Competition and Gender Differences

Gender differences in preferences

Gender differences in willingness to compete

Gender differences in willingness to compete and career choices

Gender differences in willingness to compete and ”culture”

Gender Differences in Preferences (Croson and Gneezy JEL 2009)

Croson and Gneezy review the literature on gender differences in risk preferences, social preferences, and competitive preferences. The review is mainly based on economic experiments. They conclude that:

Women are more risk averse than men

Women are more averse to competition than men

For social preferences (dictator, ultimatum, trust, prisoner's dilemma and public goods games) there are no clearcut overall gender difference; but the preferences of women are more situationally specific than those of men (e.g. varies more between different variations of the same game with respect to e.g. anonymity, phrasing, and the gender of the other players)

TABLE 1

	Experimental details	Pay	Gain/ loss	Summary	Risk taking	Controls included?
Holt and Laury (2002)	Students	Yes	Gain	Choice between lotteries according to mean–variance. Varied also the level of pay	Low payoffs: M > F High payoffs: M = F	Yes
Hartog, Ferrer-I-Carbonell, and Jonker (2002)	Mail survey and Dutch newspaper	No	Gain	Willingness to pay for high-stakes lotteries. Gender difference in risk aversion parameter is estimated at 10 to 30 percent	M > F	Yes
Dohmen et al. (2005)	Rep. sample of German population and students	real and hyp	Both	Survey instrument is validated in experiments. Survey questions predicted behavior well	M > F	Yes
Powell and Ansic (1997)	Students	Yes	Both	Choice of insurance cover in one treatment and an unfamiliar financial decision about gains in another	M > F	No
Eckel and Grossman (2008a)	Students	Yes	Both	Choice between lotteries according to mean–variance. Frame (gain/ loss) changed between treatment	M > F	Yes
Eckel and Grossman (2008c)	Students	Yes	Both	Choice between lotteries according to mean–variance. Lotteries and investment frames with the possibility of loss, and a lottery frame with no loss	M > F	Yes
Fehr-Duda, Gennaro, and Schubert (2006)	Students	Yes	Both	Gender differences depend on the size of the probabilities for the lotteries' larger outcomes	M > F	Yes
Levin, Snyder, and Chapman (1988)	Students	No	Both	Half of the subjects were given the "chance of winning" each gamble, and half were given the "chance of losing" each lottery	M > F	No
Finucane et al. (2000)	Phone survey	No	Both	Ethnically diverse group of participants. White males were more risk taking than all other groups	M > F	Yes
Schubert et al. (1999)	Students	Yes	Both	Choice between certain payoffs and lotteries in abstract and contextual frames	Gains: M > F Losses: M > F Contextual: M = F	No

TABLE 3
TRUST GAMES

Study	Experimental details	Trust	Reciprocity	Controls included?
Croson and Buchan (1999)	Continuous game U.S., China, Japan, Korea	M = F	M < F	Yes
Schwieren and Sutter (2008)	Continuous game trust in behavior versus ability	M = F in behavior	M < F in behavior	No
Clark and Sefton (2001)	Sequential PD trust = 1st, reciprocity = 2nd	M = F	M = F	Yes
Cox and Deck (2006)	Discrete game vary size of pie, single/double blind, response	M = F	M = F	No
Bohnet (2007)	Continuous game (study 1)	M = F	M = F	Yes
Ashraf et al. (2006)	Continuous game U.S., Russia, South Africa, strategy method	M = F	M = F	Yes
Eckel and Wilson (2004a)	Discrete game choice of partners (represented by icons)	M > F	M = F	Yes
Migheli (2007)	Continuous game	M > F	M = F	Yes
Innocenti and Pazienga (2006)	Continuous game double blind, gender communicated man/woman	M > F	M = F	No
Slonim (2006)	Mostly continuous game partner selection (gender, age known)	M > F no selection	M = F no selection	Yes
Kanagaretnam et al. (2006)	Continuous game multiple rounds, repaired, switch roles	M > F	M = F	Yes
Snijders and Keren (2001)	Discrete game subjects play both roles (strategy method)	M > F	M < F	Yes
Chaudhuri and Gangadharan (2007)	Continuous game subjects play both roles (strategy method)	M > F	M < F	No
Buchan et al. (2006)	Continuous game interaction of gender by first name, F, M or unknown	M > F	M < F	No
Garbarino and Slonim (2009)	Mostly continuous game online panel, strategy method, within subject	M > F	na	Yes
Bellemare and Kroger (2007)	Continuous game Dutch panel of Ss, strategy method	M < F	M > F	Yes
Eckel and Wilson (2004b)	Discrete game written info or photo of partner	M > F written M < F photo	M = F	Yes
Ben-Ner et al. (2004)	Sequential dictator, same or different pairings double-blind	na	M < F	Yes
Eckel and Grossman (1996)	Sequential dictator	na	M < F	Yes
Bohnet et al. (forthcoming)	Betrayal aversion game	M = F Kuwait M > F	na	No

TABLE 4
PUBLIC GOODS/SOCIAL DILEMMAS

	Study details	Contribution rates			Controls included?
		Males	Females	Significantly different?	
Solow and Kirkwood (2002)	n = 5, continuous, identity manipulated (strangers, MGP, band)	66%	60%		No
Cadsby and Maynes (1998)	n = 4, discrete, all M/F groups, manipulate MPCR, anonymity	67%	60%		No
Sell et al. (1993)	n = 4, continuous, all M/F/mixed/unknown groups	57%	52%		No
Andreoni and Petrie (2007)	n = 5, continuous, photos of counterparts	47%	41%		No
Brown-Kruse and Hummels (1993)	n = 4, discrete, all M/F groups, manipulate MPCR, comm.	68%	56%	M > F	No
Sell and Wilson (1991)	n = 4, continuous, full, total or no feedback	51%	37%	M > F	No
Seguino et al. (1996)	n = 5 to 52, continuous game	49%	66%	F > M	Yes
Range of contributions		21%	30%		

Gender Differences in Willingness to Compete and Potential Mechanisms (Niederle and Vesterlund, QJE 2007)

Background: Test if men are more likely than women to chose a competitive incentive scheme controlling for ability; and test for various potential mechanisms for such a gender difference. The study try to estimate the importance of four potential explanations for a gender difference in willingness to compete: 1: Men have a stronger preference for performing in a competition per se; 2. Men are more overconfident; 3. Men are less risk averse; 4. Men are less averse to feedback.

Setting: Subjects are grouped in groups of four subjects (two women and two men). The experiment consists of four tasks and one of these are randomly chosen for real payment.

1. Subjects solve as many math problems (adding five 2-digit numbers) as possible in 5 minutes with a piece-rate incentive scheme (50 cent per correct answer).
2. Subjects perform the 5 minute task under a competitive tournament incentive scheme (the winner in the group of four receives $2 per correct answer).
3. Subjects chose either the piece rate or the tournament and then perform the 5 minute task again (if a subject chooses the tournament she is paid $2 per correct answer if her score in task 3 exceeds the score of the other group members in task 2).
4. Subjects chose compensation scheme for the past piece rate performance in task 1 (if they chose the piece rate they are paid 50 cent per correct answer in task 1 and if they chose the tournament they are paid $2 per correct answer in task 1 if they solved most problems in their group in task 1). Argued that this choice is not affected by “preferences for performing in a competition per se”.

Elicitation of beliefs/confidence: At the end of the experiment subjects are asked to guess their rank in their group in task 1 and 2 (and are paid $1 per correct guess).

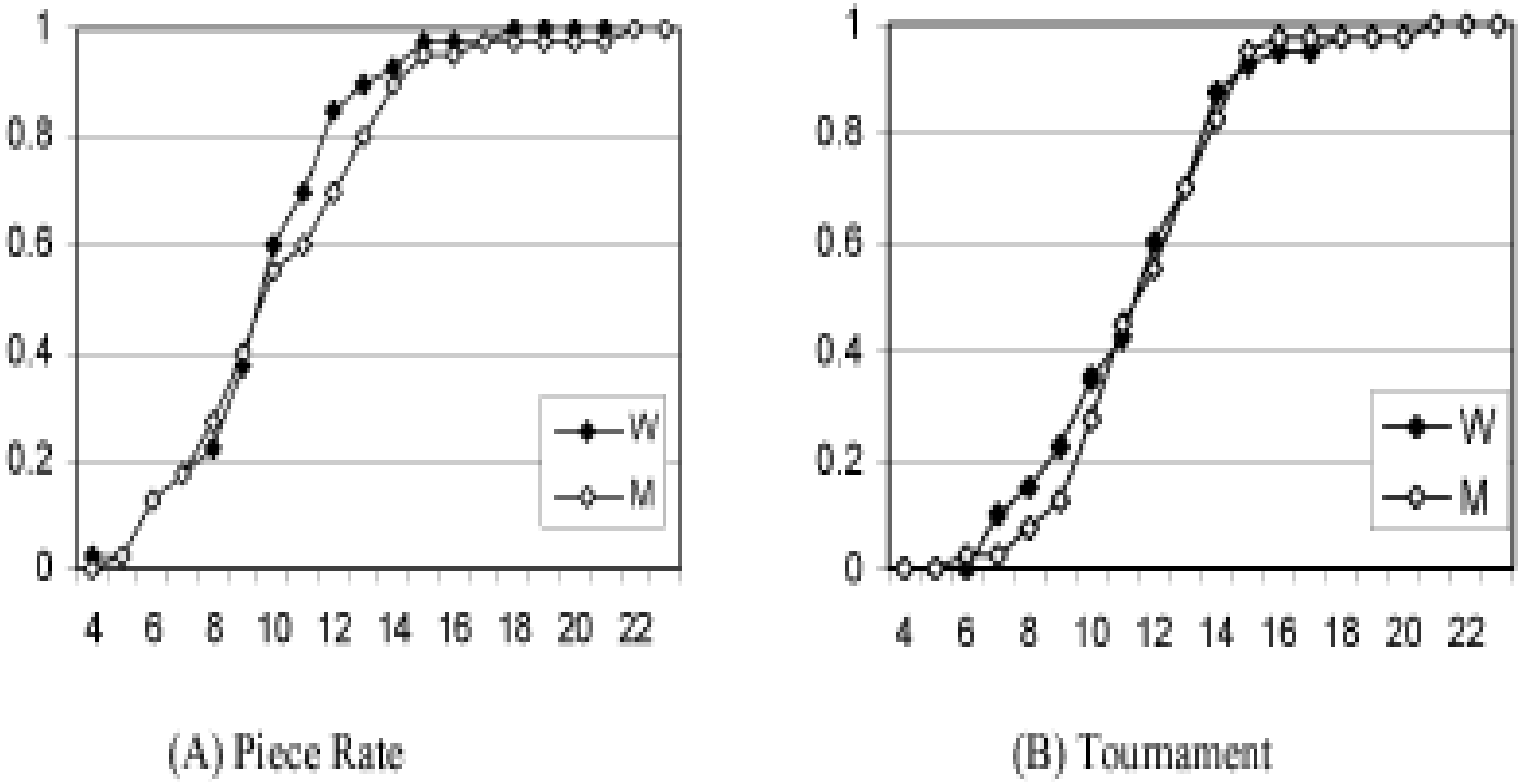

FIGURE I

CDF of Number of Correctly Solved Problems
Panel A: Piece rate (Task 1); Panel B: Tournament (Task 2)

The fraction of subjects choosing the tournament incentive in Niederle and Vesterlund

	Men	Women
Task 3	73%	35%
Task 4	55%	25%

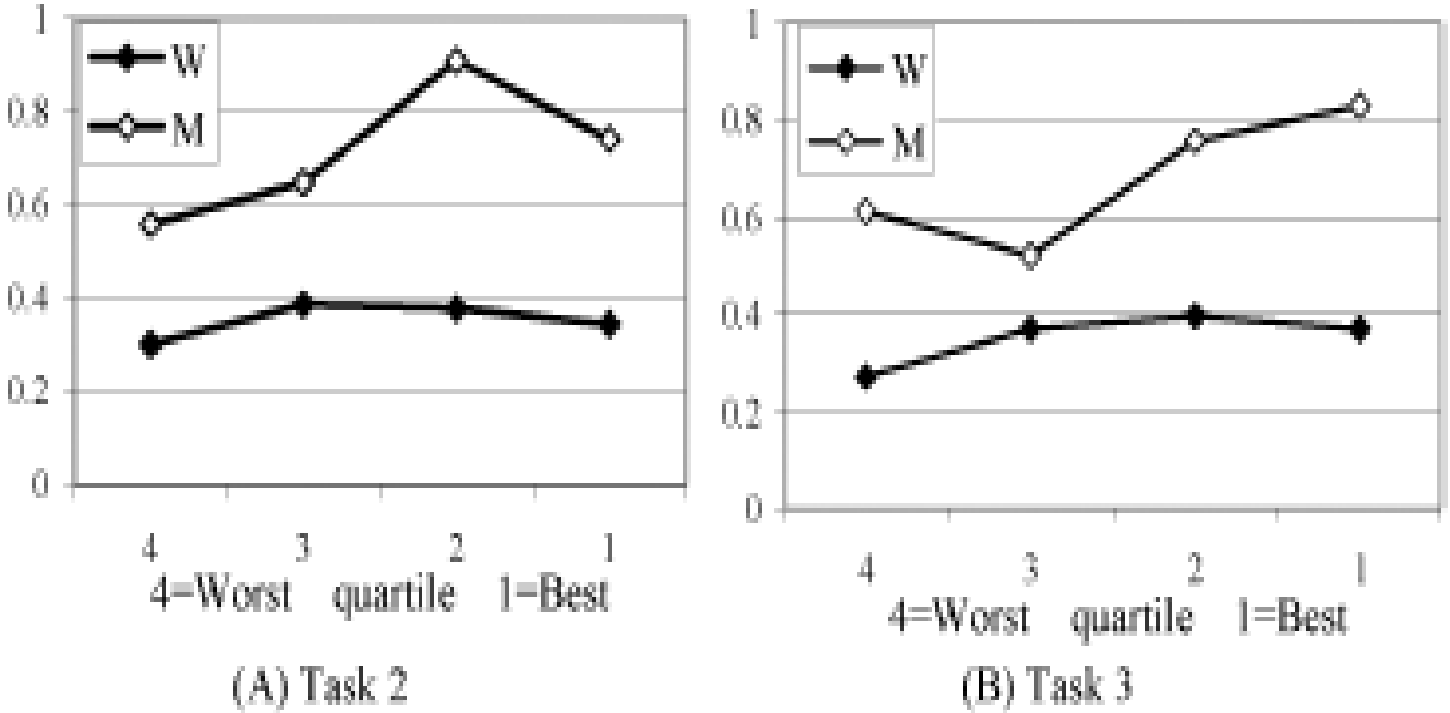

FIGURE II

Proportion of Participants Selecting Tournament for Task 3 Conditional on Task-2 Tournament Performance Quartile (Panel A) and Task-3 Choice Performance Quartile (Panel B)

TABLE IV

DISTRIBUTION OF GUESSED TOURNAMENT RANK

	Men		Women	
	Guessed rank	Incorrect guess	Guessed rank	Incorrect guess
1: Best	30	22	17	9
2	5	3	15	10
3	4	2	6	5
4: Worst	1	1	2	1
Total	40	28	40	25

TABLE VI

PROBIT OF TOURNAMENT-ENTRY DECISION (TASK 3)

	Coefficient (p-value)	
	(1)	(2)
Female	−.379	−.278
	(.01)	(.01)
Tournament	.015	−.002
	(.39)	(.90)
Tournament–piece rate	.008	−.001
	(.72)	(.94)
Guessed tournament rank		−.181
		(.01)

Dependent variable: Task-3 choice of compensation scheme (1-tournament and 0-piece rate). The table presents marginal effects evaluated at a man with a guess of one and who has thirteen correct answers in the tournament and twelve in the piece rate. Guesses of four are eliminated, resulting in a sample of thirty-eight women and thirty-nine men.

Controlling for overconfidence (beliefs) the gender gap in task 3 decreases from 37.9 percentage units to 27.8 percentage units.

TABLE VII

PROBIT OF DECISION TO SUBMIT THE PIECE RATE TO A TOURNAMENT (TASK 4)

	Coefficient (p-value)	
	(1)	(2)
Female	−.327	−.13
	(.01)	(.21)
Piece rate	.05	.00
	(.02)	(.80)
Guessed piece rate rank		−.32
		(.00)

Dependent variable: Task-4 choice of compensation scheme (1-tournament, 0-piece rate). The table presents marginal effects evaluated at a man with a guess of one and eleven correct answers in Task 1. Excluding guesses of 4, the sample is thirty-nine women and thirty-eight men.

Controlling for overconfidence (beliefs) the gender gap in Task 4 decreases from 32.7 percentage units to 13.0 percentage units. In Task 4 the effect of preferences for performing in a competition per se is removed; so it is argued that the remaining 13 percentage units gender gap is due to gender differences in risk aversion and aversion to feedback.

TABLE VIII

PROBIT OF TOURNAMENT-ENTRY DECISION (TASK 3)

	Coefficient (p-value)		
	(1)	(2)	(3)
Female	−.379	−.278	−.162
	(.01)	(.01)	(.05)
Tournament	.015	−.002	−.009
	(.39)	(.90)	(.42)
Tournament–piece rate	.008	−.001	.011
	(.72)	(.94)	(.44)
Guessed tournament rank		−.181	−.120
		(.01)	(.01)
Submitting the piece rate			.258
			(.012)

Dependent variable: Task-3 compensation scheme choice (1-tournament and 0-piece rate). The table presents marginal effects evaluated at a man with thirteen correct answers in the tournament and twelve in the piece rate, who submits to the tournament, and with a guess of one in the Task-2 tournament. Guesses of four are eliminated, resulting in a sample of thirty-eight women and thirty-nine men.

When both overconfidence (beliefs) and the task 4 decision (”submitting the piece rate variable”) are controlled for in Task 3; the gender gap decreases from 37.9 percentage units to 16.2 percentage units. The reason to control for the Task 4 decision, is to control for gender differences in risk aversion and feedback aversion. It is argued that the remaining 16.2 percentage units are due to gender differences in preferences for performing in a competition per se; but this effect is much larger than the effect implied by directly comparing the gender gaps between tasks 3 (38 percentage units) and 4 (30 percentage units).

Gender Differences in Willingness to Compete and Career Choices (Buser et al, QJE 2014)

Background: Previous studies have found that men are more likely than women to chose a competitive incentive scheme controlling for ability. This gender difference in willingness to compete could be a potential explanation for gender differences on the labor market. The study test if willingness to compete in the lab is related to choice of academic track among secondary school students in the Netherlands (if students that are more willing to compete in the lab task are more likely to choose more prestigious academic tracks controlling for academic ability).

School system in the Netherlands: After 6 years of primary school, students choose between six-year pre-university level (20%), five-year general level (25%), and four-year vocational level (55%). At the pre-university level all students take the same courses the first three years and then choose between: the science-oriented track Nature & Technology (NT), the health-oriented track Nature & Health (NH), the social sciences-oriented track Economics & Society (ES), the humanities-oriented track Culture & Society (CS). The order of math and science difficulty (and prestige) between tracks is: NT>NH>ES>CS.

Subjects in the study: Students from four schools in the Amsterdam area in grade 9 participate in the study (n=397 students from 16 classes; n=362 with complete data included in the analyses). Data collected prior to track choice; but the schools provided data about actual track choices and grades in year 9.

Experiment Data collection: Competitiveness (task 1-3 in Niederle & Vesterlund 2007), confidence (guessed rank from 1-4), risk attitudes, subjective ability in math, student characteristics.

TABLE III

ACADEMIC TRACKS BY GENDER: NATIONAL STATISTICS AND OUR SAMPLE (PERCENTAGES)

	National statistics		Our sample	
	Boys	Girls	Boys	Girls
NT	43	23	40	17
NH	17	26	12	36
ES	35	32	39	32
CS	5	18	8	15

Notes. In the left panel, we treat NT/NH students as NT and ES/CS students as ES in the national data. In our own sample, of the 22 boys who chose NT/NH, 15 stated NT as their favorite track in the questionnaire, 6 NH, and 1 CS. Of the 42 girls who chose NT/NH, 13 put NT and 29 put NH. Of the six boys who chose ES/CS all six put ES. Of the 12 girls who chose ES/CS, 8 put ES and 4 put CS. We use this information to split them into the four tracks in the right panel.

Source. CBS (2012). The data are from 2012.

Boys are more likely than girls to choose the most prestigious/demanding academic track both in National statistics and in the sample in the study.

TABLE IV

ABILITY BY GENDER

	Boys	Girls	*p*-value
GPA (1–10)	6.80	6.97	.008
Math grade (1–10)	6.67	6.59	.491
Math relative (0–1)	0.38	0.37	.885
Math difficulty (0–10)	3.41	4.18	.009
Math quartile (1(best)–4)	1.97	2.25	.032
Number of observations	177	185	

Notes. Average characteristics by gender among the 362 students in our sample. Grades are out of 10 with higher numbers being better grades. Math relative is the rank of a student's math grade compared to the other students in his class normalized by the number of students, where 1 refers to the student with the lowest math grade. Math difficulty is the answer to the question "How difficult is it for you to get a passing grade in mathematics?" and goes from 0 (very easy) to 10 (very hard). Math quartile is the answer to a question asking the students to rank themselves on mathematical ability compared to other students in their year (and school) on a scale from 1 (in the best 25%) to 4 (in the worst 25%). The last column reports *p*-values for the null hypothesis of no differences between boys and girls (we use a *t*-test for equality of means except for math quartile, where we use Fisher's exact test).

Girls in the sample have higher average grades and the same math grades; but their subjective ability in math is lower (both in terms of their subjective difficulty of getting a pasing math grade and their subjective rank in math ability).

TABLE V

DETERMINANTS OF ACADEMIC TRACK CHOICE; NO PSYCHOLOGICAL ATTRIBUTES

	Ordered probit (NT > NH > ES > CS)			NT vs. rest	
	(1)	(2)	(3)	(4)	(5)
Female	−0.325***	−0.443***	−0.319**	−0.222***	−0.187***
	(0.115)	(0.124)	(0.126)	(0.047)	(0.043)
Math grade		0.174	−0.074		0.015
		(0.187)	(0.192)		(0.064)
GPA		0.250**	0.244**		0.024
		(0.098)	(0.097)		(0.031)
Math relative		−0.155	−0.145		−0.050
		(0.152)	(0.152)		(0.053)
Math difficulty			−0.240***		−0.076**
			(0.089)		(0.032)
Math quartile			−0.315***		−0.083***
			(0.074)		(0.025)
Cut 1 (C1)	−1.423***	2.120	−0.625		
Cut 2 (C2)	−0.307**	3.358**	0.714		
Cut 3 (C3)	0.353**	4.113***	1.538		
$\frac{\text{Female}}{(C3-C1)}$	−0.183***	−0.222***	−0.148***		
N	362	362	362	362	362

Notes. Dependent variable in columns (1) to (3): track choice, where NT > NH > ES > CS. Coefficients are from ordered probit regressions. Dependent variable in columns (4) and (5): dummy variable NT = 1. Coefficients in columns (4) and (5) are from OLS regressions. All regressions control for school fixed effects. Robust standard errors in parentheses. *, ** and *** denote significance at 10%, 5%, and 1%, respectively; p-values for $\frac{\text{Female}}{(C3-C1)}$ are bootstrapped.

Girls are less likely to choose the more prestigious/demanding academic tracks controlling for actual ability (regression 2) and also controlling for subjective ability in math (regressions 3 and 5). Regressions 1-3 ordered probit of the four academic tracks and regressions 4-5 linear probability model of choosing the most prestigous/demanding track (NT).

TABLE VI

DESCRIPTIVE STATISTICS OF TASK PERFORMANCE AND PSYCHOLOGICAL ATTRIBUTES BY GENDER

	Scale	Boys	Girls	p-value
Panel A: performance				
Performance round 1 (piece rate)	number of correct answers	6.60	5.94	.03
Performance round 2 (tournament)	number of correct answers	7.90	7.42	.15
Chance of winning round 2 (tournament)	[0,1]	0.27	0.24	.24
Panel B: competitiveness				
Actual tournament entry	dummy	0.49	0.23	.00
Optimal tournament entry	dummy	0.38	0.35	.59
Panel C: confidence				
Actual guessed rank	1 (best)–4 (worst)	2.14	2.56	.00
Optimal guessed rank	1 (best)–4 (worst)	2.39	2.55	.24
Guesses to be the best	dummy	0.32	0.11	.00
Optimal to guess to be the best	dummy	0.25	0.22	.46
Actual guessed rank is correct	dummy	0.38	0.34	.44
Panel D: risk attitudes				
Lottery choice	1 (no risk)–5 (highest risk)	3.46	2.99	.00
Risk taking	0 (avoid risk)–10 (seek risk)	6.52	5.96	.00
Number of observations		177	185	

Notes. The table reports average values of variables by gender based on 362 students. Panel A: performance is the number of correct answers on addition tasks under piece rate and tournament incentives. Chance of winning round 2 is based on simulations drawing 1,000 different comparison groups of three from a participant's own class. Panel B: actual tournament entry is share choosing the tournament scheme in round 3. Optimal tournament entry is the share that has higher expected payoff under tournament than under piece rate given the round 2 tournament performance. Panel C: actual guessed rank is guessed rank in the round 2 tournament. Optimal guessed rank is the guessed rank in round 2 that maximizes expected payoffs. Guesses to be the best is the share that guessed they were ranked first. Optimal to guess to be the best is the share for whom the guessed rank in round 2 to be the best maximizes expected payoffs. Actual guessed rank is correct is 1 if guessed rank is the correct rank in comparison with three randomly drawn students from one's own class. Panel D: lottery choice is choice between five lotteries increasing in riskiness and expected payoffs. Risk taking is the response to the question whether someone sees her-/himself as someone who is fully prepared to take risks (10, highest) or someone who tries to avoid taking risks (0, lowest). The last column reports p-values from t-tests for continuous variables and from a Fisher's exact test for categorical variables of gender differences.

Results from the experimental tasks. Performance higher for boys in the piece rate (round 1), but not the tournament (round 2). Boys more likely than girls to enter the tournament in round 3. Boys more confident and risk seeking than girls.

TABLE VII

DETERMINANTS OF TOURNAMENT ENTRY

	(1)	(2)	(3)	(4)	(5)
Female	−0.233***	−0.158***	−0.130***	−0.122***	−0.117***
	(0.047)	(0.045)	(0.045)	(0.044)	(0.045)
Tournament	0.037**	0.011	0.010	0.011	0.006
	(0.015)	(0.014)	(0.014)	(0.014)	(0.014)
T − PR	−0.027***	−0.022**	−0.020**	−0.019*	−0.017*
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)
Win prob	0.263	0.119	0.102	0.072	0.138
	(0.169)	(0.157)	(0.157)	(0.153)	(0.158)
Guessed rank		−0.205***	−0.200***	−0.182***	−0.169***
		(0.027)	(0.027)	(0.027)	(0.028)
Lottery			0.080***	0.042*	0.040*
			(0.023)	(0.024)	(0.024)
Risk-taking				0.102***	0.107***
				(0.021)	(0.022)
Math grade					0.116*
					(0.065)
GPA					−0.057*
					(0.033)
Math relative					0.020
					(0.051)
Math quartile					0.024
					(0.026)
Math difficulty					0.000
					(0.028)
N	362	362	362	362	362

Notes. Dependent variable: round 3 choice of compensation scheme (1, tournament, and 0, piece rate). The table presents coefficients from OLS regressions. All regressions control for school fixed effects and test version fixed effects. Tournament is performance in the round 2 tournament. T-PR is the difference in performance between the round 2 tournament and the round 1 piece rates. Win prob is the chance of winning the round 2 tournament. Standard errors are in parentheses; $^{*}p < .10$, $^{**}p < .05$, $^{***}p < .01$.

Girls significantly less likely to enter the tournament in stage 3 controlling for performance in the task (in line with previous studies). The gender difference decreases controlling for confidence and risk attitudes in regressions 2-4; but is still significant. Also controlling for actual and subjective math ability in regression 5 has little effect on the gender difference.

TABLE VIII

DETERMINANTS OF ACADEMIC TRACK CHOICE, INCLUDING PSYCHOLOGICAL ATTRIBUTES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female	−0.337***	−0.272**	−0.355***	−0.299**	−0.283**	−0.230*	−0.301**	−0.256*	−0.292**	−0.252*
	(0.129)	(0.134)	(0.130)	(0.134)	(0.132)	(0.134)	(0.132)	(0.134)	(0.141)	(0.143)
Entry		0.333**		0.425***		0.336**		0.414***		0.371**
		(0.135)		(0.144)		(0.143)		(0.152)		(0.158)
Math grade	−0.094	−0.150	−0.078	−0.129	−0.113	−0.170	−0.097	−0.148	−0.133	−0.183
	(0.193)	(0.196)	(0.193)	(0.195)	(0.196)	(0.198)	(0.196)	(0.197)	(0.210)	(0.210)
GPA	0.250***	0.279***	0.248***	0.282***	0.252***	0.273***	0.251***	0.277***	0.245**	0.270***
	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.101)	(0.101)
Math relative	−0.168	−0.187	−0.164	−0.183	−0.174	−0.189	−0.171	−0.185	−0.237	−0.249
	(0.156)	(0.157)	(0.155)	(0.156)	(0.159)	(0.160)	(0.158)	(0.158)	(0.165)	(0.165)
Math difficulty	−0.225**	−0.218**	−0.228**	−0.224**	−0.244***	−0.242***	−0.246***	−0.246***	−0.271***	−0.274***
	(0.089)	(0.089)	(0.090)	(0.090)	(0.093)	(0.092)	(0.094)	(0.094)	(0.102)	(0.101)
Math quartile	−0.329***	−0.336***	−0.334***	−0.350***	−0.338***	−0.345***	−0.343***	−0.357***	−0.338***	−0.352***
	(0.076)	(0.076)	(0.076)	(0.077)	(0.077)	(0.077)	(0.077)	(0.078)	(0.081)	(0.081)
Guessed rank			0.060	0.143*			0.061	0.131	0.031	0.090
			(0.079)	(0.083)			(0.081)	(0.086)	(0.087)	(0.091)
Risk					−0.059	−0.103	−0.049	−0.092	−0.100	−0.139*
					(0.068)	(0.069)	(0.068)	(0.069)	(0.074)	(0.075)
Lottery					0.181**	0.169**	0.181**	0.165**	0.213***	0.200***
					(0.073)	(0.074)	(0.074)	(0.074)	(0.075)	(0.075)

Testing if willingness to compete is associated with academic track choice, and if the gender difference in willingness to compete explains part of the gender difference in academic track choice. Ordered probit models. Entering the tournament in Stage 3 (Entry) is significantly associated with academic track choice, and including this variable reduces the gender coefficient on academic track choice by about 20%. Similar results when controlling for confidence (3 and 4), risk attitudes (5 and 6), confidence and risk attitudes (7 and 8), and confidence, risk attitudes and socioeconomic background (9 and 10). Note that the full table is not included on the slide.

TABLE IX

BINARY REGRESSIONS OF NT VERSUS THE REST, INCLUDING PSYCHOLOGICAL ATTRIBUTES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female	−0.195***	−0.178***	−0.202***	−0.187***	−0.189***	−0.174***	−0.196***	−0.183***	−0.178***	−0.166***
	(0.043)	(0.044)	(0.043)	(0.044)	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.046)
Entry		0.078		0.107**		0.087		0.112**		0.106*
		(0.050)		(0.054)		(0.053)		(0.056)		(0.057)
Math grade	0.007	−0.006	0.013	0.001	0.005	−0.008	0.011	−0.002	0.003	−0.009
	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.066)	(0.066)	(0.066)	(0.067)	(0.068)
GPA	0.024	0.031	0.023	0.031	0.024	0.029	0.023	0.030	0.021	0.028
	(0.031)	(0.032)	(0.031)	(0.032)	(0.031)	(0.032)	(0.032)	(0.032)	(0.033)	(0.034)
Math relative	−0.057	−0.060	−0.055	−0.059	−0.057	−0.059	−0.056	−0.058	−0.061	−0.063
	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.054)	(0.055)	(0.055)
Math difficulty	−0.068**	−0.067**	−0.069**	−0.068**	−0.071**	−0.070**	−0.071**	−0.071**	−0.074**	−0.075**
	(0.032)	(0.032)	(0.032)	(0.032)	(0.033)	(0.032)	(0.033)	(0.033)	(0.034)	(0.034)
Math quartile	−0.086***	−0.087***	−0.088***	−0.091***	−0.087***	−0.088***	−0.089***	−0.091***	−0.087***	−0.089***
	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)
Guessed rank			0.023	0.044			0.023	0.042	0.021	0.039
			(0.026)	(0.028)			(0.027)	(0.029)	(0.028)	(0.029)
Risk					−0.009	−0.021	−0.005	−0.017	−0.012	−0.023
					(0.024)	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)
Lottery					0.020	0.017	0.020	0.015	0.024	0.021
					(0.024)	(0.024)	(0.024)	(0.024)	(0.023)	(0.023)
Socioeconomic and age cont.									√	√
Diff.		8.4%		7.6%		7.7%		6.7%		6.6%
Bootstrap p-value		0.060		0.025		0.052		0.027		0.034
Observations	362	362	362	362	362	362	362	362	358	358

Notes. Coefficients are from OLS regressions, where the outcome variable is a dummy indicating a choice of NT. All specifications include controls for performance in rounds 1 and 2 of the experiment, the chance of winning the round 2 tournament, school fixed effects and test version fixed effects. The socioeconomic controls in columns (9) and (10) consist of 14 name category dummies. The age control in columns (9) and (10) is relative age measured in days. Diff. refers to the percentage change of female. Robust standard errors in parentheses; p-values for Diff. are bootstrapped. *$p < .10$, **$p < .05$, ***$p < .01$. The impact of confidence (comparing columns (1) and (3)) and risk attitudes (comparing columns (1) and (5)) on the gender gap (Female) and the associated p-values are 3.5% (increasing) ($p = .240$) and 3.1% (decreasing) ($p = .023$), respectively.

The same tests as in the previous table; but with a linear probability model of choosing the NT academic track. Students who enter the competition in stage 3 (Entry) about 10 percentage units more likely to choose the NT track, but the effect is not significant in all regressions. Controlling for Entry reduces the gender coefficient by about 10%.

Gender Differences in Willingness to Compete in a Matrilineal and a Patriarchal Society (Gneezy et al Econometrica 2009)

Setting: They carry out an experiment on competition in a matrilineal society (the Khasi in India) and a patriarchal society (the Maasai in Tanzania); to test if the gender gap in competition varies between these two societies. They tried to pick societies where the roles of men and women differed as much as possible (although they are not mirror images as truly matriarchal societies no longer exists).

The experiment: Subjects were matched with another anonymous subject/competitor. The subjects were asked to toss a tennis ball into a bucket that was set 3 meters from them. They had 10 chances. They had a choice between two incentives schemes. Either X per successful shot or 3X per successful shot if they outperformed the other participant (in case of a tie they would receive X per successful shot).

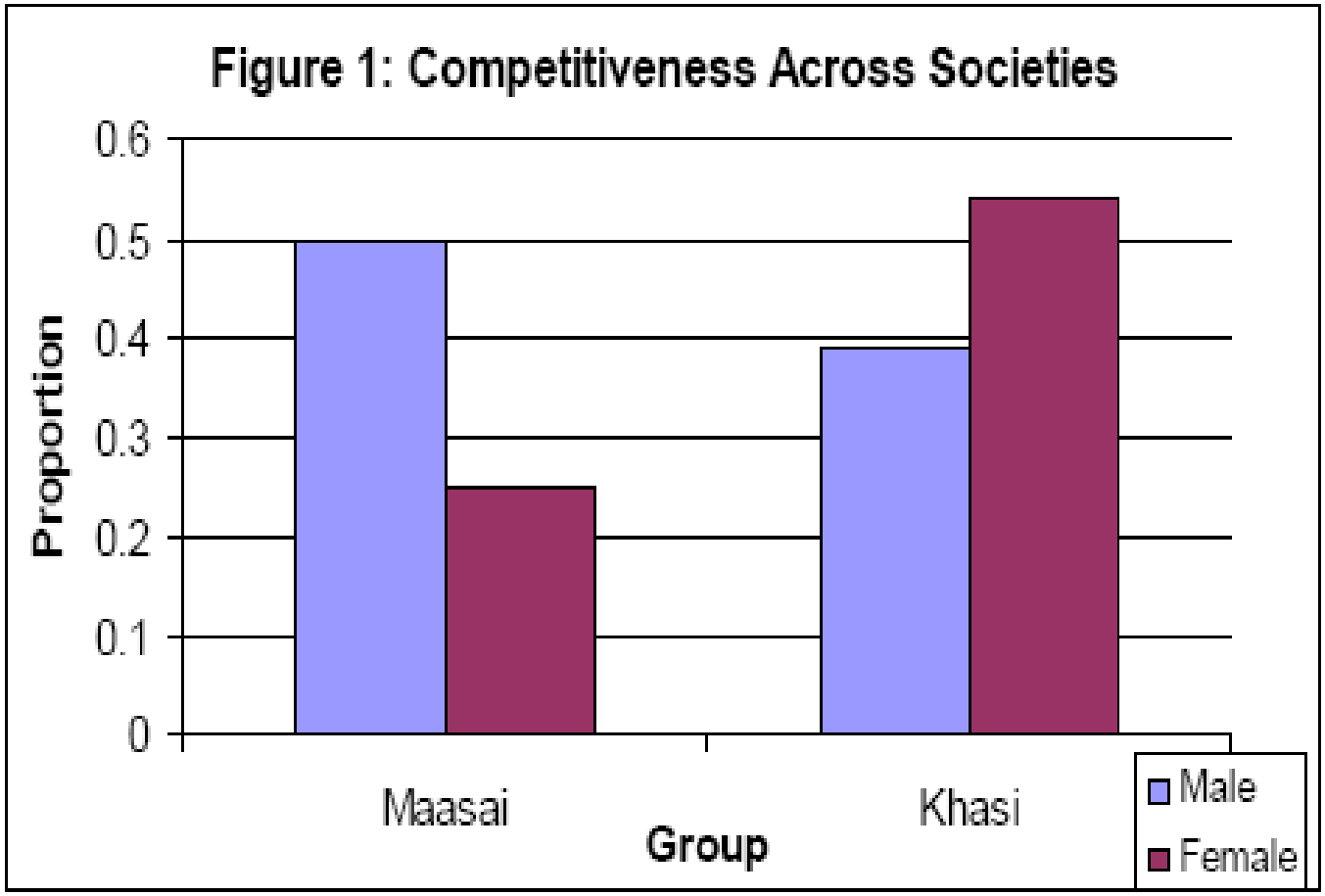
Figure 1: Competitiveness Across Societies
0.6
0.5
0.4
0.3
0.2
0.1
0
Proportion
Maasai
Khasi
Group
Male
Female

Table 3 Regression Results

	Pooled Data			Khasi			Maasai		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Female	-0.25	-0.29	-0.32	0.15	0.24	0.24	-0.24	-0.29	-0.27
	(0.12)	(0.13)	(0.15)	(0.11)	(0.13)	(0.13)	(0.12)	(0.12)	(0.18)
Khasi	-0.11	-0.14	-0.15	---	---	---	---	---	---
	(0.12)	(0.13)	(0.14)						
Khasi*Female	0.39	0.43	0.46	---	---	---	---	---	---
	(0.17)	(0.17)	(0.19)						
Male Exp.	0.007	-0.02	-0.03	0.08	0.19	0.18	-0.07	-0.16	-0.21
	(0.08)	(0.08)	(0.08)	(0.11)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)
Constant	-0.003	-0.03	-0.09	-0.14	-0.36	-0.34	0.03	0.14	-0.03
	(0.09)	(0.17)	(0.20)	(0.11)	(0.20)	(0.27)	(0.09)	(0.26)	(0.31)
Age	---	0.002	0.002	---	-0.003	-0.002	---	0.001	0.002
		((0.003)	(0.003)		(0.004)	(0.005)		(0.005)	(0.005)
Education	---	0.005	0.009	---	0.003	0.003	---	-0.006	-0.004
		(0.01)	(0.01)		(0.02)	(0.02)		(0.02)	(0.02)
Income	---	-0.2e-6	-0.2e-6	---	0.1e-4	0.1e-4	---	-0.3e-6	-0.3e-6
		(0.2e-6)	(0.2e-6)		(0.4e-5)	(0.4e-5)		(0.2e-6)	(0.2e-6)
Other Controls	NO	NO	YES	NO	NO	YES	NO	NO	YES
Chi-square	7.3(4)	9.8(7)	12.6(10)	2.0(2)	11.4(5)	11.9(8)	4.7(2)	9.3(5)	12.9(8)
N	154	151	151	80	80	80	74	71	71

Notes:
1. Dependent variable is "compete" and takes on a value of 1 if the participant opted to compete, and 0 otherwise.
2. Standard errors are in parentheses.
3. Estimates are partial derivatives computed at the sample means from Probit models.
4. Variables defined in Table 1 notes. "Other controls" include all of the other variables defined in Table 2.

The gender effect is significant in the Maasai regression (with women being less likely to compete); but not significant in the Khasi regression. In the pooled regression the difference in the gender effect between the two societies is significant (the interaction variable).