

EXPERIMENTAL ECONOMICS

GENDER

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GENDER DIFFERENCES IN LABOR MARKETS

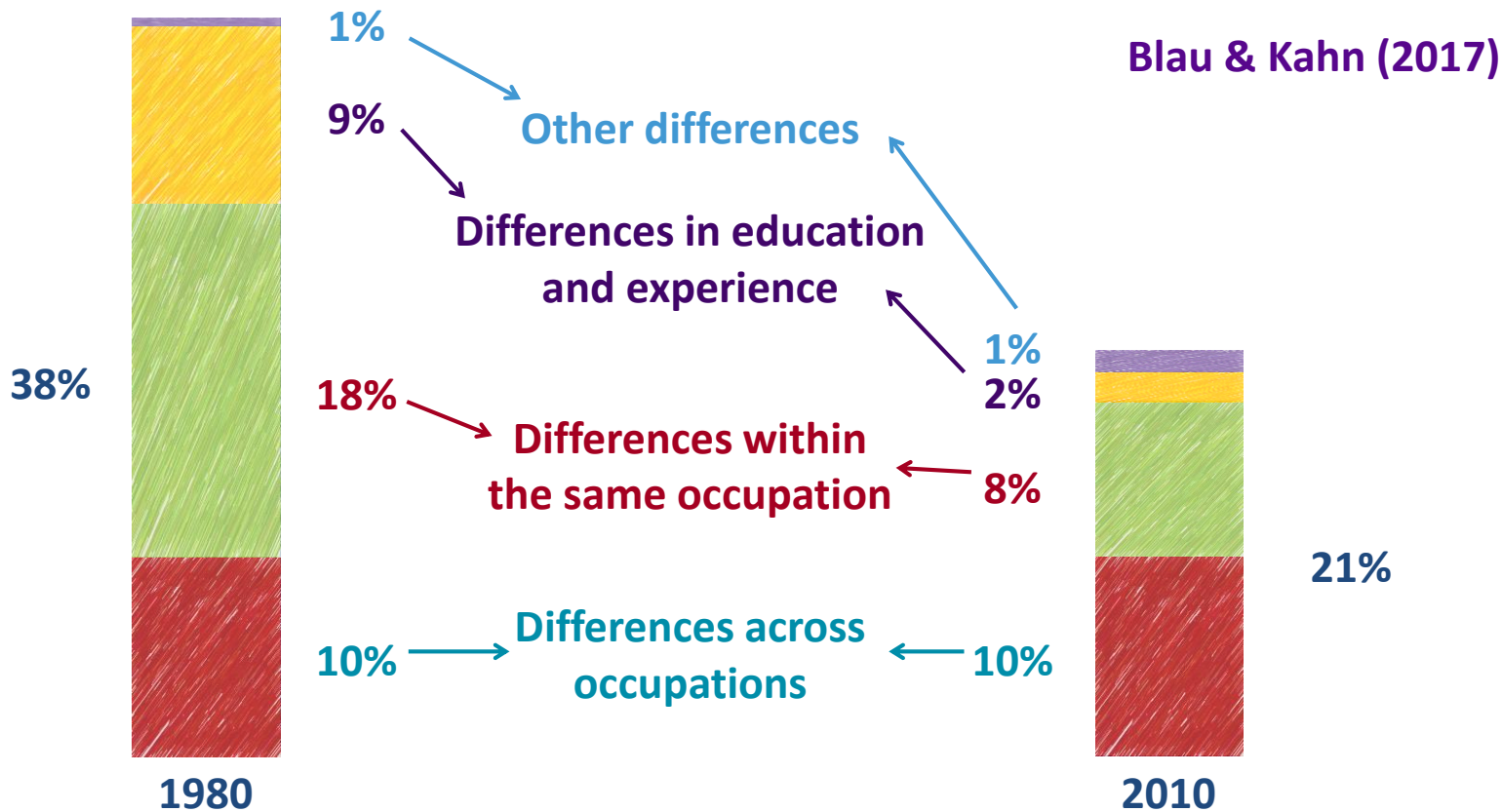


Large differences in the presence and compensation of women in many (top) jobs

- There is a persistent gender gap in wages accompanied with important gender differences in labor-market trajectories (**Blau & Kahn 2013, Goldin 2014, Goldin et al. 2017**)
- Female MBAs from U of Chicago have 30% lower salaries 5 years after graduation and 60% lower salaries 10 years out (**Bertrand et al., 2010**)



DECOMPOSING THE GENDER GAP



WHY THE PERSISTENT GENDER GAPS?

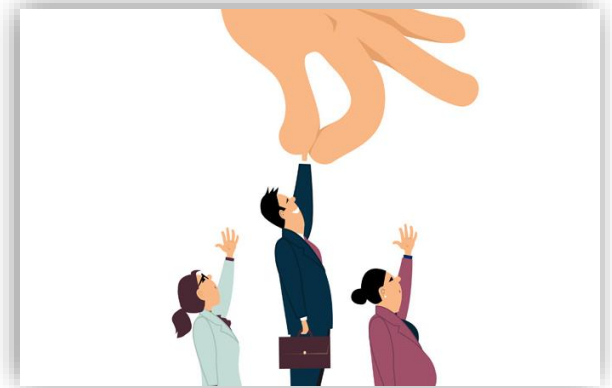


Supply side

- Differences in preferences between career and family (Bertrand et al. 2010, Goldin 2014)
- Differences in **risk aversion**
- Differences in **competitiveness**
- Differences in **bargaining**

Demand side

- **Taste-based discrimination**
- Belief-based or **statistical discrimination**
 - Correctly inferring differences in performance
 - Biased beliefs about women's relative performance

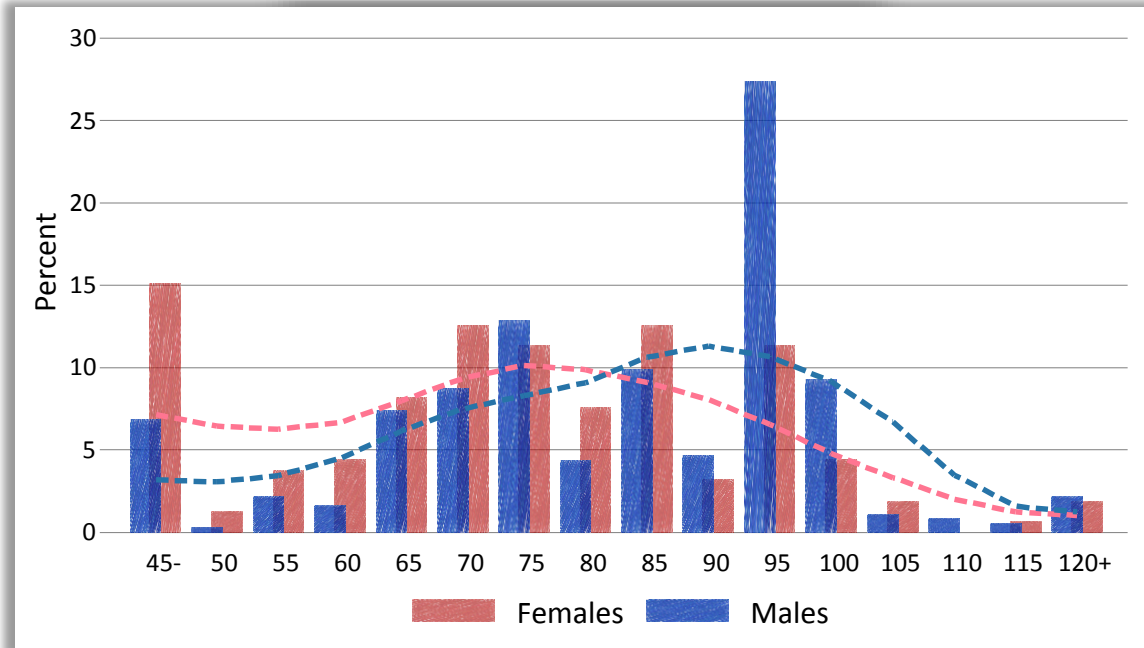


RISK AVERSION



Croson & Gneezy (2009)

- Considerable evidence that women are significantly more averse to taking risks
 - Example with 550 MBA students and a multiple price list



Risk averse

- Men: 58%
- Women: 80%

Risk neutral

- Men: 37%
- Women: 16%

Risk loving

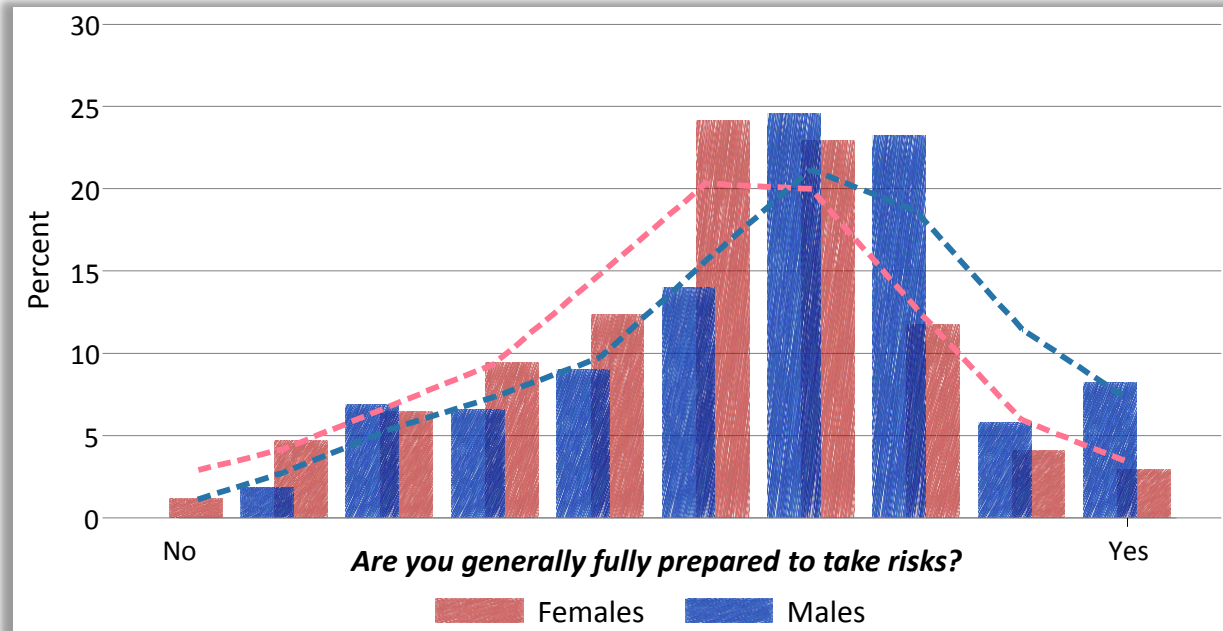
- Men: 5%
- Women: 4%

RISK AVERSION



Croson & Gneezy (2009)

- Considerable evidence that women are significantly more averse to taking risks
 - Example with 550 MBA students and a survey question



RISK AVERSION



Croson & Gneezy (2009)

- Considerable evidence that women are significantly more averse to taking risks

Why?

- **Emotions:** Women report more nervousness and fear in anticipation of negative outcomes
- **Overconfidence:** Men being more overconfident in their success in uncertain situations
- **Perception of risk:** Men are more likely to see a risky situation as a challenge while females women risky situations as threats
- **Domain:** Most experiments use monetary lotteries to elicit risk preferences
- And remember, what does small-stake risk aversion really mean?



RISK AVERSION



Maestriperi et al. (2009)

- Elicit risk aversion with monetary lotteries, testosterone (salivary and 2D:4D digit ratio), and empathy with the Baron-Cohen eye test from 320 men and 140 women



Association of risk aversion with ...	Both	Men	Women
Salivary testosterone	-0.082*** (0.022)	-0.020 (0.029)	-0.137** (0.057)
2D:4D digit ratio	41.77 (32.22)	-37.16 (40.96)	79.03 (50.19)
Baron-Cohen eye test	0.595*** (0.222)	0.219 (0.254)	1.319*** (0.422)



COMPETITIVENESS



[*adjective*] a desire and/or ability to perform in competitions

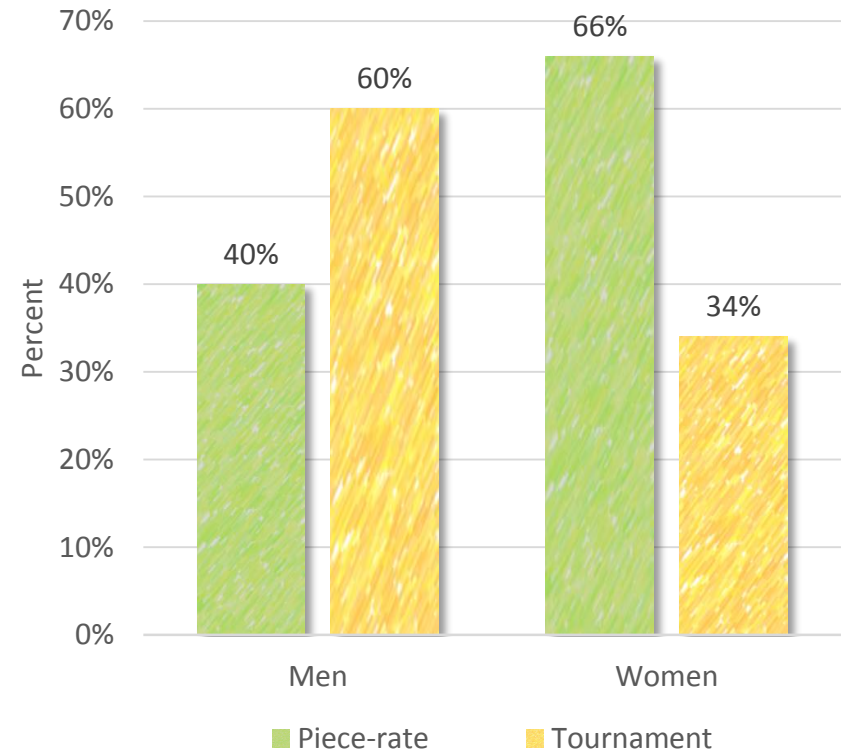


COMPETITIVENESS AND TOURNAMENT ENTRY



Selection into tournaments

- 550 subjects
- **Task:** add sums of four two-digit numbers (e.g., $11 + 42 + 86 + 70$) for four minutes
- Choice of payment scheme
 - **Piece-rate:** \$4 per correct answer irrespective of the performance of others
 - **Tournament:** if you answer the most sums in a group of four then \$16 per correct answer, otherwise \$0



COMPETITIVENESS AND TOURNAMENT ENTRY



Why do women compete less?

- Differences in **performance**
 - Not the case in arithmetic
- Differences in **beliefs**
 - Men are overconfident
- Preferences for **risk**
 - Women are more risk averse
- Differences in **altruism**
 - Women do not want to hurt others
- Aversion to **competition**
 - Women dislike performing in competitions

Identifying competitiveness with an experiment (Niederle & Vesterlund 2007)

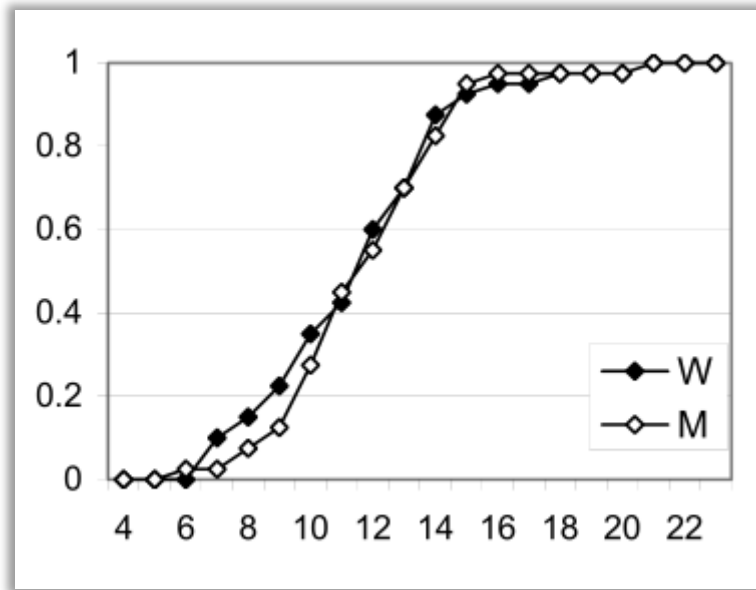
1. Everyone plays under piece-rate
2. Everyone plays under tournament
3. Choose between piece-rate and tournament but compete against performance in 2
4. Choose between piece-rate and tournament but do not play again, just submit performance in 1
5. Elicit expected rank in 2

COMPETITIVENESS AND TOURNAMENT ENTRY

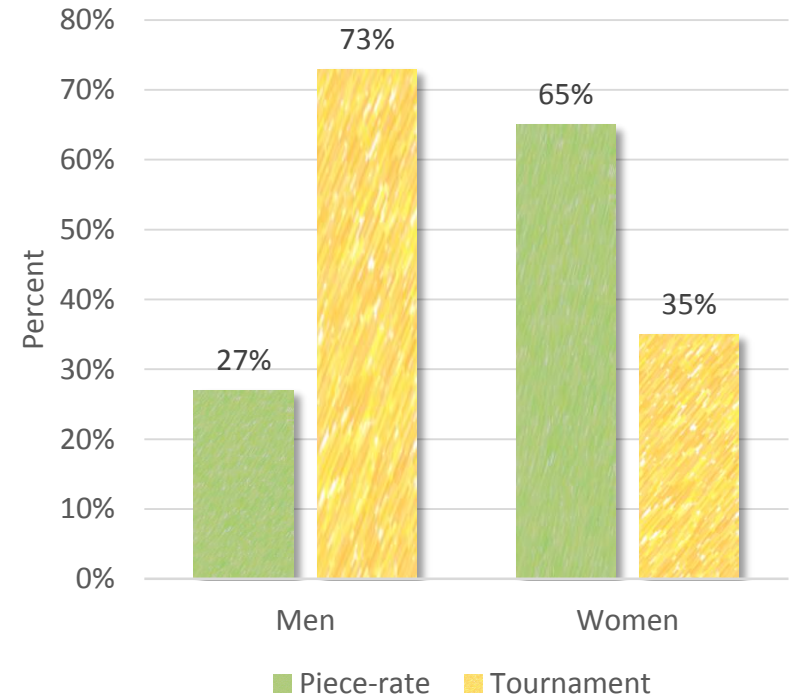


Niederle & Vesterlund (2007)

No difference in performance



Large difference in tournament entry



COMPETITIVENESS AND TOURNAMENT ENTRY

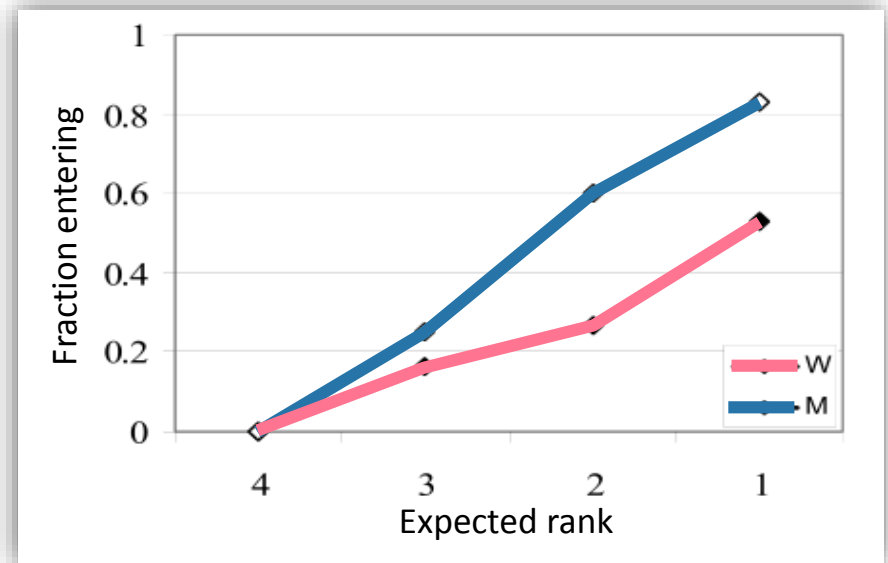


Niederle & Vesterlund (2007)

Evidence of overconfidence,
particularly by men

	Men	Women
Mean expected rank	1.40	1.83
% expecting to be 1 st	75%	43%
% ranked 1 st conditional on expecting to be 1 st	27%	47%

For the same expected rank in task 3,
women do not enter as much as men!

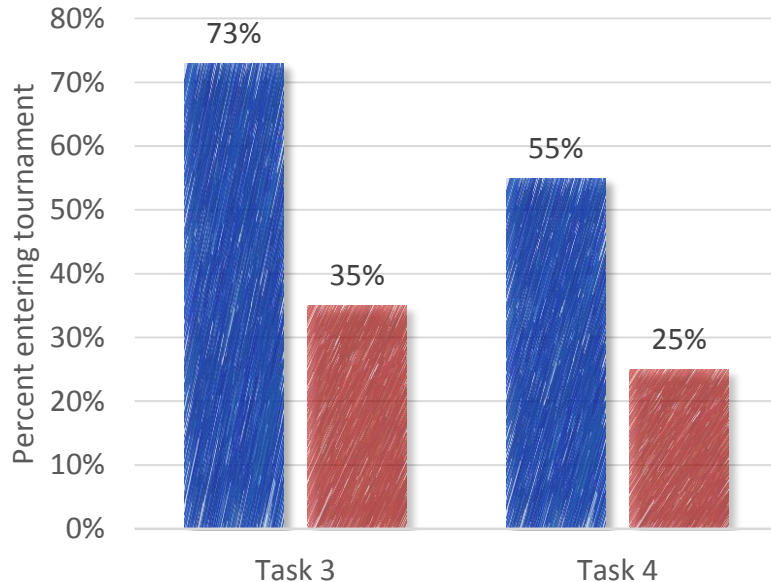


COMPETITIVENESS AND TOURNAMENT ENTRY

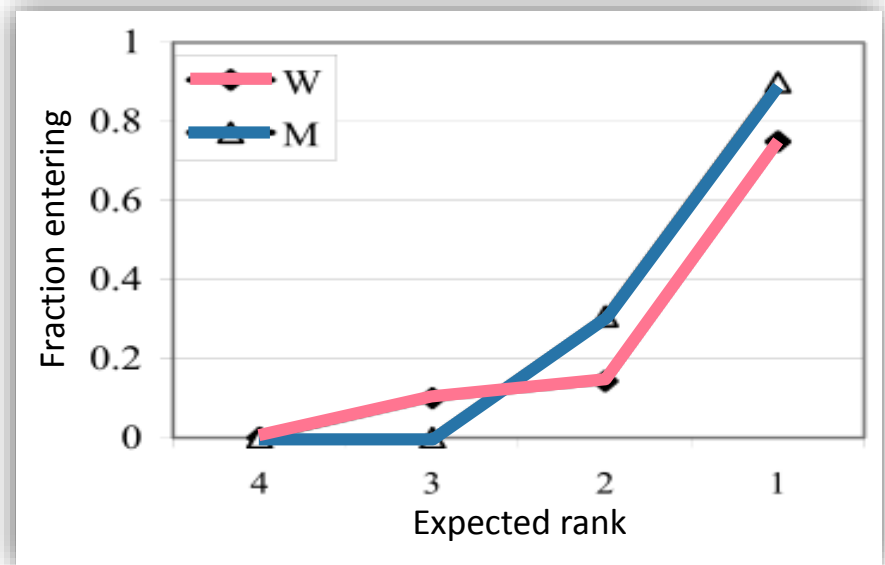


Niederle & Vesterlund (2007)

Smaller difference in task 4 that disappears with controls



For the same expected rank in task 4, no difference in tournament entry!



COMPETITIVENESS AND TOURNAMENT ENTRY



Niederle & Vesterlund (2011)

- Women avoid performing in competitive environments → replicated many times

Why a gap in tournament entry?

▪ Beliefs

- Gap weakens in tasks where women are expected to perform better (e.g. verbal tasks) and when feedback about relative performance is given

▪ “Culture”

- Gap weakens when competition is for teams and not individuals, in matrilineal societies, among young children, and for girls who attend same-sex schools

▪ Measurement error

HOW TO MEASURE COMPETITIVENESS?



Gender differences in competitiveness are commonly identified through the residual in regression analysis

	I	II	III	IV
Man	0.27*** (0.05)	0.19*** (0.05)	0.17*** (0.05)	0.13** (0.05)
Prob. of rank 1		0.06** (0.03)	0.06** (0.03)	0.06* (0.03)
Expected rank		-0.13*** (0.03)	-0.13*** (0.03)	-0.11*** (0.03)
Risk aversion			-0.07*** (0.02)	-0.06** (0.02)
Other controls	No	No	No	Yes
R ²	0.06	0.18	0.20	0.26

- If one has not controlled for the right variables or the measures of expectations and risk aversion are very noisy, the effect of competitiveness is easily overestimated (**Gillen et al. 2017, van Veldhuizen 2017**)

COMPETITIVENESS AND FIELD BEHAVIOR



Competitiveness and education

- Competitive Dutch students are more likely to pick the most prestigious high school track (**Buser et al. 2014**) and competitive US undergraduates have higher earnings expectations (**Reuben et al. 2017**)



Competitiveness and entrepreneurship

- Competitive Tanzanian entrepreneurs invest more in their firms, hire and fire more, and use more performance-based compensation, but do not earn more (**Berge et al. 2015**)

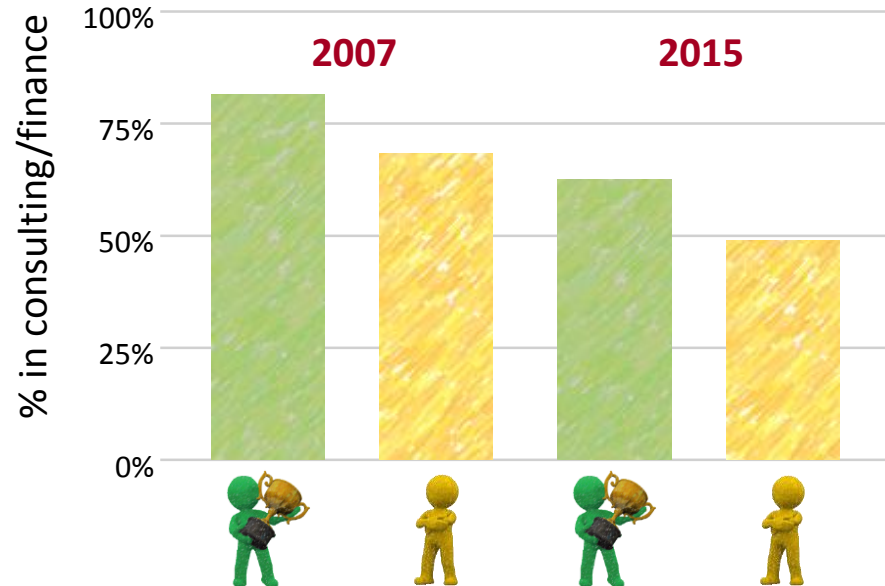
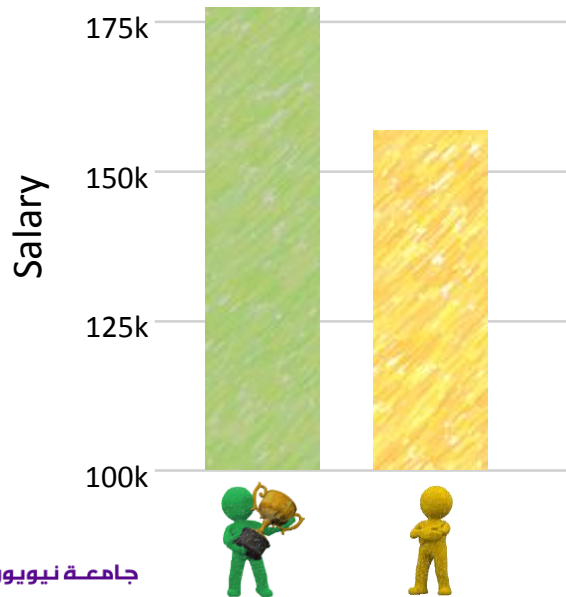


COMPETITIVENESS AND FIELD BEHAVIOR



Competitiveness and business (Reuben et al. 2016)

- Competitive MBA graduates earn more at graduation, and are more likely to start and stay in consulting or finance

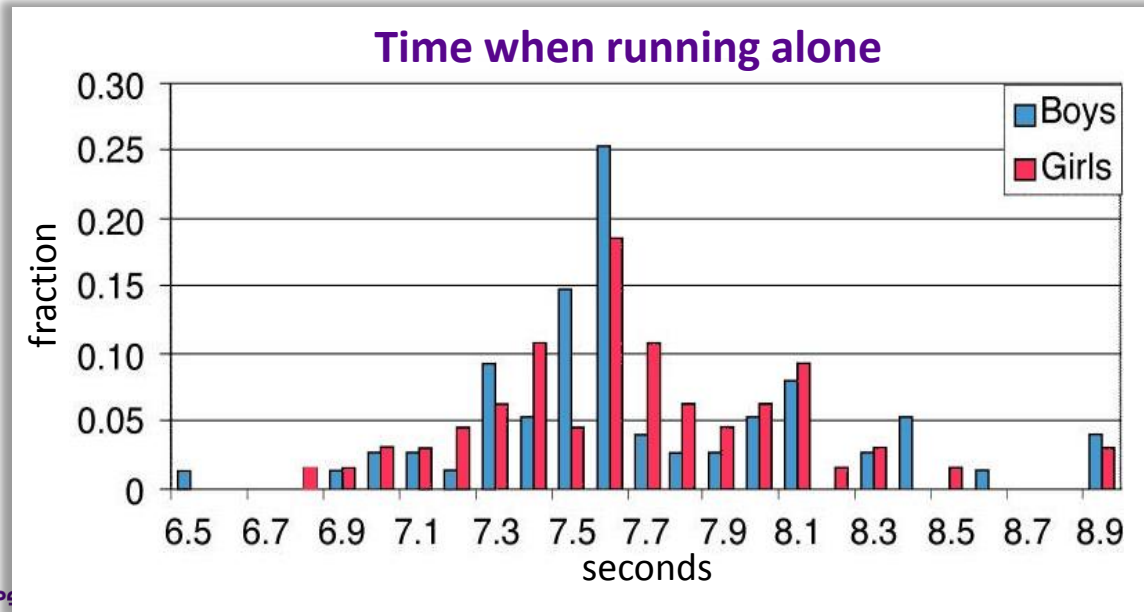


COMPETITIVENESS AND PERFORMANCE



Who would you bet on to win a race? (Gneezy & Rustichini 2004)

- 140 children aged 9 to 10 racing alone

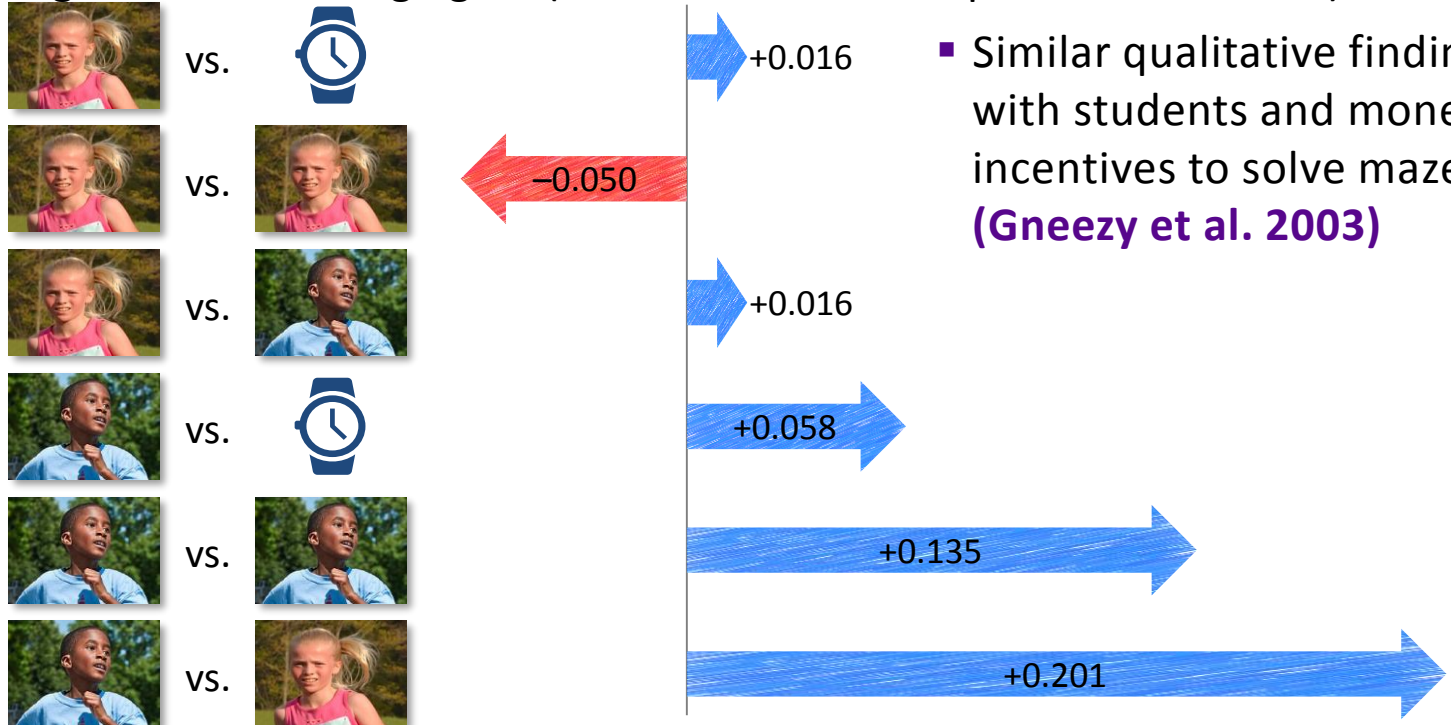


COMPETITIVENESS AND PERFORMANCE



Who would you bet on to win a race? (Gneezy & Rustichini 2004)

- 140 children aged 9 to 10 racing again (time difference compared to first race)



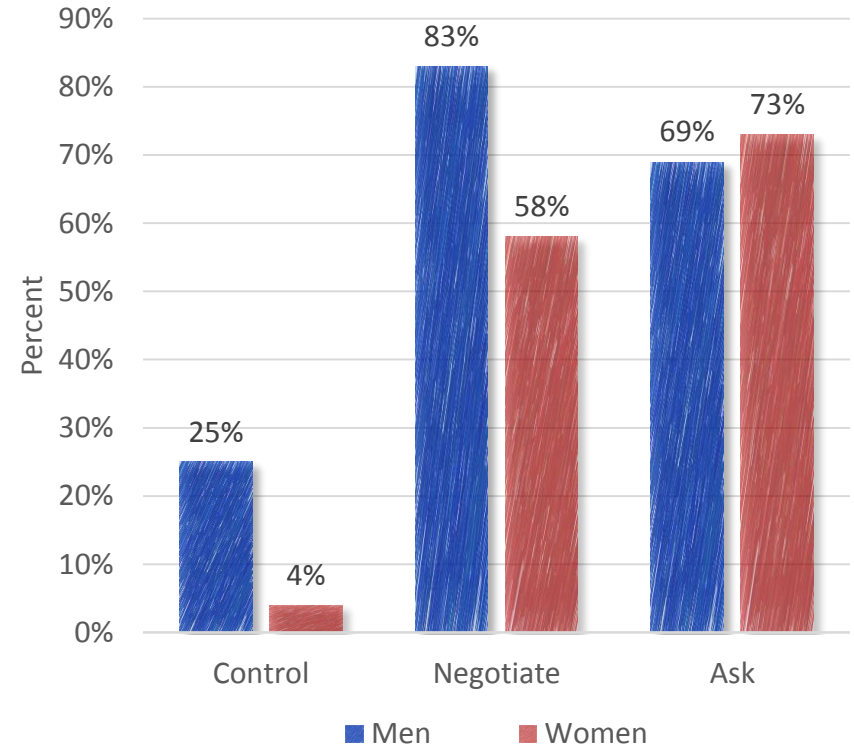
- Similar qualitative findings with students and monetary incentives to solve mazes (Gneezy et al. 2003)

BARGAINING



Do women avoid bargaining? (Small et al. 2007)

- 81 men and 72 women complete a word task for which they had been told they will be compensated between \$3 and \$10. When completed, the experimenter gives them \$3 and says “Here’s \$3. Is \$3 OK?”
- No negotiation cues** vs. **negotiation cue** (“payment is not fixed, you can negotiate for more”) vs. **asking cue** (“payment is not fixed, you can ask for more”)

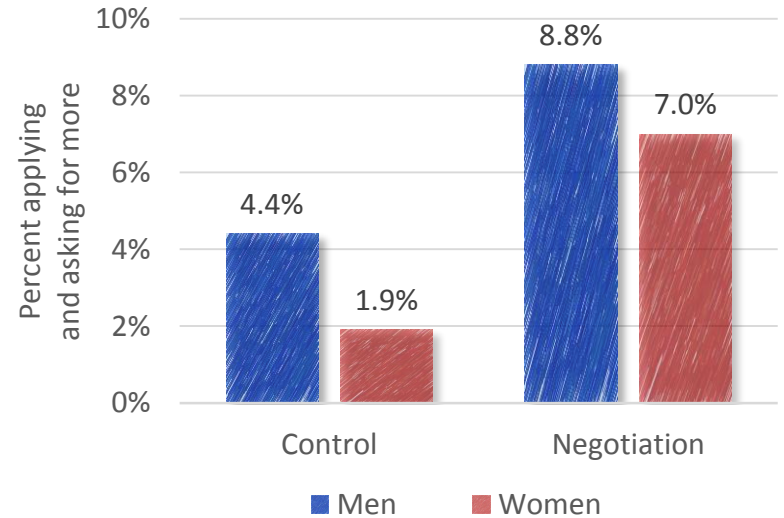
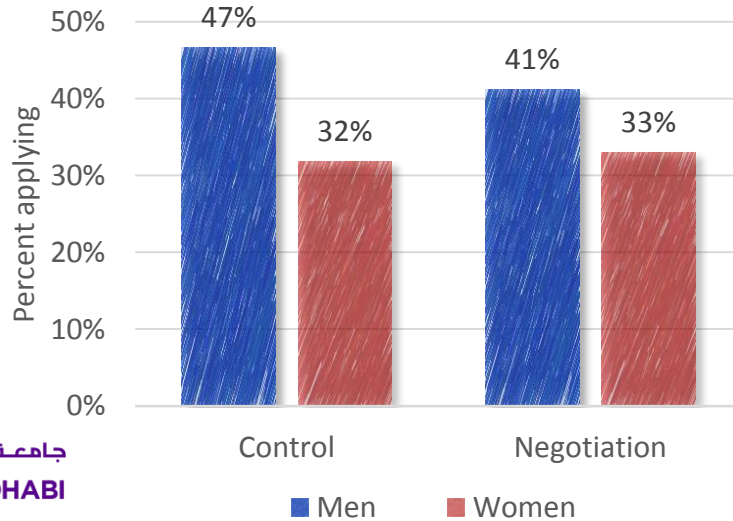


BARGAINING



Do women avoid bargaining? (Leibbrandt & List 2015)

- Posted 18 adds in major US cities for jobs paying around \$18/hour for which 2382 job applicants (67% female) signaled interest
- **Control** (the position pays \$18 per hour) vs. **negotiation** (“but the applicant can negotiate a higher wage”)

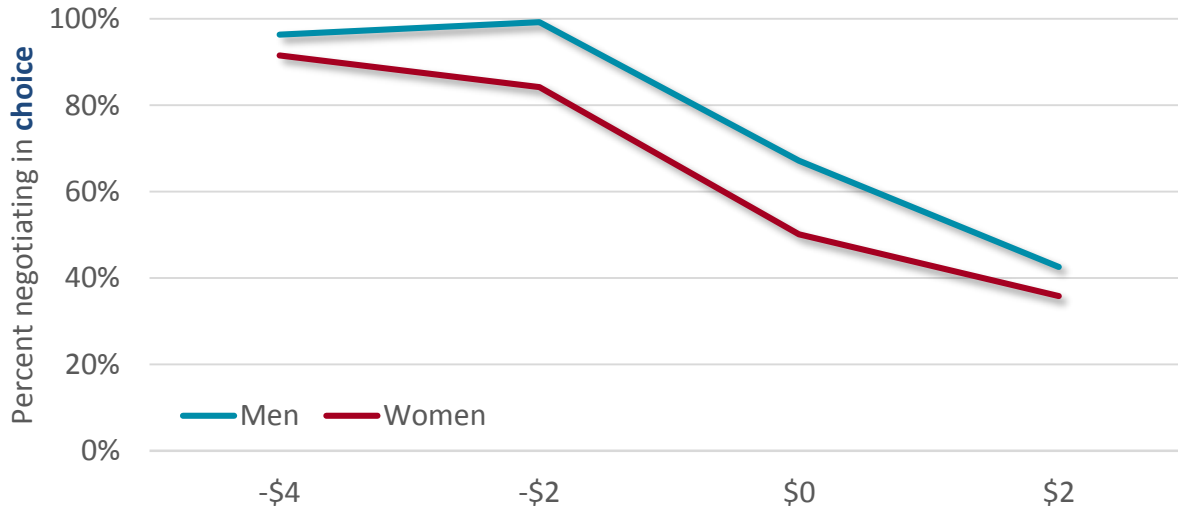


BARGAINING



Do women avoid bargaining? (Exley et al. 2018)

- 72 men and 74 women perform a real-effort task to determine their output as workers. Firms offers a random wage equal to their worker's output $-\$4$, $-\$2$, $+\$0$, or $+\$2$.
- Workers negotiate the final wage either **always** or when workers **choose** to do so.
 - Negotiation occurs with a free-form chat with the firm and if there is no agreement both lose $\$5$.

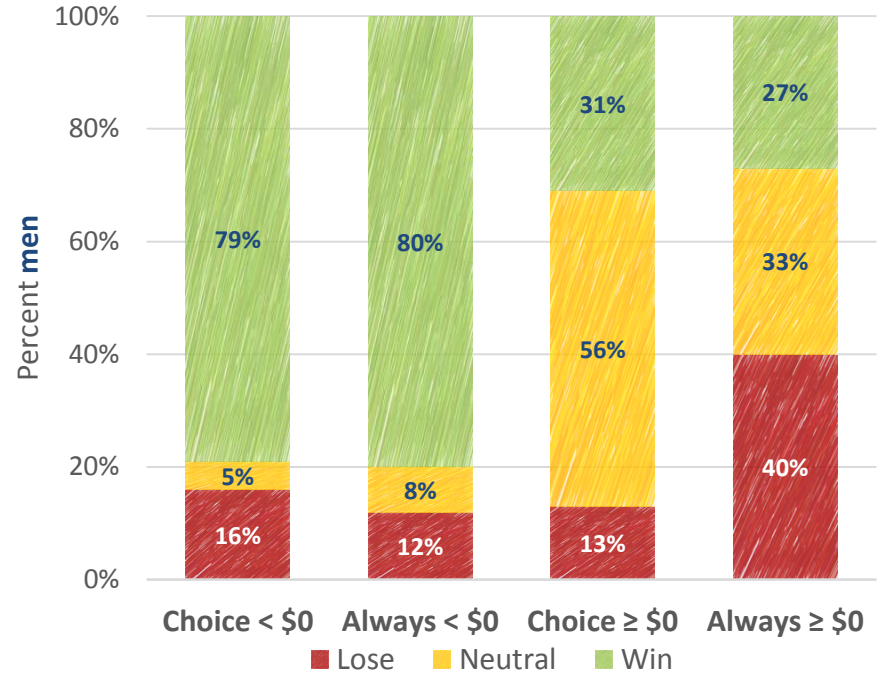
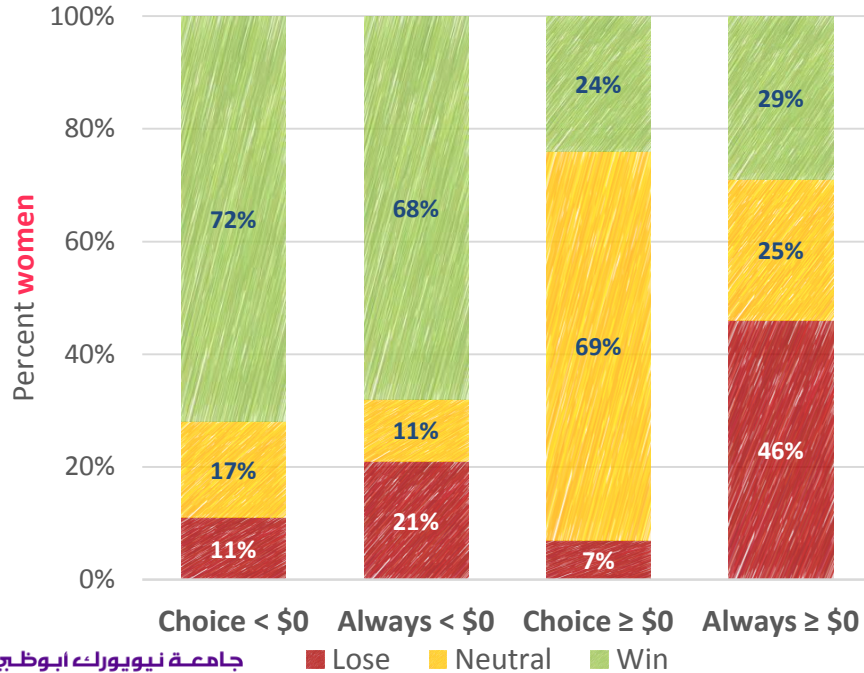


BARGAINING



Do women avoid bargaining? (Exley et al. 2018)

- Should women negotiate more? → No, they would incur losses



LABOR-MARKET DISCRIMINATION



Taste-based discrimination

- Not hiring women because of:
 - Misogyny
 - Threat to identity
 - Consumer expectations
 - etc.



Statistical discrimination

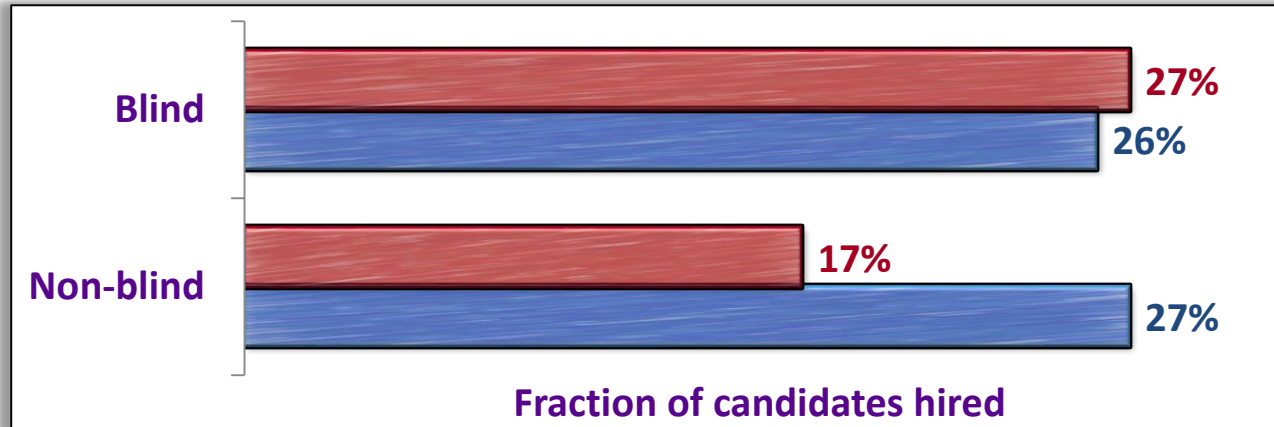


- Correctly inferring differences in performance
- Biased beliefs about women's relative performance

LABOR-MARKET DISCRIMINATION



- **Blind auditions (Goldin & Rouse 2000)**
- How was the gender composition of orchestras affected by the introduction of blind auditions?
- Exploiting differences in the adoption rate of this hiring practice, it is estimated that **30% of the increase of women is due solely to blind auditions**

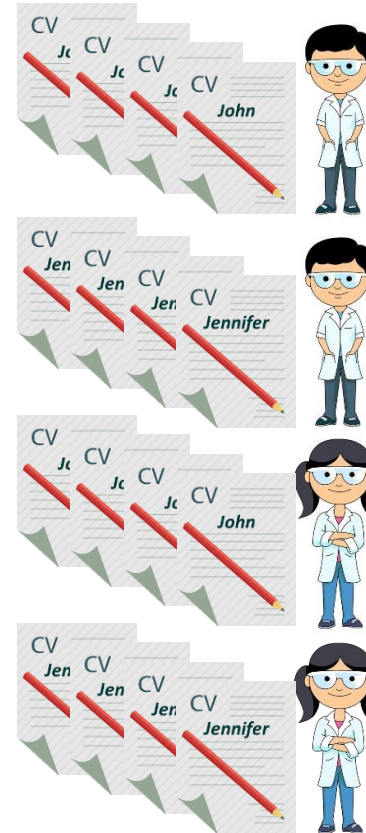
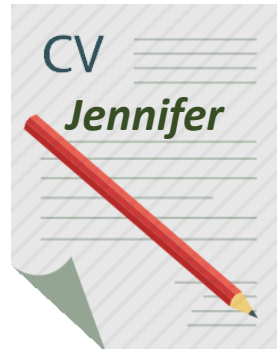
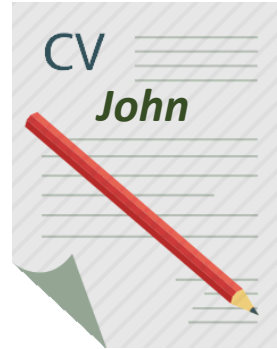


LABOR-MARKET DISCRIMINATION



Moss-Racusin et al (2012)

- Ask faculty to give feedback about the application materials of a student who will apply to lab manager positions

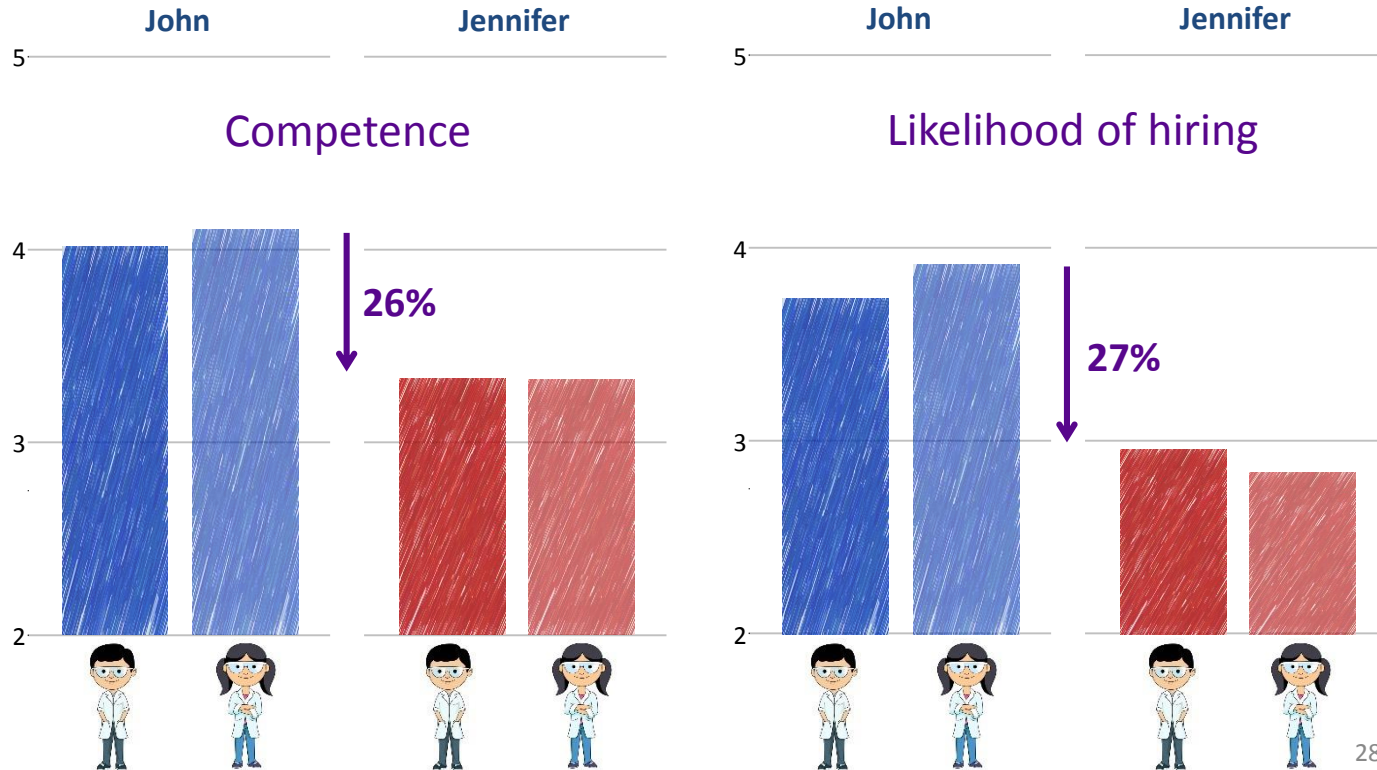


- Competence
- Likelihood of hiring
- Starting salary
- Likeability

CONSEQUENCES OF STEREOTYPES



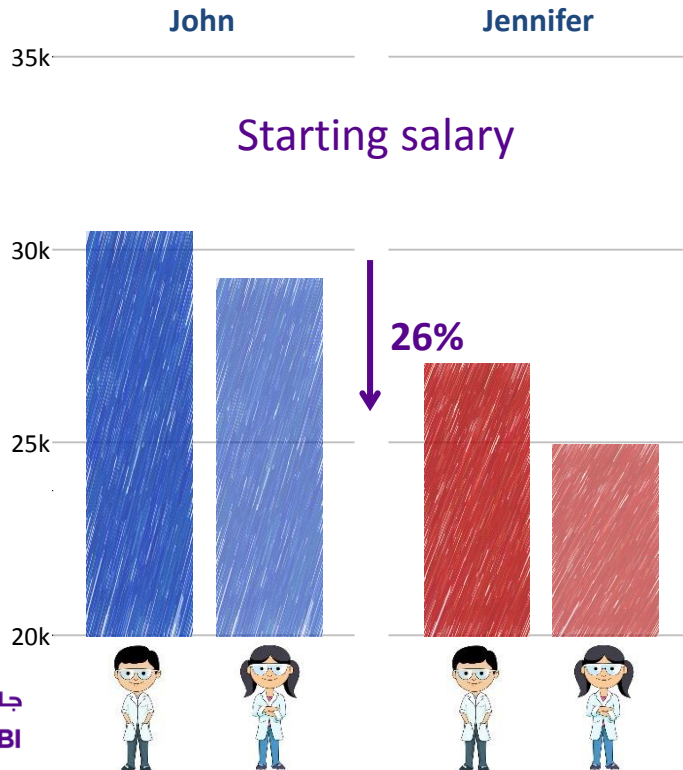
Moss-Racusin et al (2012)



CONSEQUENCES OF STEREOTYPES



Moss-Racusin et al (2012)



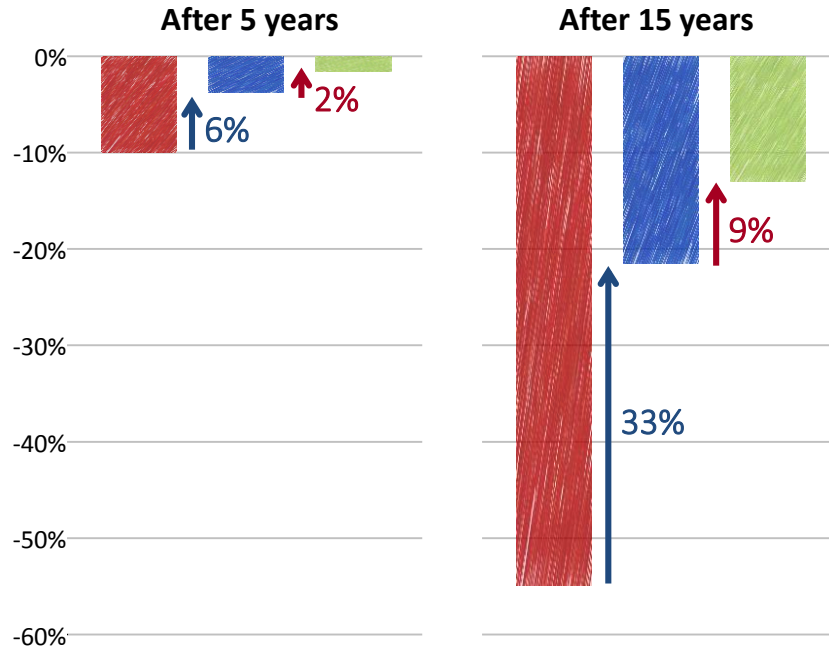
Evidence of discrimination ✓

- But why?
 - Women rated as more likable → unlikely to be taste
 - Responses to the modern sexism scale negatively correlate with competence, hireability, and mentoring of female students ($p < 0.01$) and positively correlate for male students ($p > 0.09$)

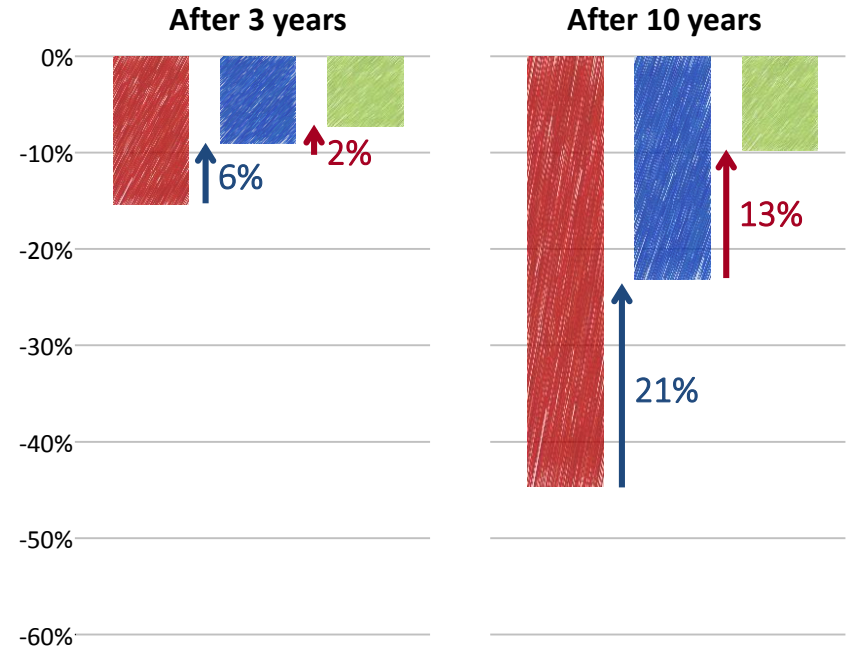
DISCRIMINATION OR UNOBSERVED DIFFERENCES PERFORMANCE?



Gender earnings gap among lawyers (Goldin 2014)



Gender earnings gap among MBAs (Bertrand et al. 2010)



DISCRIMINATION IN THE LAB



Why study discrimination in the lab?

- Accurately measure performance
 - Measure whether there are differences in performance between men and women
- Separate belief-based from taste-based discrimination
- Observe how beliefs are updated with new information
- (Partly) identify the source of bias in beliefs (implicit and/or explicit)

Reuben et al. (2014)

1. Everyone adds sums and are paid per correctly-answered sum
2. Candidate picking task
3. Everyone adds sums again and are paid per correctly-answered sum



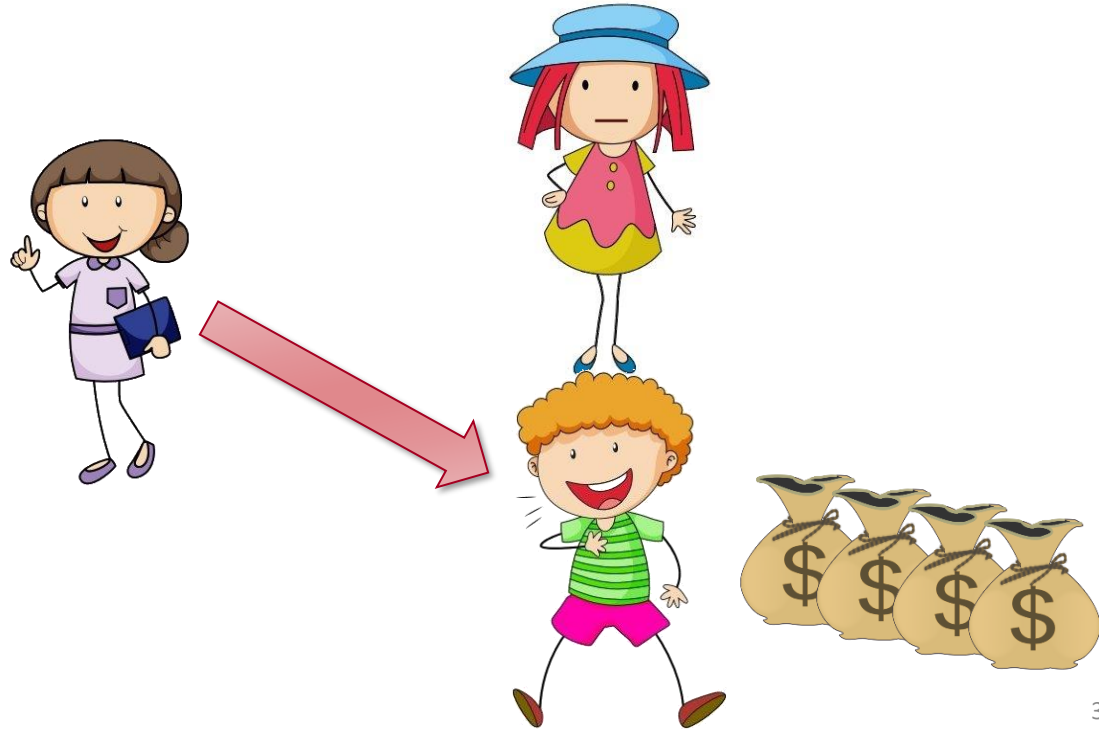
$$47 + 98 + 35 + 22 = 202$$

DISCRIMINATION IN THE LAB



Reuben et al. (2014)

- Candidate picking task
 - Guess number of sums
 - Paid for accuracy (between \$0 and \$9)
 - Pick one of the candidates
 - Paid according to candidate's performance in part 3
 - Picking a candidate increases his/her earnings by \$4

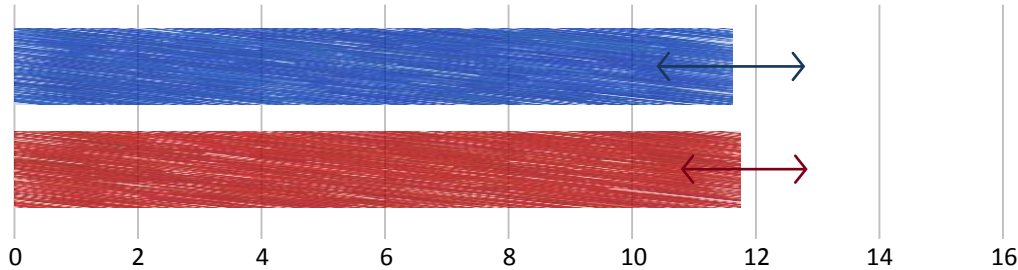


DISCRIMINATION IN THE LAB



Reuben et al. (2014)

- Is there a gender gap in performance?

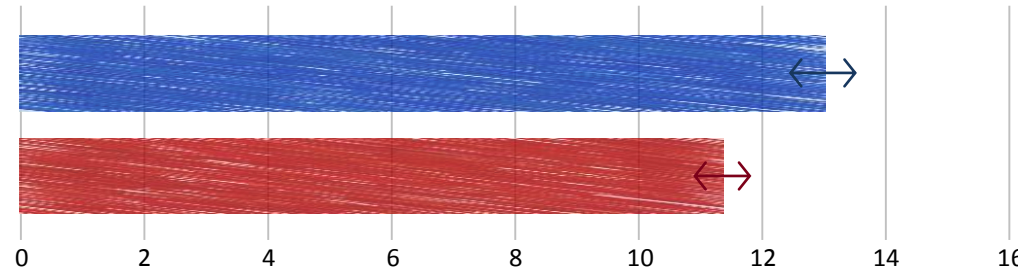


No statistical difference in performance!

Men: 11.52 sums

Women: 11.76 sums

- Is there a gender gap in performance evaluation?



Men are expected to perform better

Men: 13.04 sums

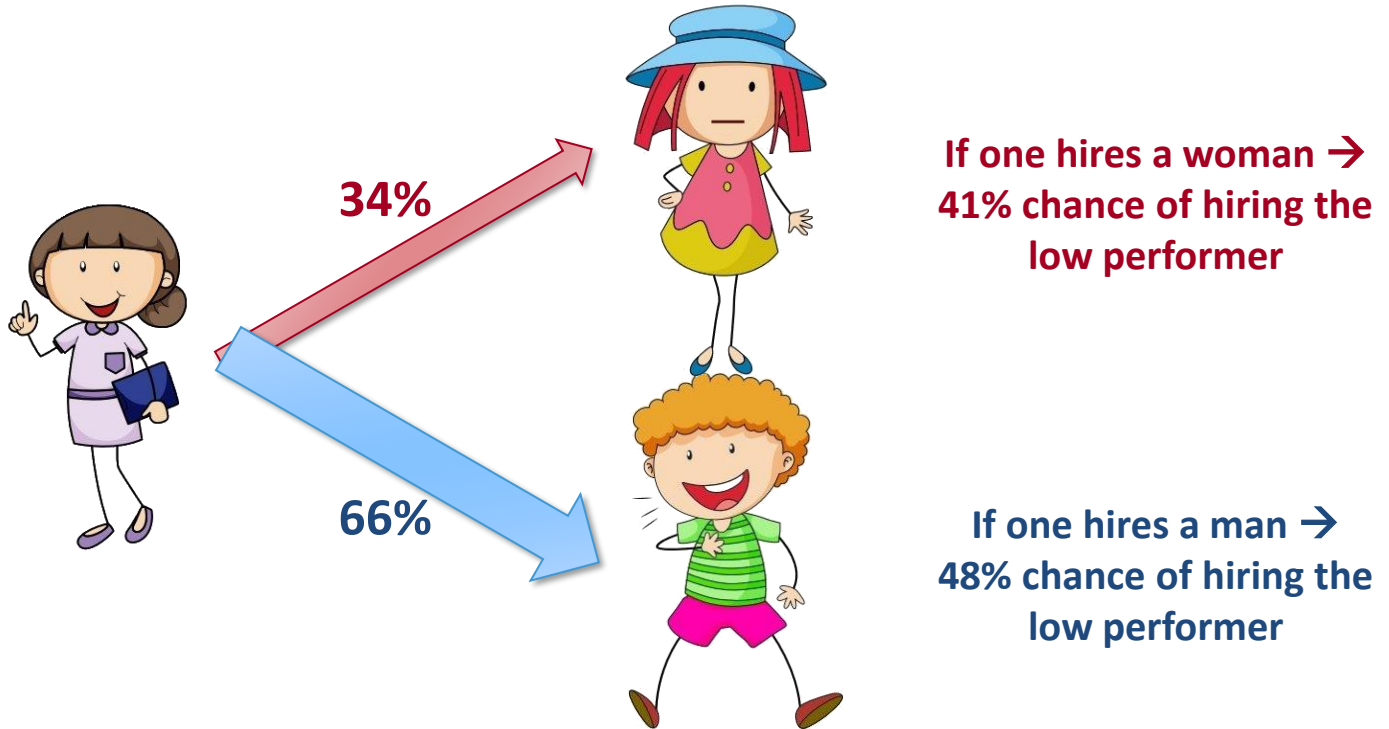
Women: 11.41 sums

DISCRIMINATION IN THE LAB

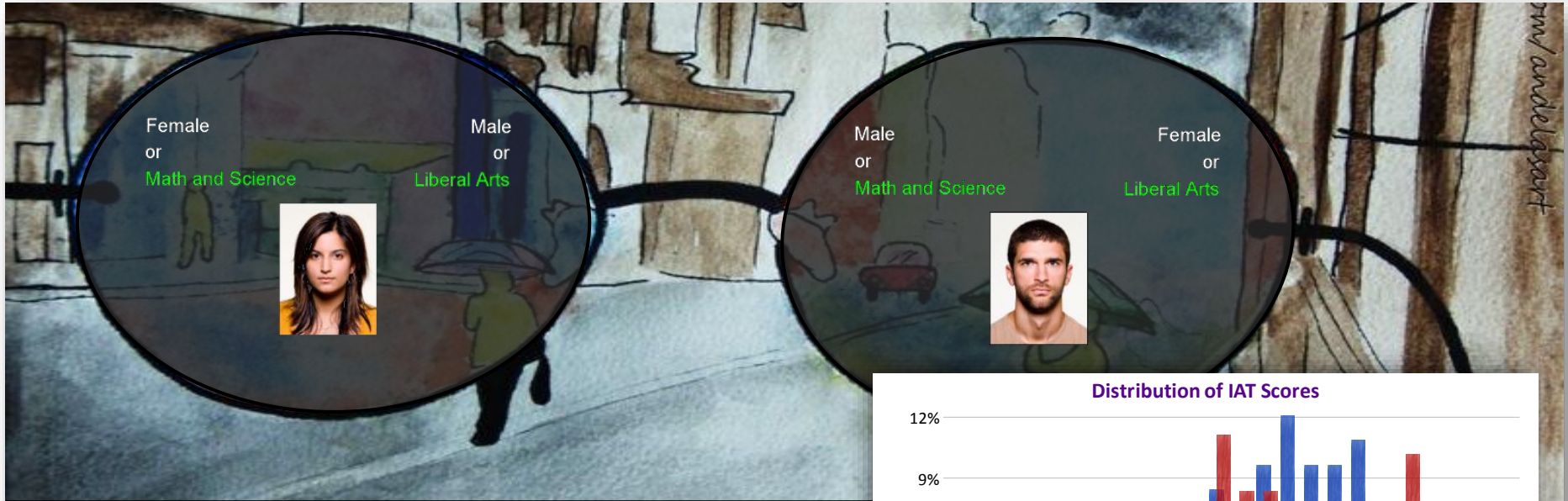


Reuben et al. (2014)

- Is there a gender gap in picking candidates?

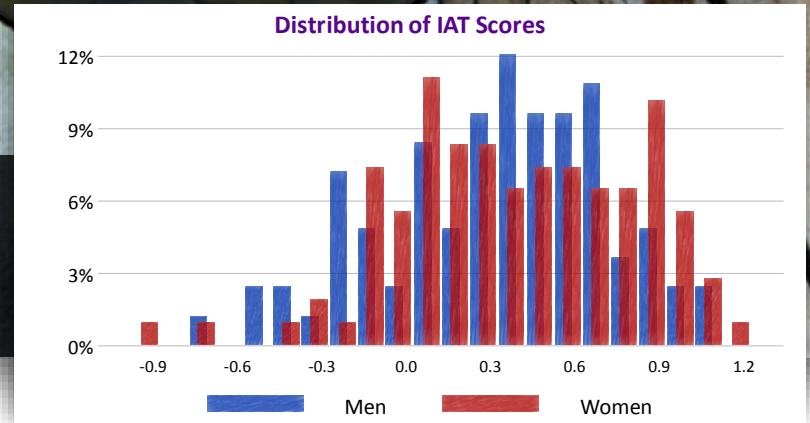


IMPLICIT STEREOTYPES / ASSOCIATIONS



Implicit Association Test (Greenwald et al. 1998)

- After part 3, between **Male** or **Female** pictures and **liberal arts** or **science/math** words

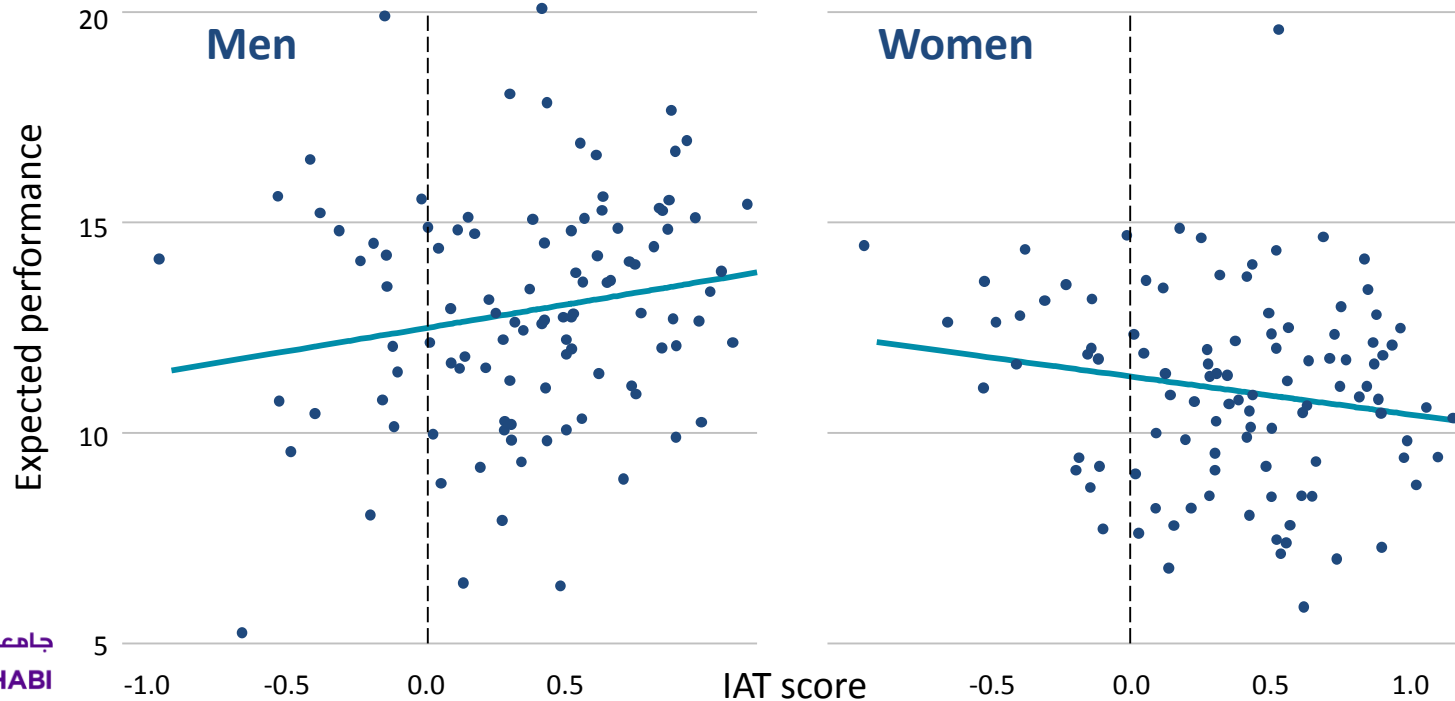


IMPLICIT STEREOTYPES / ASSOCIATIONS



Reuben et al. (2014)

- IAT score correlates with the expected performance of candidates



DISCRIMINATION AND UPDATING



Reuben et al. (2014)

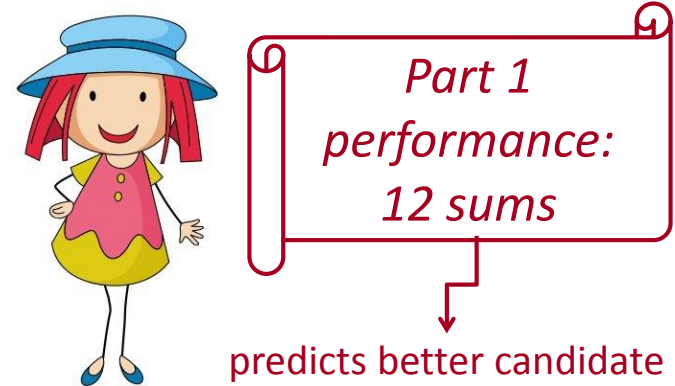
▪ Candidate picking task + **Cheap Talk**

- Guess number of sums and pick a candidate
- Candidates state their expected future performance
- Guess number of sums and pick a candidate again



▪ Candidate picking task + **Past Information**

- Guess number of sums and pick a candidate
- Candidates performance in part 1 is revealed
- Guess number of sums and pick a candidate again

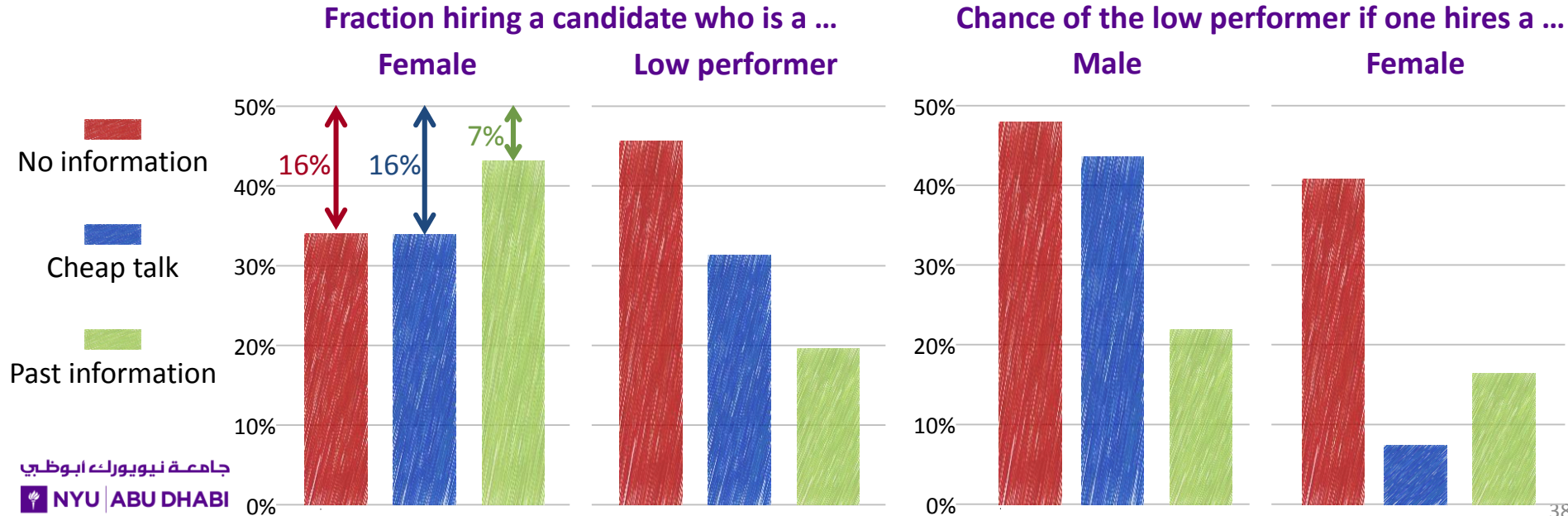


DISCRIMINATION AND UPDATING



Reuben et al. (2014)

- Cheap talk improves performance but not the gender balance
- Past performance improves performance and the gender balance

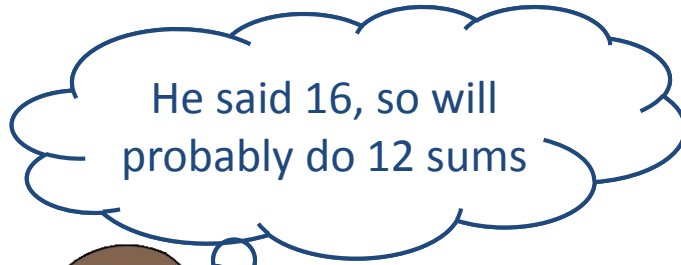


IMPLICIT STEREOTYPES AND NON-BAYESIAN UPDATING



Reuben et al. (2014)

- Do implicit stereotypes affect explicit belief updating?
- Measuring the degree of belief updating



$$\varphi = \frac{12 - 8}{16 - 8}$$

↓
0.5



I will do 16 sums!

$$\varphi = \frac{\text{posterior} - \text{prior}}{\text{signal} - \text{prior}}$$

1 → Completely believe the new information

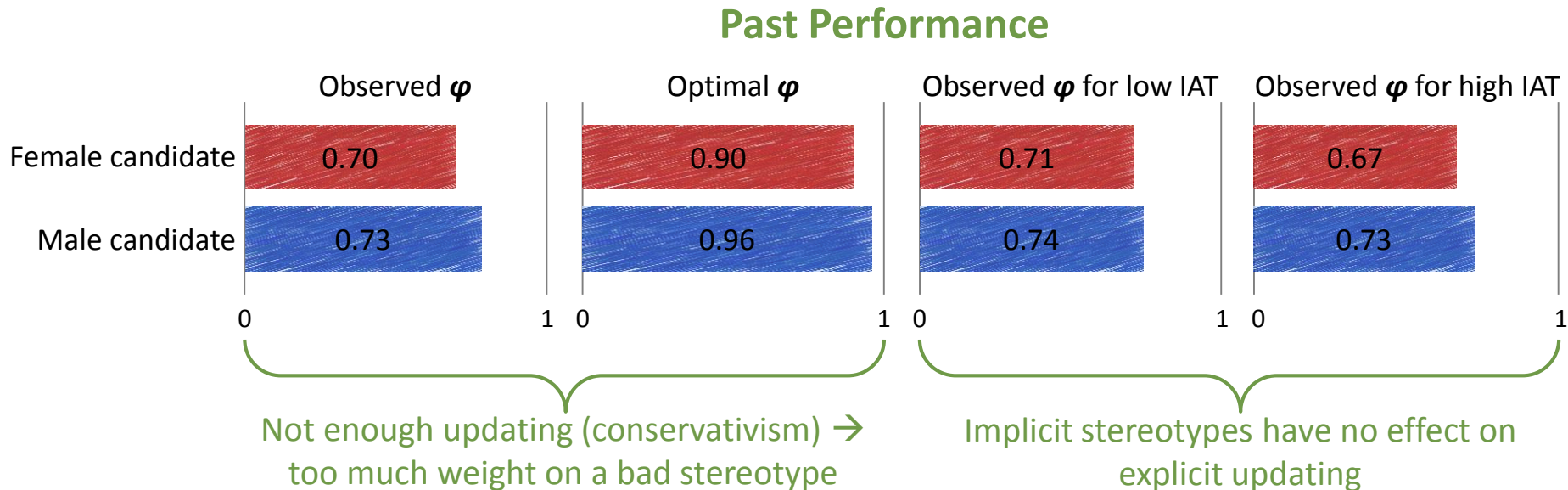
0 → Completely discard the new information

IMPLICIT STEREOTYPES AND NON-BAYESIAN UPDATING



Reuben et al. (2014)

- Do implicit stereotypes affect explicit belief updating?

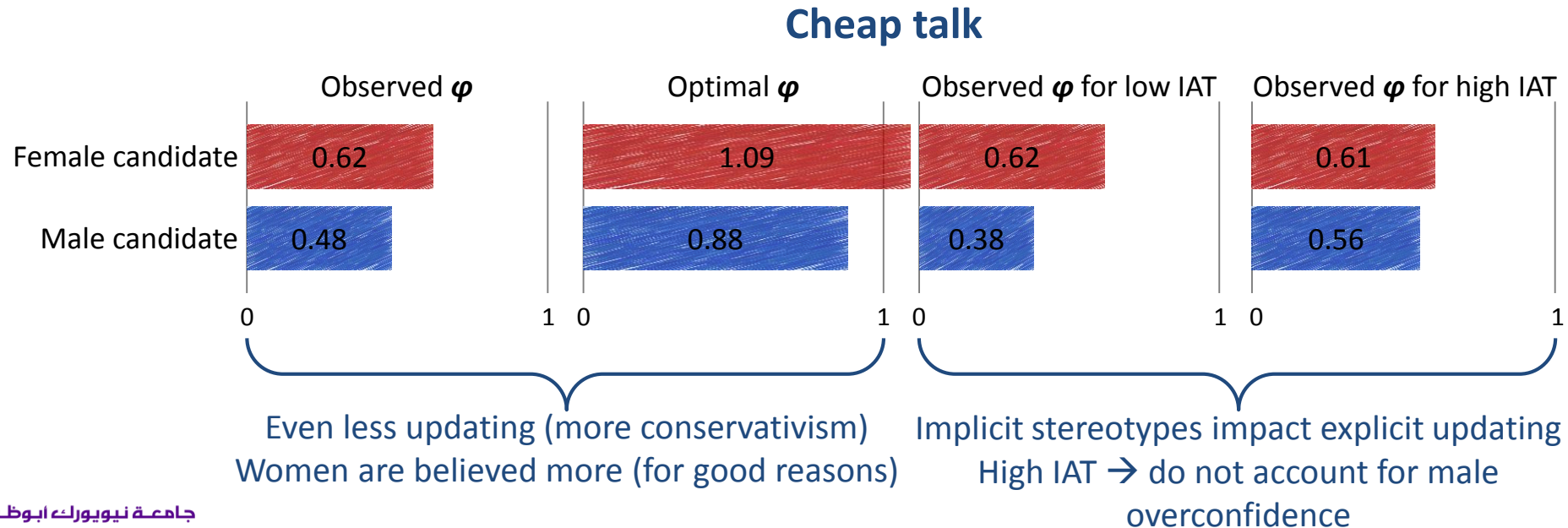


IMPLICIT STEREOTYPES AND NON-BAYESIAN UPDATING



Reuben et al. (2014)

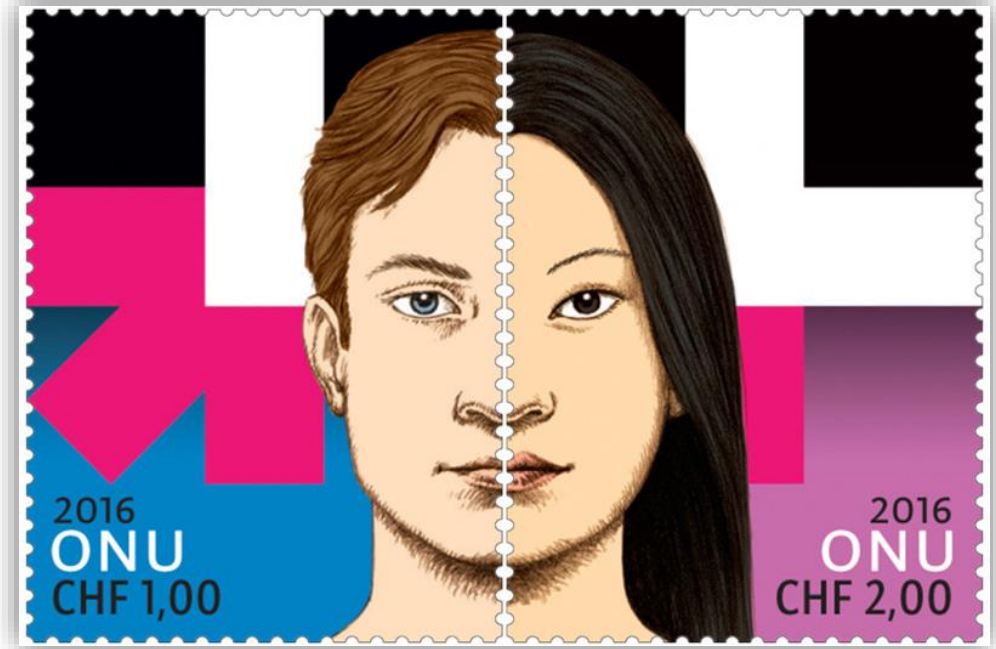
- Do implicit stereotypes affect explicit belief updating?



TAKEAWAYS FOR DISCRIMINATION IN LABOR MARKETS



- Performance evaluation **is** susceptible to bias due to implicit and explicit stereotypes?
- Stereotypes can be partly overcome with information, but only when it is considered objective and accurate
 - Too much weight is given to very uninformative stereotypes
 - Inaccurate and/or subjective information can be both useful and susceptible to implicit biases



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