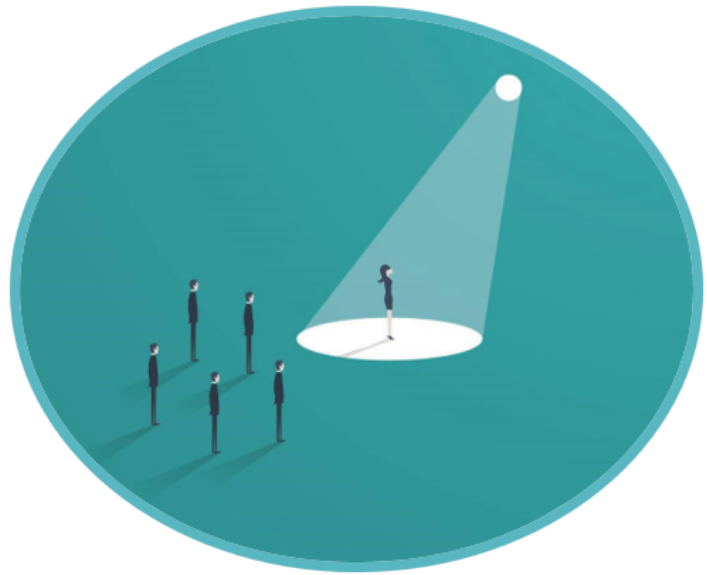
Social Norm Obedience is the Primary Source of the Gender Competitiveness Gap

Daniel Houser, George Mason University
Shuwen Li, Shanghai Jiao Tong University
Jianxin Wang, Central South University



ICES Seminar

Motivation

- Gender equality is central to sustainable development. There remains however persistent gender inequality.
- The total gain in human capital wealth that would emerge from gender equality would be about twice the value of global GDP (Wodon et al., 2020).
- The labor market gaps may stem from the gender gap in willingness to compete: Men are more willing to enter competitions than women (Niederle and Vesterlund, 2007).
  - Attempts to close this gap: affirmative action policies, priming and framing, sponsorship and advice

Motivation (cont'd)

- Why?
  - Nature - Innate differences in preferences to compete?
  - Nurture - Gender differences in social norms and expectations?
- Norms and culture seem to influence the gender gap in competitiveness (Gneezy et al., 2009; Andersen et al., 2013; Almas et al., 2016; Wang et al., 2018; Booth et al., 2019; Zhang, 2019).
  - Hard to pin down how norms shape competitiveness using naturally occurring data
- Recent efforts have focused on manipulating norms exogenously within randomized experiments using various types of priming (see, e.g., Cassar et al., 2016; Balafoutas et al., 2018; Zhang et al., 2021).
  - Interventions aimed at changing the prevailing norms become unavoidably tangled with experimenter demand effects.

Gender Norms on Competitiveness

- Men in patriarchal societies are expected to behave competitively, and women are expected not to compete too much (Eagly and Karau, 2002; Rudman et al., 2012; Eagly et al., 2020).
- People are norm-obedient: Violating behavioral norms can lead to substantial detrimental future consequences, including social stigmatization and feelings of anxiety, guilt or shame (Bicchieri, 2006; Akerlof and Kranton, 2000; Bertrand et al., 2015; Bursztyn et al., 2017; Folke and Rickne, 2020).

Alcohol's Ability to Suppress Norm Obedience

- Mild alcohol intoxication induces "alcohol myopia" (Steele and Josephs, 1990)
  - Reduces awareness of detrimental consequences tied to norm disobedience
  - As a result, decisions made in such a state are more likely to reveal innate preferences (Monahan and Lannutti, 2000; Giancola and Corman, 2007; Giancola et al., 2010; Parrott and Eckhardt, 2018).
- Mild alcohol intoxication has been shown to weaken adherence to normative gender roles (Montemurro and McClure, 2005; Lyons and Kersey, 2020).
  - Young men have talked about how they use alcohol, and drunkenness, to engage in behaviors such as expressing pain, crying and being emotional.

Our Approach and Its Advantages

- We shed new light on the source of the gender competitiveness gap by exploiting alcohol's ability to suppress norm obedience (Steele and Josephs, 1990; Ito et al., 1996; Zak et al., 2021).
  - exogenously change the impact of social norms on behavior within a controlled laboratory experiment
  - directly mitigate gender norm obedience without priming or framing
  - eliminate experimenter demand effects because our treatment does not rely on information provided by the experimenters
- We conduct a separate norm elicitation which allows us to identify cleanly the mechanism of behavior change due to alcohol intoxication.

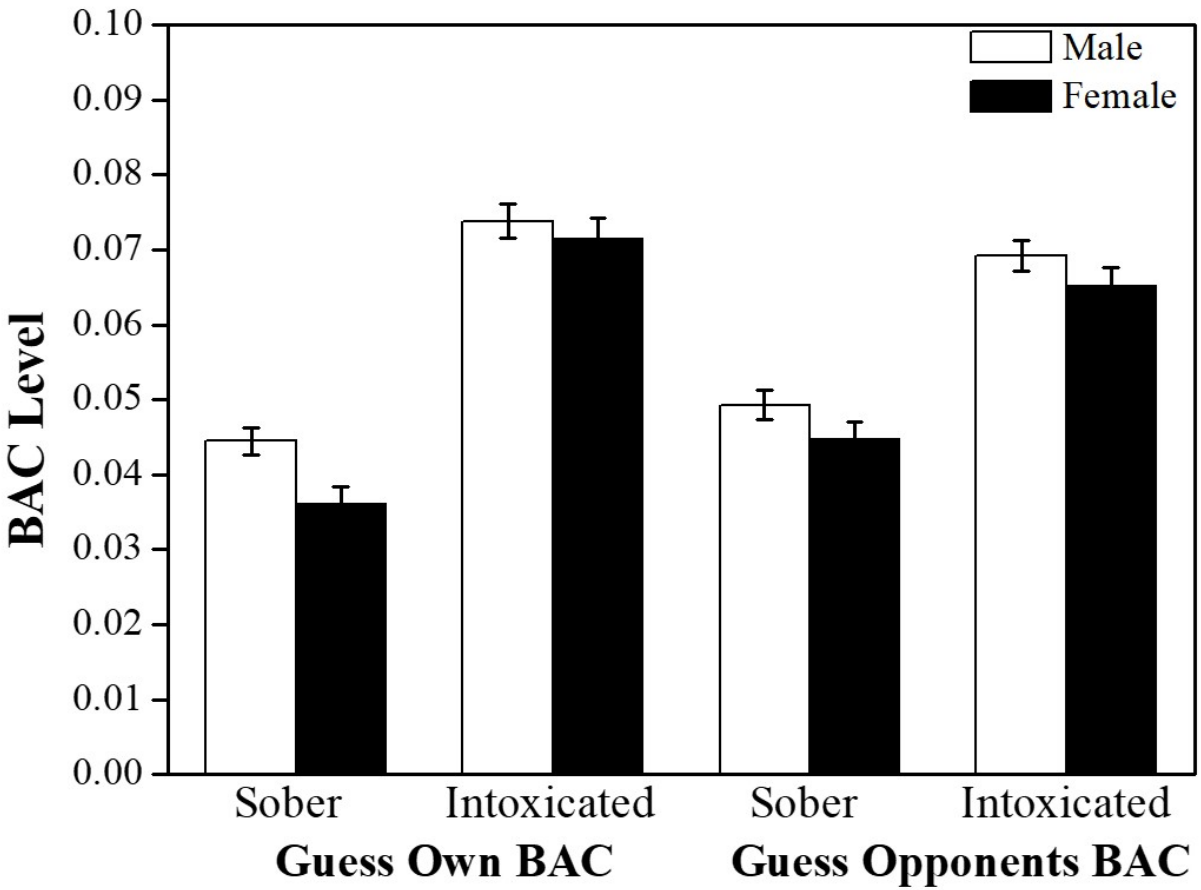
Experimental Design –Competition Experiment

- Competition games (the NV 2007 protocol)
  - Five two-digit numbers addition in three minutes for each task
  - Task 1: Piece rate. 2 Yuan per problem solved correctly.
  - Task 2: Tournament. The individual in a four-person group who correctly solved the greatest number of problems receive 8 Yuan per correct problem; the other three in the same group receive nothing.
  - Task 3: Choosing between piece rate and tournament (one's performance be compared to the performance of the other three participants in the same group in Task 2)

Experimental Design –Competition Experiment (cont'd)

- Alcohol administration
  - Four groups of four participants participated in each session. We randomly assign alcoholic beverages to two groups and placebo beverages to two other groups.
  - Alcohol group: a beverage consisting of tonic water and 40 % alcohol content vodka, with the alcohol volume calculated to target a BAC level of 0.08 g/100ml
  - Placebo group: the same calculation as above, but used only tonic water; we mask the placebo by rubbing alcohol on the cup rim and spraying alcohol on the surface of the water.
  - Males reach a peak BAC of 0.073 g/100ml and females reach a peak BAC of 0.068 g/100ml (p-value=0.057, median test)

Belief of Intoxication



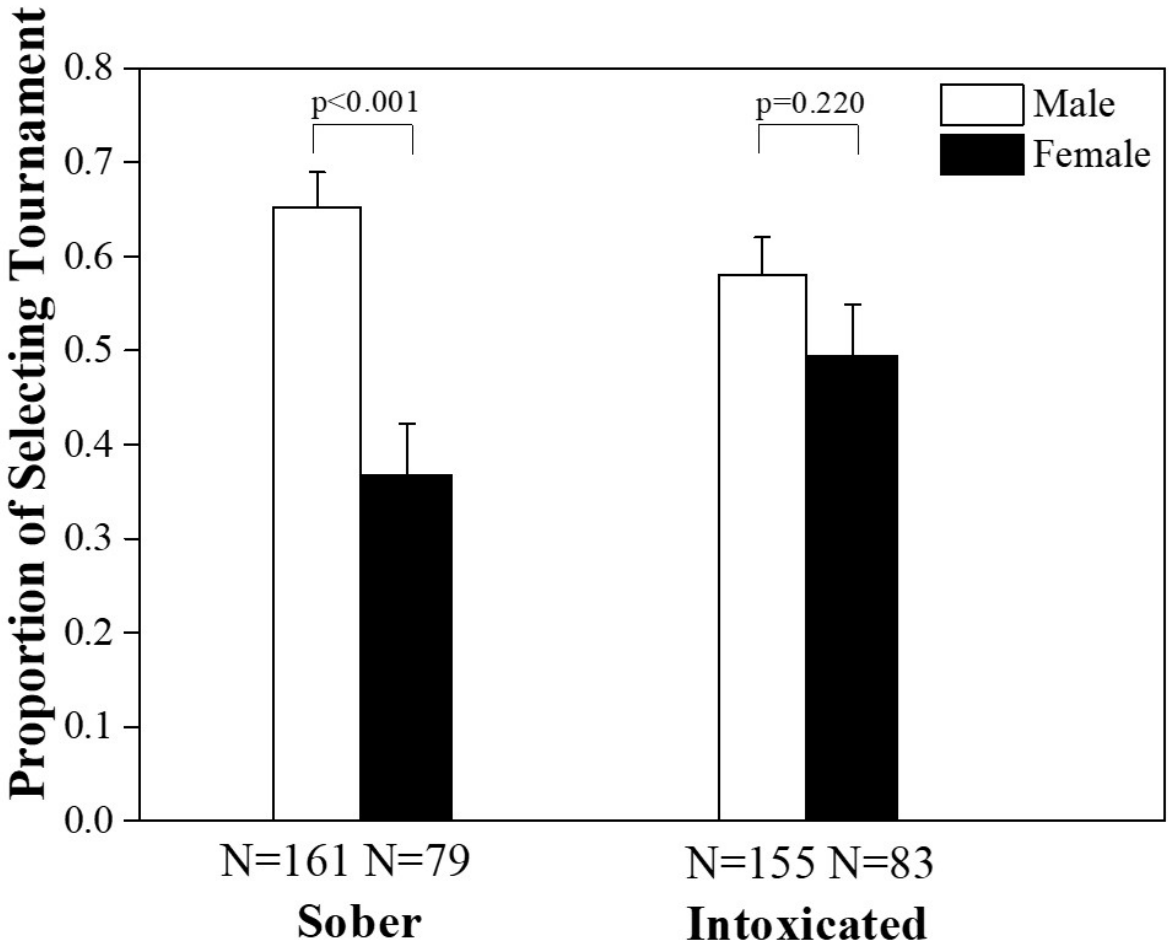
Experimental Design –Competition Experiment (cont'd)

- Order: alcohol administration –competition games –predict rank in Task 2 (confidence) –risk task (Eckel and Grossman (2008) protocol)–Belief of BAC and follow-up survey –results and payment.
- Approved by George Mason University IRB
- 478 participants (Placebo: 161 men, 79 women; Alcohol: 155 men, 83 women), college students at Central South University, China
- Average payment: 61.6 RMB

Hypotheses

- Hypothesis 1: When sober, men select the tournament payment scheme more than women.
- Hypothesis 2: When intoxicated, the gender gap in choosing the tournament payment scheme shrinks and can even reverse.
  - In particular, we would expect women to compete more, and men to compete less.

Results –Willingness to Compete



Results –Willingness to Compete (cont'd)

	Tournament-Entry		
	(1)	(2)	(3)
Female	-0.3100***	-0.1059	-0.1058
	(0.0636)	(0.0657)	(0.0661)
Female × Intoxication	0.2563**	0.2061**	0.2076**
	(0.1132)	(0.0821)	(0.0844)
Intoxication	-0.0409	-0.0412	0.0191
	(0.0518)	(0.0470)	(0.2716)
Controls	BeliefBAC, BeliefOthersBAC	BeliefBAC, BeliefOthersBAC, Risk, GuessedRank, Tournament, Improve	BeliefBAC, BeliefOthersBAC, Risk, GuessedRank, Tournament, Improve, Interactions between Intoxication & the last four
Constant	yes	yes	yes
R^2	0.092	0.320	0.320
N	478	478	478

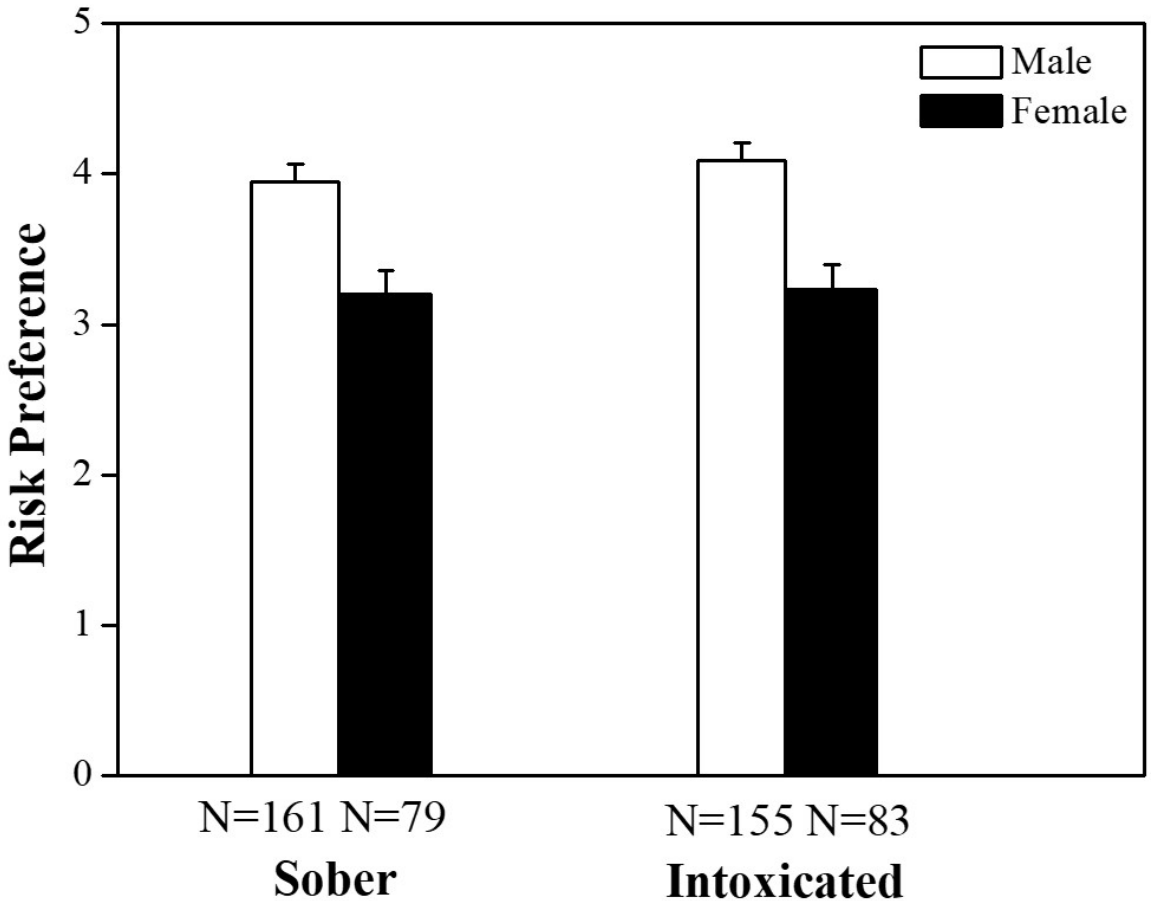
Results –Willingness to Compete (cont'd)

	Tournament-Entry		
	(1)	(2)	(3)
Female	-0.3100***	-0.1059	-0.1058
	(0.0636)	(0.0657)	(0.0661)
Female × Intoxication	0.2563**	0.2061**	0.2076**
	(0.1132)	(0.0821)	(0.0844)
Intoxication	-0.0409	-0.0412	0.0191
	(0.0518)	(0.0470)	(0.2716)
Controls	BeliefBAC, BeliefOthersBAC	BeliefBAC, BeliefOthersBAC, Risk, GuessedRank, Tournament, Improve	BeliefBAC, BeliefOthersBAC, Risk, GuessedRank, Tournament, Improve, Interactions between Intoxication & the last four
Constant	yes	yes	yes
R^2	0.092	0.320	0.320
N	478	478	478

Results –Risk and Confidence

- Differences between men and women in other factors, including risk attitudes, confidence and beliefs, explain why men choose to compete more often even among the intoxicated sample.
  - Males are more risk-seeking than females in both the sober and intoxicated groups.
  - Males are generally more confident than females in both the sober and intoxicated groups.
- There is no evidence that alcohol consumption changes risk preferences or confidence level, in either males or females.
  - The closing of the gender gap cannot be explained by changes in attitudes toward risk, confidence, or perceptions of one's own or others' intoxication.

Risk Preference



Overconfidence

	Sober			Intoxicated		
	Male	Female	P-value	Male	Female	P-value
1: Best	0.48	0.23	$<$0.001	0.48	0.34	0.039
2	0.39	0.44	0.486	0.38	0.40	0.889
3	0.11	0.28	0.002	0.11	0.17	0.227
4: Worst	0.01	0.05	0.093	0.03	0.10	0.027

* Participants' guesses about their relative performance in the group in Task 2.

Experimental Design –Norm Elicitation

- We follow Bicchieri and Xiao (2009) to elicit competitiveness norms among the sober and the intoxicated.
- Procedures identical to the competition experiment, with the exception that in Task 3, participants answer the following questions:
  - Empirical Expectations
    Guess the percentage of all male (female) participants who chose tournament in task 3 of previous sessions. [incentivized]
  - Normative Expectations
    1. In general, do you think that male (female) participants should choose tournament in task 3 of previous sessions?
    2. How many participants in today's session do you think answered YES to the last question? [incentivized]

Experimental Design –Norm Elicitation (cont'd)

- 256 observations, college students at Central South University, China
  - 64 sober males and 64 intoxicated males providing expectations about males
  - 64 sober females and 64 intoxicated females providing expectations about females
- Average payment: 62 RMB

Results –Competitiveness Norms

	Empirical Expectation			Normative Expectation		
	Male	Female	**P-value**	Male	Female	**P-value**
Sober	0.640 (N=64)	0.489 (N=64)	**<0.001**	0.645 (N=64)	0.541 (N=64)	**0.013**
Intoxicated	0.617 (N=64)	0.497 (N=64)	**0.006**	0.610 (N=64)	0.545 (N=64)	**0.116**
P-value	**0.578**	**0.849**		**0.428**	**0.921**	

* Empirical: Guess of the percentage of all male (female) who chose tournament in previous sessions
* Normative: Guess of the percentage of participants in today's session who answered YES to the "should male (female) chose tournament in previous sessions" question

Results –Competitiveness Norms

	Empirical Expectation			Normative Expectation		
	Male	Female	**P-value**	Male	Female	**P-value**
Sober	0.640 (N=64)	0.489 (N=64)	**<0.001**	0.645 (N=64)	0.541 (N=64)	**0.013**
Intoxicated	0.617 (N=64)	0.497 (N=64)	**0.006**	0.610 (N=64)	0.545 (N=64)	**0.116**
P-value	**0.578**	**0.849**		**0.428**	**0.921**	

- **Alcohol intoxication does not alter gender competitiveness norms per se**
  $\rightarrow$ Direct evidence on alcohol's norm obedience suppression effect
- Males are believed to be more competitive than females overall.

Results –Competitiveness Norms

	Empirical Expectation			Normative Expectation		
	Male	Female	**P-value**	Male	Female	**P-value**
Sober	0.640 (N=64)	0.489 (N=64)	**<0.001**	0.645 (N=64)	0.541 (N=64)	**0.013**
Intoxicated	0.617 (N=64)	0.497 (N=64)	**0.006**	0.610 (N=64)	0.545 (N=64)	**0.116**
P-value	**0.578**	**0.849**		**0.428**	**0.921**	

- Alcohol intoxication does not alter gender competitiveness norms per se
  $\rightarrow$ Direct evidence on alcohol's norm obedience suppression effect
- **Males are believed to be more competitive than females over all.**

Implications

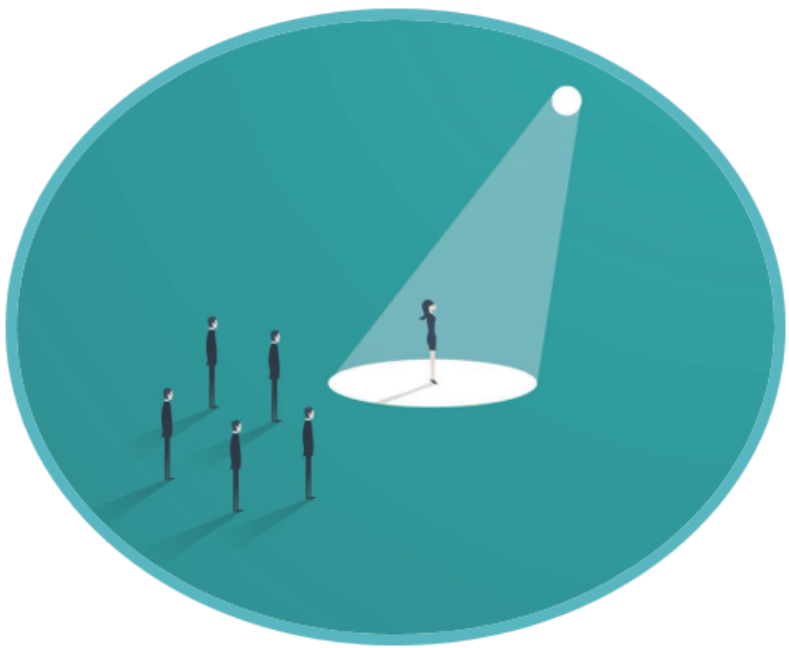
- Our results offer insights into mechanisms for the effectiveness of institutional interventions such as affirmative actions (Balafoutas and Sutter, 2012; Niederle et al., 2013; Chen and Houser, 2019; He et al., 2021; Kessel et al., 2021; Bao and Huang, 2022)
  - Breaking the traditional social norm deterring female competitiveness
- Some types of norm-based interventions might work as an alternative to institutional interventions, circumventing unintended side-effects of these programs.
  - Possible interventions: defeating so-called pluralistic ignorance, making people aware of alternatives to the status-quo (Bicchieri, 2016)

Summary

- Consistent with previous research, we find that women, when sober, are significantly less likely to enter competition than men.
- However, when participants are mildly intoxicated, resulting in no change in competitiveness norms per se but diminished obedience to these norms, this gender gap closes.
- Our results indicate that women's tendency to shy away from competition does not stem from an innate preference not to compete, but rather their innate preferences to compete are suppressed by obedience to social norms.
- Our results emphasize that a fair and equitable society requires a foundation of norms that support these values.

Thank you!

Comments are welcome at jianxin.wang@csu.edu.cn

Daniel Houser, George Mason University
Shuwen Li, Shanghai Jiao Tong University
Jianxin Wang, Central South University

January 2023