant	0.51	0.39	0.178	0.56	0.44	0.332

Notes: P-value is based on a two-sided t-test.

Figure 1 details the distribution of blood alcohol content (BAC) across our sample. The vast majority of our sample has BAC below 0.08, and we choose this as the cut-off point for our analysis. Mean BAC is 0.029g/dL in the full sample, and 0.041g/dL in the intoxicated sample.

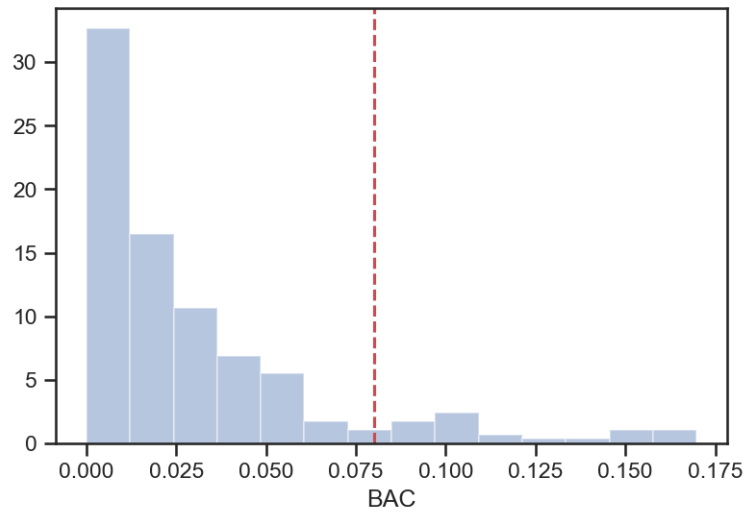


Figure 1. ***Distribution of Blood Alcohol Content.***

Notes: BAC is in g/dL, based on a breathalyzer test. In the United States, it is illegal to operate a vehicle with a BAC of 0.08g/dL or higher.

6.2 Alcohol and Promise-making

We begin by testing H1a regarding promise-making behavior. Results are shown in Figure 2. Promising-making is significantly more likely among intoxicated males (91.4%) than in sober males (78.4%, p=0.033, two-sided Mann-Whitney U-test). Promise-making is less common among intoxicated (67.9%) than sober females (80.0%), though the difference is not statistically significant (p=0.275, two-sided Mann-Whitney U-test). Thus, our data support Hypothesis 1a.

We also find support for Hypothesis 1b. First, we observe no significant difference between sober males and females in promise-making (p=0.867, two-sided Mann-Whitney U-test). There is,

however, a significant difference between intoxicated males and females in promise-making (p=0.001, two-sided Mann-Whitney U-test).

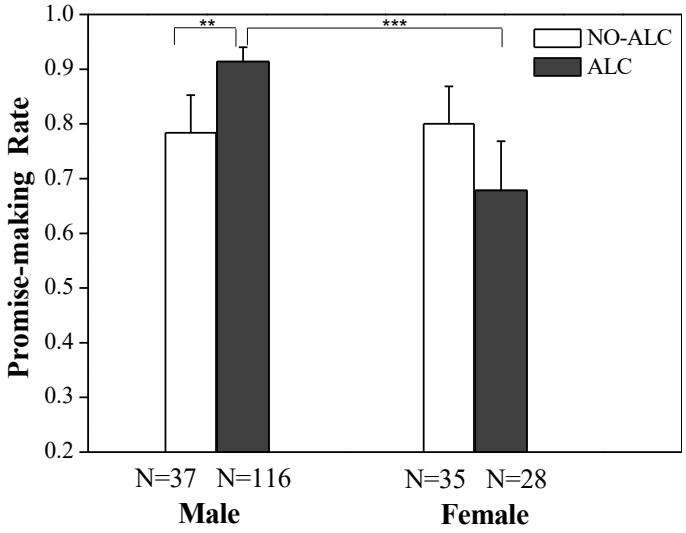


Figure 2. ***Promise-making Rate over Alcohol Consumption and Gender.***

Notes: Promise-making rates are significantly different between sober and alcohol intoxicated males (p=0.033 two-sided Mann-Whitney U-test), but do not significantly differ among females (two-sided Mann-Whitney U-test). Error bars indicate 1 SE. These results exclude subjects with BAC exceeding 0.08g/dL. For full sample results, see Appendix E.

We also conducted a Logit regression to investigate further the effect of intoxication on promise-making. Results are detailed in Table 3. The first column shows that, after controlling for the demographic variables, intoxicated males are 16% more likely to make a promise than sober ones, and this effect is statistically significant at the 5% level. The second column adds controls for drinking behaviors and shows that intoxicated males are 23% more likely to make a promise than sober males. This effect is significant at the 5% level.

The third and fourth column report analogous regressions for female samples. Intoxicated females are 21% less likely to make promises than sober females. This reaches 10% significance with demographic controls but significance is lost after adding controls for drinking behaviors. These results are again consistent with Hypothesis 1a. In the final two columns, we add interaction

terms for alcohol consumption and gender using the full sample. The interaction is positively significant in both analyses, and the effect of intoxication on promise-making is significantly different between males and females. These findings are consistent with Hypothesis 1b[14].

Table 3. ***Logit Regression of Promise-making on Alcohol Consumption and Gender***

	Male		Female		Pooled sample	
	(1)	(2)	(3)	(4)	(5)	(6)
ALC	0.1628**	0.2335***	-0.2145*	-0.1927	-0.0732	-0.1046
	(0.0730)	(0.0805)	(0.1183)	(0.1805)	(0.0731)	(0.0762)
ALC*Male					0.2388**	0.3159***
					(0.0983)	(0.0979)
Male					-0.0533	-0.0239
					(0.0850)	(0.0870)
Age	-0.0127	-0.0206**	-0.0086	0.0054	-0.0194**	-0.0224**
	(0.0082)	(0.0103)	(0.0309)	(0.0291)	(0.0092)	(0.0102)
Education	0.1316**	0.1598***	-0.1652	-0.2580	0.0450	0.0603
	(0.0612)	(0.0551)	(0.1629)	(0.1755)	(0.0550)	(0.0514)
Homeprovince	-0.0007	0.0009	0.0028	0.0119	-0.0020	-0.0004
	(0.0050)	(0.0049)	(0.0127)	(0.0136)	(0.0050)	(0.0051)
Height	-0.0066	-0.0102*	0.0174	0.0169	0.0014	0.0006
	(0.0055)	(0.0056)	(0.0142)	(0.0143)	(0.0054)	(0.0054)
Weight	0.0030	0.0007	0.0021	0.0013	0.0035	0.0018
	(0.0031)	(0.0029)	(0.0085)	(0.0076)	(0.0032)	(0.0032)
DrinkFrequency		-0.1264***		0.0088		-0.0754
		(0.0405)		(0.1436)		(0.0546)
DrinkVolume		-0.0075		-0.0328		-0.0018
		(0.0147)		(0.0704)		(0.0205)
DrinkExperience		-0.0086		-0.0504*		-0.0125
		(0.0076)		(0.0281)		(0.0080)
Intolerant		-0.0512		-0.1646		-0.0366
		(0.0595)		(0.1154)		(0.0512)
PerceivedDrunk		0.0178		-0.0418		0.0031
		(0.0218)		(0.0679)		(0.0205)
pseudo R^2	0.120	0.324	0.145	0.265	0.105	0.181
N	142	132	58	48	200	180

Notes: The coefficients are average marginal effects. Promise equals 1 if one made a promise, 0 otherwise. ALC equals 1 if BAC>0, 0 otherwise. Standard errors in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level.

[14] Note that when we control for drinking behaviors we lose some observations. This is because a small number of participants did not respond to all of the questions. If we use this same sample in the first model, our results only become stronger.

Next, to address concerns that our randomization procedure may not have eliminated selection effects we use an instrumental variable approach. In particular, in the survey, we asked participants to report whether they are intolerant to alcohol. (The survey question was, "Do you have a tendency to develop facial flushing immediately after drinking a glass (about 180 ml) of beer?"). Alcohol intolerance is an excellent instrument to control for selection in our environment. One reason is that about 1/3 of the East Asia population is intolerant to alcohol, yet it occurs randomly in the population as a result of random assignment of the relevant genes. Another reason is that those who are alcohol intolerant are likely to consume less alcohol (see, e.g., Wang et al., 2017). Finally, random assignment of genes has been heavily used as an instrument in many biological studies (Mendelian randomization, see for example Davey Smith and Ebrahim, 2003 and von Hinke et al., 2016). In view of this, our approach is to use alcohol intolerance as an IV within a two-stage Probit regression.

The results of this analysis are detailed by Table 4. We find, in males, intolerance significantly reduces the probability one will consume alcohol (stage 1). In stage 2, the intoxication significantly increases promise making in males, a result consistent with Table 3. In females, intolerance cannot predict alcohol consumption in stage 1 although, again consistent with Table 3, in stage 2 we find intoxication reduces promise making.

Table 4. ***IVProbit Regression of Promise-making on Alcohol Consumption and Gender***

	Male		Female	
	Stage 1	Stage 2	Stage 1	Stage 2
	ALC	Promise	ALC	Promise
Intolerant	-0.120*		0.054	
	(0.071)		(0.125)	
PreALC		2.848***		-2.753***
		(0.542)		(0.351)
Age	-0.001	-0.105	-0.010	0.027
	(0.015)	(0.090)	(0.269)	(0.080)
Education	-0.113	0.964*	-0.243	-0.806*
	(0.077)	(0.578)	(0.176)	(0.576)
Homeprovince	-0.005	0.019	-0.001	0.007
	(0.006)	(0.029)	(0.012)	(0.040)
Height	0.001	-0.047	0.024*	0.077
	(0.007)	(0.041)	(0.013)	(0.051)
Weight	-0.001	0.007	-0.012	-0.029
	(0.004)	(0.018)	(0.007)	(0.018)
Drinkfrequency	0.157**	-1.217**	-0.196	-0.515
	(0.075)	(0.592)	(0.155)	(0.411)
Drinkvolume	0.036	-0.141	0.120*	0.291
	(0.026)	(0.093)	(0.065)	(0.177)
Drinkexperience	0.010	-0.069	0.008	-0.018
	(0.012)	(0.055)	(0.027)	(0.116)
Perceiveddrunk	0.100***	-0.123	0.234***	0.571***
	(0.025)	(0.176)	(0.052)	(0.188)
Constant	0.584	8.340	-3.100	-9.767
	(1.213)	(8.301)	(2.216)	(7.521)
N	132	132	48	48

6.3 Alcohol Effect on Promise-keeping

Figure 3 details the effect of intoxication on promise-keeping behavior. This analysis compares rates of promise-keeping among those who made a promise (excluding those who did not make a promise, but these are included in the analysis below). We observe no significant difference between sober and intoxicated males in rates of promise-keeping (79.3% vs. 81.1%, two-sided Mann-Whitney U-test). Also, the promising-keeping rates between sober and intoxicated females does not differ significantly (85.7% vs. 78.9%, two-sided Mann-Whitney U-test). These results support Hypothesis 2.

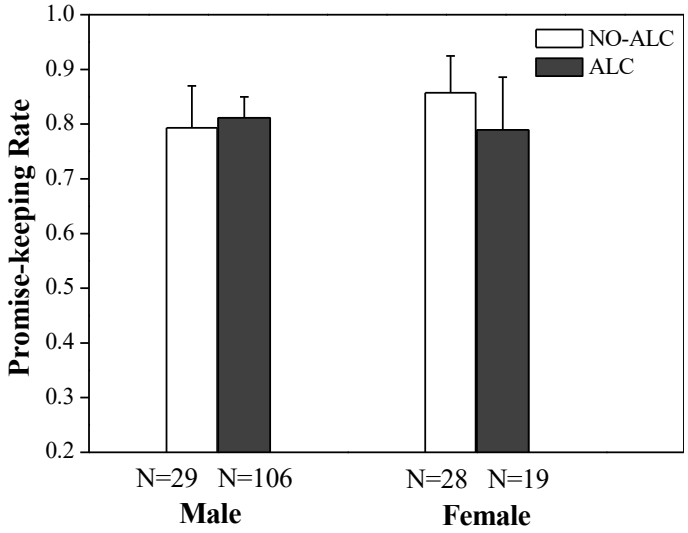


Figure 3. ***Promise-Keeping Rate over Alcohol Consumption and Gender.***

Notes: Promise-keeping rates are not significantly different between sober and intoxicated males (p=0.826, two-sided Mann-Whitney U-test), and do not differ significantly between sober and intoxicated females (p=0.549, two-sided Mann-Whitney U-test). Error bars indicate 1 SE.

6.4 Alcohol Effect on Communication Efficiency

We next compare the impact of intoxication on communication's efficiency. We say that a person's communication is efficient if one both makes and keeps a promise, and inefficient in any other case. Figure 4 describes our results, which now include the entire sample. Communication efficiency is marginally significantly higher among intoxicated (74.1%) than sober males (62.2%, p=0.081, one-sided Mann-Whitney U-test), but drops substantially with intoxication among females (53.6% vs. 68.6%), although this effect is not significant (p=0.113, one-sided Mann-Whitney U-test).

We observe a significant difference in efficiency between intoxicated males and females (p=0.033, two-sided Mann-Whitney U-test). Among sober males and females, however, our data reveal no significant difference in communication efficiency (p=0.571, two-sided Mann-Whitney U-test).

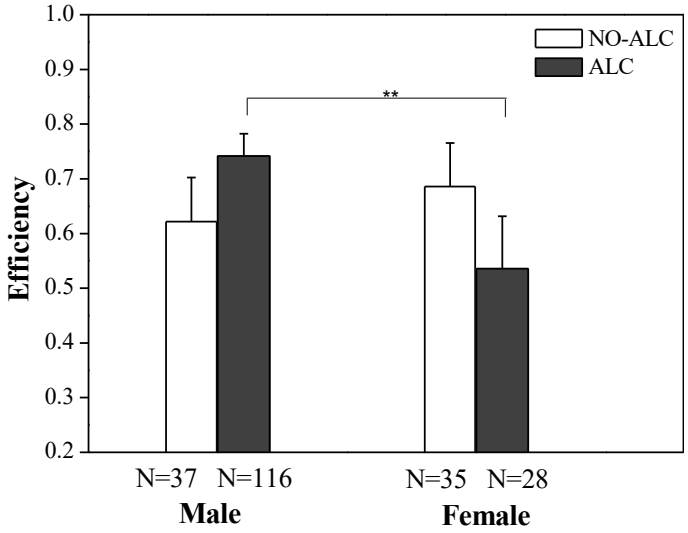


Figure 4. ***Communication Efficiency over Alcohol Consumption and Gender.***

Notes: Efficiency equals 1 if one made a promise and kept the promise, 0 otherwise. Efficiency is significantly different between sober and intoxicated males (p=0.081, one-sided Mann-Whitney U-test), but does not differ significantly among females (p=0.113, one-sided Mann-Whitney U-test). Error bars indicate 1 SE.

We conducted a Logit regression analysis to further investigate the effect of intoxication on communication efficiency. Results are shown in Table 5. The first column reveals that, after controlling for demographics, intoxicated males are 17% more likely to make and keep a promise than sober males. This effect is statistically significant at the 10% level. In the second column, after adding controls for drinking behaviors, we find that intoxicated males are 22% more likely to make and keep a promise than sober males. This effect is statistically significant at the 5% level.

The third and fourth columns detail the effect of intoxication on communication efficiency in the female sample. Intoxicated females are 32% and 31% less likely to make and keep a promise than sober ones after controlling the demographic variables and drinking behaviors. This is significant at the 1% and 10% level, respectively.

Finally, we include the interaction of alcohol consumption and gender, polling the male and female sample. The results are reported in Columns five and six. The interaction term is positive and significant in both analyses. The effect of intoxication on communication efficiency is

significantly different between males and females. There is no significant difference between males and females when sober, and the effect of intoxication on efficiency is positive for males but negative for females.

Table 5. ***Logit Regression of Communication Efficiency on Alcohol Consumption and Gender***

	Male		Female		Pooled sample	
	(1)	(2)	(3)	(4)	(5)	(6)
ALC	0.1689*	0.2158**	-0.3206***	-0.3127*	-0.1623*	-0.2377***
	(0.0886)	(0.1002)	(0.1212)	(0.1774)	(0.0926)	(0.0838)
ALC*Male					0.3310**	0.4664***
					(0.1337)	(0.1364)
Male					-0.1668*	-0.1758*
					(0.0934)	(0.0910)
Age	0.0044	-0.0057	0.0048	0.0223	-0.0010	-0.0078
	(0.0141)	(0.0167)	(0.0347)	(0.0332)	(0.0132)	(0.0148)
Education	0.1426*	0.1773**	-0.2069	-0.3931**	0.0345	0.0548
	(0.0849)	(0.0840)	(0.1859)	(0.1994)	(0.0756)	(0.0758)
Homeprovince	0.0001	-0.0009	0.0125	0.0271**	0.0011	0.0027
	(0.0065)	(0.0066)	(0.0134)	(0.0133)	(0.0059)	(0.0062)
Height	-0.0093	-0.0076	0.0167	0.0134	-0.0018	-0.0016
	(0.0074)	(0.0074)	(0.0154)	(0.0147)	(0.0067)	(0.0069)
Weight	0.0094**	0.0084*	0.0001	0.0025	0.0075*	0.0064
	(0.0045)	(0.0046)	(0.0072)	(0.0066)	(0.0040)	(0.0041)
DrinkFrequency		-0.1513**		0.0521		-0.0919
		(0.0763)		(0.1559)		(0.0721)
DrinkVolume		0.0023		-0.1201		0.0008
		(0.0282)		(0.0808)		(0.0274)
DrinkExperience		0.0004		-0.0538*		-0.0034
		(0.0141)		(0.0292)		(0.0122)
Intolerant		-0.0257		-0.2428**		-0.0551
		(0.0773)		(0.1190)		(0.0680)
PerceivedDrunk		0.0135		-0.0646		0.0073
		(0.0298)		(0.0712)		(0.0273)
pseudo R^2	0.071	0.114	0.109	0.302	0.049	0.082
N	142	132	58	48	200	180

Notes: Coefficients indicate average marginal effects. Efficiency equals 1 if one made a promise and kept the promise, and 0 otherwise. ALC equals 1 if BAC>0, and 0 otherwise. Standard errors in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level.

6.5 Alcohol Effect on Economic Efficiency

Lastly, we report whether alcohol consumption impacts economic efficiency, i.e. cooperation. We compare the cooperation rate in intoxicated and sober subjects, in males and females, respectively.

Figure 5 describes the comparisons. Cooperation rate is not significantly different between intoxicated (78.4%) and sober males (78.4%, p=0.993, two-sided Mann-Whitney U-test), and not significantly different between intoxicated (64.3%) and sober females (77.1%, p=0.266, two-sided Mann-Whitney U-test).

Recall from Figures 2 and 3 that intoxicated males make significantly more promises than sober males, and the promise-keeping rates are similar; thus, alcohol consumption should increase the cooperation rate in males. This is not a result of the fact that in the non-promise sample, intoxicated males cooperated less than sober males (the results are shown in Appendix D). Indeed, due to the small sample size, we didn't include these non-promise results in the main text. In the Appendices, we also report results that sober males who do not make a promise seem to use soft talking (talking more) to promote cooperation. With the current small sample size data, we cannot draw a solid conclusion, but would rather make a speculation and leave it to future studies.

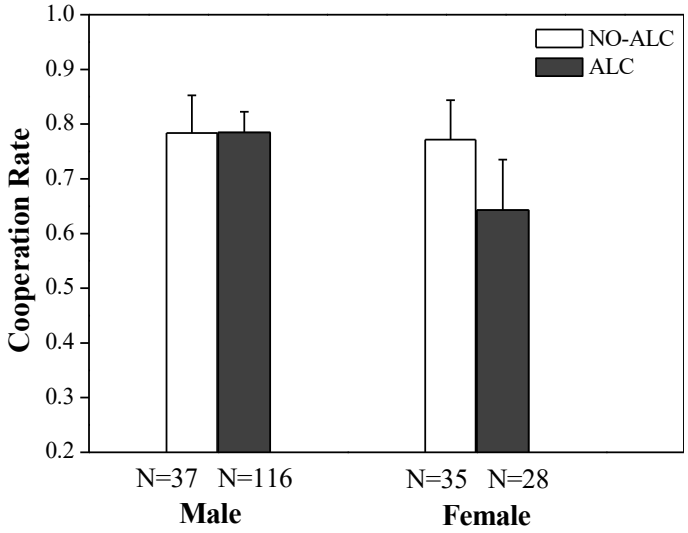


Figure 5. ***Economic Efficiency over Alcohol Consumption and Gender.***

Notes: Economic efficiency equals 1 if one chose to cooperate in PD game, 0 otherwise. Efficiency is not significantly different between sober and intoxicated males (p=0.992, two-sided Mann-Whitney U-test), and does not differ significantly among females (p=0.266, two-sided Mann-Whitney U-test). Error bars indicate 1 SE.

Another interesting finding is that promise-making promotes cooperation in intoxicated males, but does not work effectively in sober males. The cooperation rate is 50% in non-promised intoxicated males and 81.1% in promised intoxicated males. Promise-making significantly increases cooperation in intoxicated males, even within the relatively small sample size (p=0.023, two-sided Mann-Whitney U-test). However, in sober males, the cooperation rate is not significantly different (75% in non-promised groups and 79.3% in promised groups, p=0.796, two-sided Mann-Whitney U-test).

7. Concluding Discussion

Alcohol consumption is necessary for creating business connections in many East Asian countries. Our interest here was to formally model this behavior, and then to design a lab-in-the-field test of our model's predictions. In particular, we studied whether and how alcohol consumption impacts promise-making and promise-keeping behavior. Our hypotheses were

derived from our "GAAM" model, which combines a canonical guilt-aversion framework with a well-known model of alcohol myopia. We tested the model's hypotheses using a two-player Prisoner's Dilemma experiment implemented in Chinese bars. We found intoxicated males to make significantly more promises than sober male; however, the rate of promise-keeping did not vary between these groups. The implication is that communication is more efficient among intoxicated males. This is consistent with the predictions of our model, as is our finding that intoxication does not impact the rate at which females achieve cooperative outcomes. This gender difference is consistent with previous studies, and particularly the finding that alcohol myopia is more pronounced in males than females (Fillmore and Weafer, 2004).

Our approach was to recruit participants in the field (a bar or barbecue restaurant) and ask them to communicate and make decisions in that same environment. The key advantage to doing this is that the participants are in a natural environment that resembles the business drinking and negotiation contexts found in natural environments. Another advantage is that we were able to recruit participants who work in the industry and who have business and drinking experience. All of this adds confidence that our findings have external validity.

A disadvantage of our approach is that alcohol consumption was only quasi-randomized within our sample. That said, our procedures and evidence suggest that alcohol consumption was effectively randomized. Moreover, our results are robust to using an IV approach to control for possible selection effects. Finally, it seems unquestionably true that it is important to collect data in multiple types of environments and subject pools, rather than from only the lab.

A limitation of our study is that in natural environments negotiations are often a repeated game, while we considered a one-shot game. The advantage of our one-shot game is that theory

predictions are clear and can be tested in a straightforward way. It would be important for future studies to investigate business drinking in a repeat-game context.

Our study is the first to model and test the impact of alcohol intoxication on promise-making and promise-keeping. While our study sheds new light on motives for business drinking, it is limited in that it was carried out only in China. It would be profitable for future research to explore whether the effects observed in our sample, including gender differences, also hold in Western countries with a weaker tradition of business drinking.

Reference

Au PH, Lim W, Zhang J (2018) In Vino Veritas? Communication under influence-An experimental study. Working paper.

Au PH, Zhang J (2016) Deal or no deal? The effect of alcohol drinking on bargaining. *J. Econ. Behav. Organ.* 127: 70–86.

Battigalli P, Charness G, Dufwenberg M (2013) Deception: The role of guilt. *J. Econ. Behav. Organ.* 93:227-232.

Battigalli P, Dufwenberg M (2007) Guilt in games. *Am. Econ. Rev.* 97(2): 170-176.

Bregu K, Deck C, Ham L, Jahedi S (2017) The effects of alcohol use on economic decision making. *South. Econ. J.* 83(4): 886-902.

Burghart DR, Glimcher PW, Lazzaro SC (2013) An expected utility maximizer walks into a bar... *J. Risk Uncertain.* 46(3): 215-246.

Caudill BD, Wilson, GT, Abrams, DB (1987) Alcohol and self-disclosure: analyses of interpersonal behavior in male and female social drinkers. *J. Stud. Alcohol.* 48(5): 401-409.

Charness G, Du N, Yang CL, Yao L (2013) Promises in contract design. *Eur. Econ. Rev.* 64: 194-208.

Charness G, Dufwenberg M (2006) Promises and partnership. *Econometrica.* 74(6):1579-1601.

Charness G, Dufwenberg M (2011) Participation. *Am. Econ. Rev.* 101(4): 1211-37.

Cooper ML (1994) Motivations for alcohol use among adolescents: Development and validation of a four-factor model. *Psychol. Assess.* 6(2): 117-128.

Corazzini L, Filippin A, Vanin P (2015) Economic behavior under the influence of alcohol: an experiment on time preferences, risk-taking, and altruism. *PLoS One*. 10(4): e0121530.

Davey Smith, G. and Ebrahim, S., (2003) 'Mendelian randomization': can genetic epidemiology contribute to understanding environmental determinants of disease? *International Journal of Epidemiology*, 32(1): 1-22.

De Boer MC, Schippers, GM, van der Staak CP (1993). Alcohol and social anxiety in women and men: Pharmacological and expectancy effects. *Addict. Behav.* 18(2): 117-126.

Ederer, F. and Schneider, F., (2020). Trust and promises over time. *Am. Econ. J.-Microecon*. Forthcoming.

Ellingsen T, Johannesson M, Tjøtta S, Torsvik G (2010) Testing guilt aversion. *Games Econ. Behav.* 68(1): 95-107.

Fairbairn CE, Sayette MA, Amole MC, Dimoff JD, Cohn JF, Girard JM (2015) Speech volume indexes sex differences in the social-emotional effects of alcohol. *Exp. Clin. Psychopharmacol.* 23(4): 255-264.

Fairbairn CE, Sayette MA, Aalen OO, Frigessi A (2015) Alcohol and emotional contagion: An examination of the spreading of smiles in male and female drinking groups. *Clin Psychol Sci.* 3(5), 686-701.

Fillmore MT, Weafer J (2004) Alcohol impairment of behavior in men and women. *Addiction.* 99(10):1237-1246.

Florcruz, M (2013) "China's binge drinking business culture: Learning to be a successful drunk." *International Business Times*: 05-10.

George S, Rogers RD, Duka T (2005) The acute effect of alcohol on decision making in social drinkers. *Psychopharmacology.* 182(1): 160-169.

Giancola PR, Helton EL, Osborne AB, Terry MK, Fuss AM, Westerfield JA (2002) The effects of alcohol and provocation on aggressive behavior in men and women. *J. Stud. Alcohol.* 63(1): 64-73.

Giancola PR, Levinson CA, Corman MD, Godlaski AJ, Morris DH, Phillips JP, Holt JC (2009) Men and women, alcohol and aggression. *Exp. Clin. Psychopharmacol.* 17(3): 154-164.

Giancola PR, Zeichner A (1995) An investigation of gender differences in alcohol-related aggression. *J. Stud. Alcohol.* 56(5): 573-579.

Haucap J, Herr A (2014) A note on social drinking: In Vino Veritas. *Eur. J. Law Econ.* 37(3): 381-392.

Hoaken PN, Pihl RO (2000) The effects of alcohol intoxication on aggressive responses in men and women. *Alcohol Alcohol.* 35(5): 471-477.

Houser D, Xiao E (2011) Classification of natural language messages using a coordination game. *Exp. Econ.* 14(1): 1-14.

Khalmetski K (2016) Testing guilt aversion with an exogenous shift in beliefs. *Games Econ. Behav.* 97: 110-119.

Kirchner TR, Sayette MA, Cohn JF, Moreland RL, Levine JM (2006) Effects of alcohol on group formation among male social drinkers. *J. Stud. Alcohol.* 67(5): 785-793.

Kuntsche E, Knibbe R, Gmel G, Engels R (2006) Who drinks and why? A review of socio-demographic, personality, and contextual issues behind the drinking motives in young people. *Addict. Behav.* 31(10): 1844-1857.

Lane SD, Cherek DR, Pietras CJ, Tcheremissine OV (2004) Alcohol effects on human risk taking. *Psychopharmacology*. 172(1): 68-77.

Muramatsu T, et al. (1995) Alcohol and aldehyde dehydrogenase genotypes and drinking behavior of Chinese living in Shanghai. *Human Genetics.* 96(2): 151-154

Martinic M, Measham F (2008) *Swimming with crocodiles: The culture of extreme drinking*. (Routledge, New York)

Miettinen T, Suetens S (2008) Communication and Guilt in a Prisoner's Dilemma. *J. Confl. Resolut.* 52(6): 945-960.

Morewedge CK, Krishnamurti T, Ariely D (2014) Focused on fairness: Alcohol intoxication increases the costly rejection of inequitable rewards. *J. Exp. Soc. Psychol.* 50: 15-20.

Meyer E (2014) The culture map: Breaking through the invisible boundaries of global business. (Public Affairs, Philadelphia, USA).

Nolen-Hoeksema S (2004) Gender differences in risk factors and consequences for alcohol use and problems. *Clin. Psychol. Rev.* 24(8): 981-1010.

Proestakis A, Espín AM, Exadaktylos F, Cortés Aguilar A, Oyediran OA, Palacio LA (2013) The separate effects of self-estimated and actual alcohol intoxication on risk taking: A field experiment. *J. Neurosci. Psychol. Econ.* 6(2): 115-135.

Quinn, PD, Stappenbeck, CA, Fromme, K (2013) An event-level examination of sex differences and subjective intoxication in alcohol-related aggression. *Exp Clin Psychopharmacol*, 21(2), 93-102.

Schweitzer ME, Gomberg LE (2001) The impact of alcohol on negotiator behavior: Experimental evidence 1. *J. Appl. Soc. Psychol.* 31(10): 2095-2126.

Schweitzer ME, Kerr JL (2000) Bargaining under the influence: The role of alcohol in negotiations. *Acad. Manag. Perspect.* 14(2): 47-57.

Steele CM, Josephs R A (1990) Alcohol myopia: its prized and dangerous effects. *Am. Psychol.* 45(8): 921-933.

von Hinke, S., Smith, G.D., Lawlor, D.A., Propper, C. and Windmeijer, F., (2016) Genetic markers as instrumental variables. *Journal of Health Economics*, 45: 131-148.

Wang J, Rao Y, Houser DE (2017) An experimental analysis of acquired impulse control among adult humans intolerant to alcohol. Proc. *Natl. Acad. Sci*, 114(6): 1299-1304.

Weafer, J, Fillmore, MT (2012) Comparison of alcohol impairment of behavioral and attentional inhibition. *Drug Alcohol Depend*, 126(1-2), 176-182.

World Health Organization (2014). Global status report on alcohol and health 2014. Geneva

Wilson GT, Lawson DM (1976) Expectancies, alcohol, and sexual arousal in male social drinkers. *J. Abnorm. Psychol.* 85(6): 587-594.

Wilson GT, Lawson DM (1978) Expectancies, alcohol, and sexual arousal in women. *J. Abnorm. Psychol.* 87(3): 358-367.

Zeichner A, Pihl RO (1979) Effects of alcohol and behavior contingencies on human aggression. *J. Abnorm. Psychol.* 88(2): 153-160.

Zhu, Zhizhou (2012). "Guanxi, alcohol, and China's business culture." https://www.mgtrading.com/guanxi-alcohol-and-chinas-business-culture/

Online Appendix

Appendix A

Modeling Decisions Conditional on Receiving Promise or No Promise: An Equilibrium Analysis

Here we consider the case that players make decisions conditional on receiving a promise or no promise from their counterpart. One's strategy of choosing to defect or cooperate is conditional on whether their counterpart makes a promise. One strategy can be defined as *{MP, {C, D}}*, meaning one chooses to make a promise and cooperate if the opponent makes a promise, but defect if the opponent does not make a promise. Following this line, each player has five alternative strategies: *{NP,{D, D}}*, *{MP,{D, D}}*, *{MP,{C, D}}*, *{MP,{D, C}}* and *{MP,{C, C}}*.

We denote Player 1's and Player 2's utility (including psychological utility) by U_1 and U_2. Since this is a symmetric game, it is sufficient to focus only on Player 1's strategy.

We start with the sober case.

If Player 1 plays *{NP, {D, D}}*, the expected utility is:

$$U_1(NP, \{D, D\}) = P_2^{MP} * [Q * P_2(D|NP, MP) + T * P_2(C|NP, MP)] + P_2^{NP} * [Q * P_2(D|NP, NP) + T * P_2(C|NP, NP)] \quad (1)$$

where P_2^{MP} and P_2^{NP} are Player 1's belief that Player 2 will make a promise and will not make a promise, respectively, $P_2^{MP} + P_2^{NP} = 1$. $P_2(D|NP, MP)$ and $P_2(C|NP, MP)$ are Player 1's belief that Player 2 will defect and cooperate, respectively, conditional on Player 1 does not make a promise but Player 2 makes promise, $P_2(D|NP, NP) + P_2(C|NP, NP) = 1$.

If Player 1 plays *{MP, {D, D}}*, the expected utility is:

$$U_1(MP, \{D, D\}) = P_2^{MP} [Q * P_2(D|MP, MP) + T * P_2(C|MP, MP) - G_1] + P_2^{NP} * [Q * P_2(D|MP, NP) + T * P_2(C|MP, NP) - G_2] \quad (2)$$

Where G_1 and G_2 are the utility generated from guilt by breaking her promise.

$$G_1 = \theta * \{P_{1,2}(C|MP, MP) * [(T-Q) * P_2(D|MP, MP) + (R-S) * P_2(C|MP, MP)]\} \quad (3)$$

$$G_2 = \theta * \{P_{1,2}(C|MP, NP) * [(T-Q) * P_2(D|MP, NP) + (R-S) * P_2(C|MP, NP)]\} \quad (4)$$

Here we explain G_1 through example. G_2 follows the same logic.

$P_{1,2}(C|MP, MP)$ denotes Player 1's second-order belief about Player 2: it is Player 1's belief about Player 2's belief that Player 1 will choose *Cooperate* after Player 1 and Player 2 make promises. Choosing *Defect*, which breaks a promise to choose *Cooperate*, leads Player 1 to suffer a utility loss due to guilt. In particular, Player 1 believes Player 2's expectation is:

$$P_{1,2}(C|MP, MP)*[T*P_2(D|MP, MP)+R*P_2(C|MP, MP)]+[1-P_{1,2}(C|MP, MP)]*[Q*P_2(D|MP, MP)+S*P_2(C|MP, MP)] \quad (5)$$

If Player 1 chooses to *Defect*, he believes Player 2's expected payoff is:

$$Q*P_2(D|MP, MP)+S*P_2(C|MP, MP) \quad (6)$$

Therefore, Player 1 believes if he chooses *Defect*, he disappoints Player 2 by the amount of (5) - (6), which is:

$$P_{1,2}(C|MP, MP)*[(T-Q)*P_2(D|MP, MP)+(R-S)*P_2(C|MP, MP)] \quad (7)$$

Player 1 believes that his decision to break the promise leads Player 2 to suffer an expected loss of (7). Note that since $T>R>Q>S$, we must have $(7)\geq 0$. Finally, $\theta\geq 0$ is a measure of Player 1's sensitivity to guilt. When θ is higher, a player is more guilt sensitive.

If Player 1 plays *{MP, {D, C}}*, expected utility is:

$$U_1(MP, \{D, C\})=P_2^{MP}*[Q*P_2(D|MP, MP)+T*P_2(C|MP, MP)-G_1]+P_2^{NP}*[S*P_2(D|MP, NP)+R*P_2(C|MP, NP)] \quad (8)$$

If Player 1 plays *{MP, {C, D}}*, expected utility is:

$$U_1(MP, \{C, D\})=P_2^{MP}*[S*P_2(D|MP, MP)+R*P_2(C|MP, MP)]+P_2^{NP}*[Q*P_2(D|MP, NP)+T*P_2(C|MP, NP)-G_2] \quad (9)$$

If Player 1 plays *{MP, {C, C}}*, expected utility is:

$$U_1(MP, \{C, C\})=P_2^{MP}*[S*P_2(D|MP, MP)+R*P_2(C|MP, MP)]+P_2^{NP}*[S*P_2(D|MP, NP)+R*P_2(C|MP, NP)] \quad (10)$$

It is easy to show that with the ranging of guilt parameter θ and the probabilities $P_2(D|NP, NP)$, $P_2(D|MP, NP)$, $P_2(D|NP, MP)$ and $P_2(D|MP, MP)$, each of the above strategies can be the best response. Since our interest is to verify that the equilibria in the main text, we take a short cut by assuming the extreme cases.

We first assume that everyone chooses to defect since this is what we find in our main text. Then we have $P_2(D|NP, NP)=P_2(D|MP, NP)=P_2(D|NP, MP)=P_2(D|MP, MP)=1$. Then we verify whether the equilibria derived from this assumption is consistent with the assumption that players always choose to defect.

With the above assumption, it is easy to find that $U_1(NP, \{D, D\})$ is the highest utility when one is sober. Therefore, *{NP, {D, D}}* is dominant and hence the only equilibrium will be *{NP, {D, D}}*, *{NP, {D, D}}* since the game is symmetric.

When one is intoxicated, as we discussed in the main text, one's guilt is blocked due to alcohol myopia. Therefore, the utility of the strategies that includes making promise and defection will be in the following form.

$$U_1^{INTOX}(MP, \{D, D\})=P_2^{MP}[Q*P_2(D|MP, MP)+T*P_2(C|MP, MP)] +P_2^{NP}*[Q*P_2(D|MP, NP)+T*P_2(C|MP, NP)] \quad (2')$$

$$U_1^{INTOX}(MP, \{D, C\}) = P_2^{MP} * [Q * P_2(D|MP, MP) + T * P_2(C|MP, MP)] + P_2^{NP} * [S * P_2(D|MP, NP) + R * P_2(C|MP, NP)] \quad (8')$$

$$U_1^{INTOX}(MP, \{C, D\}) = P_2^{MP} * [S * P_2(D|MP, MP) + R * P_2(C|MP, MP)] + P_2^{NP} * [Q * P_2(D|MP, NP) + T * P_2(C|MP, NP)] \quad (9')$$

Now we have: $U_1(NP, \{D, D\}) = U_1(MP, \{D, D\})$ which are greater than the other three utilities.

Therefore, the equilibria when both players are intoxicated include *{NP, {D, D}},{NP, {D, D}}; {MP, {D, D}},{MP, {D, D}}; {MP, {D, D}},{NP, {D, D}} or {NP, {D, D}},{MP, {D, D}}*.

The equilibria when one player (e.g. player 1) is intoxicated include *{NP, {D, D}}, {NP, {D, D}}; {MP, {D, D}}, {NP, {D, D}}*.

The above equilibria include only *Defect*, which is consistent with the assumption that everyone chooses to defect. Therefore, these equilibria are stable. Under these equilibria, sober players will never make a promise. But it is possible that intoxicated players choose to make promise.

Now we assume the extreme case that everyone chooses to cooperate. In this case we have $P_2(C|NP, NP)=P_2(C|MP, NP)=P_2(C|NP, MP)=P_2(C|MP, MP)=1$. Under this assumption, $U_1(NP, \{D, D\})$ remains the greatest utility and hence one would deviate to defect, which contradicts the assumption that everyone cooperates. It follows that there is no equilibrium where everyone cooperates.

Now we assume a third extreme case that if one player does not make a promise, she believes the opponent will choose to defect for sure, and if one player makes a promise, she believes the opponent will choose to cooperate for sure.

We have $P_2(C|NP, NP)=0$, $P_2(C|MP, NP)=P_2(C|NP, MP)=P_2(C|MP, MP)=1$. The corresponding utilities will be as follows when one is sober.

$$U_1(NP, \{D, D\}) = Q \quad (11)$$

$$U_1(MP, \{D, D\}) = T - P_2^{MP} * G_1 - P_2^{NP} * G_2 \quad (12)$$

$$U_1(MP, \{D, C\}) = P_2^{MP} * T - P_2^{MP} * G_1 + P_2^{NP} * R \quad (13)$$

$$U_1(MP, \{C, D\}) = P_2^{MP} * R + P_2^{NP} * T - P_2^{NP} * G_2 \quad (14)$$

$$U_1(MP, \{C, C\}) = R \quad (15)$$

When one is intoxicated, the utility of the strategies that includes making promise and defection will be as follows.

$$U_1^{INTOX}(MP, \{D, D\}) = T \quad (12')$$

$$U_1^{INTOX}(MP, \{D, C\}) = P_2^{MP} * T + P_2^{NP} * R \quad (13')$$

$$U_1^{INTOX}(MP, \{C, D\}) = P_2^{MP} * R + P_2^{NP} * T \quad (14')$$

From (11)-(15), if one is sober and the guilt utility is large enough, then equilibrium strategies involving cooperation can exist. However, from (12'), when one is intoxicated, her utility from playing *MP, {D, D}* will be *T*, which will be the highest utility for sure. That is, when one is intoxicated, she will definitely deviate to *MP, {D, D}*. Since our experiment is performed in a drinking environment, participants plausibly assign positive probability to the chance that their counterpart may be drunk. If so, she would predict that the opponent would deviate to *MP, {D, D}*.

Appendix B

Table A.1 Probit regression of Intoxication on Duration

	(1) Full Sample	(2) Exclude BAC>0.08	(3) Exclude BAC>0.08 and outliers
Duration	0.0040*	0.0037	0.0023
	(0.0023)	(0.0023)	(0.0029)
pseudo R^2	0.026	0.024	0.006
N	85	75	73

Notes: Dependent variable Intoxication indicates whether one was intoxicated (BAC>0).

Duration indicates how many minutes one has stayed in the barbecue area.

In model (3) two outliers who self-reported they stayed for 160 minutes are excluded.

Coefficients are marginal effect. Standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix C: Message Samples

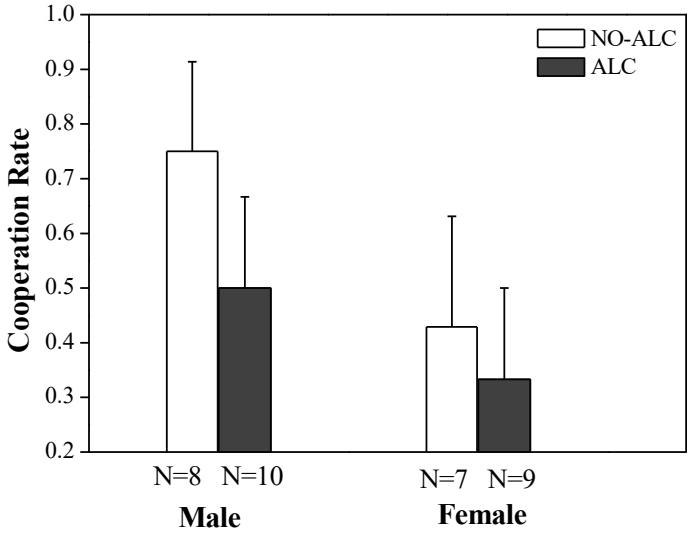
(The messages below are translated from the original Chinese)

Group	Message	P1	P2
1	P2: Let's choose Right and Down. P1: Oh, Ok. P1: Then? P1: What should we do? P2: Just make decisions together. P1: Ok, got it.	Promise	Promise
2	P1: So you choose from Left and Right and I choose from Up and Down? P2: Hello, let me claim my opinion on this game. Yes. I will choose Right, could you choose Down? P1: Sure, will do. P2: This will maximize our profits. We will have 80Yuan in total. Hah-hah-hah. P1: Are there any other possibilities? P2: And this is equal. P2: I won't change.	Promise	Promise
3	P1: Hello. P2: What is your favorite color? P2: Hi. P1: Black, white and gray. P2: All are dark. P1: Dark? P1: Hah-hah. P1: Simple color. P2: Classic color. P2: Yes. P1: Basic color.	Empty talk	Empty talk

Appendix D: No-promise, soft-talk and cooperation

We first report cooperation rates between intoxicated and sober subjects who did not make a promise. Figure A.1 demonstrates the comparison among males and females. In males, the cooperation rate is 75% when sober, but drops to 50% when intoxicated (p=0.147, one-sided Mann-Whitney U-test). The effect size is large though the test does not achieve significance. We do not find high levels of cooperation among females, nor do we observe a significant difference in cooperation between sober and intoxicated females.

Figure A.1. Cooperation by alcohol consumption in non-promise sample.



Notes: Cooperation equals 1 if one chooses to cooperate, and 0 otherwise. Error bars indicate 1 SE.

We also ran a logit regression, and the results are detailed in Table A.2. Controls are similar to those included in Tables 2 and 3 (we cannot add all the controls due to the smaller sample size). Since there are two missing values for the control variable Homeprovince, we report the regression results both with and without Homeprovince. Column (1) is without Homeprovince: intoxicated males who did not make a promise are at least 54% less likely to cooperate, and the effect is statistically significant at the 1% level. In Column (2), after adding Homeprovince, the intoxicated males who did not make a promise are at least 64% less likely to cooperate, and the effect is statistically significant at 1% level.

Table A.2. Logit regression of cooperation on alcohol consumption in no promise males

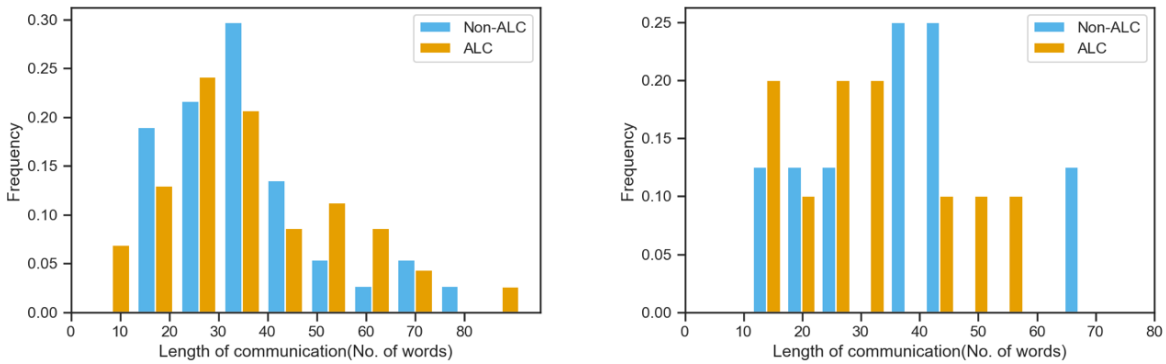
	Cooperation	
	(1)	(2)
ALC	-0.5407***	-0.6419***
	(0.1506)	(0.1367)
Age	0.0421	0.0717
	(0.0395)	(0.0623)
Education	0.5268**	0.5111**
	(0.2222)	(0.2003)
Homeprovince		-0.0536
		(0.0396)
Height	0.0032	0.0454*
	(0.0210)	(0.0262)
Weight	0.0216**	-0.0133
	(0.0099)	(0.0217)
pseudo R^2	0.245	0.400
N	18	16

Notes: Coefficients indicate average marginal effects. Dependent variable is Cooperation, which equals 1 if one chooses to cooperate, and 0 otherwise. ALC equals 1 if BAC>0, and 0 otherwise. Standard errors in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level.

Figure A.1 shows that relatively high cooperation occurs among males even in the absence of a promise. We speculate that instead of making a promise, one may use "soft-talk" to build trust. By "soft-talk," we mean communicating casually to reduce social distance. We expect those engaged in soft chat to use more words than those who do not. Consequently, as a first test of this hypothesis we determine whether there is a correlation between the number of words used during the chatting and the decision to cooperate.

Figure A.2 shows the distribution of words used during chatting among those who did and did not consume alcohol. Figure A.2 A shows that the distribution is similar among sober and intoxicated groups. However, Figure A.2 B reveals that in the non-promise sub-sample, the intoxicated group uses fewer words than the sober group.

Figure A.2. Distribution of Words over alcohol consumption.

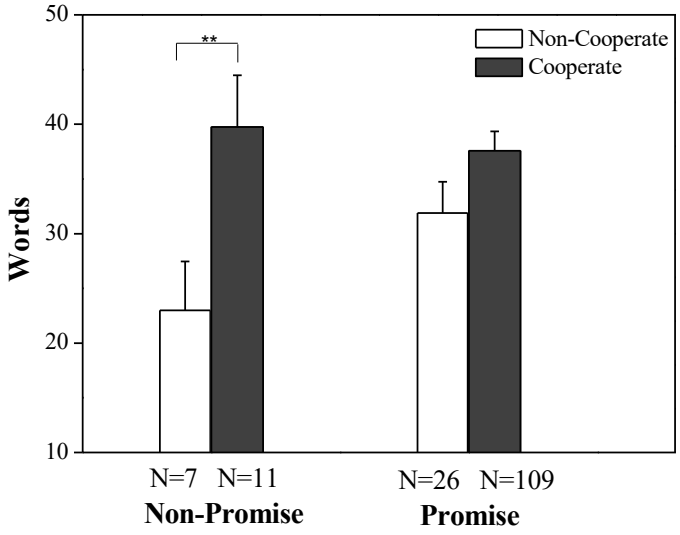


A. Males B. Males (Non-promise)

Notes: Words are the number of words written during the 90 seconds of communication.

Figure A.3 demonstrates the statistical comparison in both non-promise and promise groups. The left of the figure shows that when participants did not make a promise and chose not to cooperate, participants used on average 23 words while chatting; when they did not make a promise but chose to cooperate, they used an average of 40 words. The effect is large and statistically significant (p=0.033, two-sided Mann-Whitney U-test). The right two columns show when they made a promise, if they did not choose to cooperate, they used, on average 32 words, while if they chose to cooperate, they used 38 words. The difference is not statistically significant (p=0.229, two-sided Mann-Whitney U-test). It is interesting to note that among the four columns, the group who did not make a promise but chose to cooperate later talked the most. However, this result is not statistically significant when compared to the two promise groups (p=0.206 and p=0.610, respectively, two-sided Mann-Whitney U-test).

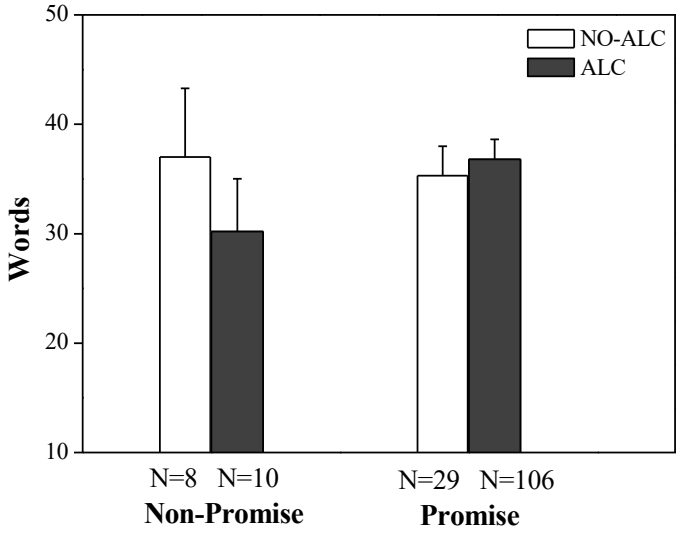
Figure A.3. Words over cooperation and promise in males.



Notes: Words are the number of words talked during the 90 seconds communication. Words is significantly different between non-cooperate and cooperate males in no-promise group (p=0.033, two-sided Mann-Whitney U-test), but does not differ significantly in the promise group (p=0.229, two-sided Mann-Whitney U-test). Error bars indicate 1 SE.

To explore why in Figure A.1, conditional on non-promises, sober participants cooperated more than intoxicated ones, we also compared the length of chatting over alcohol consumption and promise. Figure A.4 demonstrates the comparisons. Absent promise-making, people did talk more in the sober group (37 words) than in the intoxicated group (30 words), though due to the small sample size the difference is not statistically significant (p=0.395, two-sided t-test; p=0.477, two-sided Mann-Whitney U-test). With promise-making, sober groups used 35 words on average and intoxicated ones used an average of 36. The results seem to indicate that when people are intoxicated, they are reluctant to use soft chatting to shorten social distance, and hence cooperate less than those who are sober. This is consistent with the alcohol myopia model, as soft-talk may involve higher-level cognitive processing.

Figure A.4. Words over alcohol consumption and promise in males.



Notes: Words are the number of words talked during the 90 seconds communication. Error bars indicate 1 SE.

Last, we tested whether talking more led to higher cooperation. Table A.3, reports a regression of length of chat on cooperation for both the non-promise and promise groups. As demonstrated in the first two columns, absent promises, talking more significantly increases cooperation. This indicates soft-chatting plays a role when no promise is made. However, conditional on making a promise, number of words does not significantly impact cooperation. When an explicit promise is made soft-talk seems unnecessary.

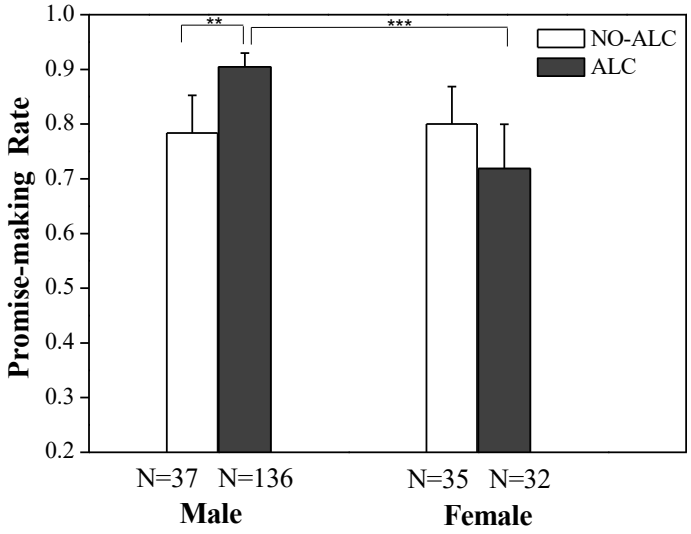
Table A.3. Regression of cooperation on words in males

	Non-promise		Promise	
	(1)	(2)	(3)	(4)
Words	0.0160***	0.0318**	0.0031	0.0028
	(0.0042)	(0.0155)	(0.0021)	(0.0022)
Age		0.0285		0.0241
		(0.0992)		(0.0163)
Education		-0.0537		-0.0083
		(0.2988)		(0.0876)
Homeprovince		-0.0620		0.0004
		(0.0410)		(0.0057)
Height		0.0240		-0.0050
		(0.0323)		(0.0067)
Weight		-0.0465		0.0082*
		(0.0320)		(0.0045)
pseudo R^2	0.237	0.530	0.018	0.087
N	18	16	135	126

Notes: Coefficients indicate average marginal effects. Dependent variable is Cooperation, which equals 1 if one chooses to cooperate, and 0 otherwise. Words are the number of words talked during the 90 seconds communication. Standard errors in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level.

Appendix E: Full sample results

Figure A.5. Promise-making rate over alcohol consumption and gender.



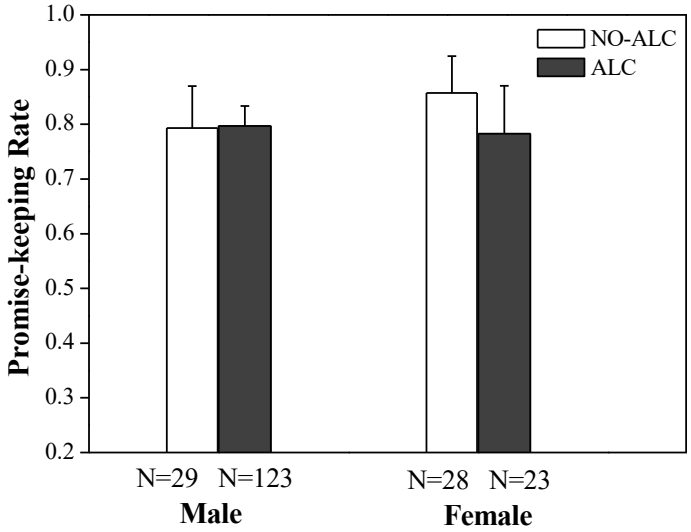
Notes: Promise-making rates differ significantly between sober and intoxicated males (p=0.047, two-sided Mann-Whitney U-test), but do not differ significantly among females (p=0.439, two-sided Mann-Whitney U-test). We observe a significant difference between intoxicated males and females in promise-making (p=0.005, two-sided Mann-Whitney U-test). There is no significant difference between sober males and females in promise-making (p=0.867, two-sided Mann-Whitney U-test). Error bars indicate 1 SE.

Table A.4. Logit regression of alcohol consumption and gender on promise-making

	Male		Female		Pooled sample	
	(1)	(2)	(3)	(4)	(5)	(6)
ALC	0.1525**	0.2035***	-0.1411	-0.2219	-0.0350	-0.0944
	(0.0732)	(0.0778)	(0.1108)	(0.1390)	(0.0717)	(0.0724)
ALC*Male					0.1876*	0.2720**
					(0.0965)	(0.0961)
Male					-0.0602	-0.0236
					(0.0825)	(0.0876)
Age	-0.0122	-0.0201**	-0.0019	0.0080	-0.0176**	-0.0219**
	(0.0076)	(0.0089)	(0.0300)	(0.0297)	(0.0083)	(0.0090)
Education	0.1263**	0.1379***	-0.1664	-0.2609	0.0518	0.0519
	(0.0567)	(0.0488)	(0.1560)	(0.1721)	(0.0505)	(0.0473)
Homeprovince	-0.0038	0.0011	0.0005	0.0099	-0.0034	-0.0002
	(0.0048)	(0.0050)	(0.0111)	(0.0127)	(0.0046)	(0.0049)
Height	-0.0049	-0.0119**	0.0158	0.0172	0.0012	-0.0007
	(0.0052)	(0.0060)	(0.0132)	(0.0130)	(0.0051)	(0.0053)
Weight	0.0045	0.0024	0.0004	-0.0026	0.0042	0.0023
	(0.0031)	(0.0031)	(0.0078)	(0.0065)	(0.0031)	(0.0032)
DrinkFrequency		-0.1299***		-0.0401		-0.0753
		(0.0392)		(0.1435)		(0.0525)
DrinkVolume		0.0055		0.0079		0.0073
		(0.0155)		(0.0632)		(0.0196)
DrinkExperience		-0.0088		-0.0437*		-0.0108
		(0.0073)		(0.0263)		(0.0080)
Intolerant		-0.0876		-0.1473		-0.0557
		(0.0556)		(0.1106)		(0.0494)
PerceivedDrunk		0.0289		0.0188		0.0187
		(0.0230)		(0.0408)		(0.0188)
pseudo R^2	0.108	0.294	0.108	0.199	0.086	0.156
N	160	145	62	52	222	197

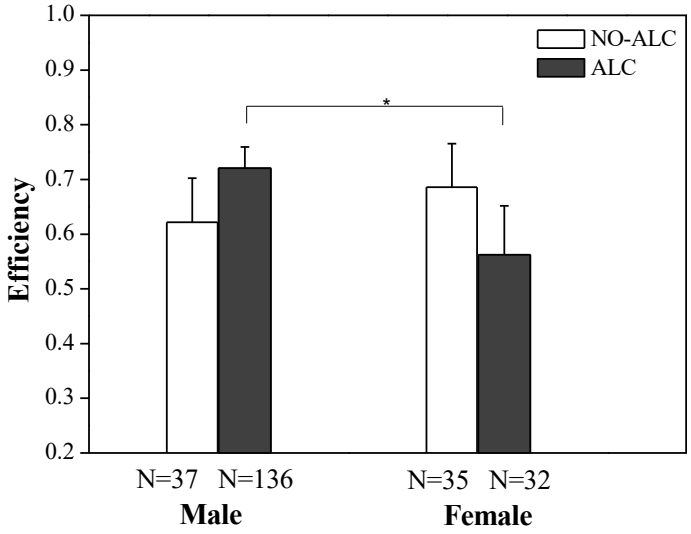
Notes: The coefficients are marginal effects. Promise equals 1 if one made a promise, 0 otherwise. ALC equals 1 if BAC>0, 0 otherwise. Standard errors in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level.

Figure A.6. Promise-keeping rate by intoxication and gender.



Notes: Promising keeping rates are not significantly different between sober and intoxicated males (p=0.965, two-sided Mann-Whitney U-test), and do not differ significantly between sober and intoxicated females (p=0.492, two-sided Mann-Whitney U-test). Error bars indicate 1 SE.

Figure A.7. Communication efficiency by intoxication and gender.



Notes: Efficiency equals 1 if one made a promise and kept the promise, 0 otherwise. Efficiency is (weakly) significantly different between sober and alcohol intoxicated males (p=0.123, one-sided Mann-Whitney U-test), but not significantly different among females (p=0.151, one-sided Mann-Whitney U-test). We observe significant differences between intoxicated males and females (p=0.083, two-sided Mann-Whitney U-test). There is no significant difference between sober males and females in communication efficiency (p=0.571, two-sided Mann-Whitney U-test). Error bars indicate 1 SE.

Table A.5. Logit regression of alcohol consumption and gender on efficiency

	Male		Female		Pooled sample	
	(1)	(2)	(3)	(4)	(5)	(6)
ALC	0.1453	0.1897*	-0.2690**	-0.4003***	-0.1419	-0.2379***
	(0.0893)	(0.0996)	(0.1175)	(0.1263)	(0.0922)	(0.0792)
ALC*Male					0.2948**	0.4394***
					(0.1341)	(0.1360)
Male					-0.1577*	-0.1890**
					(0.0955)	(0.0884)
Age	0.0021	-0.0082	0.0155	0.0210	-0.0006	-0.0081
	(0.0123)	(0.0140)	(0.0338)	(0.0315)	(0.0117)	(0.0131)
Education	0.1324*	0.1435*	-0.1713	-0.2571	0.0499	0.0466
	(0.0778)	(0.0776)	(0.1804)	(0.1774)	(0.0695)	(0.0712)
Homeprovince	-0.0008	-0.0015	0.0084	0.0193	0.0004	0.0015
	(0.0064)	(0.0066)	(0.0122)	(0.0132)	(0.0057)	(0.0061)
Height	-0.0042	-0.0079	0.0233	0.0243*	0.0029	-0.0007
	(0.0071)	(0.0074)	(0.0145)	(0.0143)	(0.0064)	(0.0068)
Weight	0.0033	0.0090**	-0.0021	-0.0052	0.0029	0.0062
	(0.0037)	(0.0044)	(0.0070)	(0.0062)	(0.0033)	(0.0040)
DrinkFrequency		-0.1414*		-0.0259		-0.0836
		(0.0739)		(0.1549)		(0.0696)
DrinkVolume		0.0111		-0.0139		0.0132
		(0.0270)		(0.0699)		(0.0262)
DrinkExperience		0.0033		-0.0530**		-0.0025
		(0.0139)		(0.0268)		(0.0121)
Intolerant		-0.0244		-0.1473		-0.0398
		(0.0731)		(0.1198)		(0.0649)
PerceivedDrunk		0.0236		0.0441		0.0322
		(0.0297)		(0.0451)		(0.0255)
pseudo R^2	0.036	0.100	0.095	0.231	0.029	0.074
N	160	145	62	52	222	197

Notes: The coefficients are average marginal effects. Efficiency equals 1 if one made a promise and kept the promise, 0 otherwise. ALC equals 1 if BAC>0, 0 otherwise. Standard errors in parentheses. *, **, *** denotes statistical significance at the 10%, 5%, 1% level.

Appendix F: Instructions and Survey

PD Game Instructions (Player 1)

We are from the behavioral science center of Central South University. Thank you for participating in this experiment. You've earned 5 Yuan just for participate into this experiment. You will earn additional money by completing a decision task. The amount of the additional money depends on the decision you make in the task. Any money that you end up with will be yours to take home in cash.

Rules:

1. Please follow the instructions during the whole experiment.
2. Chatting is not allowed during the experiment.
3. Cellphone using is not allowed during the experiment.
4. Drinking is not allowed during the experiment.
5. Please raise your hand if you have any questions.

Procedures:

At the beginning of the experiment, you will be matched to one of participates in another bar. You will never know who you are matched with during and after the experiment. You and the matched payer will play a game. Both of you will make a choice in the game individually: you will choose Up or Down, your match will choose Left or Right. The choices made by both of you determine the payoff, as shown in the following form:

Your match chooses

You choose	Left	Right
Up	You earn **20Yuan** Your match earns **20 Yuan**	You earn **60 Yuan** Your match earns **10 Yuan**
Down	You earn **10 Yuan** Your match earns **60 Yuan**	You earn **40 Yuan** Your match earns **40 Yuan**

Before making the decision, you will communicate with your match for no more than 90 seconds, via the software of QQ on our computer. In the communication, no one is allowed to identify him or herself by name or gender or location or appearance or contact information. You may say anything (including decision making) during the communication other than these restrictions. The experimenter will check the messages at the end of the experiment, violations (experimenter discretion) will result in receiving only the 5 Yuan show up fee.

After the communication we will send you the decision sheet, and you will make the decision on the sheet.

When both of you finish the decision, your match's decision and your final payoff will be revealed to you, we will pay you and that's the end of the game.

Before communication and decision, please complete the following quiz to help you understand the game. If you have any questions, please raise your hand. The experimenter will check you answer. When all of you complete the quiz, the communication will begin.

Quiz:

1. If you choose Up, you match chooses Left, you earn ____Yuan, you match earns ____Yuan?
2. If you choose Up, you match chooses Right, you earn ____Yuan, you match earns ____Yuan?
3. If you choose Down, you match chooses Left, you earn ____Yuan, you match earns ____Yuan?
4. If you choose Down, you match chooses Right, you earn ____Yuan, you match earns ____Yuan?
5. During or after the experiment, will you know who your match is?
   ☐Yes ☐No
6. How much time do you have to communicate with your match? _____

Survey

Gender:

Age:

Ethnic group:

Profession:

Hometown:

Education level:

Height:

Weight:

The average number of times drinking per month:

The number of times drunk per month:

The average volume of drinking each time (choose one of the three types):

Baijiu: _____ml Wine: _____ml Beer: _____ml

How many years since start to drink regularly:

Do you have a tendency to develop facial flushing immediately after drinking a glass (about 180 ml) of beer:

For the three questions below, please make a choice between 1 and 7 (1=totally sober and 7=totally drunk):

How intoxicated you think you are: 1 2 3 4 5 6 7

How intoxicated you think your match are: 1 2 3 4 5 6 7

How intoxicated you think your match think you are: 1 2 3 4 5 6 7

Please describe how did you make your decision in the experiment?

Instructions (Message Classification Experiment)

Thank you for coming! You've earned 5Yuan for showing up on time, and the following instructions will explain how you can make decisions to earn more money.

Your task:

In this experiment, you will be given 60 groups of online chatting record between two persons in each group. Your task in this experiment is to evaluate whether each person's chatting messages in each of the 60 groups include:

- A statement of strong promise: Based on the whole conversation, this person stated certainly a promise.
- A statement of weak promise: Based on the whole conversation, this person expressed any statement of intent.
- No promise

Your payoff:

1. You will earn 10Yuan by evaluating all the messages.
2. At the end of the experiment **3** groups of the chatting record will be randomly chosen, then one person will be randomly chosen in each chosen group. If your evaluation matches the most common evaluation, you will be paid **10Yuan** for that person.

Your final payoff = 5 Yuan show up fee + 10 Yuan evaluation fee + reward from correct evaluation (up to 30Yuan)

The messages were written by participants in a previous experiment (Experiment I). To evaluate the messages, you need to first understand Experiment I. The next few pages describe Experiment I. The first two pages are instructions for Player 1. The last two pages are instructions for Player 2. Each group of the chatting record is done by one Player 1 and one Player 2. Please read it carefully and finish the quiz in each of the instructions.

Rules:

1. Cellphone using is not allowed during the experiment.
2. Please stay at your seat during the experiment.
3. Please raise your hand if you have any question.