

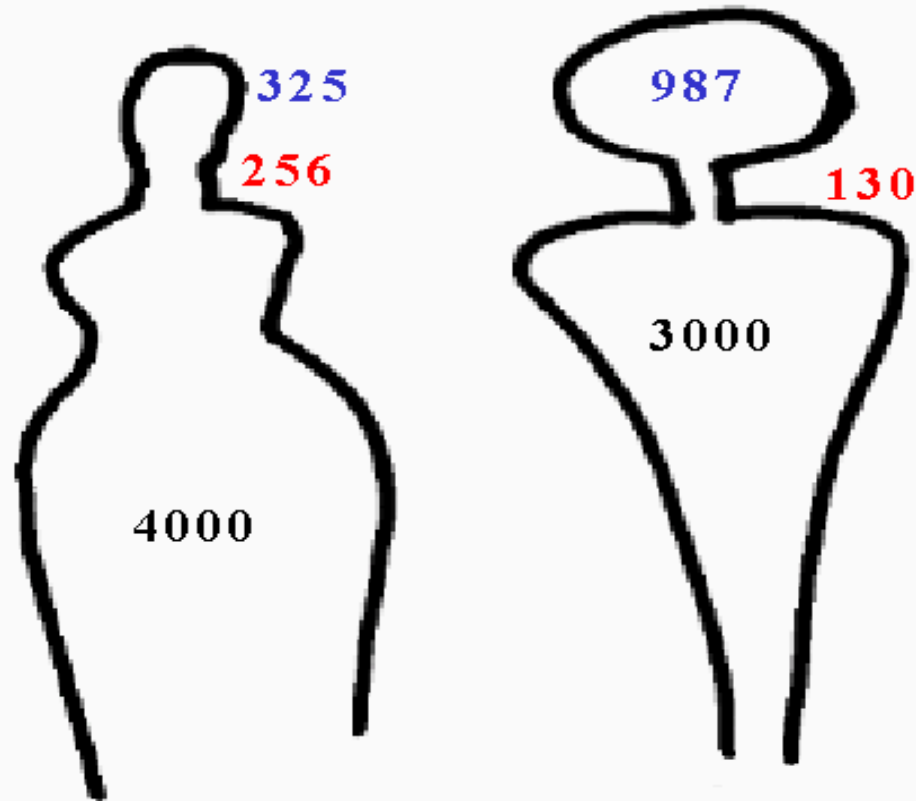
# DO BABIES MATTER IN STEM?

MARY ANN MASON

PRESENTATION NAS, SEPTEMBER 9

# University of California, Berkeley

(2002)



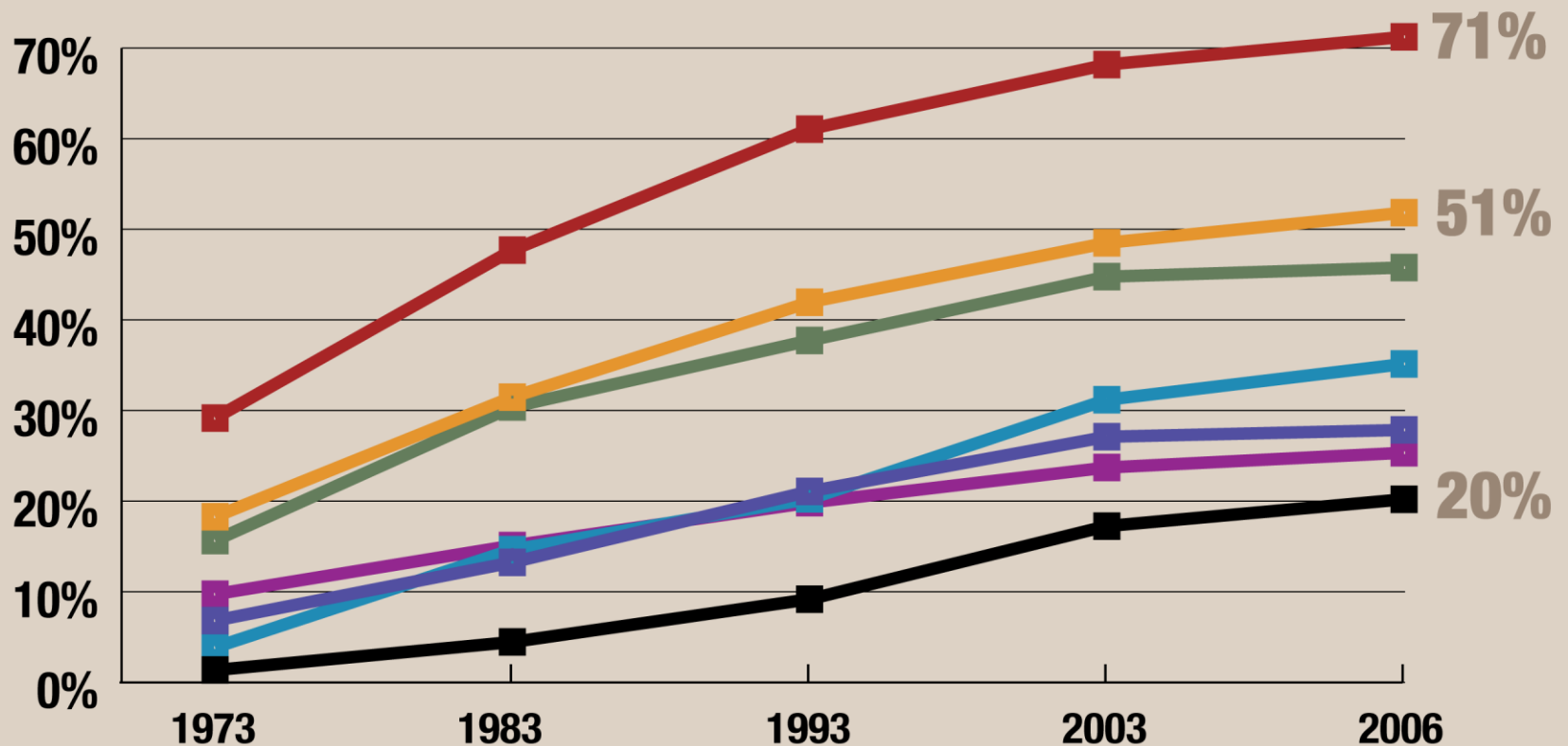
# Women as a Percent of Doctorial Recipients in the Sciences

Engineering  
Physical Sc.

Geoscience  
Psychology

Life Sciences  
Social Sc.

Math/Comp. Science



# What Happens to Men and Women After They Get Their PhDs?

How Does Having  
Babies Affect Tenure?



# Survey of Doctorate Recipients (SDR)

national  
**biennial**  
longitudinal  
**DATA SET**

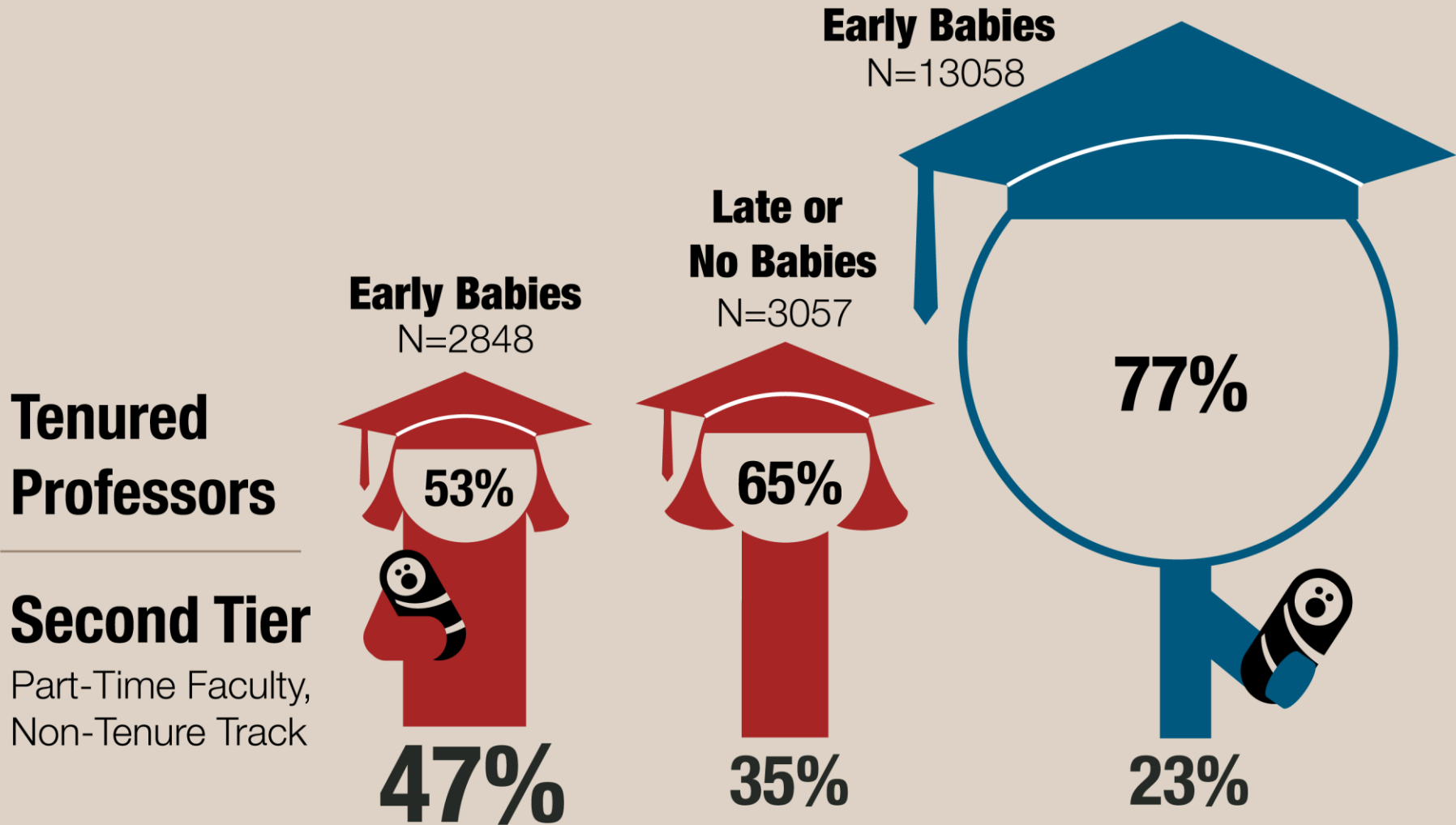


OVER  
**160,000**  
PARTICIPANTS

**1973**

**Present**

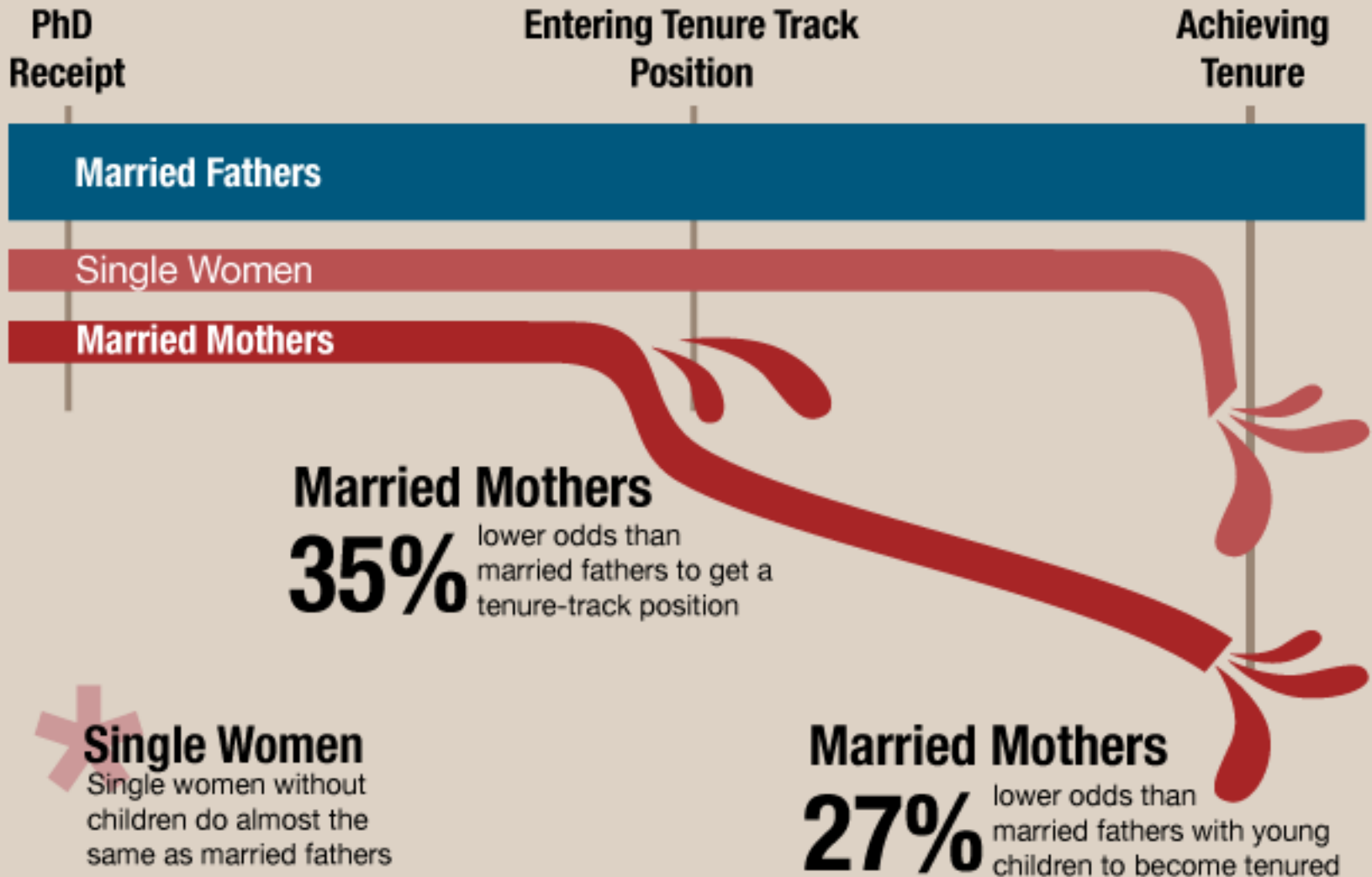
# Who Gets Tenure in Science?



Source: Survey of Doctorate Recipients. Sciences and Humanities, 1979-1995.

Note: The use of NSF Data does not imply the endorsement of research methods or conclusions contained in this report.

# Leaks in the Pipeline to Tenure for Women PhDs in the Sciences



**Married Mothers are**  
**35%**  
**less likely to enter**  
**tenure track jobs**





**Married Mothers are**

**27%**

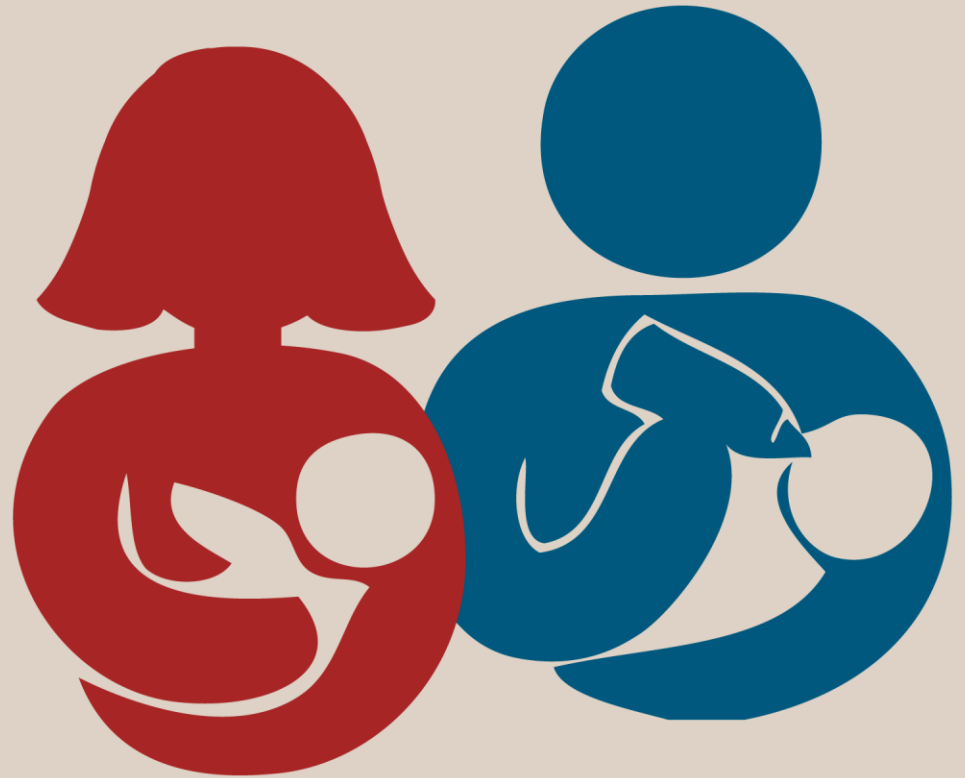
**less likely**

**to achieve**

**tenure**



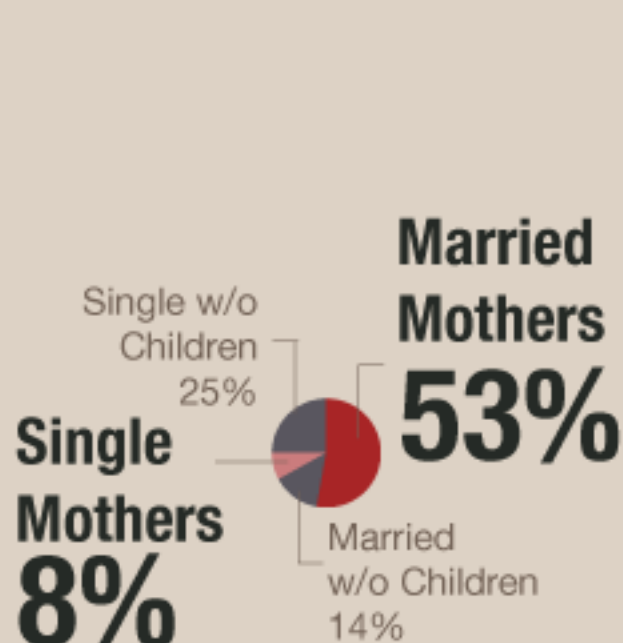
# What is the Cost Career on Family Formation?



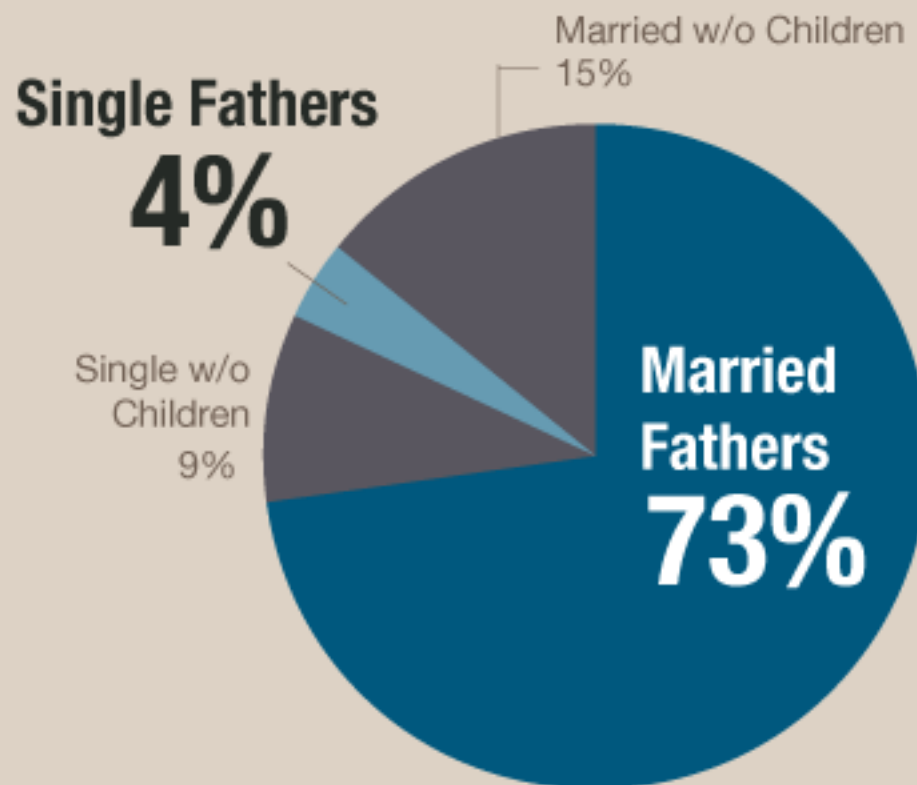
**Women** are far less likely to be married with children than are **men**. 53% vs. 73%



# Family Status of Tenured Faculty in the Sciences



**Women**  
N=3,109



**Men**  
N=19,074

Source: Survey of Doctorate Recipients. Sciences, 1979-1999.

Note: The use of NSF Data does not imply the endorsement of research methods or conclusions contained in this report.

“Postdocs perform a substantial fraction of the skilled work in research labs and are responsible for a disproportionate share of new discoveries. **A 1999 study found that 43% of first authors of research articles in Science were postdocs.**”

➔ *Geoff Davis, author of the Sigma XI Postdoctoral Survey*



Source: NSF-NIH Survey of Graduate Students & Postdoctorates in S&E, 2008; Davis, G. 2006. Improving the Postdoctoral Experience: An Empirical Approach. In R. Freeman and D. Goroff (Eds.), The Science and Engineering Workforce in the United States, Chicago, IL: NBER/University of Chicago Press.

# Most postdoctoral positions are limited term

- ➔ Position frequently capped, 5 yrs total.
- ➔ Postdoctoral scholars considered trainees, not employees.
- ➔ Retirement benefits and other benefits are typically limited.



Source: NSF-NIH Survey of Graduate Students & Postdoctorates in S&E, 2008; Davis, G. 2006. Improving the Postdoctoral Experience: An Empirical Approach. In R. Freeman and D. Goroff (Eds.), The Science and Engineering Workforce in the United States, Chicago, IL: NBER/University of Chicago Press.

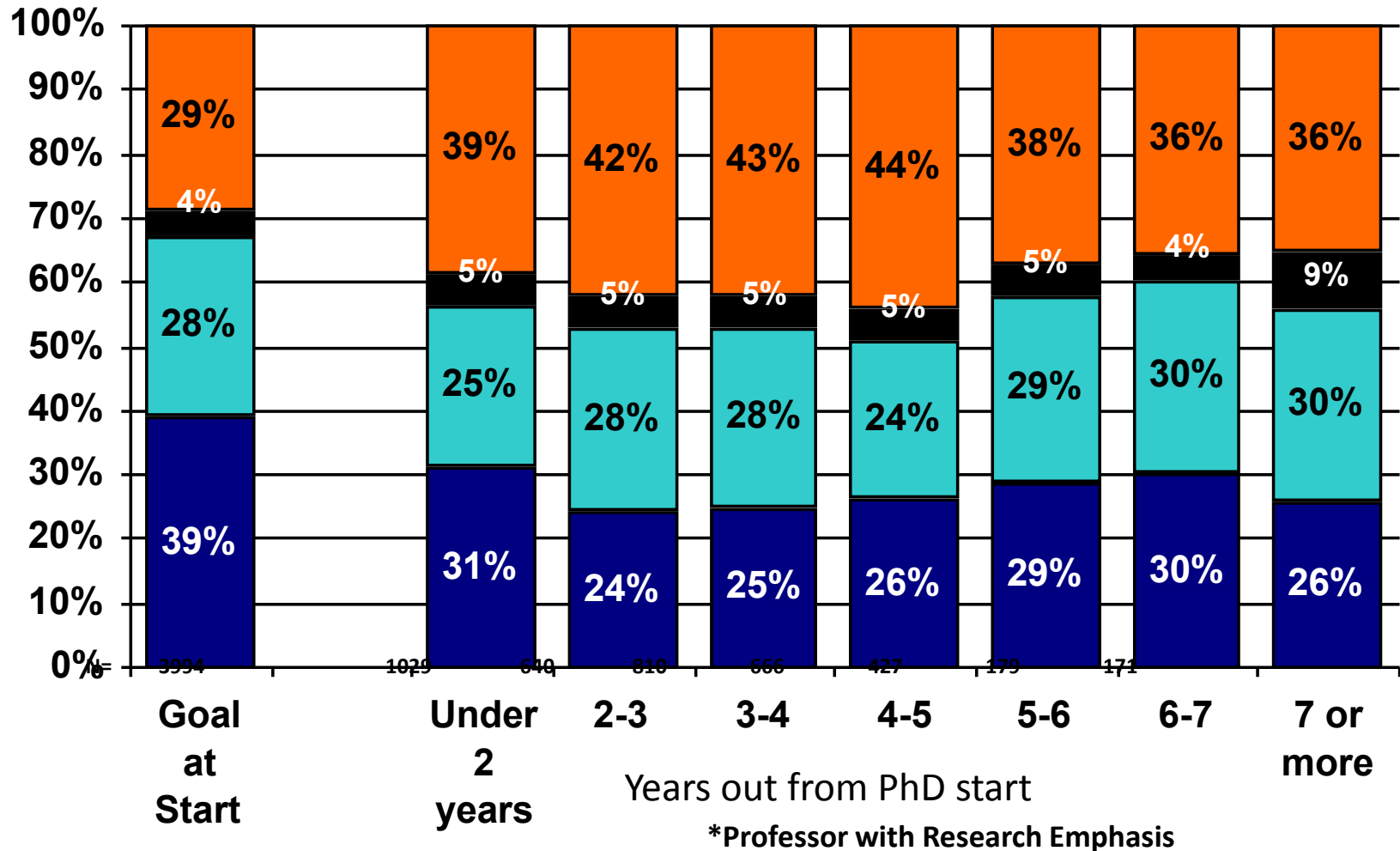
# Mothers Often Make Their Decisions Earlier

**Twice as many women then men are likely to change their career goal away from being a research professor when they have babies as post docs**



# Career Goal at PhD Start and Current Career Goal by Years out from PhD Start: All UC Women PhD Respondents

■ Prof. (rsrch)\* 
 ■ Prof. (teach) 
 ■ Other Acad. 
 ■ Bus., Gov., Other

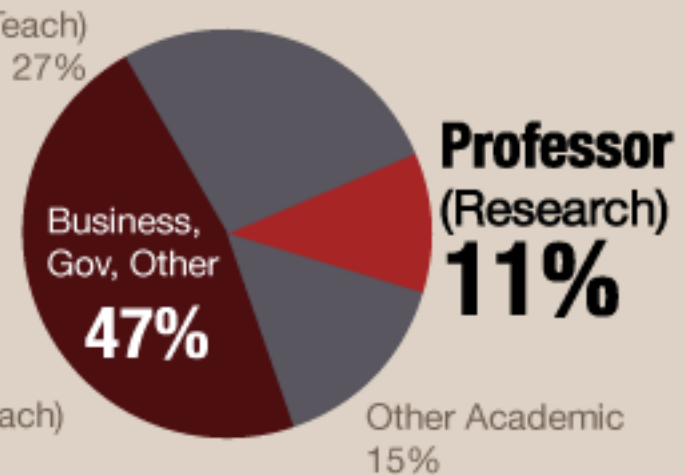
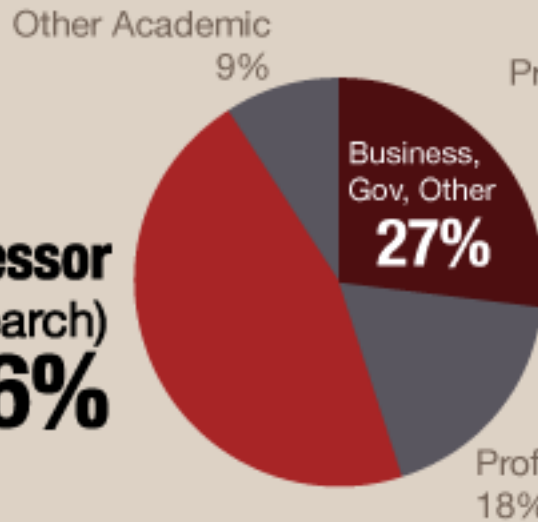




# Changing Career Goals



**Professor  
(Research)  
46%**

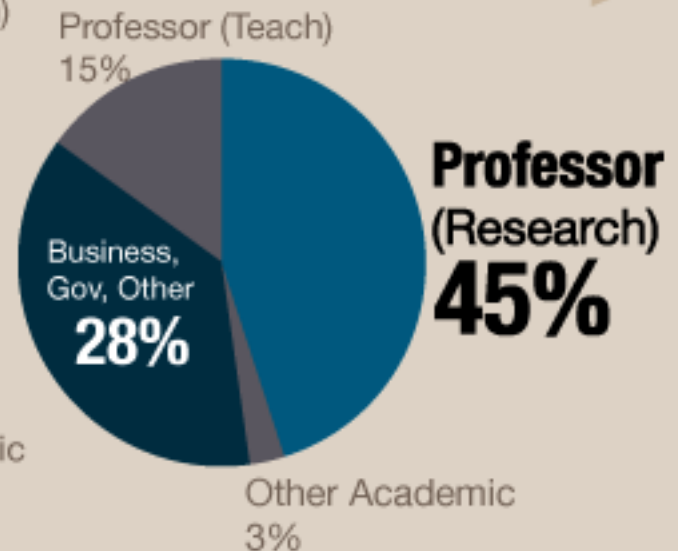
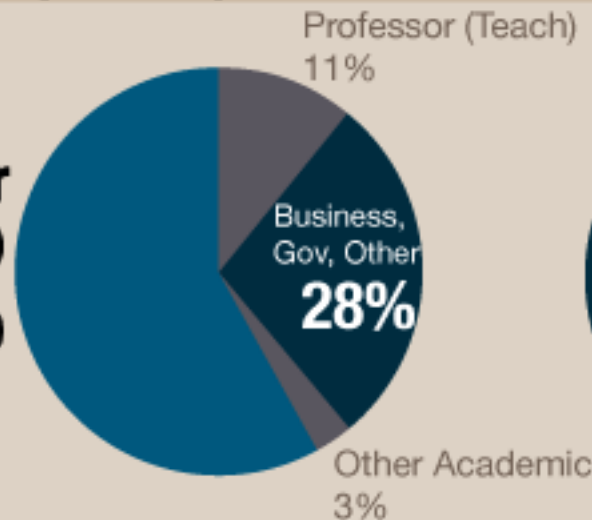


**CAREER GOAL AT START OF PhD**

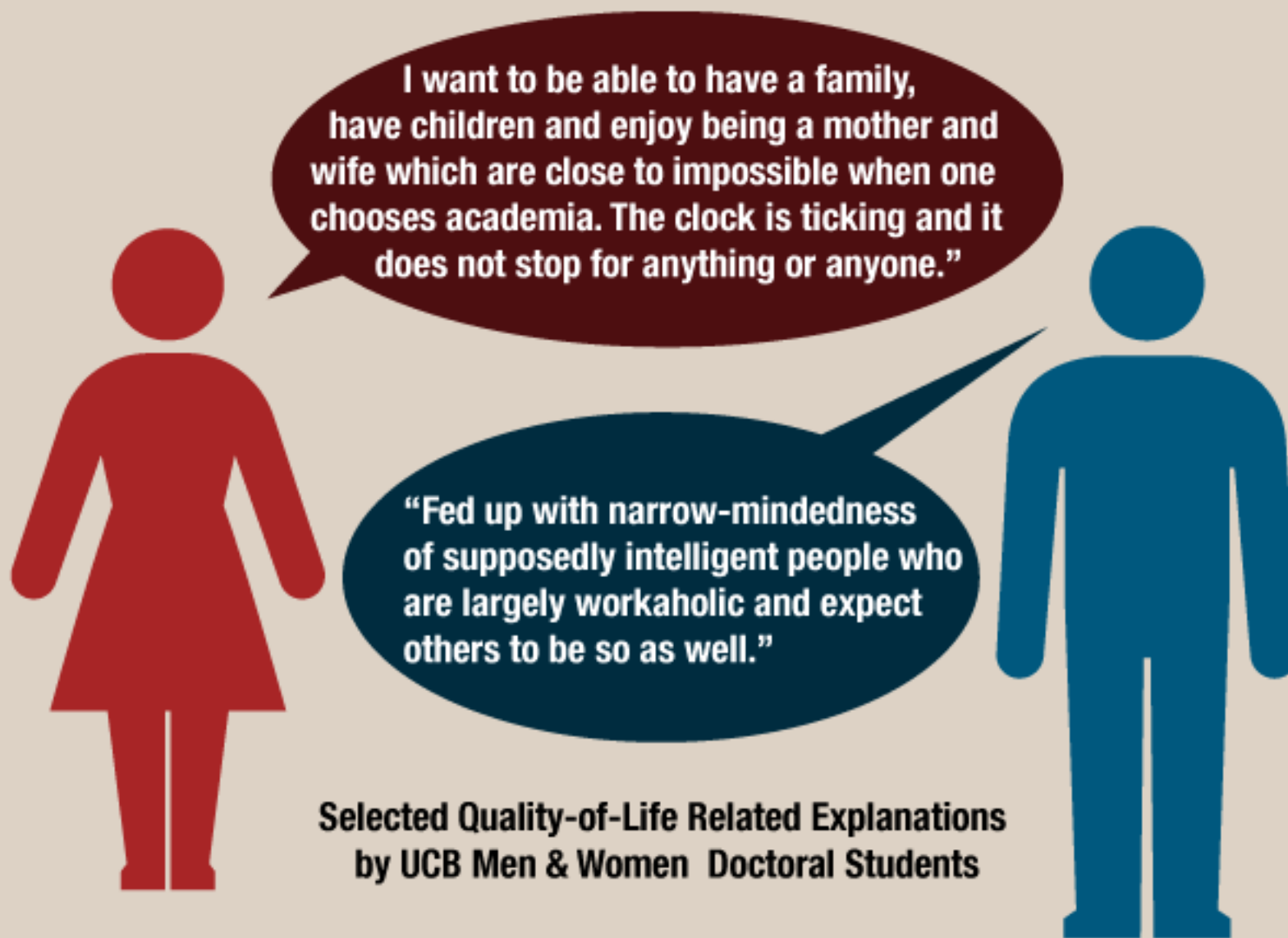
**CURRENT GOAL**



**Professor  
(Research)  
58%**

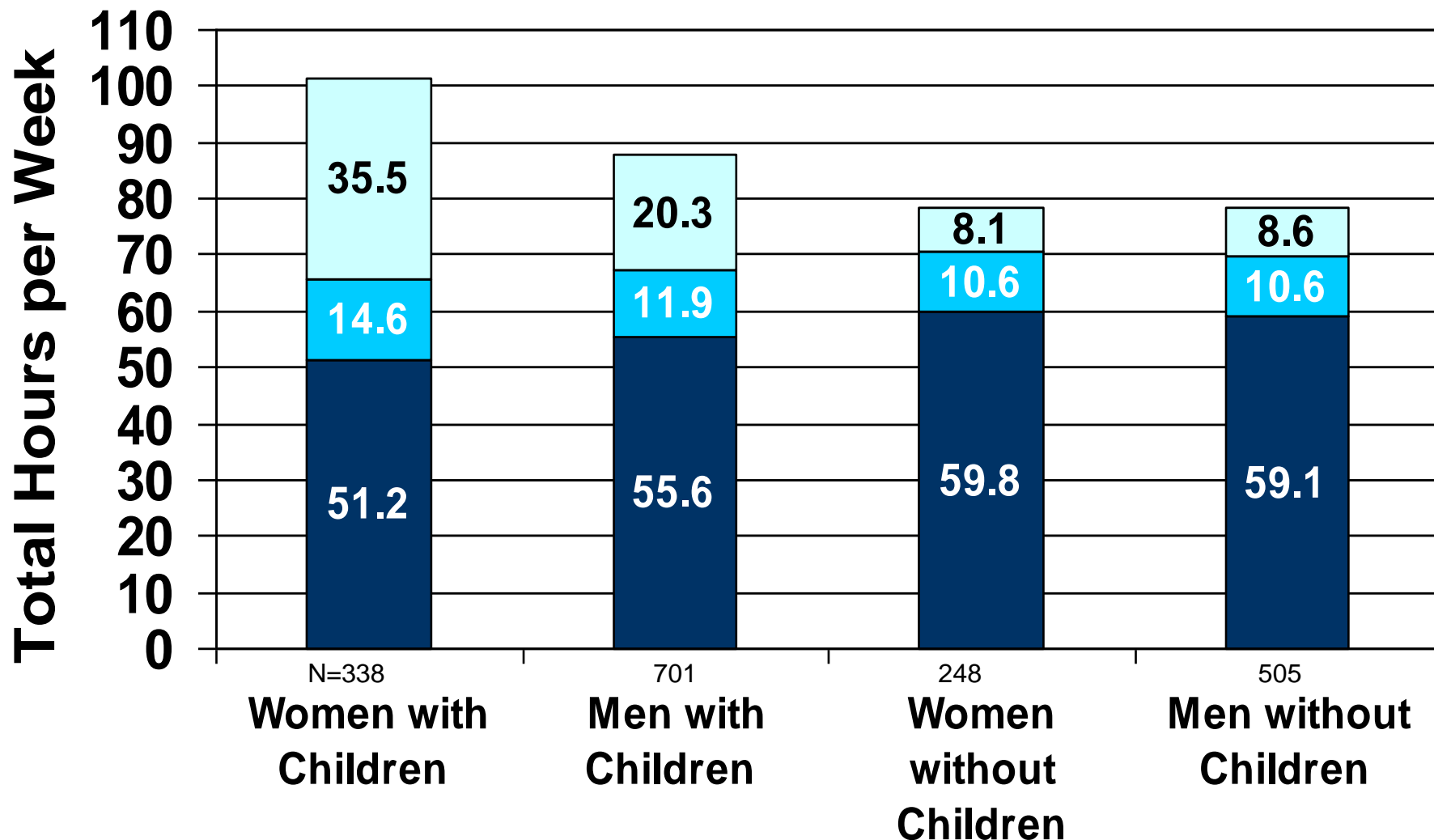


# Shifting Goal away from Professor with Research Emphasis

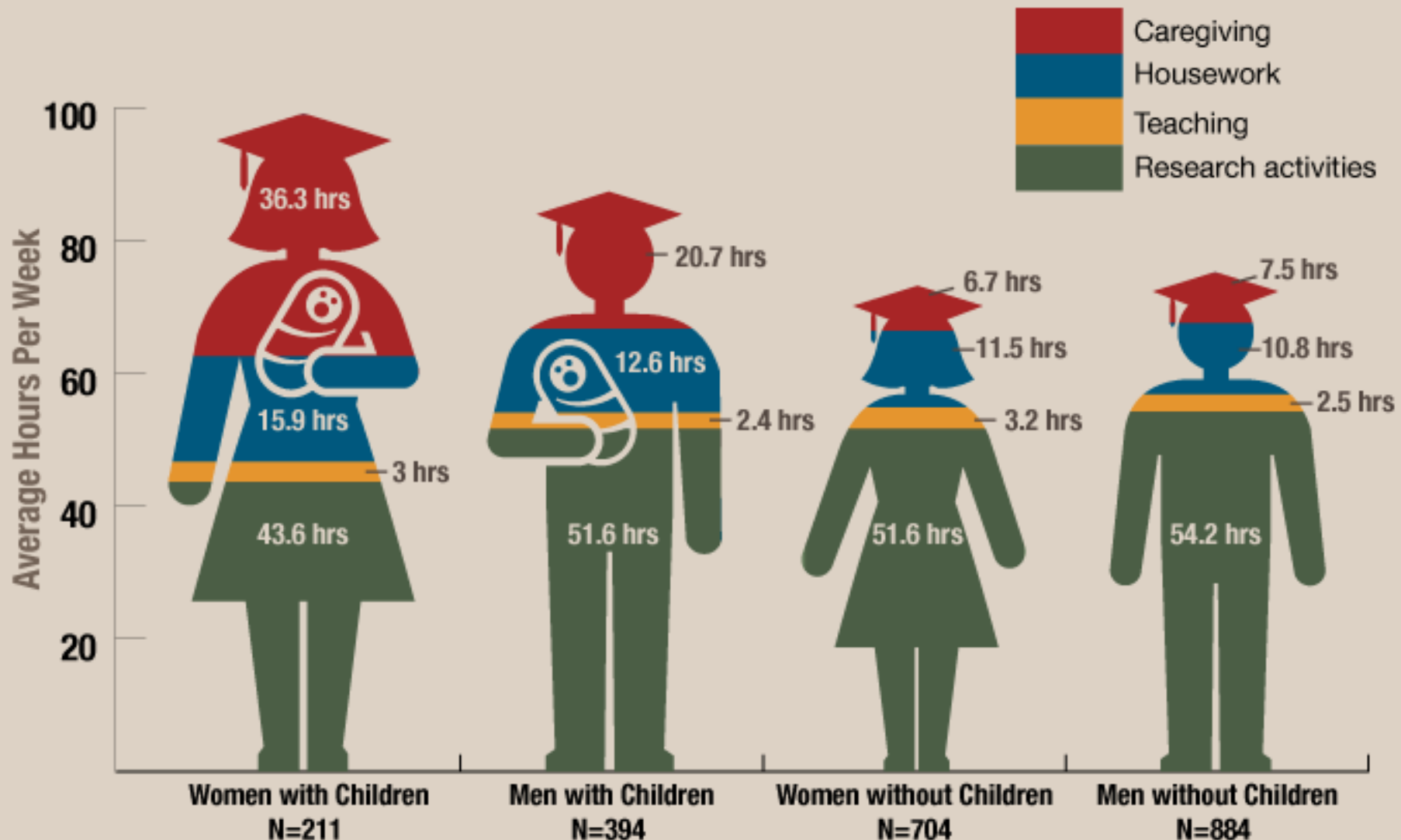


# Everybody is Very Busy (*UC Faculty, ages 30-50*)

■ Professional ■ Housework ■ Caregiving



# Everybody is Busy (UC Postdoctoral Scholars)



Source: Marc Goulden, Mary Ann Mason, and Karie Frasch. 2009. "UC Postdoctoral Career Life Survey."  
(<http://ucfamilyedge.berkeley.edu/grad%20life%20survey.html>).

# Workplace Strategies to Stay on the Fast Track

## Leaves

- ✓ Paid maternal leave
- ✓ **Parental leave for fathers and mothers**
- ✓ Centralized funding for maternity and parental leaves
- ✓ Family Leave (up to a year) at any time to accommodate family illness

## Part-Time Track

- ✓ Part Time Track: Up to Five years with right of return to full-time

## Stop-the-Clock for Promotions

- ✓ Stop-the-Clock policy for mothers, triggered automatically
- ✓ **Stop-the-Clock policy for fathers, triggered automatically**

Leaves

Part-Time Track

Stop the Clock

Childcare

## Childcare

- ✓ Childcare center, with spaces for infants
- ✓ Secure childcare positions for recruitment purposes
- ✓ Offer dependent care travel grants
- ✓ Emergency childcare

**Miscellaneous:** Adoption expenses, Lactation rooms

# Best Practices

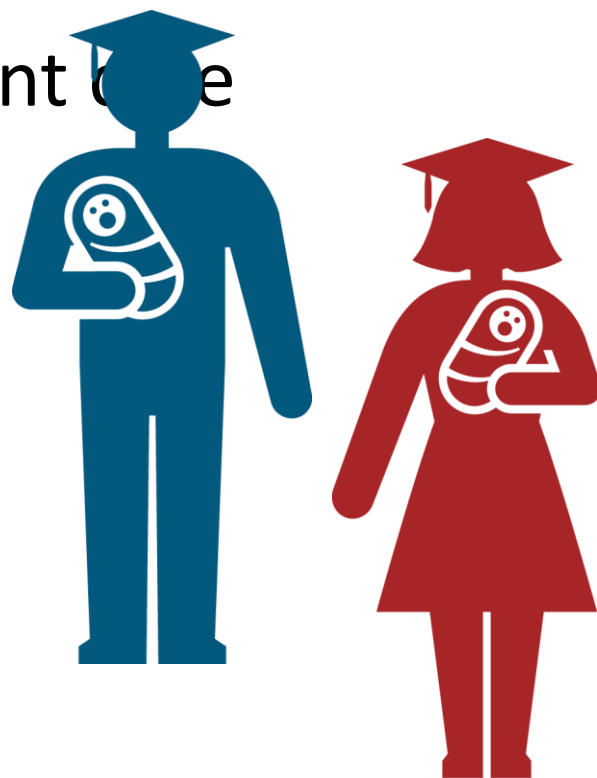
- Paid maternal disability leave  
(at least six weeks)
- Parental leave  
(For those fathers responsible for at least half of caregiving)
- Stop the Clock (for deadlines, time to completion, grants, etc. for mothers (and eligible fathers))



# Best Practices

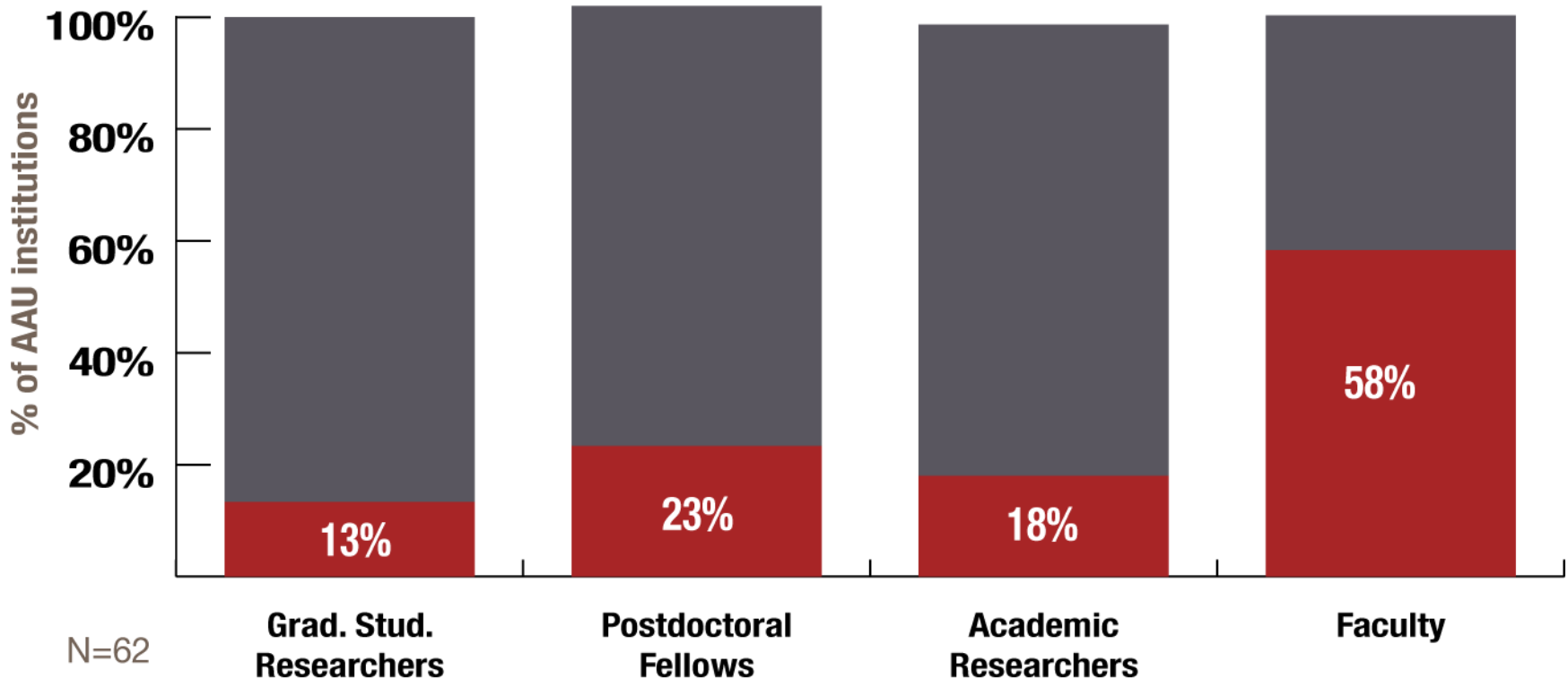
## CHILDCARE

- Childcare center, with space for infants
- Offer subsidised dependent care travel grant
- Emergency childcare



# Provision of PAID MATERNITY LEAVE for Academic Populations at Association of American Universities (AAU)

**Entitlement to at least 6 weeks of paid leave.**



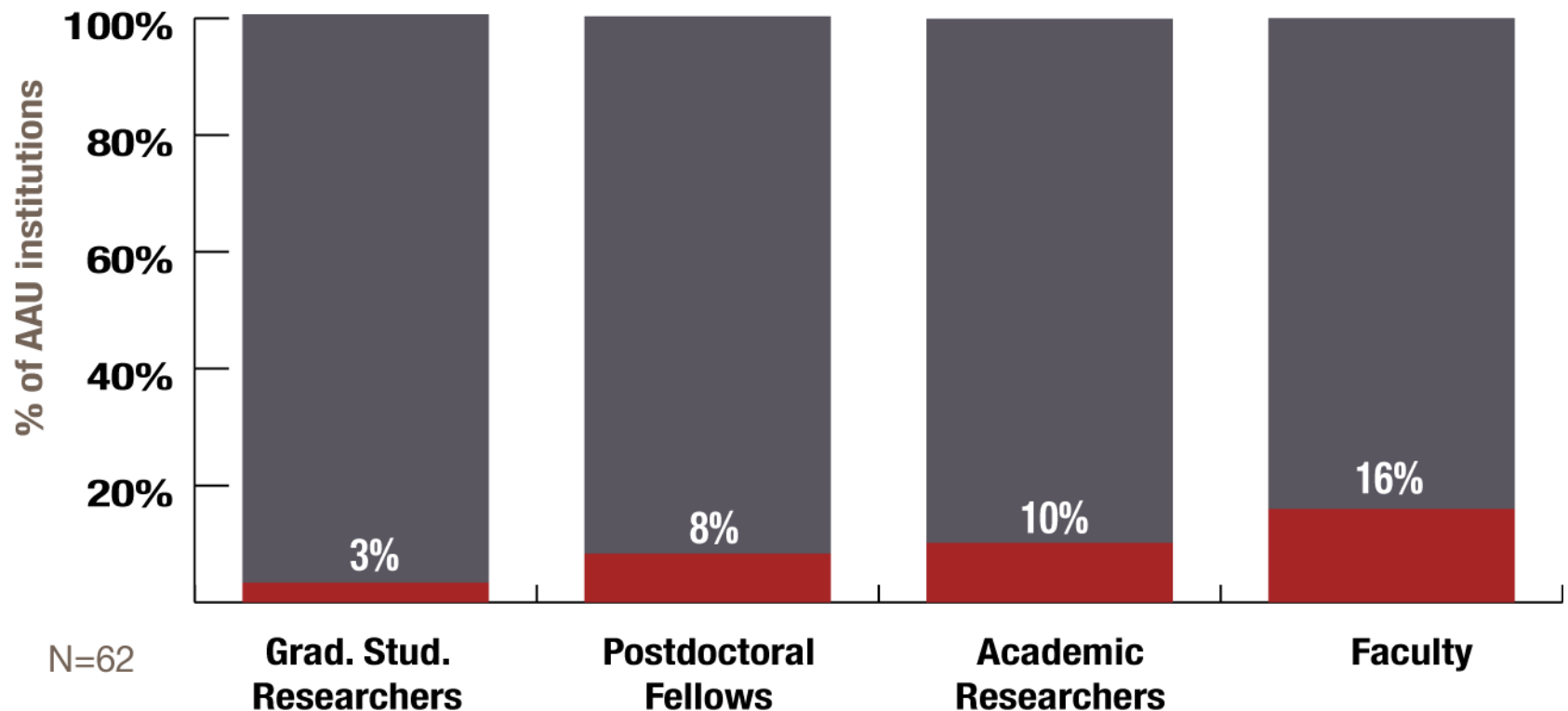
Source: Mason, Mary Ann, Marc Goulden, and Karie Frasch. 2008.

“Family Accommodation Policies for Researchers at AAU Universities Survey.”



# Provision of PAID PARENTAL LEAVE for Academic Populations at Association of American Universities (AAU)

**Entitlement to at least 1 week of paid leave.**



N=62

Source: Mason, Mary Ann, Marc Goulden, and Karie Frasch. 2008. "Family Accommodation Policies for Researchers at AAU Universities Survey."

# University Federal Agency Partnership

## SUPPLEMENTS

- ☑ Provide federal Agency or University supplements to offset family event productivity loss and help PIs.

Offer time flexibility in all grants and fellowships to accommodate childbirth.

## RE-ENTRY POSTDOCS

- ☑ To Accommodate Time taking for Family Leave

## Family Friendly Policies

- ☑ Collaboratively move toward a full package of baseline family friendly practices

Include graduate students postdoctoral fellows in all family friendly policies.

# National Science Foundation

## Initiatives

- ☑ Allow postponement for one year of grants because of childbirth or adoption.
- ☑ Allow grant suspension for parental leave.
- ☑ Provide supplementary funds to cover the cost of hiring research technicians to maintain laboratories when grant recipients are on family leave.
- ☑ Permit those serving on peer review panels to meet with their colleagues virtually, rather than in person, to reduce child-care needs created by travel.
- ☑ Fund more research on the effectiveness of policies that are designed to keep women in the science pipeline.

# Title IX and STEM Fields

*“If we’re going to out-innovate and out-educate the rest of the world, we’ve got to open doors for everyone. We need all hands on deck, and that means clearing hurdles for women and girls as they navigate careers in science, technology, engineering, and math.”*

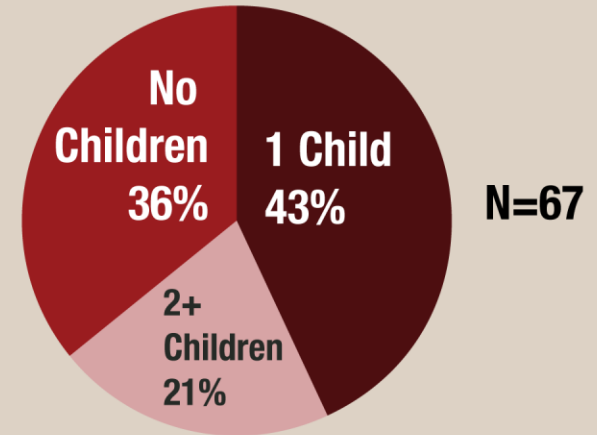
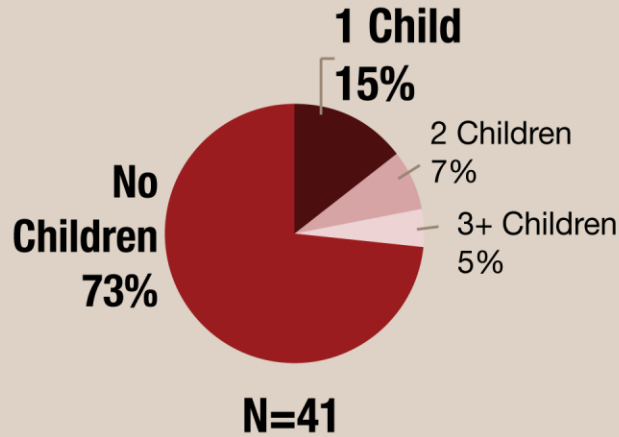
*-- First Lady Michelle Obama, September 26, 2011*

# Pregnancy Discrimination

*“A recipient shall not discriminate against any student, or exclude any student from its education program or activity, including an class or extra curricular activity, on the basis of such student’s pregnancy childbirth, false pregnancy, termination of a pregnancy or recovery there from.”*

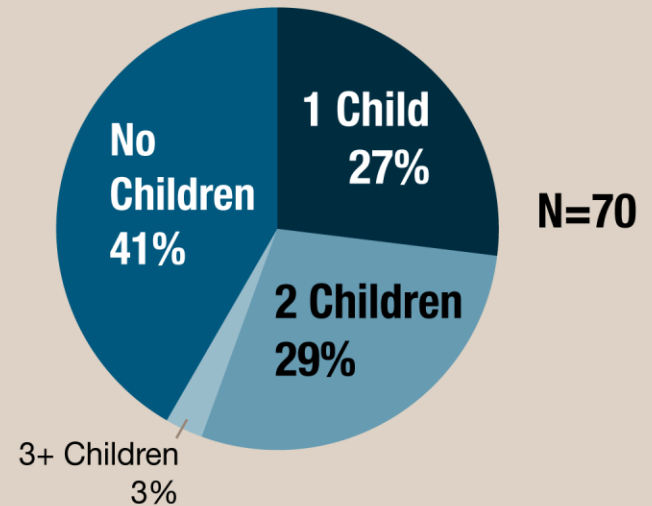
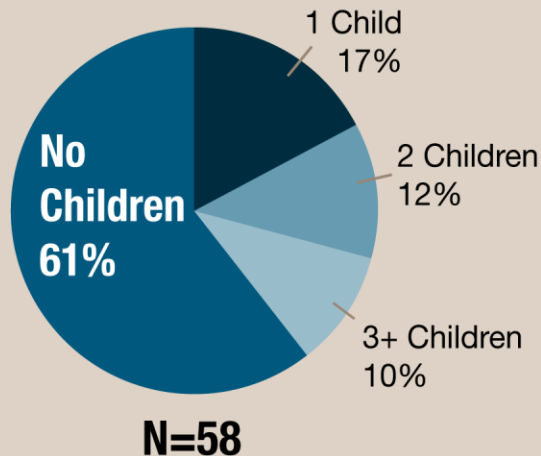
- 1) Education program or Activity
- 2) Employment
- 3) Medical Coverage

# # of Children born to UC Berkeley Assistant Professors



SPRING 2003

SPRING 2009



**DO**  
**BABIES**  
**MATTER?**



**GENDER AND FAMILY  
IN THE IVORY TOWER**

**Mary Ann Mason • Nicholas H. Wolfinger**  
**Marc Goulden**



Boosting the Retention of **Women** in the  
STEM Pipeline

[www.toolsforchangeinstem.org](http://www.toolsforchangeinstem.org)



**Mary Ann Mason,**  
Professor of the Graduate School UC Berkeley and  
Faculty Co-Director of the Earl Warren Institute for Law  
and Social Policy



**Joan C. Williams,**  
Distinguished Professor of Law and  
1066 Foundation Chair at University of  
California, Hastings College of the Law

## Level the Playing Field Workshops

- ▶ Do Babies Matter? I, II, II
- ▶ It's Cheaper to Keep Her
- ▶ Best Practices for Family Friendly Policies
- ▶ Double Jeopardy?: How Gender Bias Differs by Race
- ▶ What Works for Women at Work
- ▶ Some Things are Illegal

## It's Cheaper to Keep Her Simulator

Developed by UC Berkeley economists, allows your department or institution to perform a cost/benefit analysis on the presence or absence of family friendly policies, based on the characteristics of the faculty in your own institution or department.

## Facilitator's Guides

Complete training guides are available for groups to facilitate their own training sessions using the videos, and additional materials available through our website.

**WORKLIFE LAW**  
UC Hastings College of the Law

In partnership with:

# AWIS

ASSOCIATION FOR WOMEN IN SCIENCE

AWIS is today's premiere leadership organization advocating the interests of women in science and technology.

This material is based upon work supported by the National Science Foundation under Grant Number (1106411).