

Gender differences in competition

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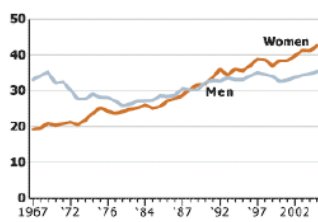
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Motivation

- Secular increase in the fraction of women in work force
- Women's educational attainment is higher than males
- Record number of females in law, business, medical school
- Even with this, shortage of women in the 'top' positions

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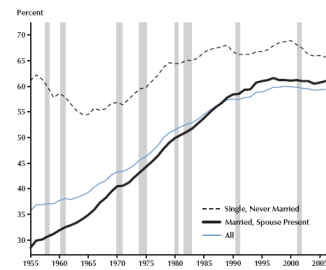
Figure 1
Proportion of 18-to-24-Year-Old Men and Women Enrolled in College, 1967-2005



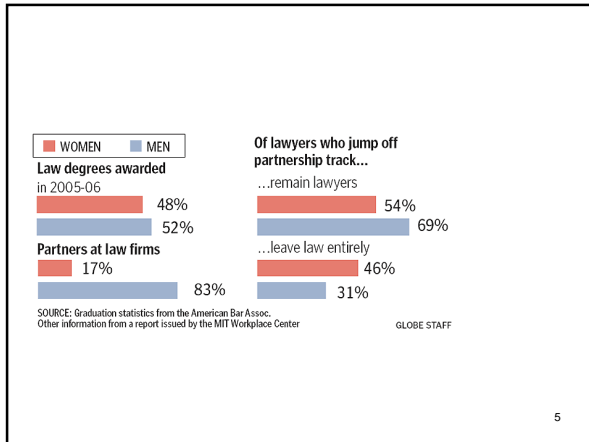
Source: U.S. Census Bureau.

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Figure 2
LFPR by Marital Status (Women)



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Executives

- Among Fortune 500, only 13 were headed by women in 2006
- A study by PricewaterhouseCoopers (PwC) has revealed that the proportion of FTSE 350 senior management positions occupied by women has fallen from 38 per cent in 2002 to just 22 per cent at the present time

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4 reasons why men/women enter competition in different rates

- Men like to compete
- Men are more overconfident in their ability to compete
- Men are less risk averse
- Men less averse to feedback

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Men like to compete?

- Maybe they have a taste for competition
- Even among children
 - 9/10 year olds
 - Run race by themselves
 - When paired against competitor, performance improves
- Could be nature or nurture

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Nature

- Gain from competition in reproductive success is greater for males
- Competition may be bad for women's reproductive success
 - If female dies, offspring usually does as well
 - In contrast, male is less related to the rearing of the child

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Nurture

- Women taught to be cooperative, men to compete
- Test score studies
 - When college women told that the test score signifies gender differences, under perform
 - When informed test is gender neutral, performance increases

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Men are more overconfident

- The overwhelming conceit which the greater part of men have of their abilities is an ancient evil remarked by the philosophers and moralists of all ages
- Adam Smith, *The Wealth of Nations*

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Differential expectations for success and failure in males and females have been well documented... These results have been found for elementary-school children, who gave expectancy estimates for their performance at new intellectual tasks; for eighth-graders who were asked to state how well they expected to do at a matching task; for college students estimating their grades; and for college-aged people who guessed their performance at a geometric task. Consistently, males had generally higher initial expectancies than did females. Moreover, when objective ability estimates were available, males tended to overestimate their future successes relative to their ability level, while females tended to underestimate their future performances. Thus, both sexes were inaccurate but in different directions, although girls tended to be more accurate overall.

(Prieze et al., 1978 p. 242)

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- Of 1 million kids who took the 1976 SAT,
 - 70% placed themselves above medium leadership
 - 60% above median in athletic ability
 - 85% above median in ability to get along with others
 - 25% in the top1% of getting along with others
- 95% of professors at Nebraska thought they were above average in teaching

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- 88% of college students feel they are above average in driving ability

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IQ

- Men generally estimate higher scores for themselves than women
- When researchers asked people to estimate their scores on various specific aspects of IQ, the summation of these scores did not show differences between genders
- Women view themselves as less able in terms of "IQ," but when IQ is broken down into different components, they find areas in which they are as confident of their skills as men.
- In one study, it was found that despite their higher self-estimates, men actually scored lower on psychometric intelligence tests than women

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Men are less risk averse

- In nearly every dimension, men take more risks than females
- Work, sports, driving, recreating, gambling, bridge, chess,

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Lottery

- Every played the lottery (adults)
 - Males: 56%
 - Females: 43%
- Average expenditures
 - Males: \$9.89
 - Females: \$8.49

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Problem Gambling (% in past year)

	At risk	Problem	Pathe- logical
Males	3.9%	0.9%	0.8%
Females	2.0%	0.6%	.3%

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2007 Monitoring the Future High School Seniors

- Smoked in past 30 month
 - Males: 23.1%
 - Females: 19.6%
- Always wear a seat belt
 - Males: 38.2%
 - Females: 52.8%

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% Lifetime Use, 2006 High School Seniors

Any illegal drug	Male	Female
Pot	26.6	26.5
LSD	9.2	6.2
Crack	3.7	3.3
Coke	8.8	7.9
Inhalants	12.0	10.3
Any drug	49.1	47.0

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Death rates (deaths/100K) 2003

	Ages 15-19		Ages 20-24	
	male	female	male	female
All cause	92.3	39.0	140.3	49.8
Accident	44.7	20.6	61.8	19.2
Assault	15.9	2.6	27.6	4.8
Suicide	11.6	2.7	20.2	3.4
Neoplasms	4.2	2.5	5.1	4.2

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Alcohol

- 9% of men report heavy alcohol use - five or more drinks at one time in the last month - compared to 2% of women
- Men are 3-4 times more likely to develop a drinking problem and/or alcoholism
 - This pattern crosses all demographic lines of race, income, education, marital status, and geographic location

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Drugs

- SAMHSA also reports that 34% of the men sampled in 1996 and 2000 reported illicit drug use
 - Men are more than twice as likely to have a substance abuse problem
 - Men experiment with drugs at a younger age than women

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Jobs

- 94% of on-the-job deaths in the United States are men
- *Money* magazine reports that the most dangerous jobs (by fatality rate) are dominated by men

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The most dangerous jobs (Fraction male workers, 2005-07)

- 1. loggers
- 2. aircraft pilots
- 3. fishermen
- 4. steel workers
- 5. garbage collectors
- 6. farmers and ranchers
- 7. roofers
- 8. electrical power-line installers
- 9. truck drivers
- 10. taxi drivers

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Men are less averse to bad news

- Competition generates winners/losers
- Men may be impacted less by losing, which encourages competition

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Experiment

- Add five two-digit numbers

21	35	48	29	83	
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- Cannot use calculator, can use scratch paper
- Numbers randomly drawn

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- Perform for 5 minutes, % correct is outcome
- 40 men/40 women, 4 people at a time
- Why this task??
- \$5 for showing up, \$7 for completing experiment, some pay for performance

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- Perform 4 tasks, but will be paid based on performance on 1
- Payment task is randomly selected
- Knew their own performance but not of the others in their group

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4 tasks

- #1: Piece rate, 5 minutes to add numbers, \$0.50 for each correct answer
- #2: Tournament: receive \$2/correct answer if get the most write answers of your group of 4
- #3: Choice: can pick piece rate or tournament. If piece rate, same as 1, if tournament, your performance vs. everyone else in task #2:

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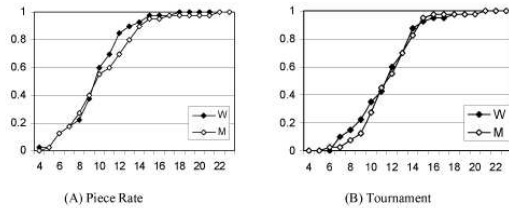
- #4: Choice of compensation for past piece rate
 - Do not need to perform for this, based on Task 1 performance
 - Tournament: Receive \$2/correct answer if they had the highest piece rate in Task 1
 - Piece rate from task 13131

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Other information

- Beliefs about relative performance on task 1 and 2
- At end, asked to identify their rank

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(A) Piece Rate

(B) Tournament

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

What two facts do we take away from these two graphs?

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- 11 Men and 9 women won task tournament
- With four people in a tournament, a player's chance of winning is 25% (without knowing the skills distribution of participants)
- If you can answer 17+ correct answers, odds of winning the tournament are > 70%
- 13 answers is the break even point

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What do we know after tasks 1 and 2?

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- Despite same chance of success, 35% women and 75% men chose tournament

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TABLE I
PERFORMANCE CHARACTERISTICS BY CHOICE OF COMPENSATION SCHEME (TASK 3)

		Average performance		
Compensation scheme		Piece rate	Tournament	Tournament-piece rate
Women	Piece rate	10.35 (0.61)	11.77 (0.67)	1.42 (0.47)
	Tournament	9.79 (0.58)	11.93 (0.63)	2.14 (0.54)
Men	Piece rate	9.91 (0.84)	11.09 (0.85)	1.18 (0.60)
	Tournament	10.97 (0.69)	12.52 (0.48)	1.55 (0.49)

Averages with standard errors in parentheses. Sample is forty women and forty men.

What do we learn from this table?

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TABLE II
PROBIT OF TOURNAMENT CHOICE IN TASK 3

	Coefficient	p-value
Female	-.380	.00
Tournament	.015	.41
Tournament-piece rate	.015	.50

Think of this as a regression where Y is 1 or 0 (pick tournament in round 3)

Women are 38 percentage points less likely to pick the tournament

Interpret the coefficient on tournament which is the performance on the Tournament (task 2) test

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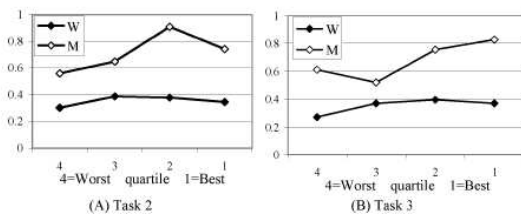


FIGURE II

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)

Interpret the results in this graph

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TABLE III
EXPECTED COSTS OF OVER- AND UNDER-ENTRY IN TASK-3 TOURNAMENT

	Calculation based on Task-2 performance		Calculation based on Task-3 performance	
	Women	Men	Women	Men
Under-entry				
Number who should enter	12	12	9	20
Of those how many do not enter	8	3	6	4
Expected total cost of under-entry	99.4	34.5	84.6	49.6
Average expected cost of under-entry	12.4	11.5	14.1	16.5
Over-entry				
Number who should not enter	24	22	24	19
Of those how many do enter	9	14	8	12
Expected total cost of over-entry	32.9	56.5	28.9	43.8
Average expected cost of over-entry	3.7	4.0	3.6	3.6
Total expected costs	132.3	91.0	113.5	93.3

Participants solving fourteen or more problems should enter the tournament, and those with twelve and fewer problems should select the piece rate. Participants with thirteen problems (who are virtually indifferent between the two compensation schemes) are not included in the analysis.

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TABLE IV
DISTRIBUTION OF GUESSED TOURNAMENT RANK

	Men		Women	
	Gessed rank	Incorrect guess	Gessed 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

How well do you think you did in the tournament?
What does this tell about why men compete more? 41

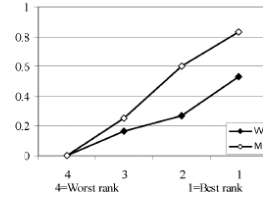


FIGURE III
Proportion Selecting the Tournament for Task 3 Conditional on Guessed Rank

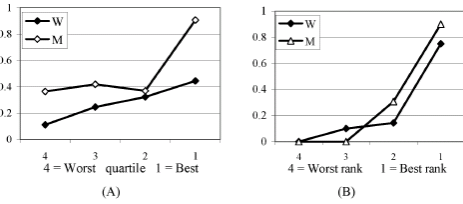


FIGURE IV
Proportion of Participants Who Select Tournament for Task 4 Conditional on Task-1 Performance Quartile (Panel A) and Guessed Piece-rate Rank (panel B).