



National Science Foundation

Division of Science Resources Statistics

Postdoc Data Project / Early Career Doctorates

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Council of Graduate Schools (CGS)
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National Science Foundation (NSF)
Division of Science Resources Statistics (SRS)
www.nsf.gov/statistics



Background

- Limited and incomplete statistical data exists on a major component of the science and engineering (S&E) research workforce
- To address this gap, SRS engaged in a multi-year project
- Project leaders: Jeri Mulrow and Kelly Phou



Gaps in SRS Postdoctoral Researcher (Postdoc)-Related Data

- No widely agreed-upon definition of “postdoc” exists
- Incomplete coverage by
 - Employment sector (academic, government, nonprofit organizations, private industry)
 - Citizenship status and country of doctorate
 - Degree type (PhD, PhD-equivalent degree (MD/PhD))
- Incomplete and missing data on:
 - Population and employment characteristics
 - Postdoc quality and the postdoc experience
 - Pipeline issues and career transitions



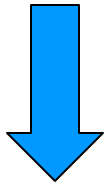
What We Can't Answer

- How many postdocs are there in the U.S.?
- What are their educational and demographic characteristics?
- How many postdocs employed in the U.S. are temporary visa holders?
- Why are doctorates doing postdocs?
- What are they doing?
- What are the characteristics of their employment?



From a Survey of Postdocs to a Survey of Early Career Doctorates (ECD)

Postdoc Data Project



**Early Career
Doctorates Project**

Phase 1: Needs assessment

Phase 2: Feasibility assessment

Phase 3: Implementation



From a Survey of Postdocs to the ECD (cont'd)

- Target population is all persons receiving their doctorates within the last 10 years including postdocs in S&E fields or S&E occupations
- Have one survey of recent doctorate recipients that allows comparisons of postdocs (by various definitions) and non-postdocs
- Contact early career researchers including postdocs who are:
 - U.S. & Non-U.S. degreed, or
 - U.S. & Non-U.S. citizens, or
 - Doctorate, doctorate-equivalent degree (MD/PhD)



Data Content Wish List

Employment Statistics

- Counts by sector, discipline, degree type, degree source, benefits
- To monitor trends in the number, type, and status of early career researchers

Quality and Experience Indicators

- Amount/type of training, opportunities for independent research and author publications
- To understand how experiences and research funding impacts the quality of the S&E workforce



Data Content Wish List (cont'd)

Career Transitions

- Longitudinal information regarding career aspirations, career progression, and career outcomes
- To understand the linkage between early career experiences, particularly postdoctoral experiences, and longer-term career achievements



Pretest Questionnaire

- **Topics - see handout**
- **Goals**
 - Willingness to complete
 - Ability to complete
 - Test question content



Pretest Population

Population of Interest

- Doctorate researchers within 10 years of having received their highest degree

Pretest Population

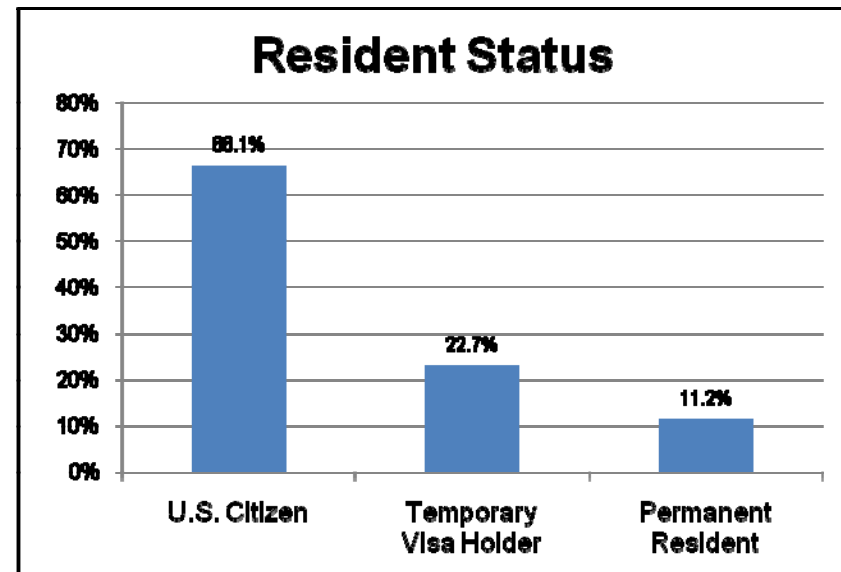
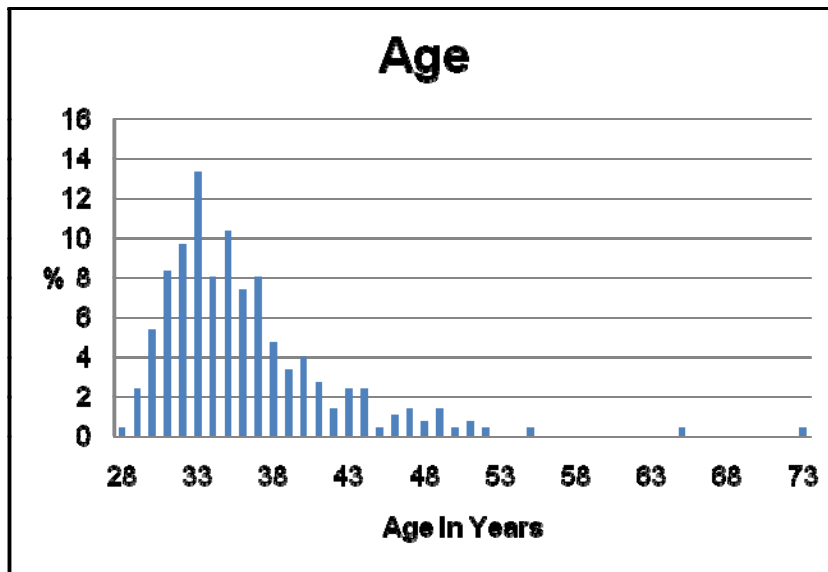
- 2006 NSF and NIH grantee databases
 - ✓ NSF list of all 2006 grantees
 - ✓ NIH list of 2006 grantees from three grants: T32, F32, and K99

Population characteristics

- Early career researchers , including postdocs
- Foreign-degreed
- Non-U.S. citizens
- Doctorate, doctorate-equivalent degreed



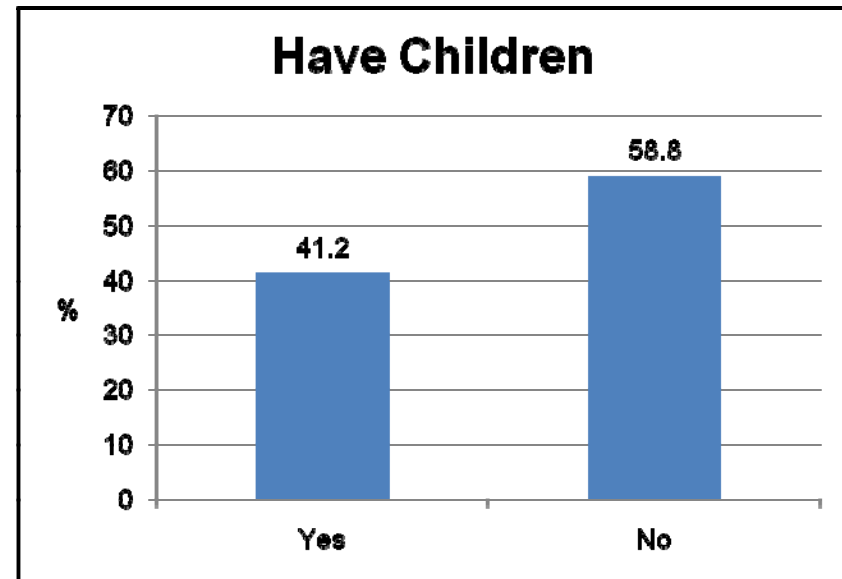
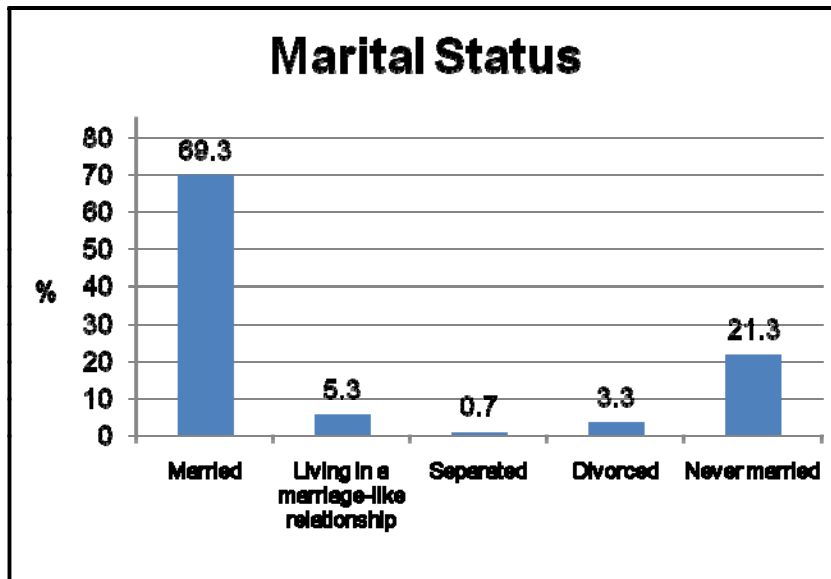
Respondent Characteristics Pretest



Source: SRS Methodological Pretest
Note: Detail may not add to total due to rounding.



Respondent Characteristics Pretest (cont'd)

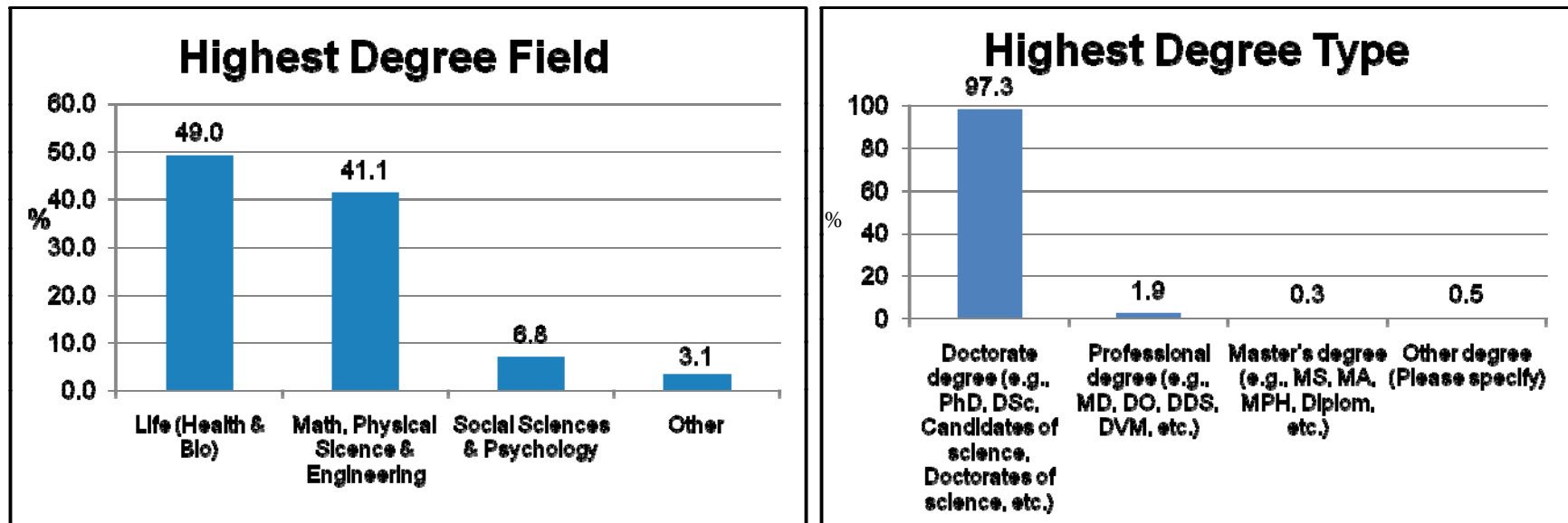


Source: SRS Methodological Pretest

Note: Detail may not add to total due to rounding.



Respondent Characteristics Pretest (cont'd)



Source: SRS Methodological Pretest

Note: Detail may not add to total due to rounding.



Pretest Observations

- Very few doctorate researchers and social scientists in the grant databases frame
- Feasible that questionnaire is not salient to some groups of interest not in the grant databases frame
- Too much time between database update and date of pretest



Break-offs

Section	Section Description	N	% of Total Break-offs
Intro	Introductory Screen	1	1.3
A	Educational Background	23	30.7
B	First Position	11	14.7
C	Current Employment Status		
E	Postdoc Definition	5	6.7
D	Professional Activities		
F	Current Employer Demographics	14	18.7
G	Compensation	1	1.3
H	Decision to Take Current Position	6	8.0
K	Evaluation of Current Position	1	1.3
L	Work-Life Balance	3	4.0
M	Mentoring	2	2.7
N	Funding	0	0.0
P	Future Career Plans	0	0.0
Q	Demographics	5	6.7
R	Recontact	3	4.0
Total		75	100.0



Time to Complete

Section	Section Description	Median Completion Time in Minutes
A	Educational Background	3.6
B	First Position	2.9
C	Current Employment Status	3.6
E	Postdoc Definition	
D	Professional Activities	4.3
F	Current Employer Demographics	
G	Compensation	0.6
H	Decision to Take Current Position	3.5
K	Evaluation of Current Position	0.5
L	Work-Life Balance	1.2
M	Mentoring	1.5
N	Funding	0.5
P	Future Career Plans	1.0
Q	Demographics	2.2
R	Recontact	1.7
	Entire survey	25.3



What We Learned

- Questionnaire was not too long
- Most questions seem to be working
 - Item nonresponse was not an issue (only a few questions skipped)
 - Patent questions had low response
 - Education Background section led to the most break-offs
- Good response to write-in questions



Next Steps: Immediate

Academic and Government Sectors

- Tailor the pretest questionnaire to meet the needs of individual ECDs working in the academic and government sectors
 - Conduct cognitive interviews, expert reviews and internal evaluations
 - Develop a pilot questionnaire
- Develop a strategy to reach individual ECDs through the *Survey of Graduate Students and Postdoctorates in Science and Engineering*



Next Steps: Immediate (cont'd)

Academic and Government Sectors

- Conduct a pilot of individual ECDs working in the academic and government sectors, including those ECDs working in:
 - Federally-Funded Research and Development Centers (FFRDCs)
 - Target group of six government agencies



Next Steps

All Sectors

- Finalize a questionnaire that meets the needs of all data users
- Create a sampling frame that covers all groups of interest
- Conduct a pretest of the survey



What should we know?

- Total number of postdocs in the U.S.
 - Missing Non-U.S. Degreed Postdocs outside of academia
 - Missing Non-U.S. Citizens
 - Missing doctorate-equivalent professional degrees
- The reasons for doing a postdoc?
- What are they doing? Research, training, other?
- Who are they by age, sex, national origin, field, etc?



What else should we know?

- What is the quality and experience of the work?
 - Amount of training and guidance
 - Opportunities to conduct independent research and author publications
- Are there any pipeline issues?
- What are the career transitions?
 - Longitudinal information on career aspirations, career progression, and career outcomes



Questions?

We ARE listening!

For more information contact:

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