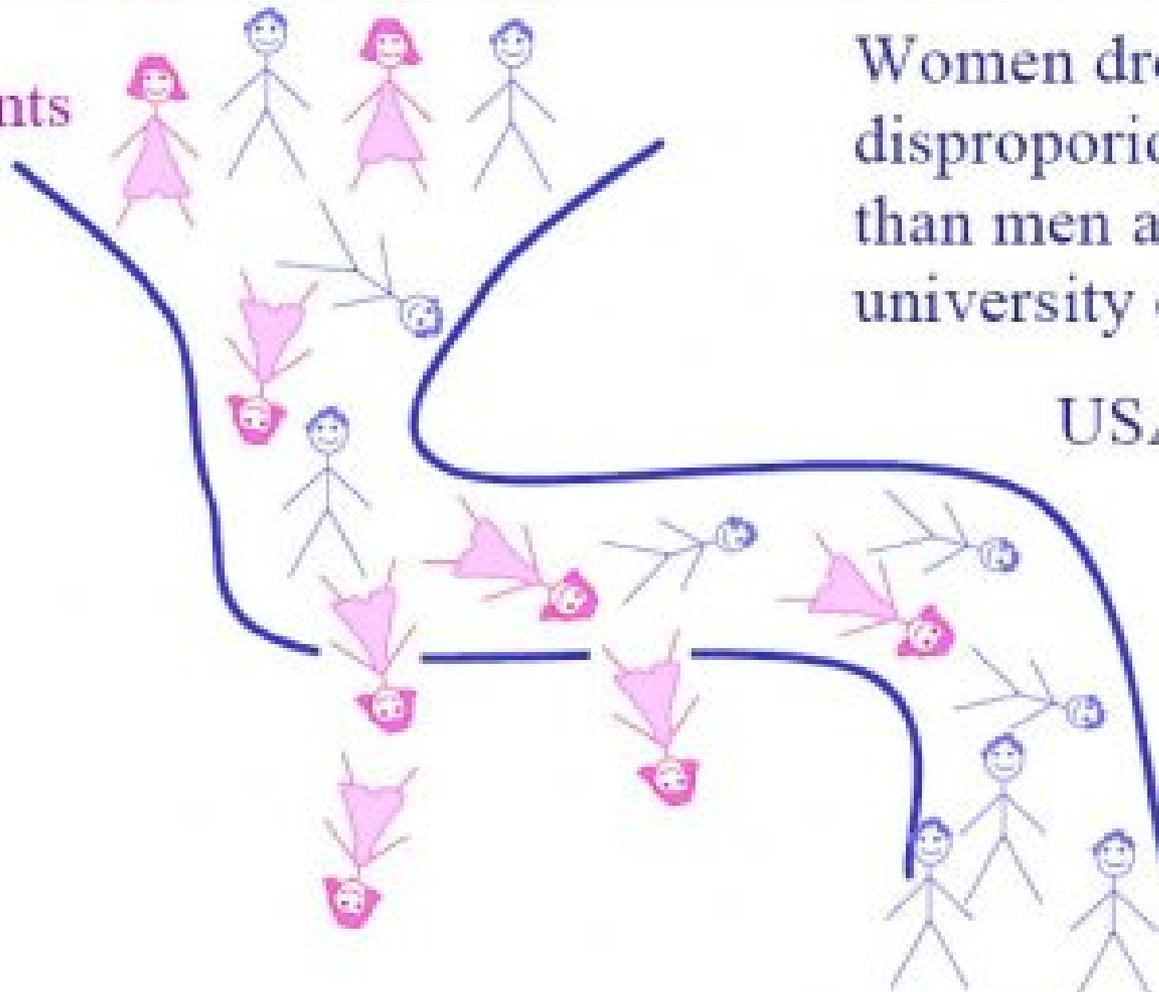


Are women underrepresented  
among STEM faculty  
because of bias in the search  
process?

Leah Haimo

Professor of Biology,  
Associate Dean of Graduation Division  
UC Riverside

students

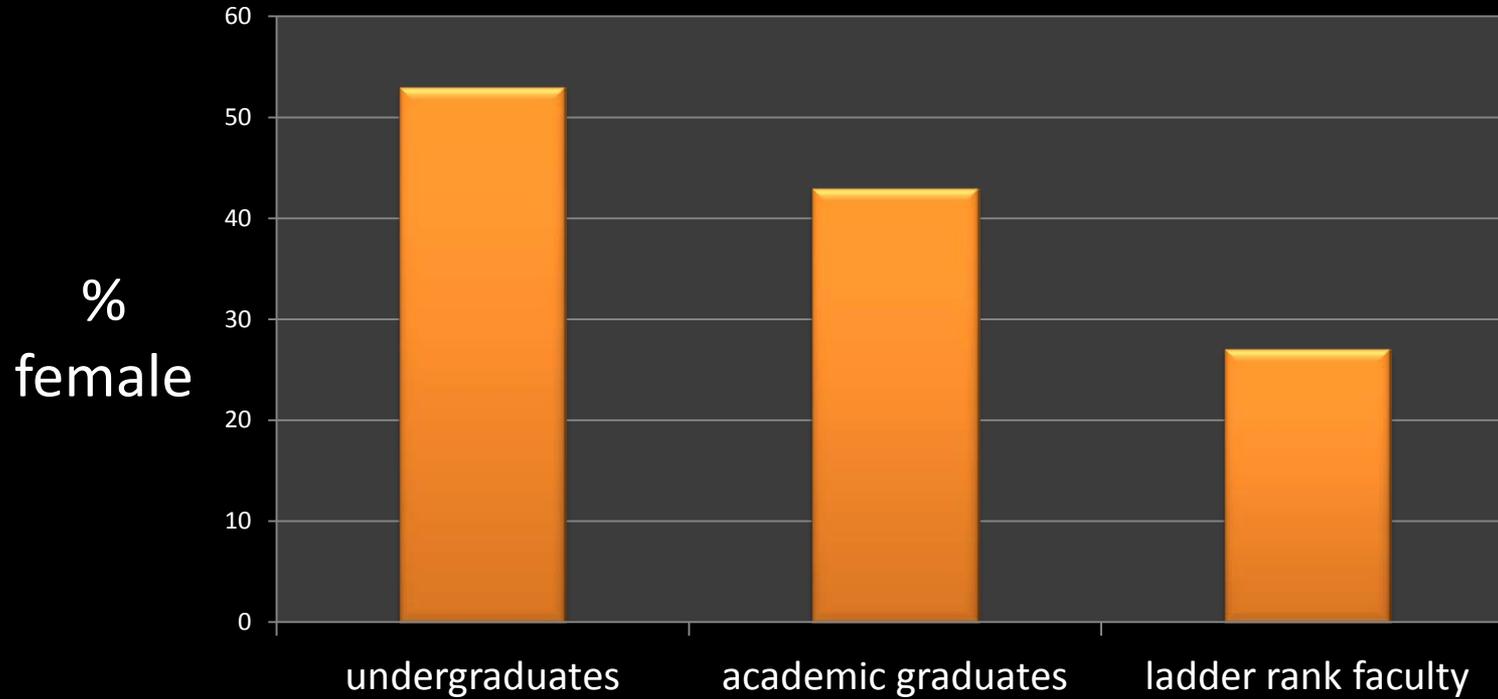


Women drop off at a disproportionately higher rate than men at each stage of the university career

USA, 1970s

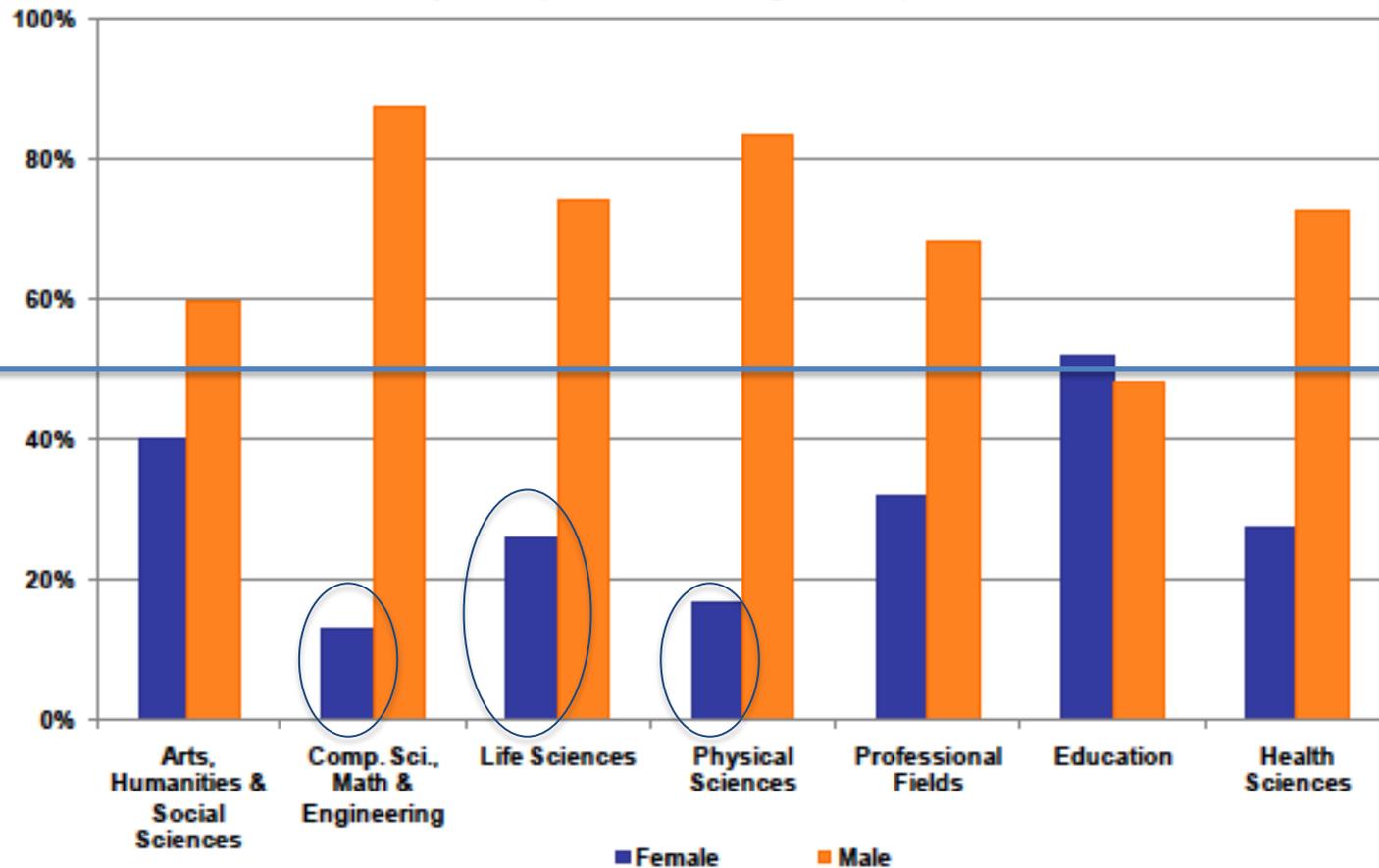
professors

# UC Demographics, F'10



# Women are particularly under-represented among UC faculty in STEM fields

**Chart 8: Ladder- and Equivalent Rank Faculty by Gender and Discipline, Universitywide, October 2008**

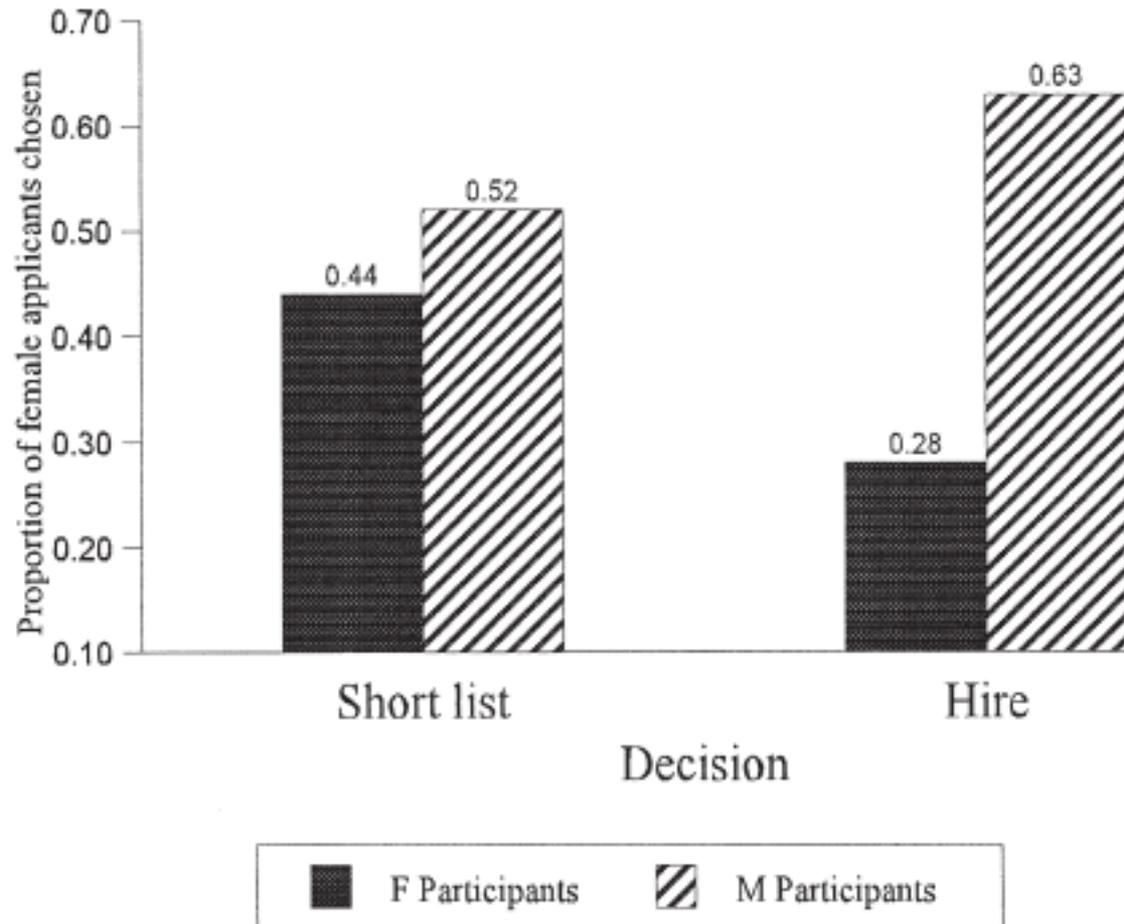


Are women underrepresented among  
STEM faculty  
because of bias in the search process?

# Is there evidence for bias against women who apply for a position in a “male” field?

- 64 participants (introductory psych students), 25 female, 39 male  
Evaluate 14 applicants for a *mechanical engineering* internship  
Select 3 to short list  
Read single letter of recommendation for each short list candidate  
Select 1 candidate to hire
- 14 resumes created, 7 pairs, matched for quality.  
One of each pair given female name, the other given male name.  
Female-male names switched for half the participants.
- 3 letters of rec created, all of equal quality.  
Letters then rotated randomly among the short list applicants

Women were less likely to be hired for the mechanical engineering internship. The bias against women derived from female, not male, participants.



Biernat and Fuegen, cont

# Is there evidence for bias against women candidates applying for *faculty* positions and evaluated by *faculty*?

- identical CV with male or female name prepared
- evaluated by 238 psychology faculty nationwide
- vote yes or no to hire and tenure the applicant

# Experimental design

Two actual CVs of a psychology professor were used:

- Job applicant CV  
the CV at the time the faculty member was hired as an Assistant Professor
- Tenure candidate CV  
the CV of that same faculty member at the time of her successful and early promotion to tenure

Changes to actual CVs:

- name either “Karen Miller” or “Brian Miller”.
- Dates were adjusted in the job applicant CV (4 years added) so there would be no gap in activity between graduate school and the current job market.

## Experimental design, cont.

- A single CV (of the 4 possible) and a questionnaire were sent to 582 academicians selected randomly from the Directory of the American Psychological Association.
- Final participant pool consisted of 118 male and 120 female faculty members nationwide.

# What did the participants look for in a job applicant?

1. Ability to establish an independent research program
2. Collegiality/personality
3. Collaboration prospects with you or other faculty members
- ...
- n. Fulfilling affirmative action requirements

*There was no difference in the ranking of importance of these factors by female vs male participants*

# Does the *gender* of the *applicant* affect how he/she fares?

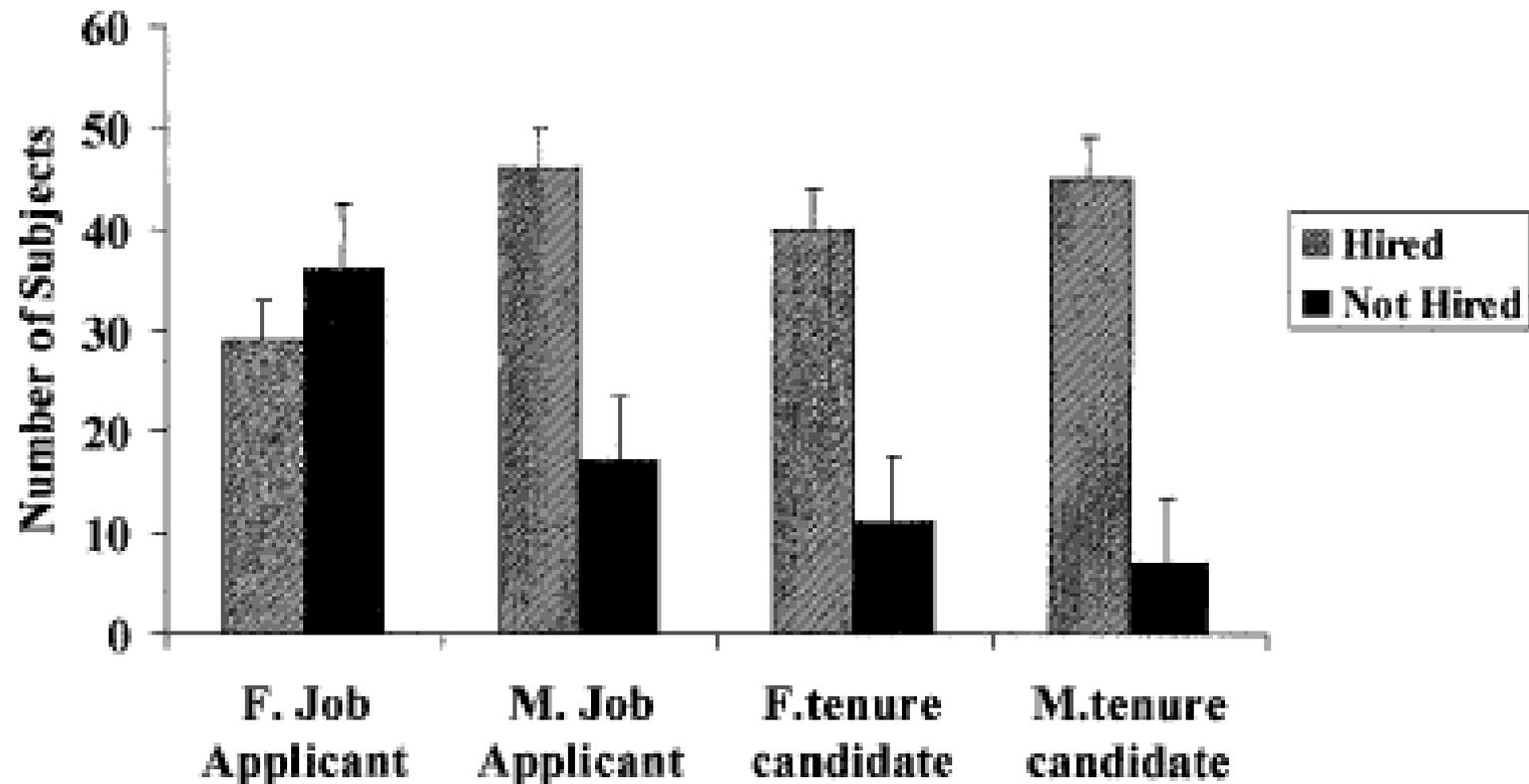


Fig. 1. Hireability of the job applicants and tenure candidates based on the quality of the curriculum vitae the participants were asked to evaluate.

A male job applicant was more likely to be hired than was a female job applicant with the *identical* CV

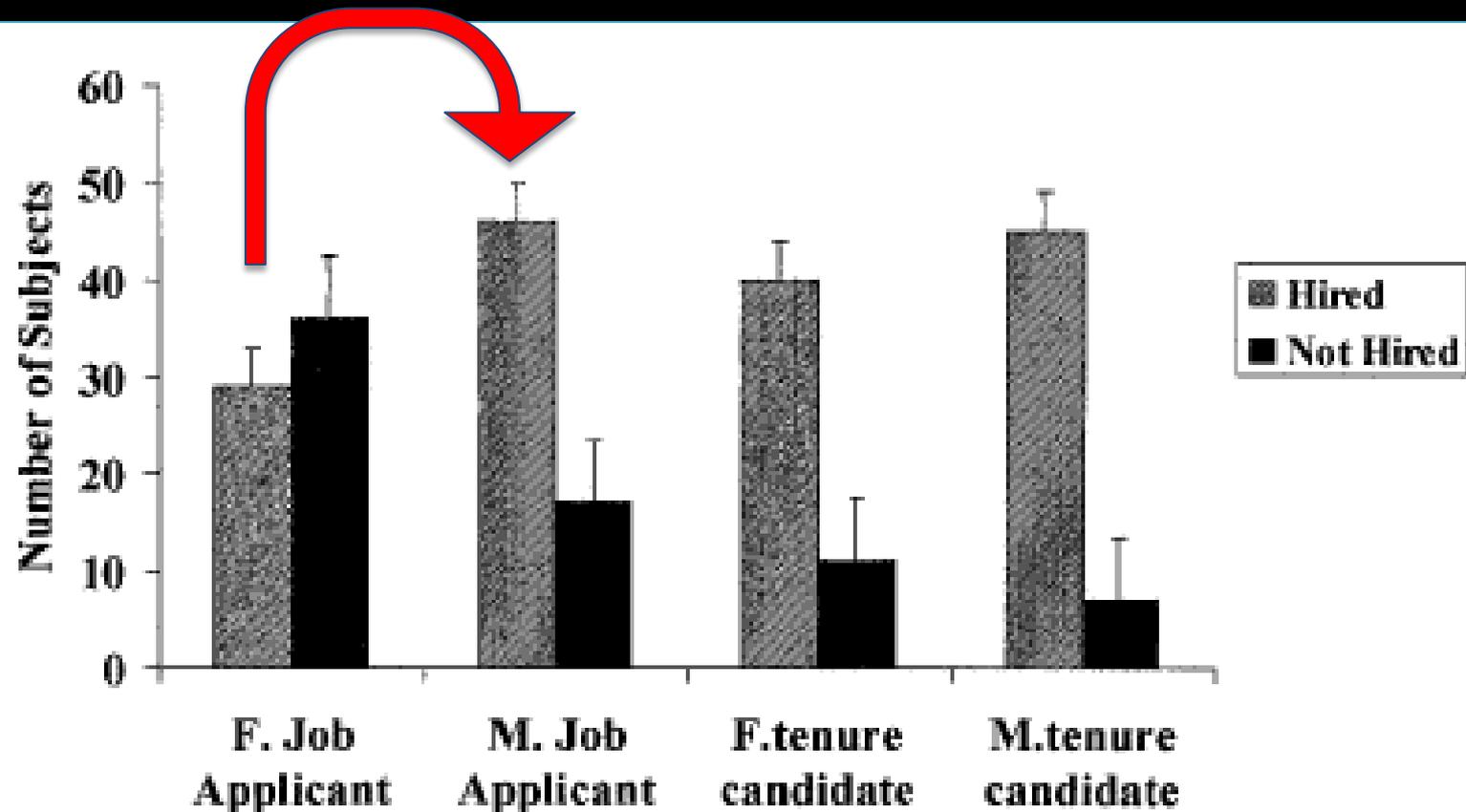


Fig. 1. Hireability of the job applicants and tenure candidates based on the quality of the curriculum vitae the participants were asked to evaluate.

# Does the *gender* of the *reviewer* affect how the job applicant is evaluated?

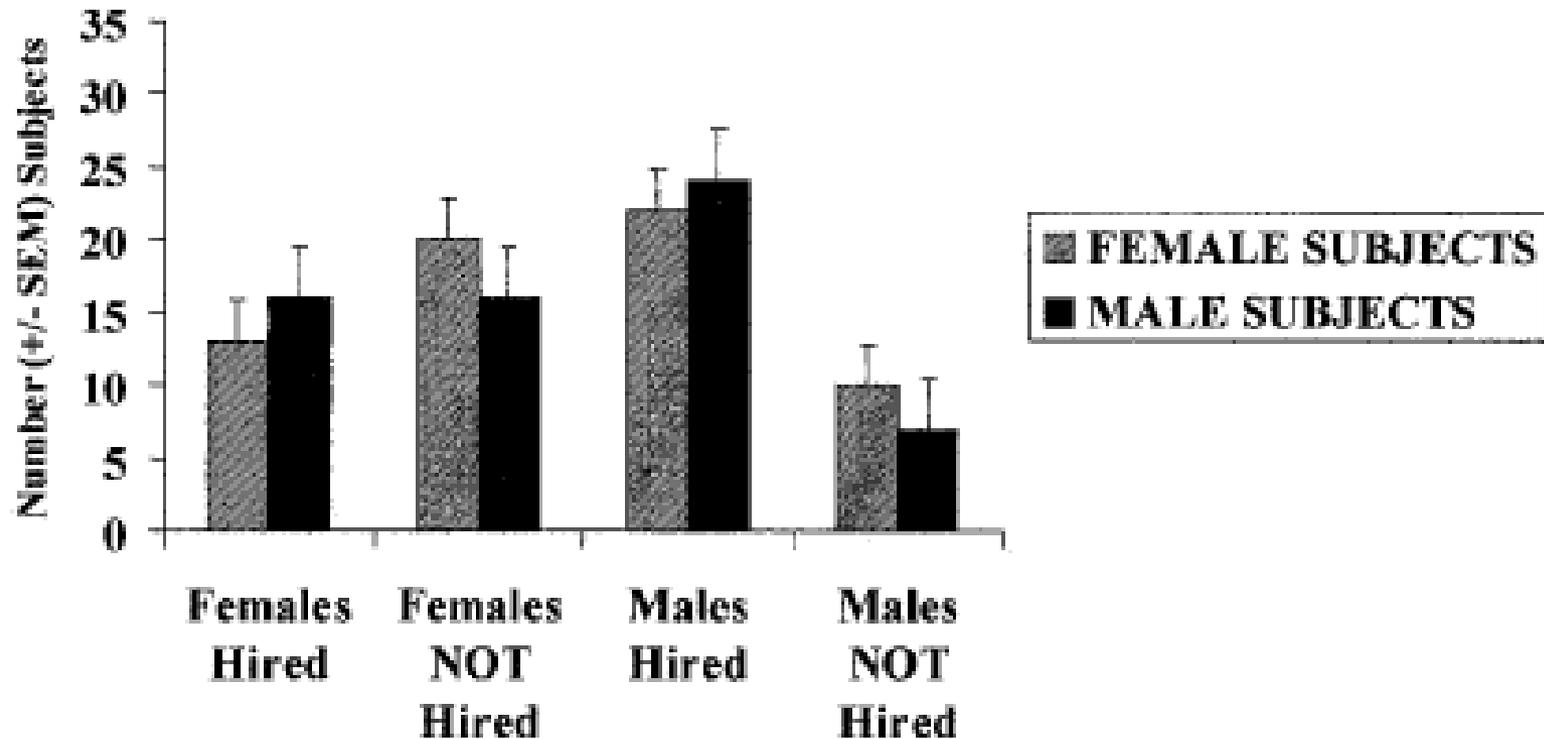


Fig. 5. Hireability of the job applicants as a function of the participant's gender.

**Both male and female reviewers were more likely to hire the male applicant than the female applicant with the *identical CV***



**Fig. 5. Hireability of the job applicants as a function of the participant's gender.**

## Summary

In two controlled studies, females less likely to be hired than males with identical credentials.

Female reviewers were as or more likely than male reviewers to be biased against female applicants.

# Are there data which suggest bias against female applicants in *actual* STEM faculty searches?

Bilimoria and Buch:

examined all full time, ladder rank faculty searches in STEM fields during 2001-2 to 2006-7 at Case Western and during 2003-4 to 2007-08 at Charlotte. 319 total searches.

Glass and Minnotte:

examined all tenure track searches in STEM fields at a large midwestern university over 6 year period between 2000 and 2005. 63 searches in 19 departments, 3245 total applicants.

	<b>Bilimoria and Buch 2010</b>	<b>Glass and Minnotte 2010</b>
institutions	Case Western and UNC, Charlotte	Large midwestern research university
STEM searches in	2001-02 to 2006-07 2003-04 to 2007-08	2000-2005
# searches	193 (CW) 126 (UNC)	63
# applicants		3245
% female applicants	15.9 (CW)	15.2
% females on short list	30.7 (CW) 28.3 (UNC)	17 (63% of short lists included females)
% searches that resulted in female candidate offer/hire	38.7 (CW) 35.5 (UNC)	30
% female vs male applicants hired		4.28 vs 2.03

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# What factors correlate with female STEM hires?

1. Does having one or more women on the search cmt increase the likelihood of hiring a woman? **NO**

2. Does the % women in the hiring department increase the likelihood of hiring a woman? **NO**

3. Does the % women in the hiring department increase the % of female applicants? **NO**

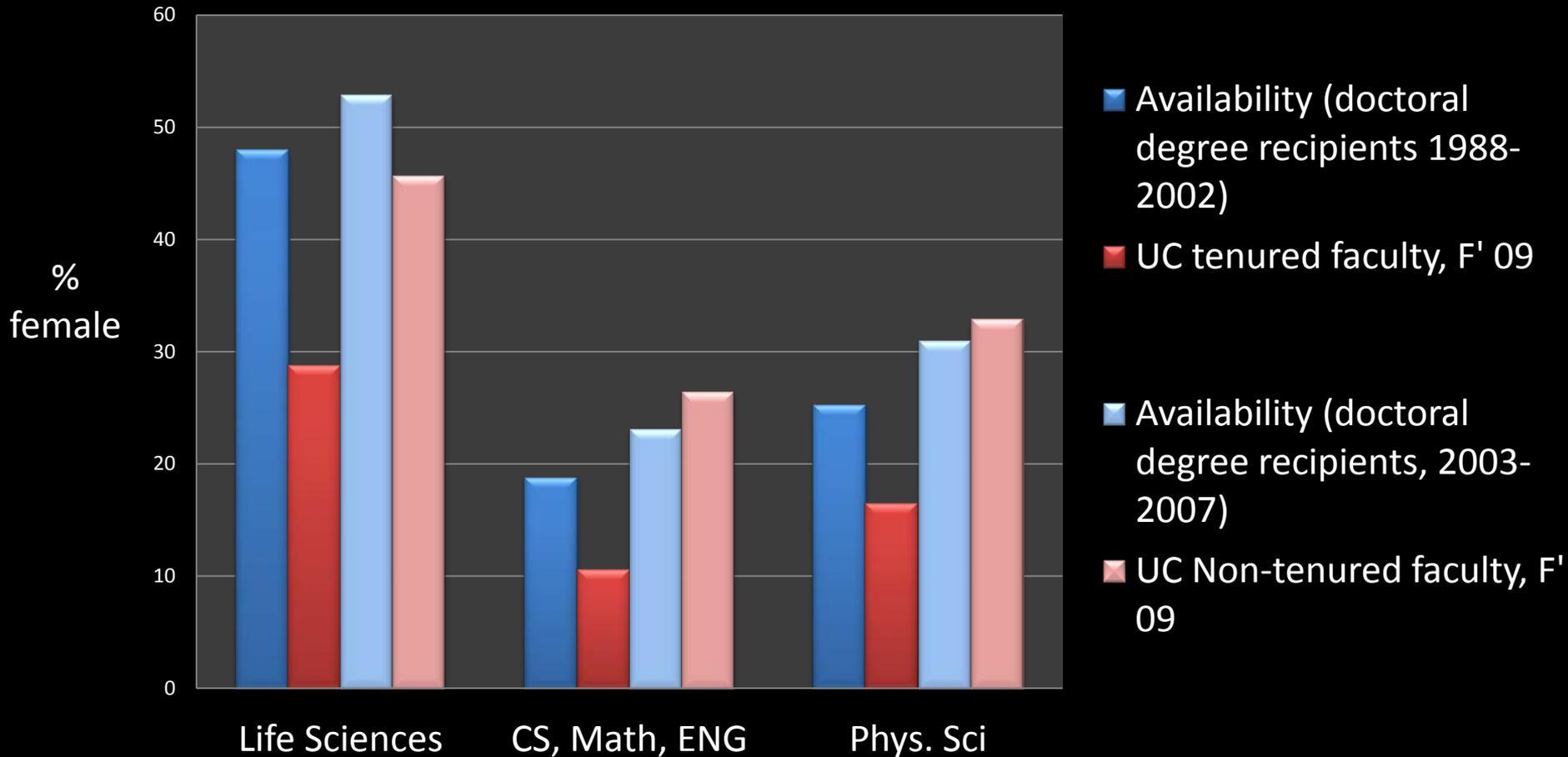
4. Does the % female applicants correlate with the likelihood of hiring a woman? **YES**

4. Does placing an ad in a venue that targets women correlate with an increase in the % women in the applicant pool? **YES**

What about at UC? Is there evidence for bias in the search process in STEM fields?

# % female STEM faculty at UC vs availability

## tenured and non-tenured



[http://www.ucop.edu/acadpersonnel/datamgmt/documents/incumbents\\_tenuredgender.pdf](http://www.ucop.edu/acadpersonnel/datamgmt/documents/incumbents_tenuredgender.pdf)  
[http://www.ucop.edu/acadpersonnel/datamgmt/documents/incumbents\\_nontenurgender.pdf](http://www.ucop.edu/acadpersonnel/datamgmt/documents/incumbents_nontenurgender.pdf)  
<http://www.ucop.edu/acadpersonnel/datamgmt/availabilities.html>

# Summary:

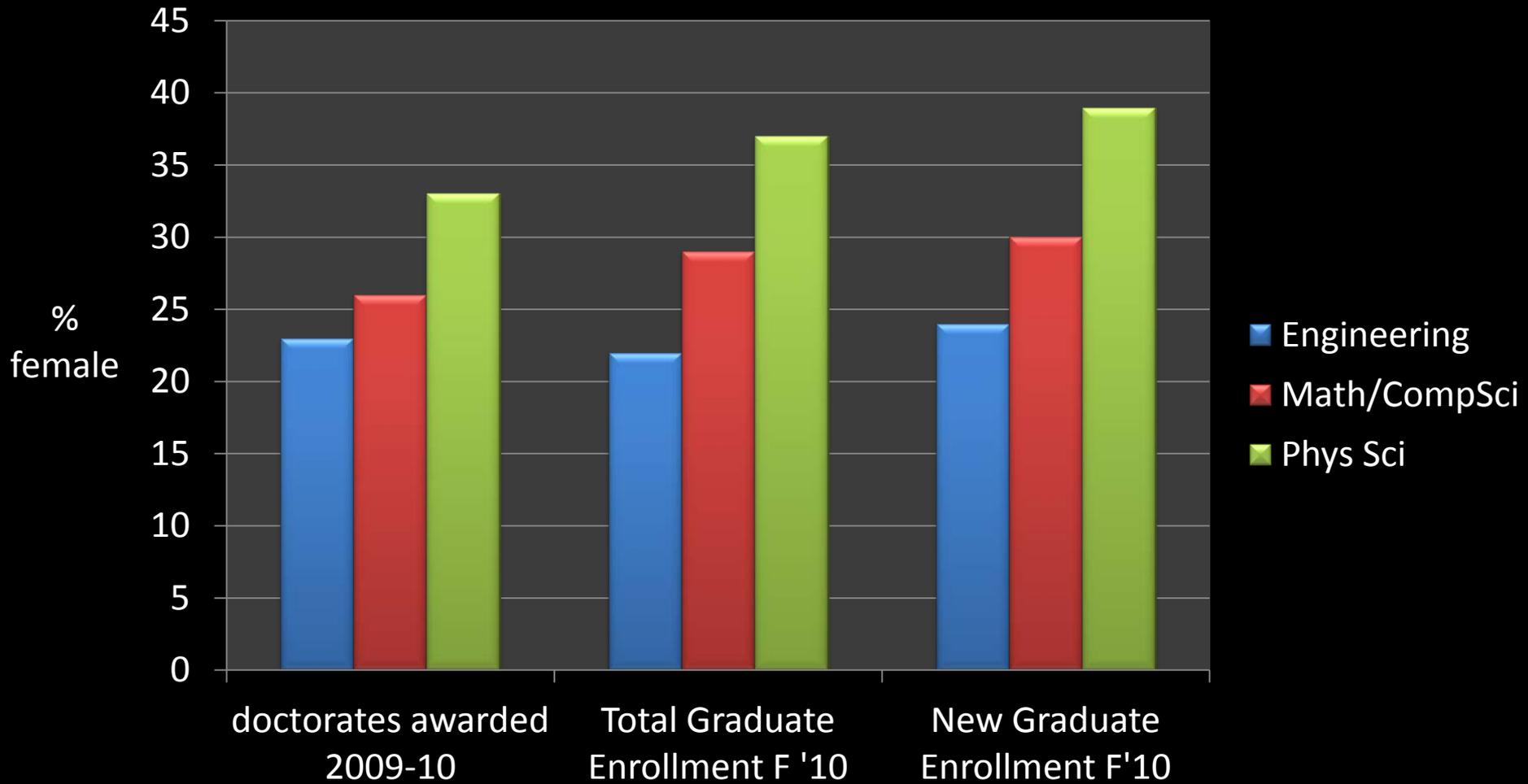
## Bias in the search process

- CVs attributed to female candidates fared more poorly in hypothetical settings.
- However, analysis of STEM field searches at two universities during the past decade revealed that women were twice as likely to be hired as were males relative to their representation in the applicant pools.
- At UC, women overall are significantly under-represented among STEM faculty, but recent hires more closely represent female availability.

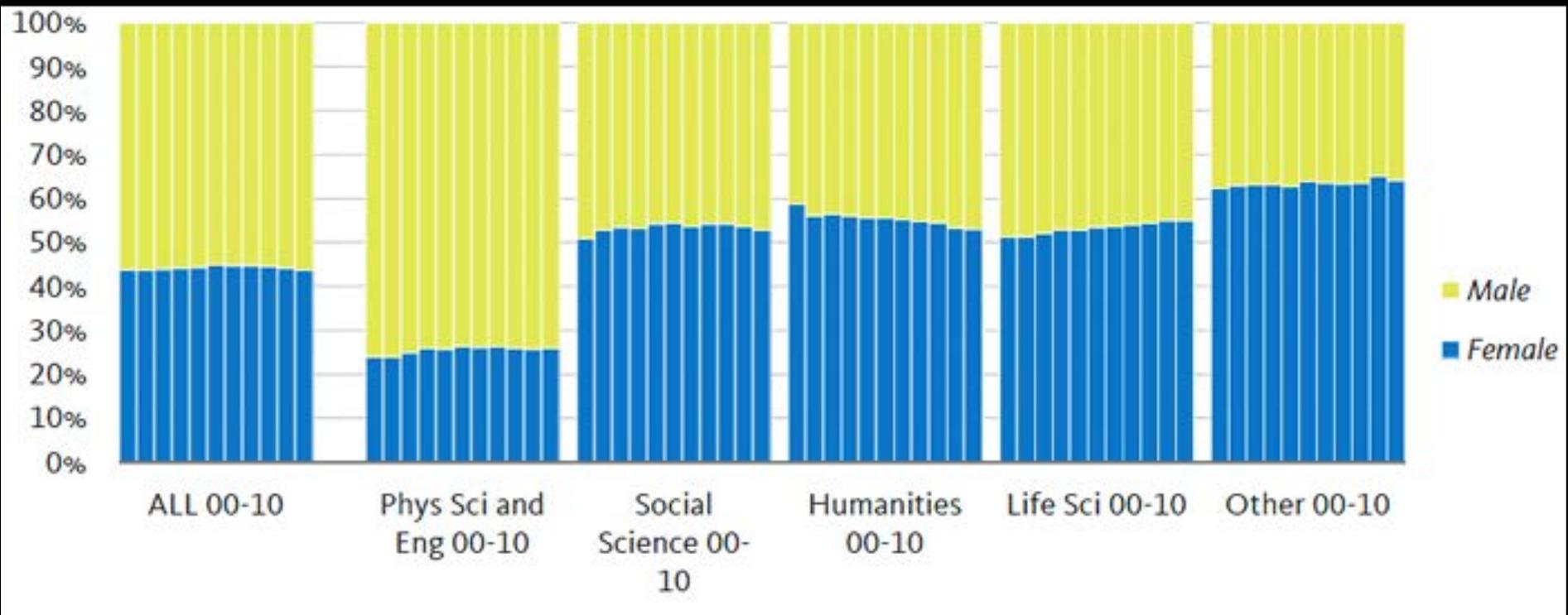
# What can we expect for UC STEM faculty going forward?

- Is it reasonable to expect that 50% of the STEM faculty will be female?

# Pool of future female STEM faculty



# UC graduate students, 2000-2010

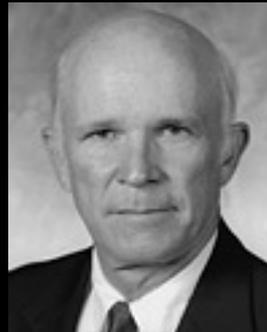


# 2004 NIH Director's Pioneer Award Recipients



Males in applicant pool: 80%

Males in first cut: 87%



Males in finalist pool: 90%

Male recipients: 100%



Male representation among reviewers: 94% (60 of 64)

likelihood of an all male recipient outcome =13%

# 2005 NIH Director's Pioneer Award Recipients



[http://commonfund.nih.gov/pioneer/Recipient\\_s05.aspx](http://commonfund.nih.gov/pioneer/Recipient_s05.aspx)

# 2011 NIH Director's Pioneer Award Recipients

