Family Matters
The Impact of Family On Postdoctoral Attrition From The Academy

Dr. Richard Pitt
University of California – San Diego
What I’m Going To Cover Today

Overview Of What My Team Does

Academic Career Attrition

Research Methods And Sample

Findings
Where Are Postdocs Going?
Postdoc Families Defined
Families As Career Issues
Families and Work-Family Conflict

This work is supported by grant funding from the National Science Foundation. Any opinions, findings, conclusions, or recommendations expressed in these materials are those of the author(s) and do not reflect the views of the National Science Foundation.
Academic Career Attrition

Half of Black, Latinx, and White-female STEM PhD recipients are in nonacademic careers. Most Asian women (66%) and men (73%) are in nonacademic careers. Even 61% of White men work outside of the academy. Most work (except Black women at 50% gov’t) in industry. (AIR 2014, NSF 2010)

Most of them are doing Research and Development (57%) which includes basic research (5%), applied research (25%), and product development (27%).

Basic: science for its own sake
Applied: to meet a recognized need
Development: to produce materials, devices, processes, and computer applications

A fifth (21%) of these people aren’t working in STEM at all!
Academic Career Attrition: So What?

What was the PhD created for? It was the terminal award for a guild: [college] teachers

The problem? The persistence of up-credentialing and educational inflation in the non-academic workforce make the credential attractive, even if the skills requirements never changed! In terms of skills, the masters in most STEM fields is sufficient.

The problem with the postdoc? It is another credential many scientists waste time pursuing, for non-academic jobs that:

- a) don’t need them to have a postdoc
- b) already have enough qualified non-postdoc candidates, and
- c) will not pay them for this add’l investment in human capital
BTPhD Survey Instrument

Administered On
Qualtrics Survey Platform

192 Questions

Sections/Blocks
- Triage and Consent Form
- Demographics
- Educational Background
- Family Background
- Science Career(s)
- STEM Orientation
- Perceptions of Competence
- Entrepreneurial Orientation
- Health Assessments
- Career Values
- Academic Research Identity
- Mentoring
- Racial Identification/Discrimination
- Academic vs. Non-Academic Experience
Recruitment & Sample

Participating Universities:
Boston University, CUNY, University of Central Florida, UC Irvine, UC San Diego, University of Chicago, University of Colorado, Cornell University, Duke University, Emory University, Georgia Tech, Johns Hopkins University, Harvard University, Iowa State University, North Carolina State University, University of Notre Dame, Oregon State University, University of Missouri, University of Pittsburgh, Rutgers University, Stanford University, University of North Carolina Chapel Hill, Vanderbilt University, University of Washington, University of Wisconsin, and Yale University

Recruitment Parameters:
STEM Discipline, First Post-doc, Years 1-3, US Citizen or permanent resident

Sample Size: 215 respondents
Gender: 139 (65%) women, 76 (35%) men
Sexuality: About 15% are LGB
Race: White (77%) Black (4%) Asian (12%) Latinx (5%)
First Year Post Docs: 49%
STEM Disciplines:
Agriculture: 6.5%
Biological & Biomedical: 56.3%
Engineering and CompSci: 14.4%
Physical Sciences & Math: 19.5%
STEM Education (3.3%)
Where Are Postdocs Going?

Overall and Gender

64%
Academic Research/Teaching
   Men (66%)
   Women (61%)
   This is stable from Y1-Y3

18%
Industry Careers
   Men (20%)
   Women (15%)

11%
Government Careers
   Men (8%)
   Women (16%)

81% Say They’re Considering Academic Careers

20% Are Planning Non-Research Careers

Right now, if you had to choose only one career path from the list, which one would you choose?
**Who Are They?**
Most (80%) relationships are older than 3 years; they have “trailing spouses”

The majority (60%) of partners have more than a BA and 25% also have a PhD

Most (80%) partners are working in full-time jobs

Non-Whites (57%) are less likely to be coupled than Whites (80%)

LGB Postdocs (59%) are less likely to be coupled than Hetero Postdocs (78%)

**How We Define Family**

**Coupled [75%]**
If they are in a committed relationship (more than non-monogamous dating) whether married or not

**Parent [18%]**
If they have at least one child or are expecting (pregnancy, adoption)

**Gender Differences?**
There are no differences in the likelihood of being coupled OR being a parent

There are no differences in the likelihood that their partner will have a PhD too

There are no differences in the likelihood that their partner has a full-time job

There are differences in what that job is. Women’s partners more likely in industry. Men’s partners more likely in academia.
Families Are An Issue
Impact On Academic Careers

**Portability Of Careers**
“It was a difficult conversation. He had gotten situated in a nicer job than he’d had in years, but I had to present it as I’m going to be held back professionally [if we stay here].”

**Future Family Plans**
“I want to have a family and kids. I cannot imagine myself working 12 to 14 hours a day and still be able to dedicate time to my kids. I don’t want to have nannies raising my kids.”

**“Taking Turns”**
“He put his career on hold all six years I was in grad school and then followed me here to this postdoc. We’ve agreed that the next move, it’s his turn to choose.”

**Two-Body Problem**
“My husband is a geologist at [state university]. We Skype every night. We’ve been long-distance for over four years now. We talk about whether that’s sustainable when I’m done here.”

Only 45% say their partner would move anywhere.
Only 9% say work-life balance is better in academia.
Families Are An Issue
Work – Family Conflicts

Work-Family Imbalance Is Associated With
- General Poor Health
- Depressive Symptoms
- Anxiety Symptoms
- Generalized Stress
- Low Satisfaction With Life

Less Interest In Being Faculty!

Belief (87%) that there is more work-life balance outside of the academy!

Coupled Postdocs Without Kids
- 61% Work Interferes With Family
- 15% Family Interferes With Work

Coupled Postdocs With Kids
- 66% Work Interferes With Family
- 57% Family Interferes With Work
Summary

• Lots Of Postdocs (75%) Are Coupled

• Coupling/Parenthood isn’t gendered

• Coupling (Trailing Spouses) Creates Career Aspiration Issues
  Career portability • “taking turns” • two-body problems

• Current (And Imagined) Work-Family Imbalance Is A Problem
  It Reduces Interest In An Academic Career
  It Is A Common Characteristic Among Coupled Postdocs (64%)
  Partners Don’t Handicap Productivity, But Kids Do
  Work-Family Imbalance Is Unhealthy (Gen Health, Depression, Anxiety, Etc.)
  Imbalanced Postdocs Believe There’s More Work-Life Balance Outside The Academy

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QUESTIONS? COMMENTS?
What Matters Most In Career?

COMPLETE THE FOLLOWING SENTENCE:
“**I DESIRE A CAREER THAT ALIGNS WITH THE PERSONAL VALUE I PLACE ON _____ AND _____ AND _____**.

<table>
<thead>
<tr>
<th></th>
<th>Singles</th>
<th>Coupled</th>
<th>Coupled Men</th>
<th>Coupled Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring For My Family</td>
<td>10%</td>
<td>39%*</td>
<td>41%</td>
<td>36%</td>
</tr>
<tr>
<td>Financial Security</td>
<td>20%</td>
<td>31%†</td>
<td>34%</td>
<td>26%</td>
</tr>
<tr>
<td>Healthy Lifestyle</td>
<td>26%</td>
<td>29%</td>
<td>25%</td>
<td>37%</td>
</tr>
<tr>
<td>Curiosity &amp; Discovery</td>
<td>30%</td>
<td>34%</td>
<td>39%</td>
<td>25%†</td>
</tr>
<tr>
<td>Ability To Influence</td>
<td>31%</td>
<td>24%</td>
<td>25%</td>
<td>20%</td>
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</tbody>
</table>

† p < .10 ‡ p < .05

Other Values Included: Belonging, freedom, creativity, social recognition, a varied life, social justice, displaying competence, protecting the environment, being helpful, self-respect, choosing my own goals, giving back,
## Pros/Cons of Academic Careers

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Advantage</th>
</tr>
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<tbody>
<tr>
<td>94%</td>
<td>Increases my chances of being respected as expert</td>
</tr>
<tr>
<td>90%</td>
<td>Will allow for the greatest autonomy in my work</td>
</tr>
<tr>
<td>85%</td>
<td>Provides more chances to do what I like in science</td>
</tr>
<tr>
<td>75%</td>
<td>Provides an opportunity for more rewarding career</td>
</tr>
<tr>
<td>72%</td>
<td>Will allow for the broadest impact of my research</td>
</tr>
<tr>
<td>70%</td>
<td>Will provide me with a better professional network</td>
</tr>
<tr>
<td>32%</td>
<td>Allows for more job security</td>
</tr>
<tr>
<td>27%</td>
<td>Offers a better work-life balance</td>
</tr>
<tr>
<td>03%</td>
<td>Typically pays better</td>
</tr>
</tbody>
</table>

**WHY?!!**
“Collaborative Research: AGEP Transformation Alliance
Bridging the PhD to Postdoc to Faculty Transitions for Women of Color in STEM

Vanderbilt PIs: Clare McCabe (Chemical Engineering), Shane Hutson (Biophysics), Kelley Holly-Bockelmann (Physics/Astronomy), Richard Pitt (Sociology), Keivan Stassun (Physics/Astronomy), and William Robinson (Computer Engineering)

Fisk PIs: Arnold Burger (Physics), Lee Limbird (Biochemistry)

Wake Forest PI: Danielle Parker (Anna Julia Cooper Center)

Project Evaluation: David Siegfried (Institute For Broadening Participation)