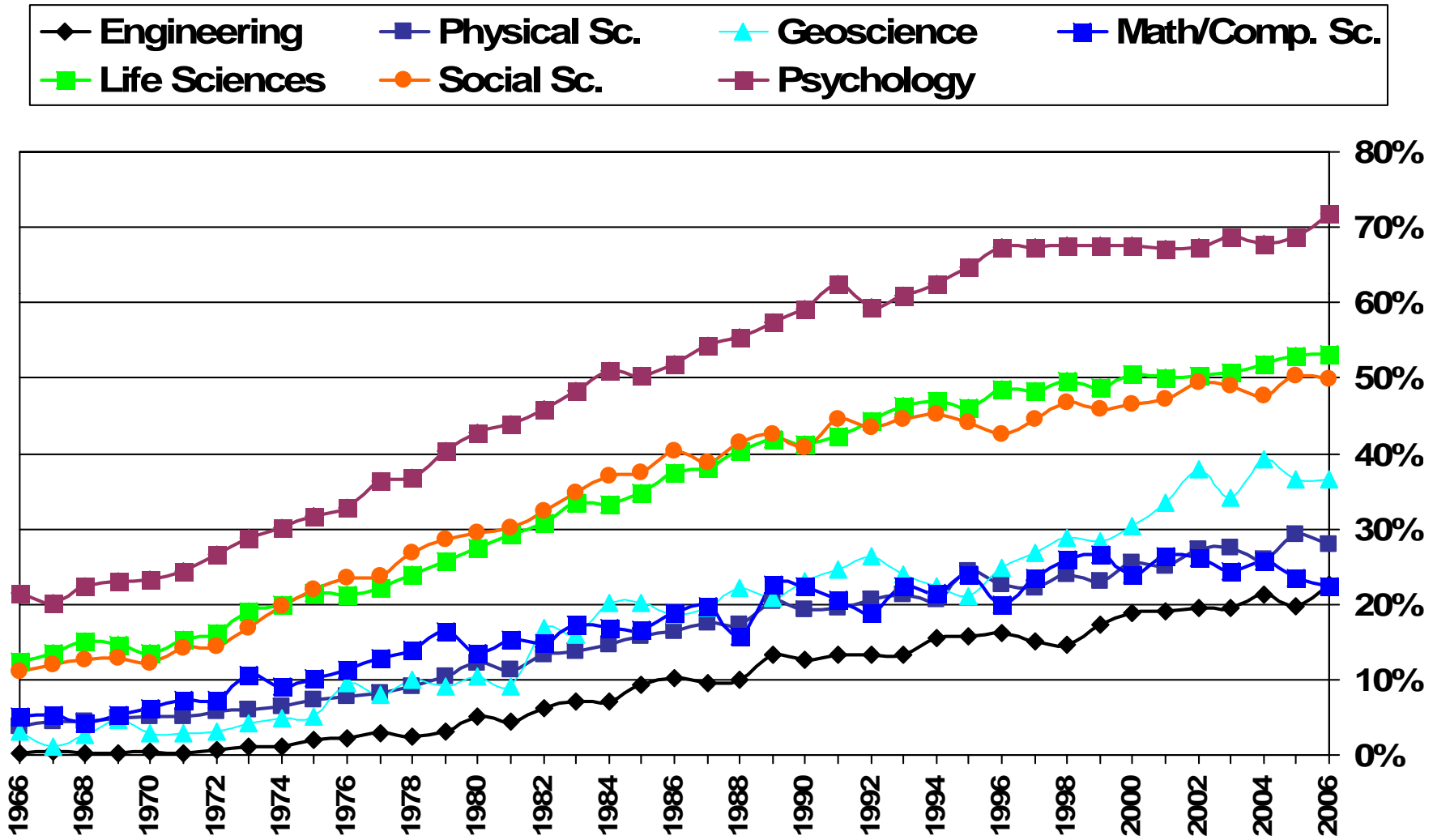


Federal Grants, Universities and the Academic Pipeline

**Coming Together
CHEFS and ACE Conference
Funded by the Alfred P. Sloan Foundation
April 21, 2010**

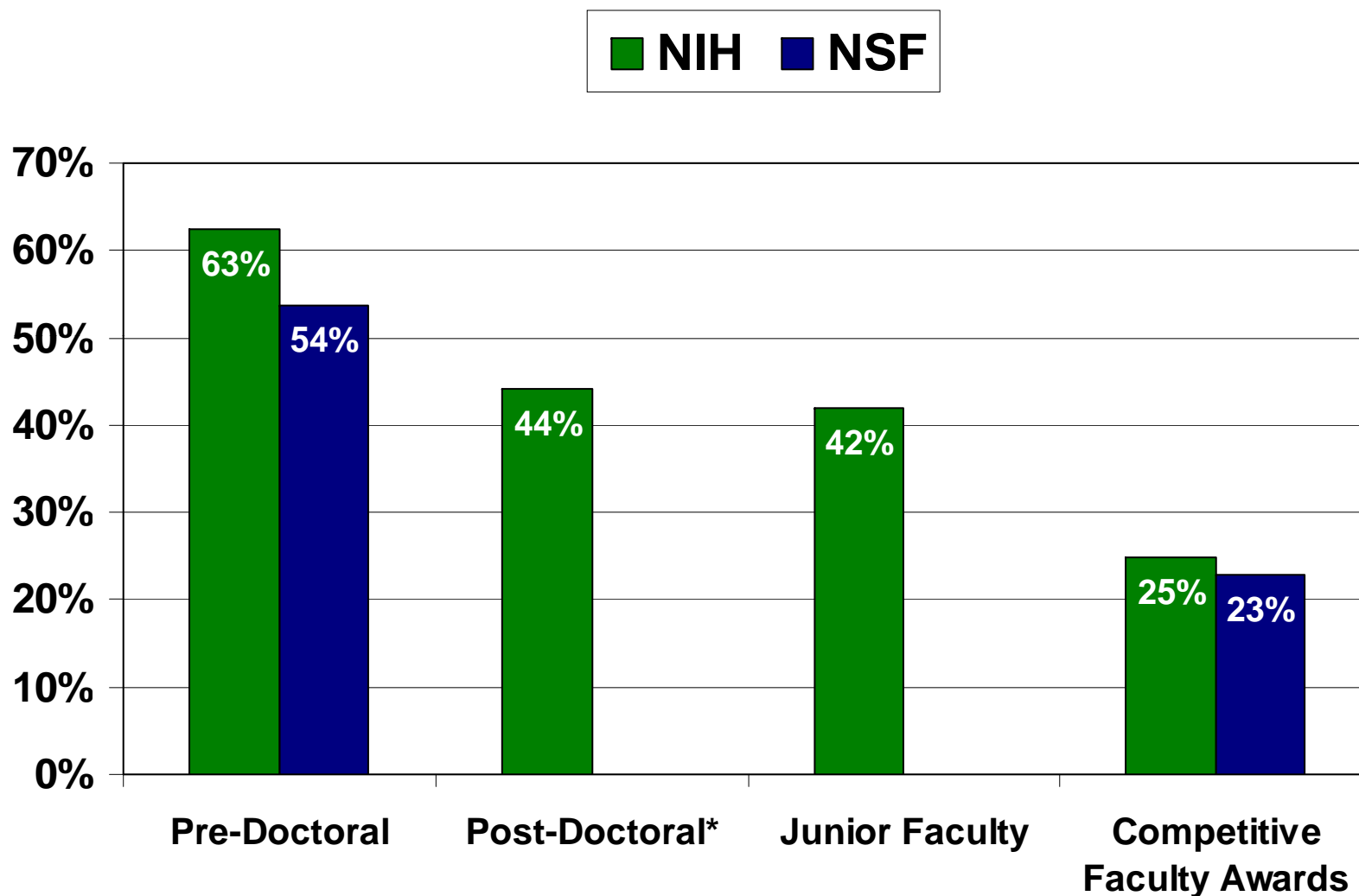
**Mary Ann Mason, Marc Goulden, Karie Frasch
University of California, Berkeley**

Women as a Percent of Doctoral Recipients in the United States (*U.S. Citizens Only*), Sciences, 1966-2006



Source: National Science Foundation (NSF), Survey of Earned Doctorates, retrieved from WebCaspar, 4/15/2009.²

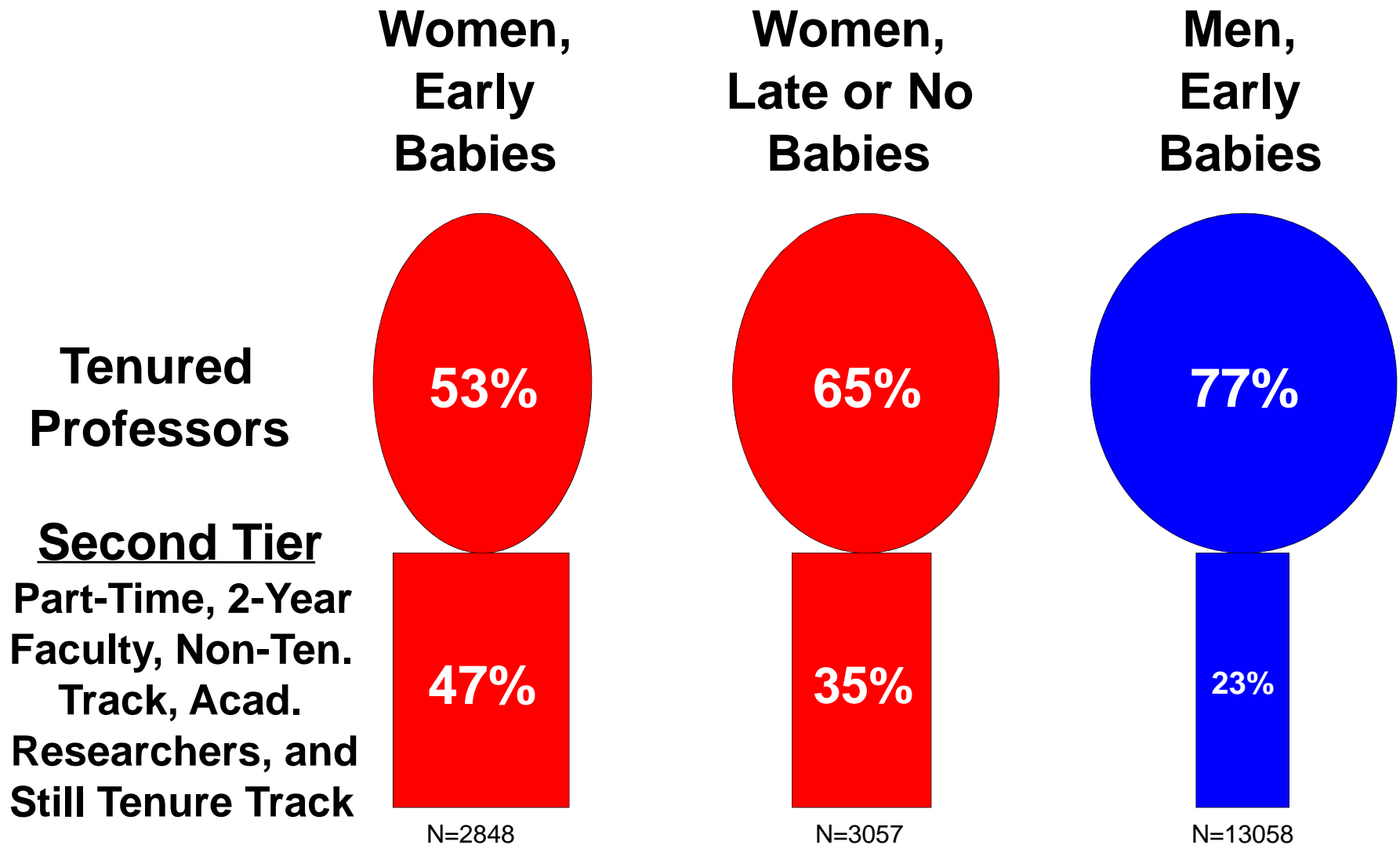
Problems in the Pipeline: Women as a Percent of NIH and NSF Awards*, by Level of Award (2007)



Source: NIH and NSF Accountability Reports, 2008.

* The postdoctoral award information for NSF is missing significant data (39% of awards were to women, 47% to men, and 14% of the sample was unknown in 2007). We chose not to include the data point because it is not comparable to the others. Source: Fae Korsmo, Senior Advisor, Office of the Director, NSF.

Heads and Necks of Science PhD Recipients*



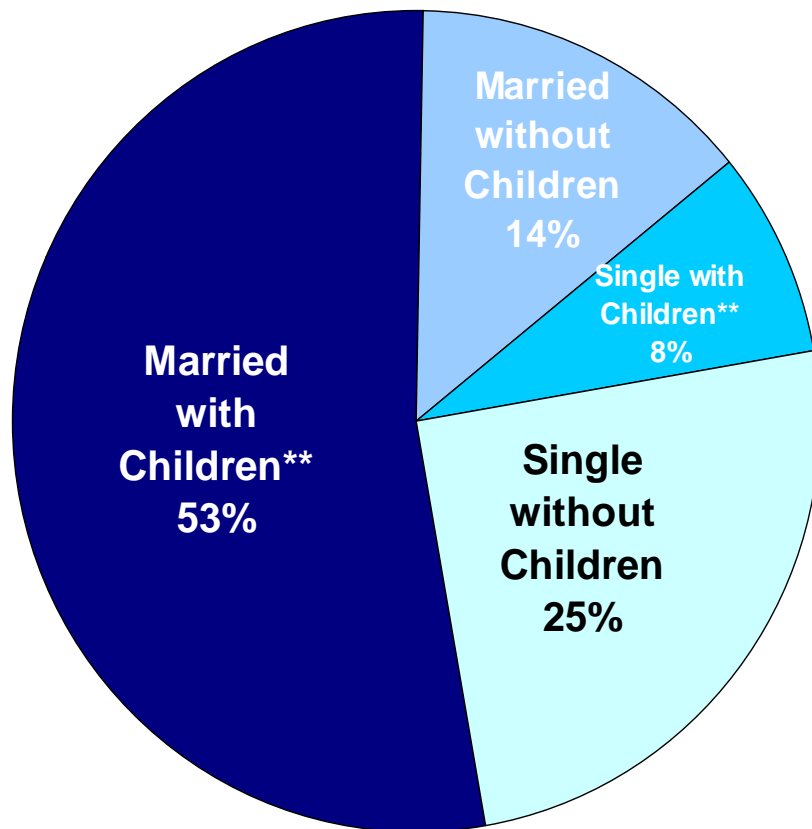
***PhDs from 1978-1984 Who Are Working in Academia 12 to 14 Years Out from PhD**

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.

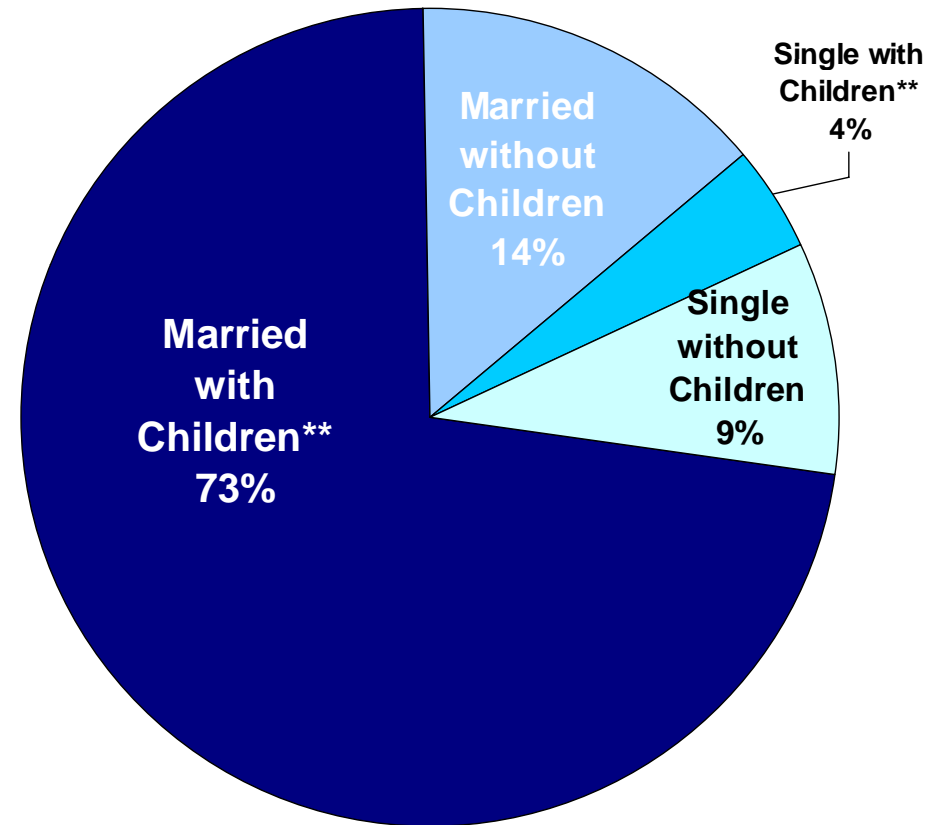
Family Status of Tenured Faculty in the Sciences*

Women



N=3109

Men



N=19,074

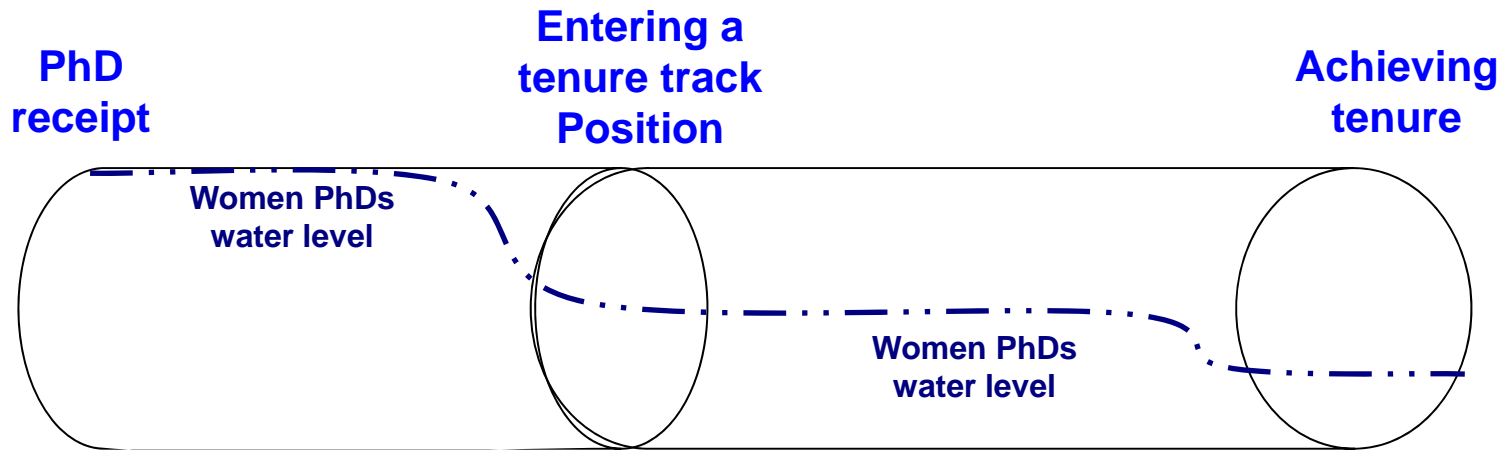
*PhDs from 1978-1984 Who Are Tenured 12 Years out from PhD in **STEM & Bio. Sciences.**

**Had a child in the household at any point post PhD to 12 years out.

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.

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



Married women with young children

- 35% lower odds than married men with young children to get a tenure-track position
- 28% lower than married women without young children
- 33% lower than single women without young children

Married women without young children

- 8% lower odds than married men without young children to get a tenure-track position
- 10% lower than single women without young children

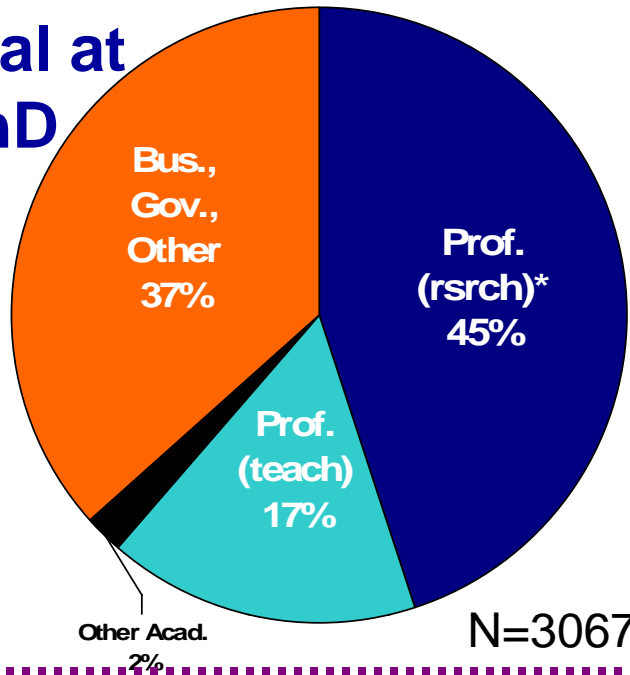
Married women with young children

- 27% lower odds than married men with young children to become tenured
- 13% lower than married women without young children
- 4% lower than single women without young children

*Results are based on survival analysis of the *Survey of Doctorate Recipients* (a national biennial longitudinal data set funded by the National Science Foundation and others, 1981 to 2003) in **all sciences, including social sciences**. The analysis takes into account discipline, age, ethnicity, PhD calendar year, time-to-PhD degree, and National Research Council academic reputation rankings of PhD program effects. For each event (PhD to TT job procurement, or TT job to tenure), data are limited to a maximum of 16 years. The waterline is an artistic rendering of the statistical effects of family and gender. Note: The use of NSF Data does not imply the endorsement of research methods or conclusions contained in this report. Person-year N for entering tenure track=140,275. Person-year N for achieving tenure=46,883.

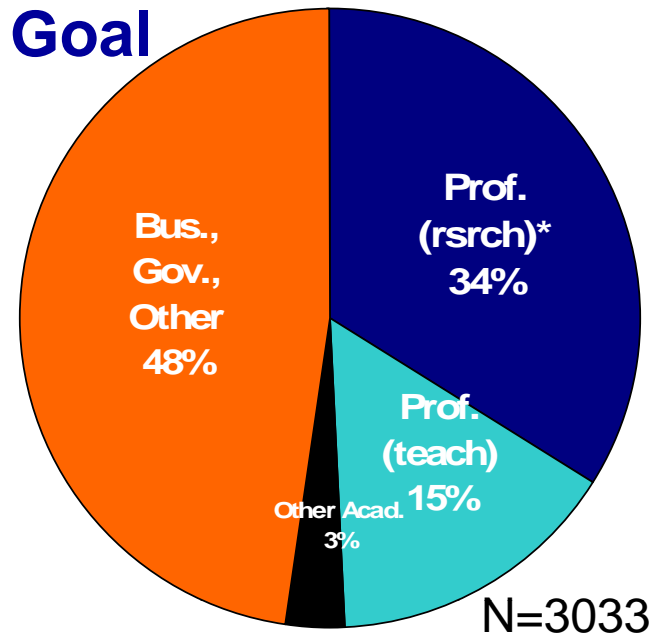
Career Goal at Start of PhD

Men



Current Goal

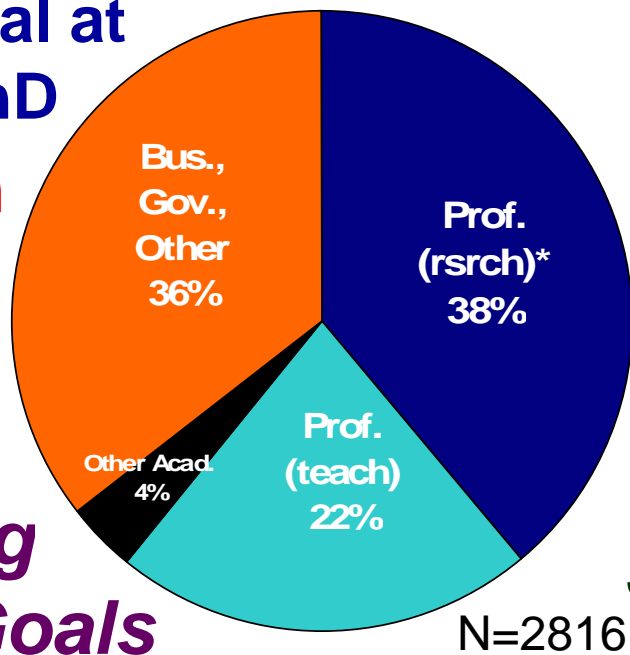
Men



**Professor w. Research Emphasis*

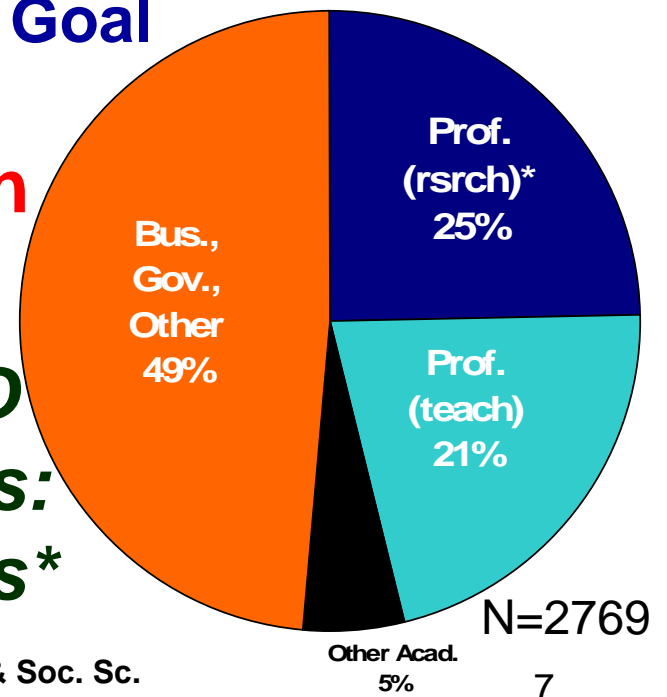
Career Goal at Start of PhD

Women



Current Goal

Women



Changing Career Goals

UC PhD Students: Sciences*

*Phys., Bio., & Soc. Sc.

**Reasons Most Commonly Cited by UC PhD Students in the Sciences* for
Shifting Career Goal away from Professor with Research Emphasis**

% Citing Factor As “Very Important**” in Career Goal Shift		Total	Men	Women
1	Negative experience as PhD student	44%	44%	45%
2	Other life interests	42%	35%	48%
3	Professional activ. too time consuming	41%	35%	47%
4	Issues related to children	34%	20%	44%
5	Geographic location Issues	33%	27%	37%
6	Feelings of isolat./alienation as PhD stud.	31%	30%	31%
7	Career advancement issues	30%	33%	27%
8	Job security	28%	28%	28%
9	Bad job market	27%	27%	27%
10	Monetary compensation (e.g. salary, ben.)	26%	31%	22%
11	Spouse/partner issues or desire to marry	26%	21%	29%
12	Other career interests	24%	22%	26%

*Phys., Bio., & Soc. Sc.

**Not applicable is excluded from analysis.

N=797 to 1006

358 to 475

435 to 526

Yellow shading indicates the group's response is significantly higher than the other group's response (P<.01).

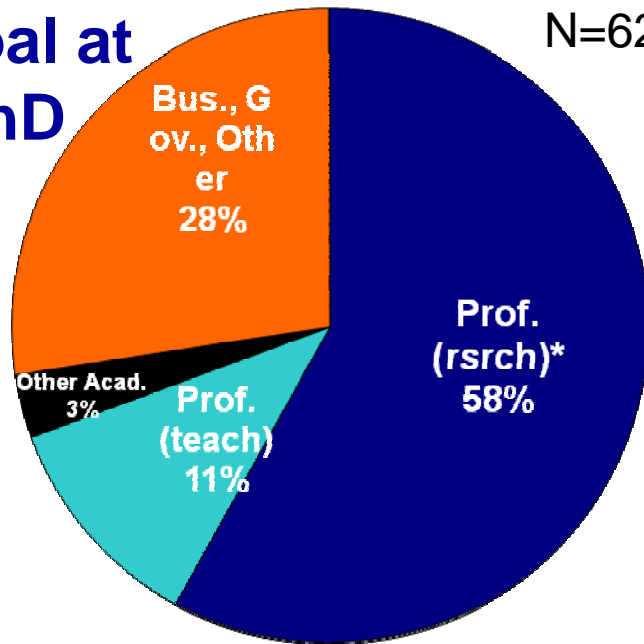
Source: Mason, Mary Ann and Marc Goulden. 2006. “UC Doctoral Student Career Life Survey.” (<http://ucfamilyedge.berkeley.edu/grad%20life%20survey.html>).

Shifting Goal away from Professor with Research Emphasis: Selected Quality-of-Life Related Explanations by UCB Men & Women Doctoral Students

- ***“I feel unwilling to sacrifice a healthy family life and satisfying personal life to succeed in academics, and thus industrial options have become more appealing.”***
- ***“Fed up with narrow-mindedness of supposedly intelligent people who are largely workaholic and expect others to be so as well.”***
- ***“I look at the lives of the professors I see every day, and I want to emulate none of them.”***
- ***“I really want to be a mom. This seems like an extremely difficult goal to align with the goal of being a faculty member at a top university in engineering.”***
- ***“Since beginning my doctoral work, I have become convinced that very few, if any, female professors are able to have stable, fulfilling family lives of the sort that I wish for (a stable marriage and children).”***
- ***“Academia is not very supportive of women. There are challenges at every step of the way in terms of having to make choices. I want to be able to have a family, have children and enjoy being a mother and wife which are close to impossible when one chooses academia. The clock is ticking and it does not stop for anything or anyone.”***

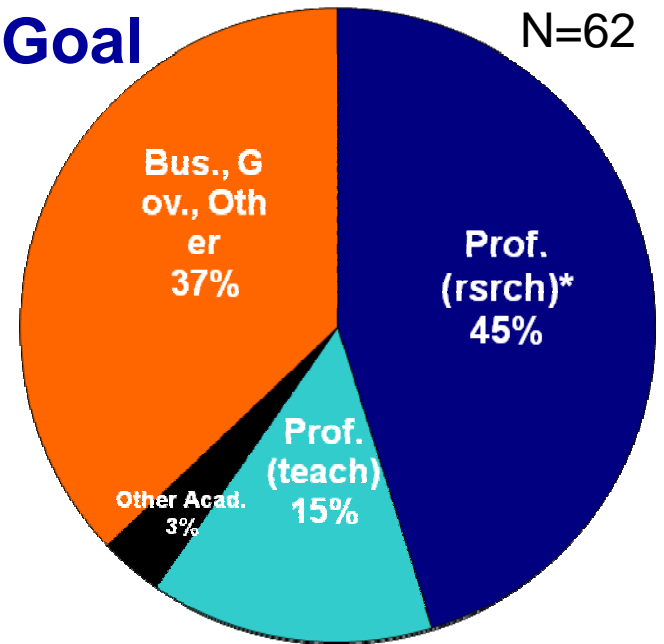
Career Goal at Start of PhD

Men



Current Goal

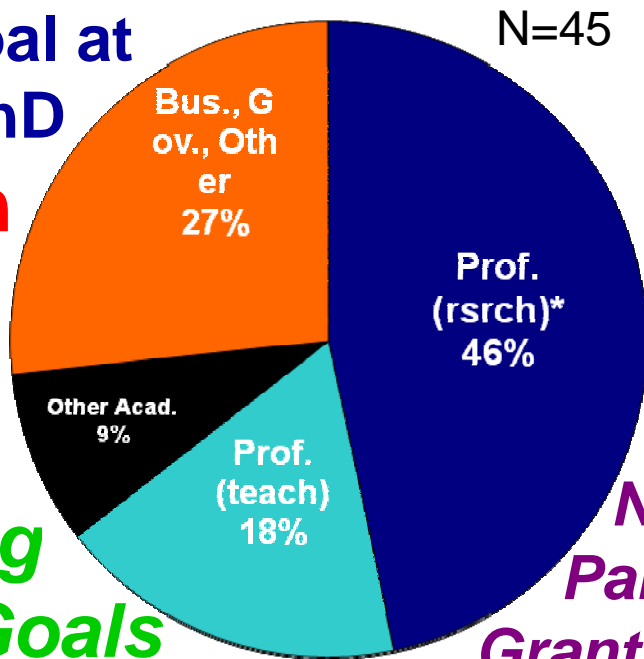
Men



**Professor w. Research Emphasis*

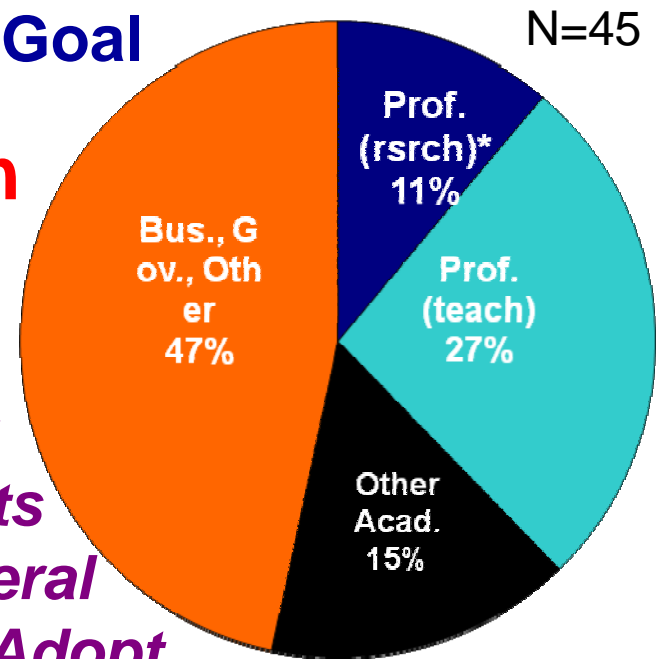
Career Goal at Start of PhD

Women



Current Goal

Women

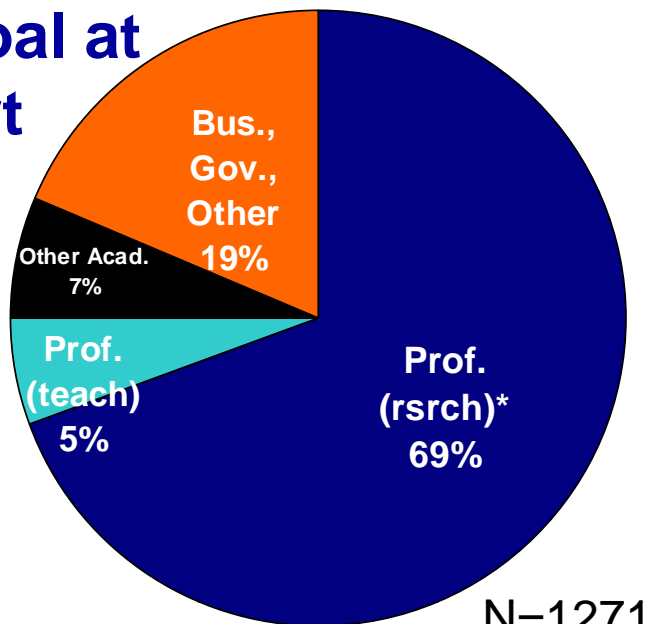


Changing Career Goals

*UC PhD Students:
New Parents
Paid Off Federal
Grants at Birth/Adopt.*

Career Goal at Pdoc Start

Men

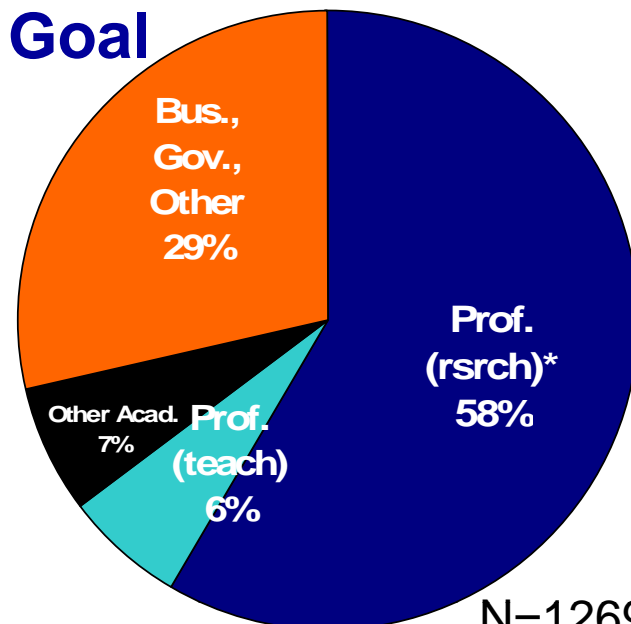


**Professor w. Research Emphasis*

N=1271

Current Goal

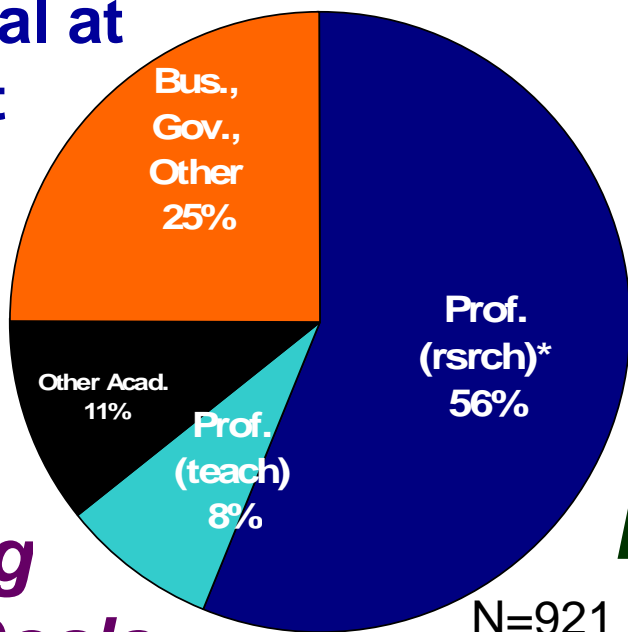
Men



N=1269

Career Goal at Pdoc Start

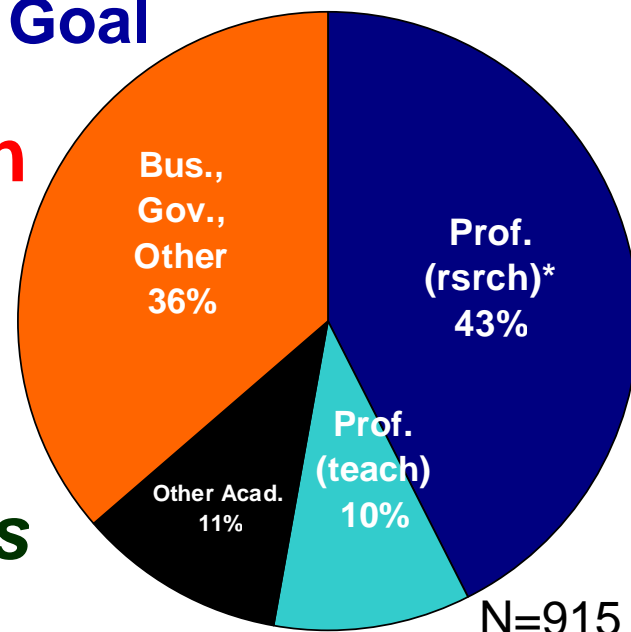
Women



N=921

Current Goal

Women

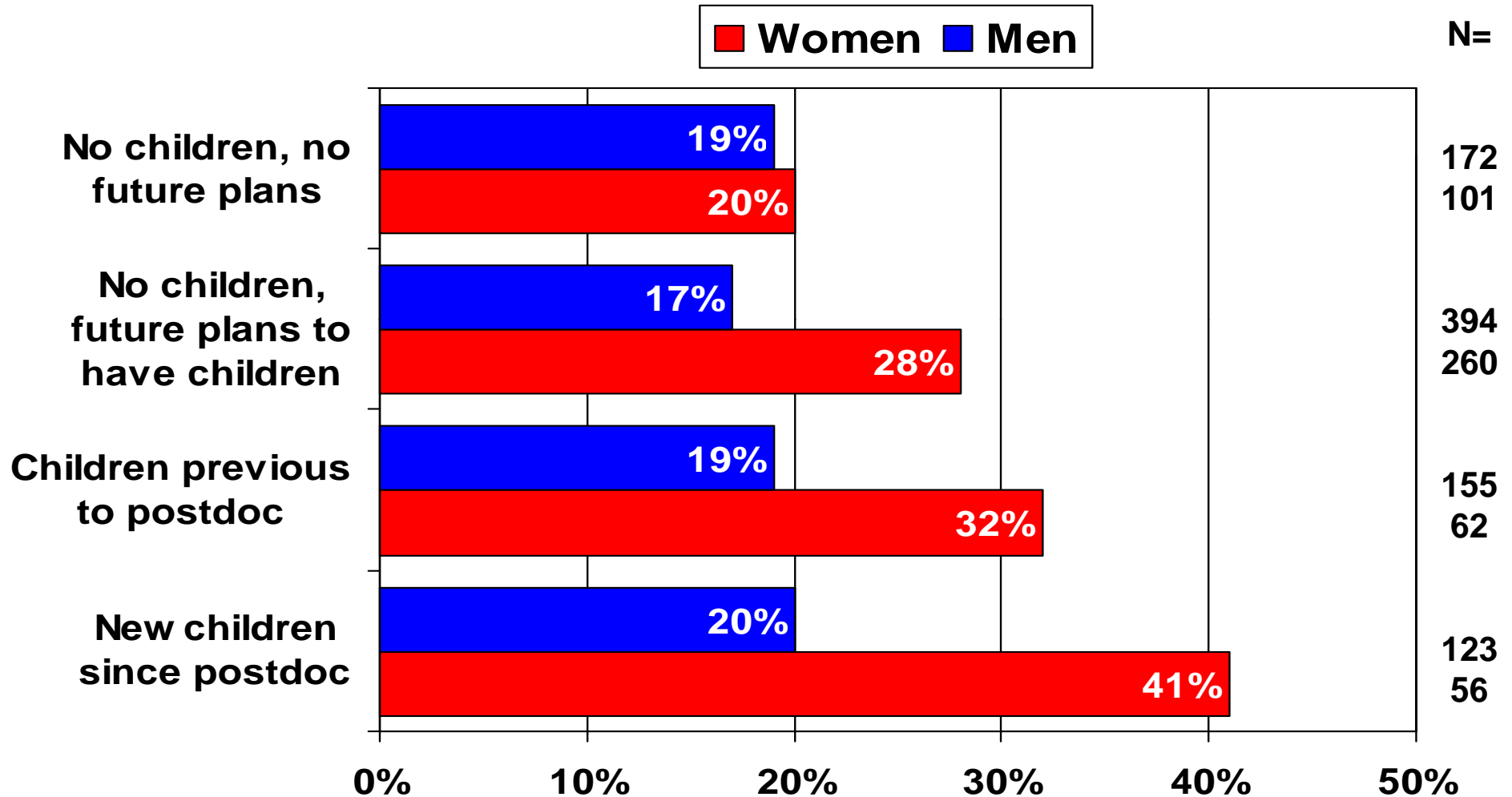


N=915

Changing Career Goals

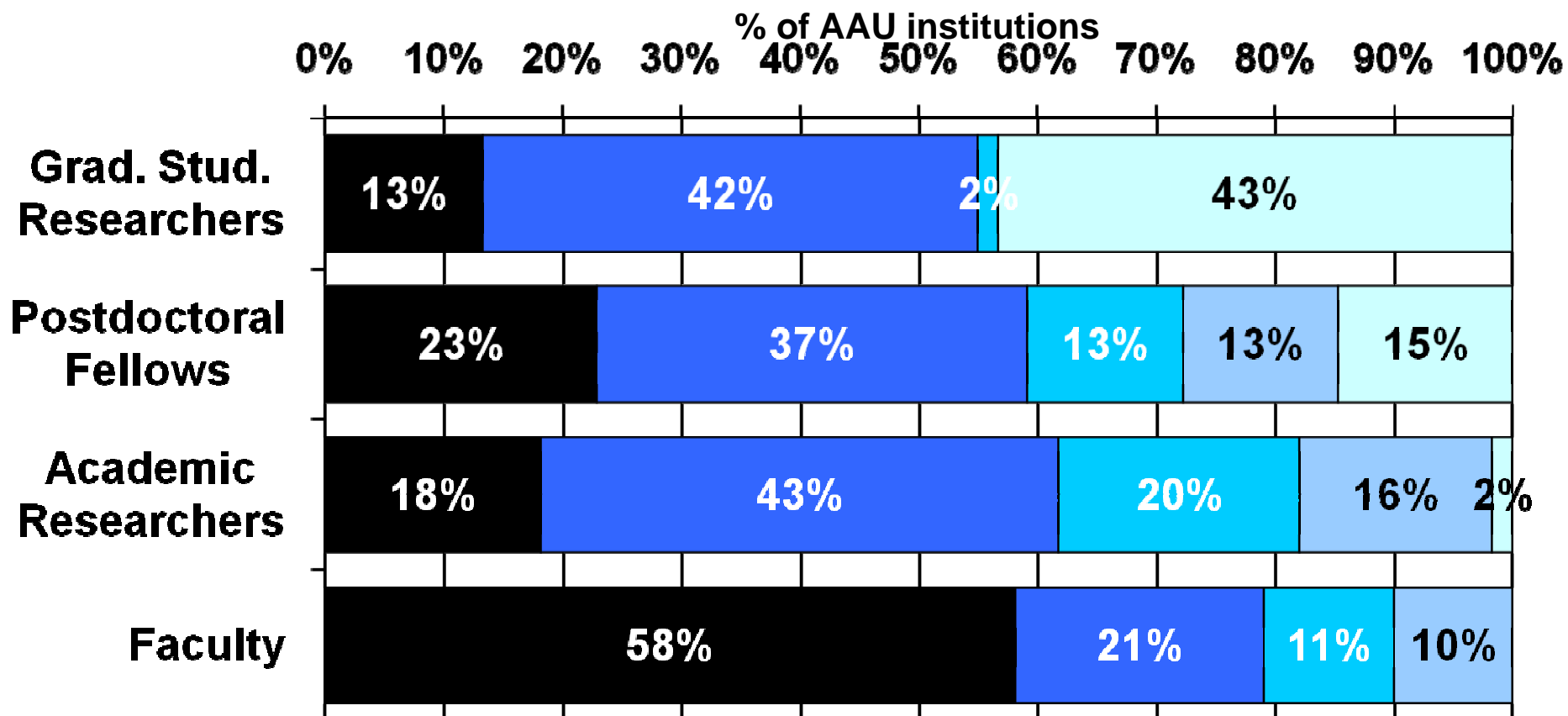
UC Postdocs

Shifting Career Goal away from Professor with Research Emphasis: UC Postdoctoral Scholars, by Gender and Family Status/Future Plans



Percent of Postdocs with Professor with Research Emphasis Goal at Start Who Shifted Career Goal to Another by Time of Survey

Provision of Paid Maternity Leave for Academic Populations at Association of American Universities (AAU) (62 total)



Black = Entitlement to at least 6 weeks of paid leave.

Blue = Limitations to paid leave (e.g., only for particular groups, partial pay, less than 6 weeks, requirements for previous service time, etc.).

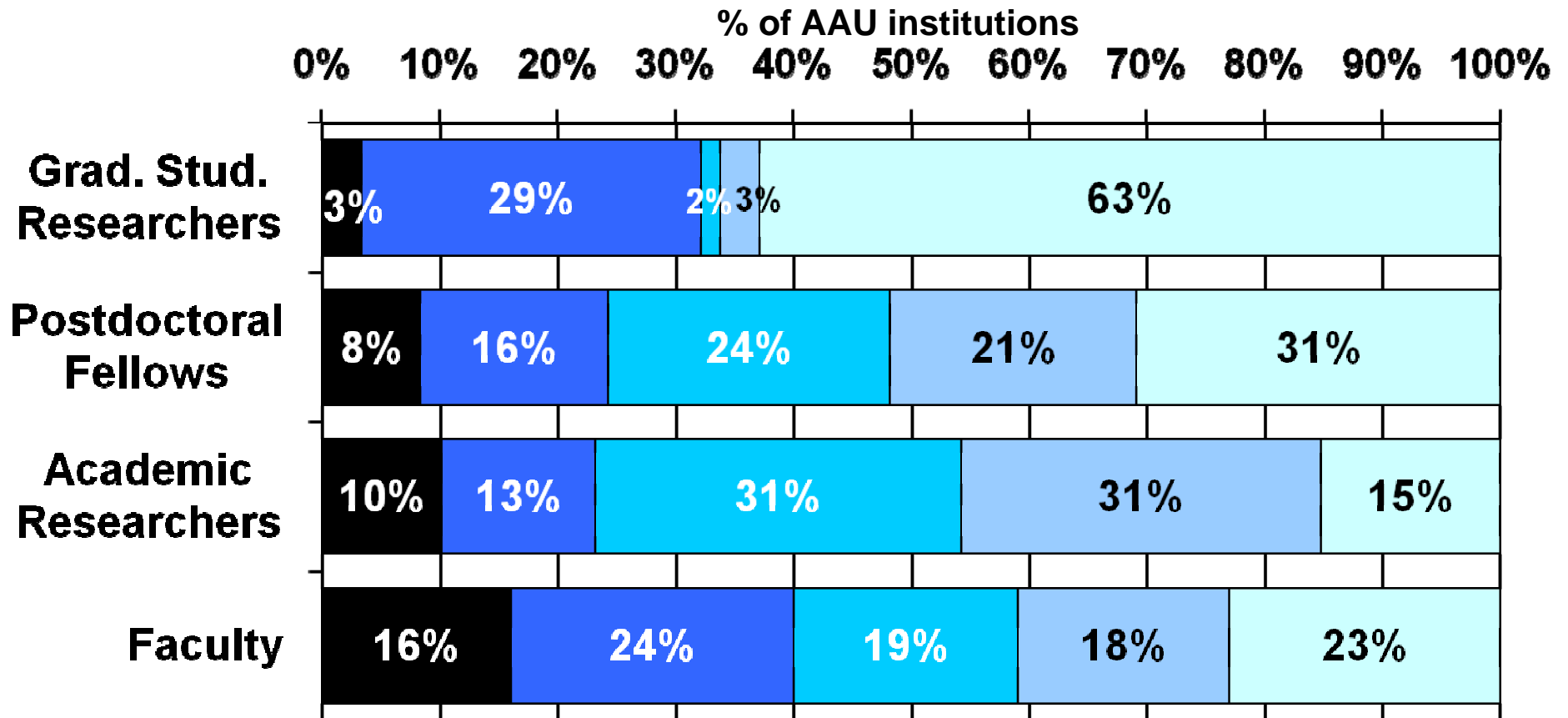
Turquoise = Paid leave depends on sick and/or vacation leave accruals.

Lighter Blue = Delay in availability of sick and/or vacation leave accruals, ie., FMLA.

Lightest Blue = Less, ad hoc, or no paid leave available.

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) (62 total)



Black = Entitlement to at least 1 week of paid leave.

Blue = Limitations to paid leave (e.g., only available to primary caregiver, only for particular groups, partial pay, requirements for previous service time, etc.).

Turquoise = Paid leave depends on sick and/or vacation leave accruals.

Lighter Blue = Delay in availability of sick and/or vacation leave accruals, ie., FMLA.

Lightest Blue = Less, ad hoc, or no paid leave available.

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

Title IX: Pregnancy & Family Status Discrimination

“No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.”¹

(a) **General.** A recipient shall not apply any policy or take any employment action:
(1) **Concerning the potential marital, parental, or family status of an employee. . . which treats persons differently on the basis of sex; or**

(2) Which is based upon whether an employee or applicant for employment is the head of household or principal wage earner in such employee's or applicant's family unit.

(b) **Pregnancy.** A recipient shall not discriminate against or exclude from employment any employee or applicant for employment **on the basis of pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery therefrom.**

...

(d) **Pregnancy leave.** In the case of a recipient which does not maintain a leave policy for its employees, or in the case of an employee with insufficient leave or accrued employment time to qualify for leave under such a policy, **a recipient shall treat pregnancy, childbirth, false pregnancy, termination of pregnancy and recovery therefrom as a justification for a leave of absence without pay for a reasonable period of time, at the conclusion of which the employee shall be reinstated to the status which she held when the leave began or to a comparable position, without decrease in rate of compensation or loss of promotional opportunities, or any other right or privilege of employment.**²

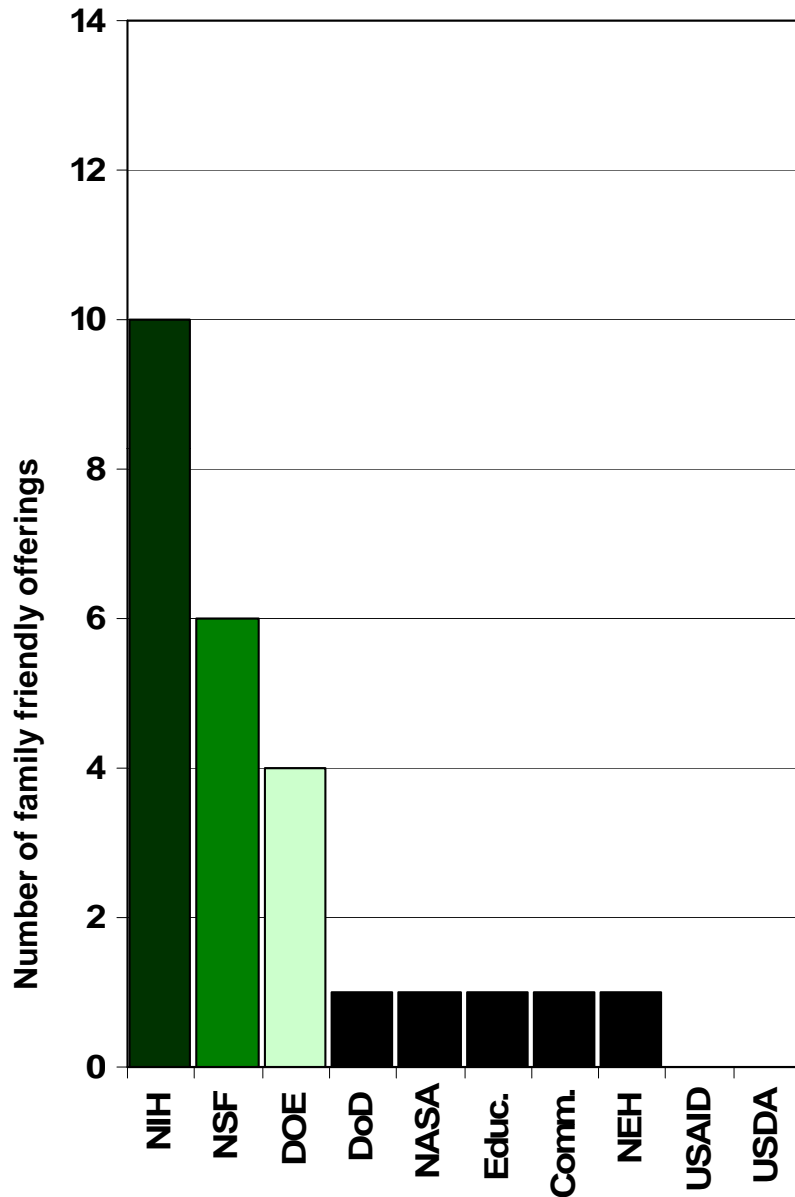
¹ 20 U.S.C. § 1681.

² 45 C.F.R. 618.530 (National Science Foundation); 45 CFR 86.57 (Department of Health and Human Services, including the National Institutes of Health); 10 CFR 1040.53; (Department of Energy).

AAU Survey: Examples of Family Responsive Policies, Benefits, & Resources

- **Time-based policies/benefits** (and associated review criteria)
 - Stopping the clock/extension of acad. progress timelines & funding
 - Reentry rights
 - Flex time and flexible scheduling
 - Part Time/Unpaid Leaves
 - Modified Duties
 - Sabbaticals and Leave of Absence
- **Childcare**
 - On and off-campus centers
 - Subsidies
 - Referral services
 - Emergency backup
- **Monetary supplements/benefits**
 - Tuition remission
 - Health care, continued coverage, and dependent healthcare
 - Dependent care expenses (pretax) and dependent care travel funds
 - Adoption reimbursement
- **Other resources:** Lactation rooms, family housing, caregiver groups, resources lists, etc.

Possible Family Friendly Offerings by Federal Agencies to Support Researchers Paid Off of Grants/Contracts and PIs



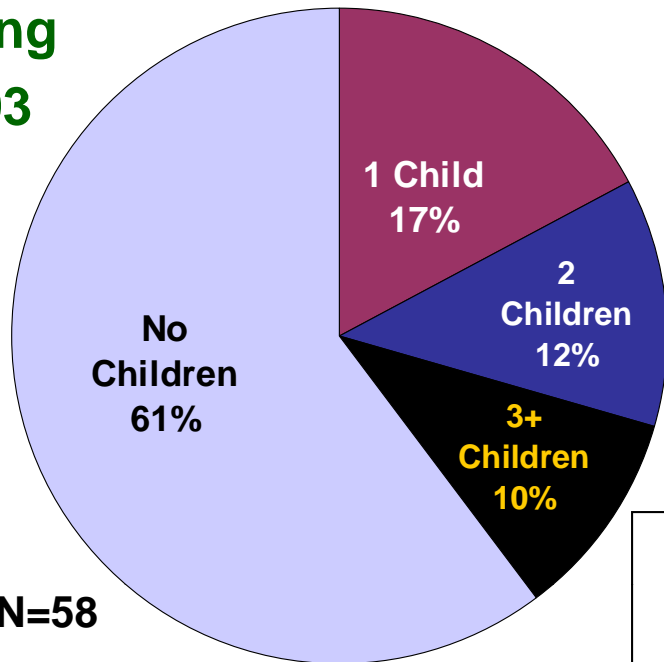
Possible Offering	# offer
1. No-Cost Extensions	8
2. Supplements to support family accommodations	3
3. Gender equity workshops	3
4. Formalized agency policy or statement supporting women in the academic pipeline	2
5. Part-time effort on fellowship or grant to accommodate family caregiving needs	2
6. Extend fellowship period for caregiving	2
7. Defer start of fellowship period for caregiving	1
8. Website(s) with clear information on support for family accommodations	1
9. Clear policy expectations for various classes of researchers (ie., not ad hoc)	1
10. Allow dependent care expenses to be charged to grants for conferences or meetings	1
11. Re-entry grants for those who have stopped out for family caregiving needs	1
12. Discount caregiving gaps in grant reviews	0
13. Provide instructions to peer reviewers on family accommodations	0
14. Data collection on gender <u>and</u> family status	170

Source: Mason, Goulden, Frasch. 2009 .“Federal Agencies Survey.”

Possible Policy Recommendations

- 1. Promote clear, well-communicated, base-line family accommodation policies for all classes or researchers.***
 - **Federal Agencies can play a role in this by setting clear policies for various classes of researchers (e.g. NIH Kirchstein Fellows).**
 - **Universities can be more proactive (draw on best practices).**
- 2. Provide Federal Agency or University supplements to offset family event productivity loss and help PIs.***
 - **Use some stimulus money or other sources to fund supplements.**
 - **Explore funding models: University direct costs vs. indirect costs.**
- 3. Collaboratively, move toward a full package of family friendly policies/resources that take into account the career/family life-course.***
- 4. Remove time-based criteria for fellowships and productivity assessments that does not acknowledge in a meaningful way family events and their impact on career timing (start and end dates).***
 - **Discount resume gaps due to family issues.**
 - **Provide relevant instructions to peer reviewers.**
- 5. Collect and analyze the necessary data to assure Title IX compliance and assess the efficacy of existing and future policy initiatives.***

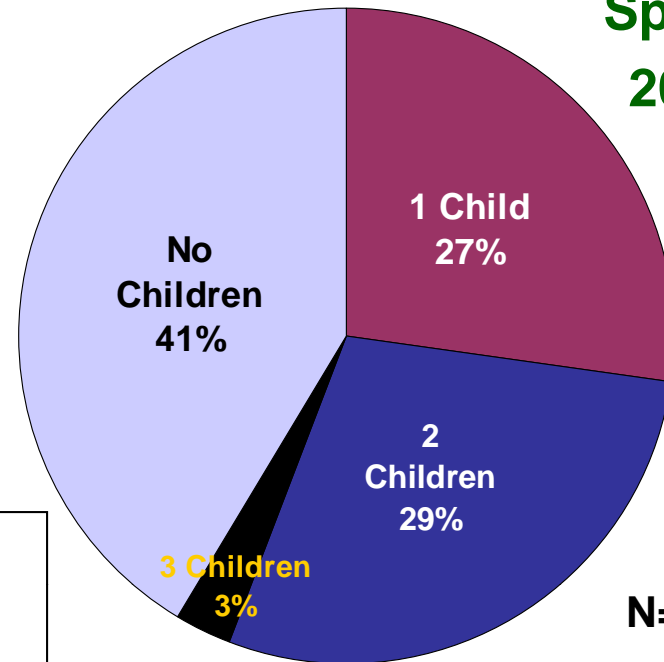
Spring
2003



N=58

Men

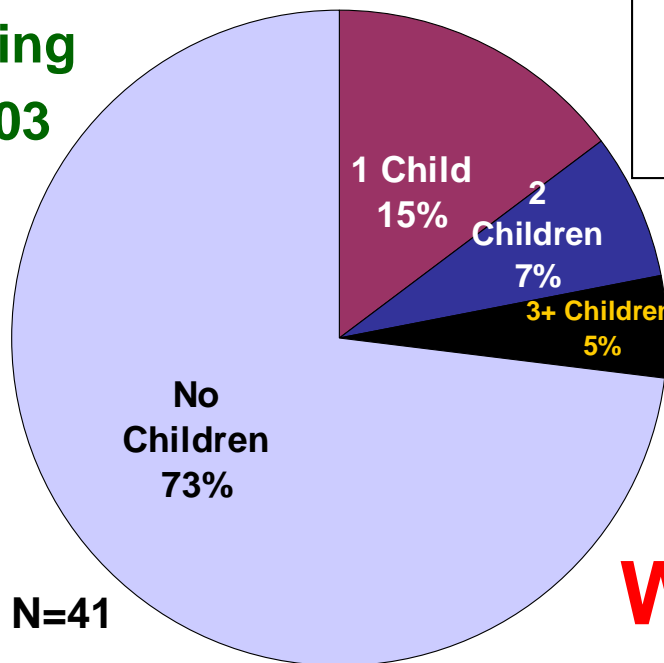
Spring
2009



N=70

of
Children,
UCB
Assistant
Profess.

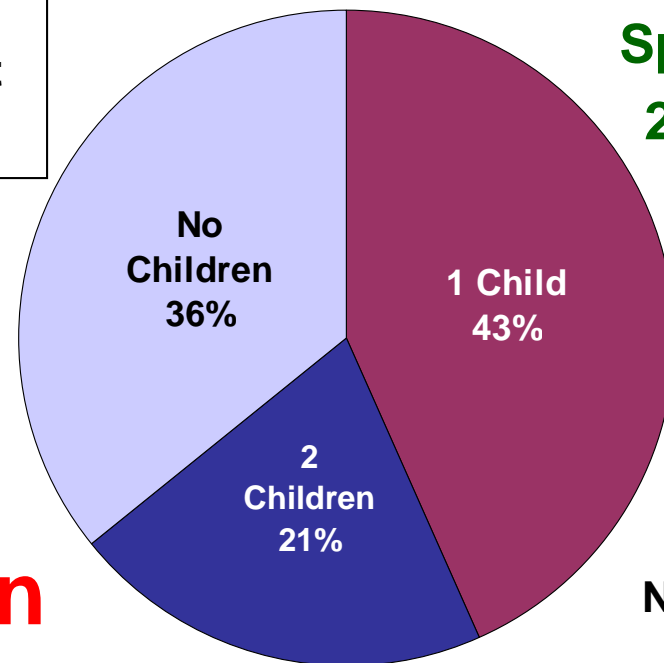
Spring
2003



N=41

Women

Spring
2009



N=67