Using Data to Inform Science Workforce Policies and Programs

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U.S. Census Bureau

National Academies of Science (NAS)
Next Generation Researchers Initiative

January 9, 2017

DISCLAIMER: The views expressed here, including those related to statistical, methodological, technical, operational issues, and any errors are solely those of the author and do not necessarily reflect the official positions or policies of the Census Bureau. This presentation has undergone more limited review than official publications.
Labor Market Trends
Industry

![Graph showing percentage of biomedical scientists in different sectors over time.]
Industry and Income

![Graph showing percentage of biomedical scientists in public, private, and academic sectors from 1990 to 2014.]

![Graph showing median income (in US$, thousands) from 2002 to 2014, with a note that biotechnology firms, hospitals, and drug companies are the biggest employers.]

*Adjusted to 2014 US dollars.*
Demographics: Age

THE YOUNG GENERATION
The majority of the biomedical workforce is under 45 years old, ranging from 64% in 2002 to 55% in 2013.

The ARRA* potentially increased the number of young investigators and postdocs through temporary grants from the National Institutes of Health.

Demographics: Diversity

United States Census Bureau
United States Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
Demographics: Family-Work Life Balance

**WORK–LIFE BALANCE**
Most married researchers have children during crucial times in their careers, and have a spouse who is employed.

- **Age of youngest child:**
  - 0-5
  - 6-17
  - 18+

- **Age of researchers:**
  - 30-39
  - 40-49
  - 50-59

- **Married PhD researchers:**
  - 0%
  - 20%
  - 40%
  - 60%
  - 80%
  - 100%

- **82% of married researchers aged 40–49 have children in the household.**

- **Men aged 30–39 are 7 times more likely than women of that age to have a non-working spouse.**

**United States Census Bureau**
Economics and Statistics Administration
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Research and Evaluation

• Representation Study
  – Women and minorities overrepresented in training; underrepresented in independent research
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• Modeling Women in Leadership Study
  – With no policy intervention, women’s representation in RPGs increases only 4-6%
Zeng & Heggeness, Will the Gender Diversity of Young Scientists Today Improve the Diversity of Older Cohorts in the Future?, Under Review
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• NIH-Funded Aging Workforce
  – Young scientists are funded at similar rates to older scientists
Heggeness et al., *Cell Stem Cell*, 2016
Other National Initiatives

• Federal Commission for Evidence-Based Policymaking
  – Larger efforts to generate policies using data and evaluations

• Census Initiatives
  – Innovation Measurement Initiative (IMI)
  – Huge potential to benefit NIH/NSF and other federal agencies that fund scientists
  – Origins in Starmetrics; now at Census
  – Master Demographic File (MDF)
    – Master File with core demographics which can be linked to administrative records for evaluation studies
  – American Opportunity Study
    – http://www.census.gov/about/adrm/linkage/projects/aos.html
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Barriers to Innovating Data

• Barriers to Data Access:
  – Difficult for social science researchers to access federal data making evaluation and research on biomedical scientists challenging

• To reduce barriers, encourage collaboration:
  – Across agency (Census, NIH, NSF, USDA)
  – Among federal agencies and researchers within:
    • Fed. Statistical Research Data Centers (FSRDCs)
    • Interagency Agreements (IAA) with researchers
Collaborative Partnerships are KEY

• Very important to PARTNER with social scientists who have training in evaluation and understand issues of causality and how to correct for it
  – E.g.: *Nature* Jan 5, 2017 publication and corresponding working paper
  – Across agency (e.g. NIH with Census)
  – Across entity (e.g. NIH with academic experts; Census with academic experts)
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• These partnerships provide validity in:
  – How to structure evaluations and research that provide explanatory reasons
  – Help identify factors that work for making the workforce the most vital and rigorous that it can be
Thank you

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