

Using Data to Inform Science Workforce Policies and Programs

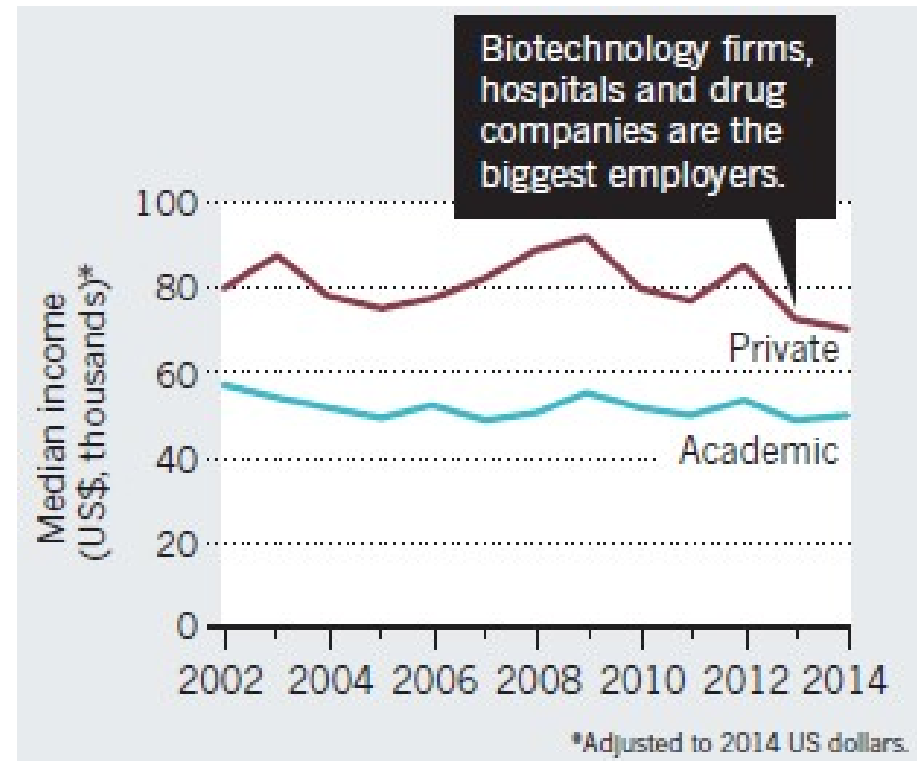
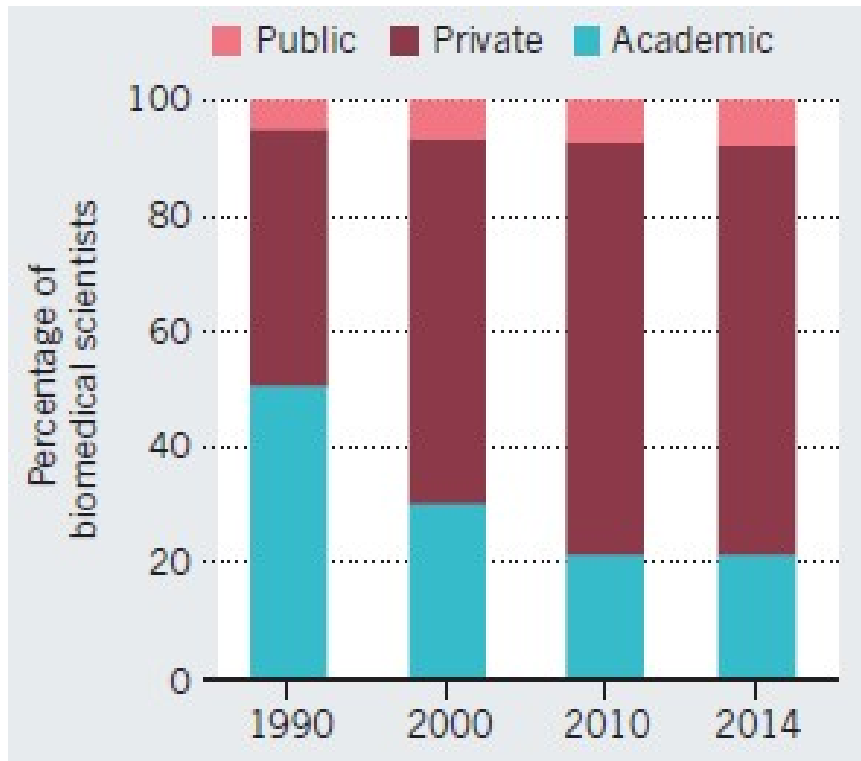
Misty L. Heggeness, PhD, MPP, MSW
U.S. Census Bureau

National Academies of Science (NAS)
Next Generation Researchers Initiative

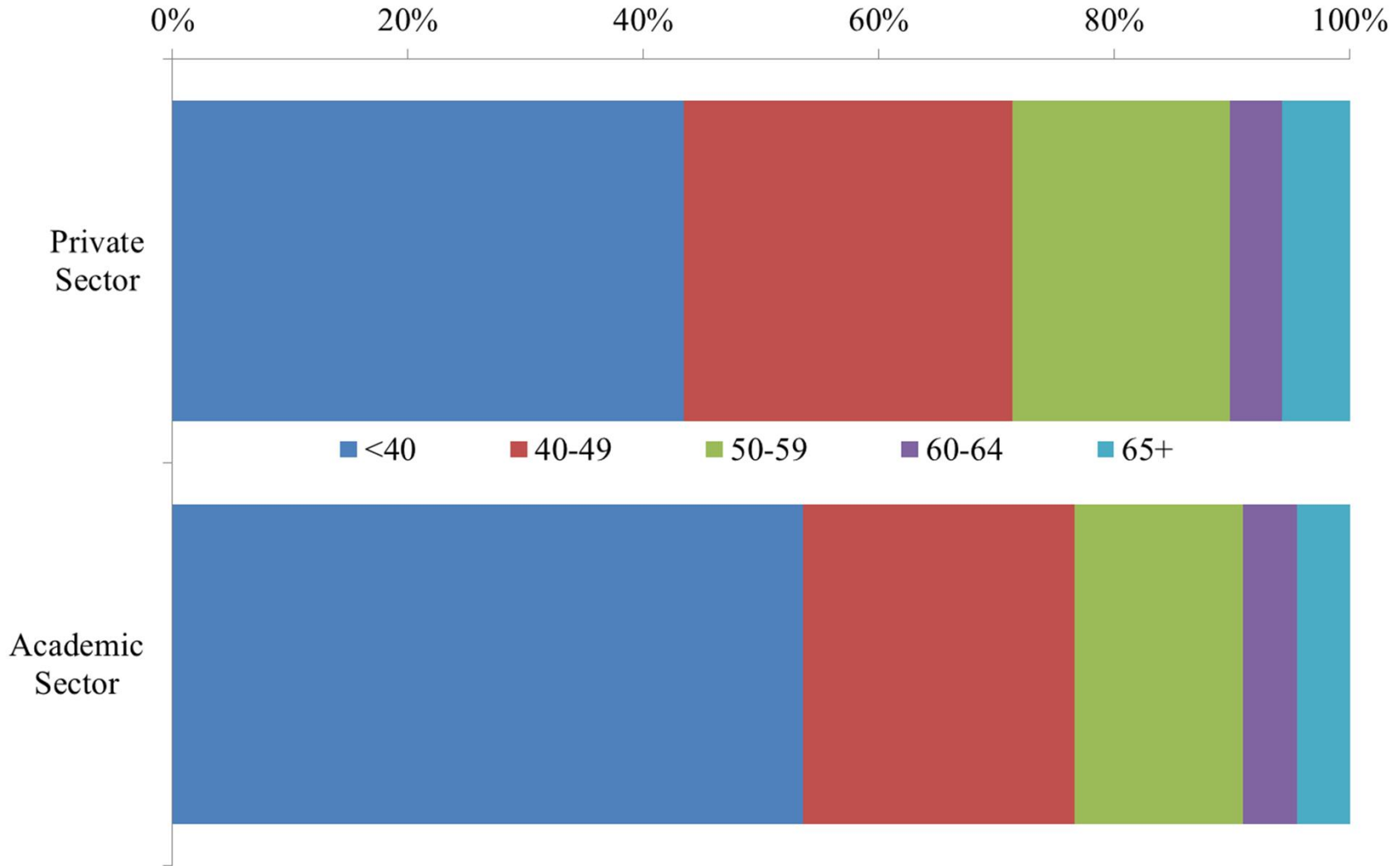
January 9, 2017 [*Appended Jan 19, 2017*]

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.

Biomedical Labor Market Trends in Industrial Sector and Income

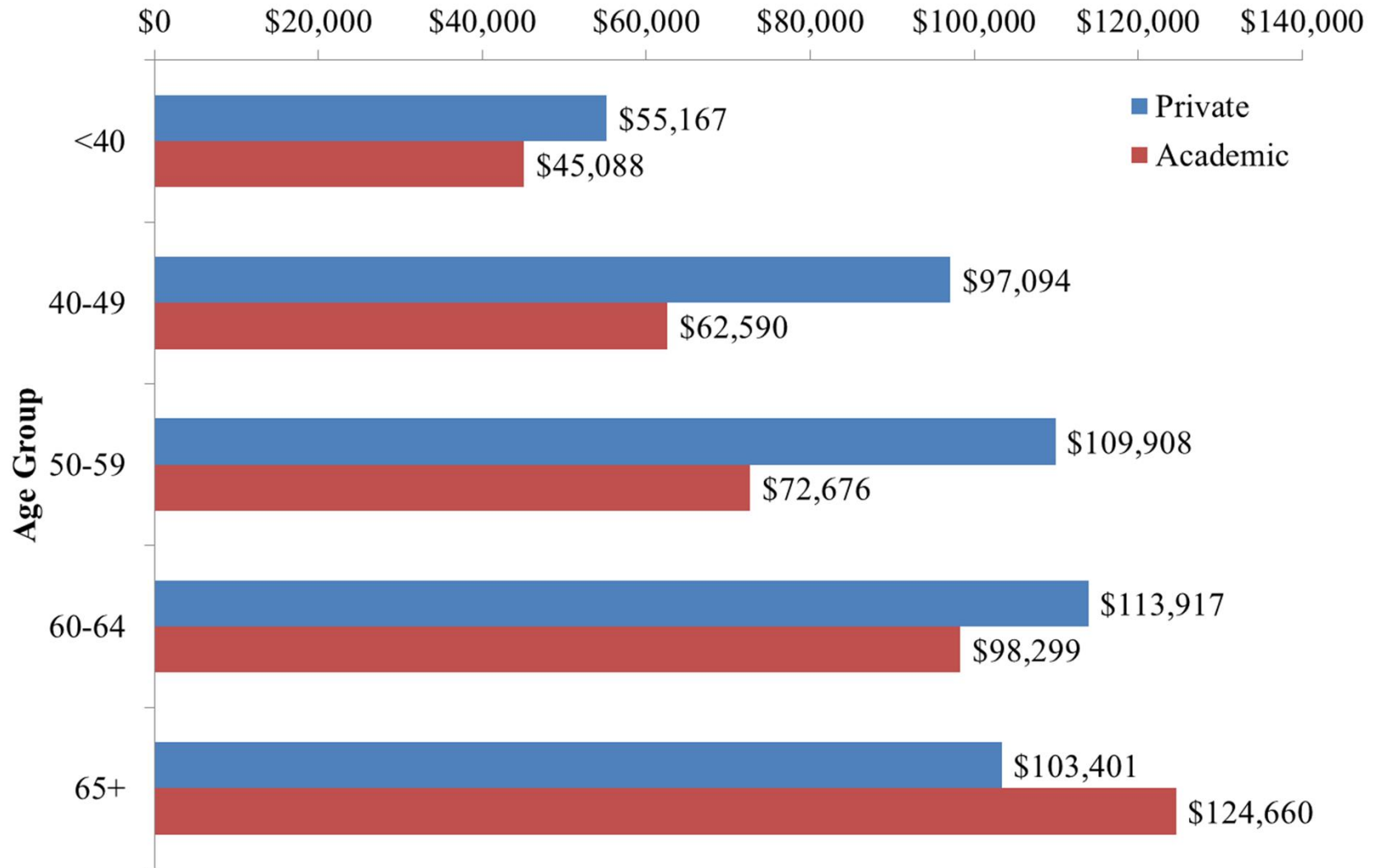


Proportion of PhD Biological and Medical Scientists by Age Group, pooled 2002-2014



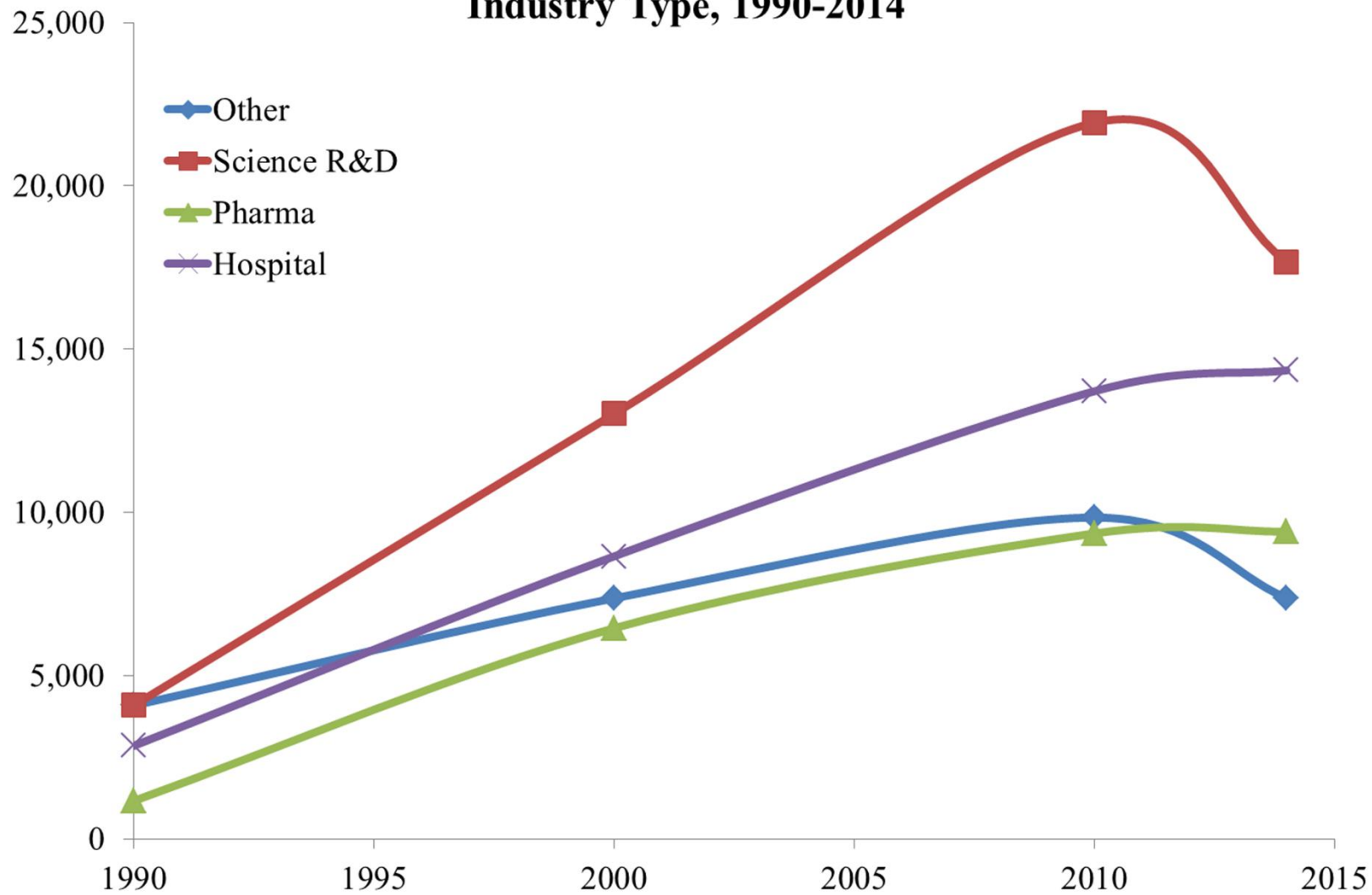
Source: American Community Survey (ACS), 2002-2014 pooled data, ipums.org

Median Income of PhD Biological and Medical Scientists by Age Group and Industry Sector, pooled 2002-2014



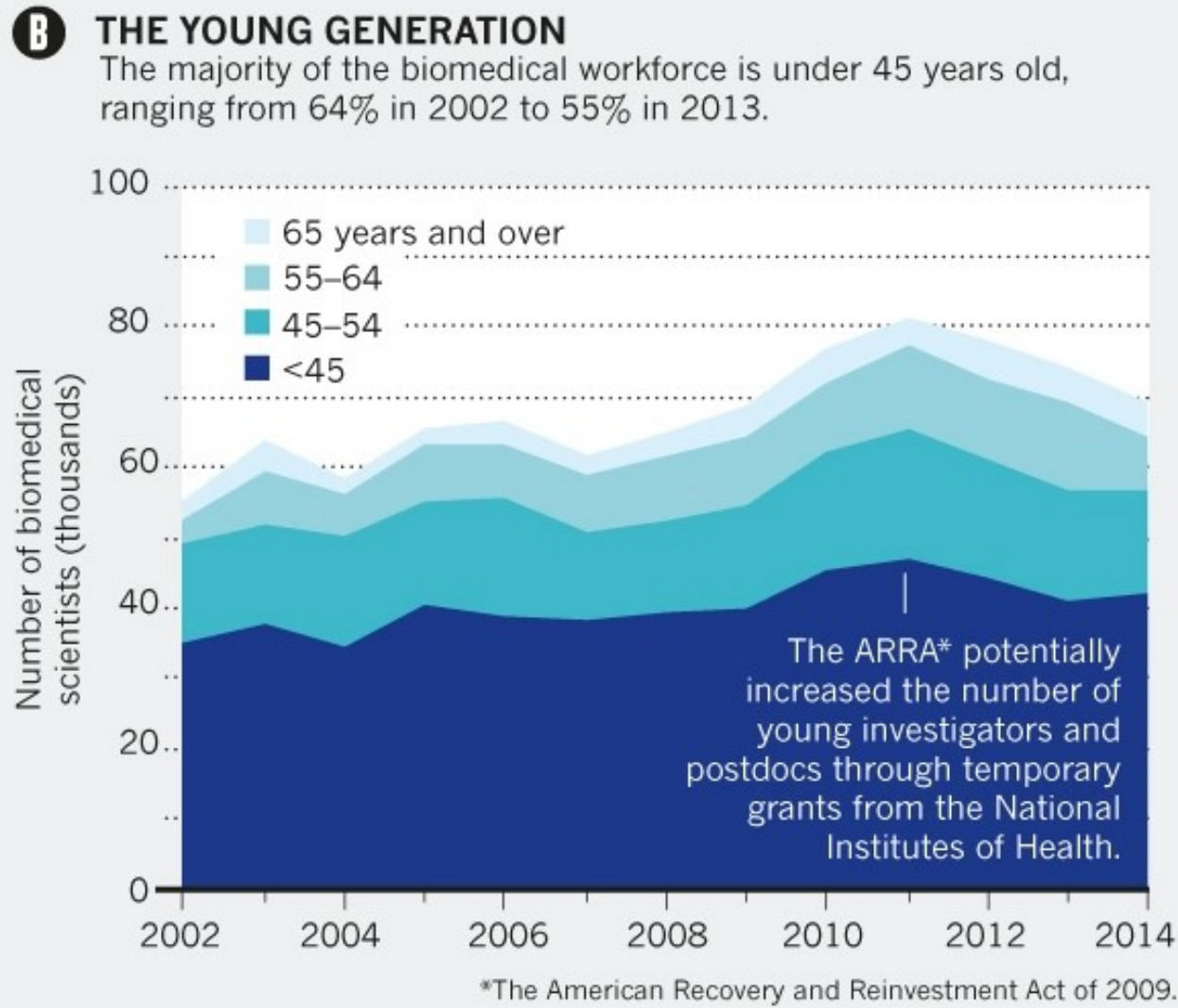
Source: American Community Survey (ACS), 2002-2014 pooled data, ipums.org

PhD Biological and Medical Scientists in the Private Sector by Industry Type, 1990-2014

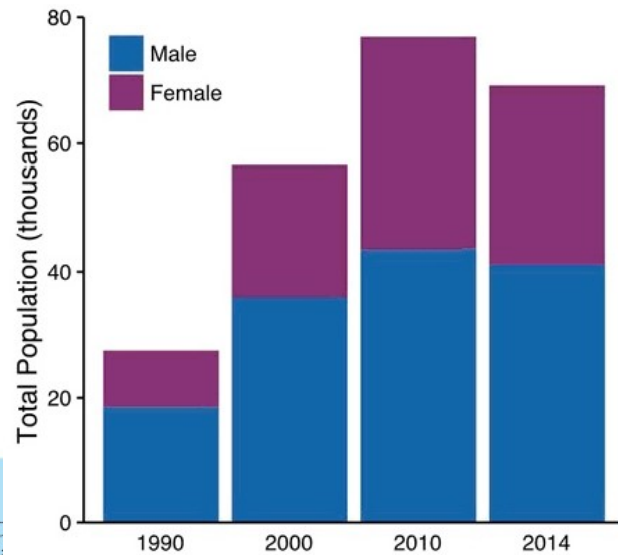
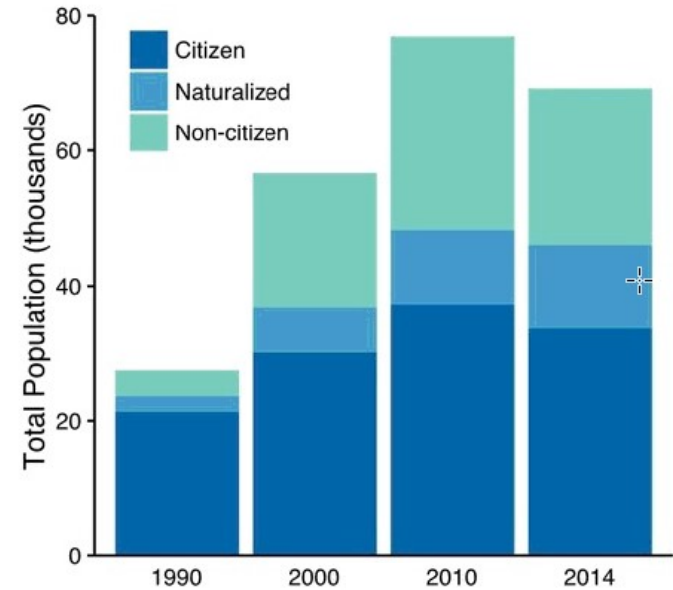
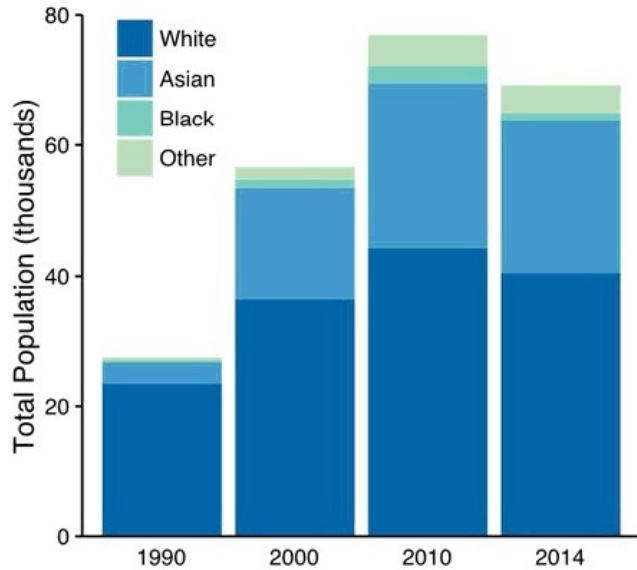


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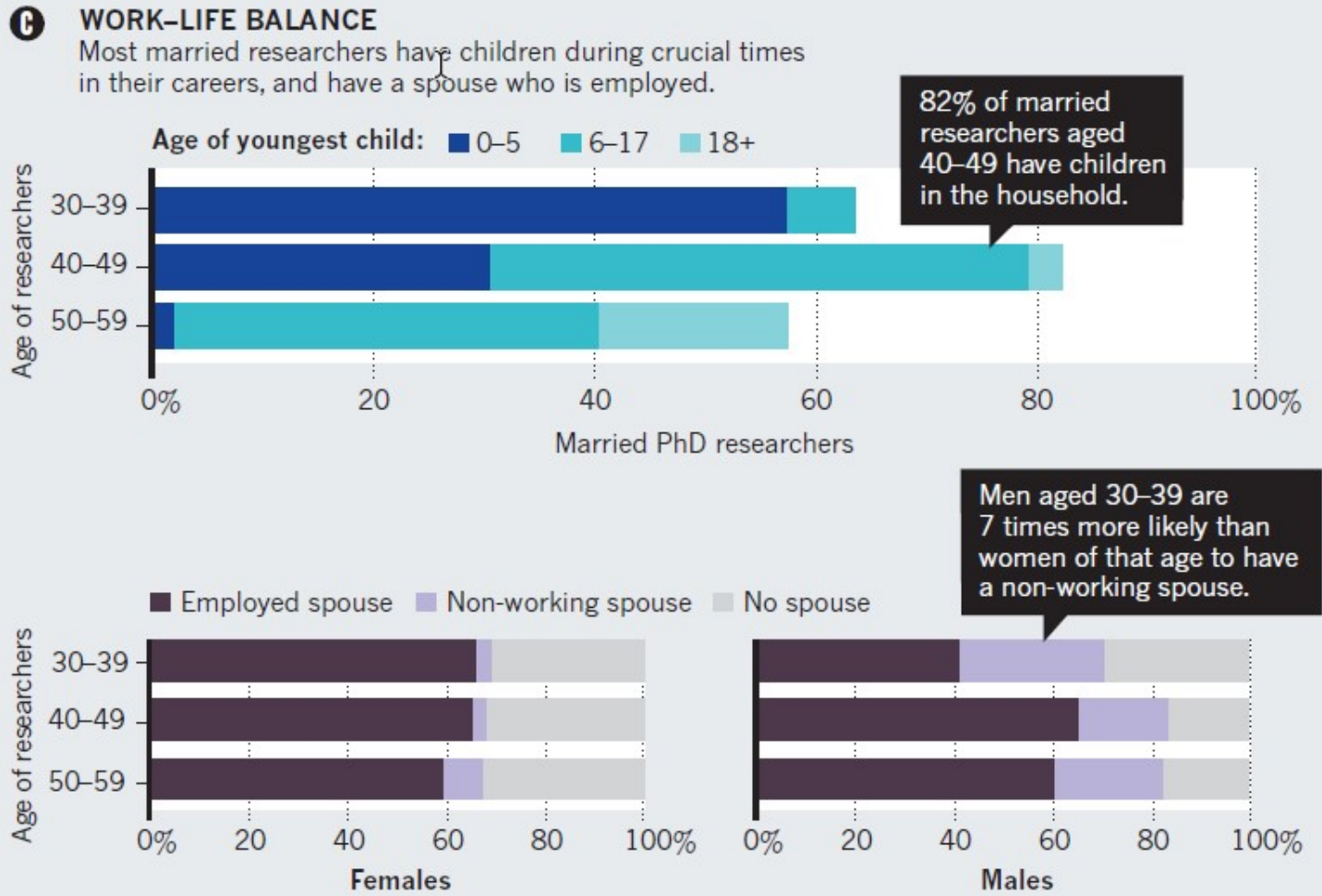
Demographics: Age



Demographics: Diversity

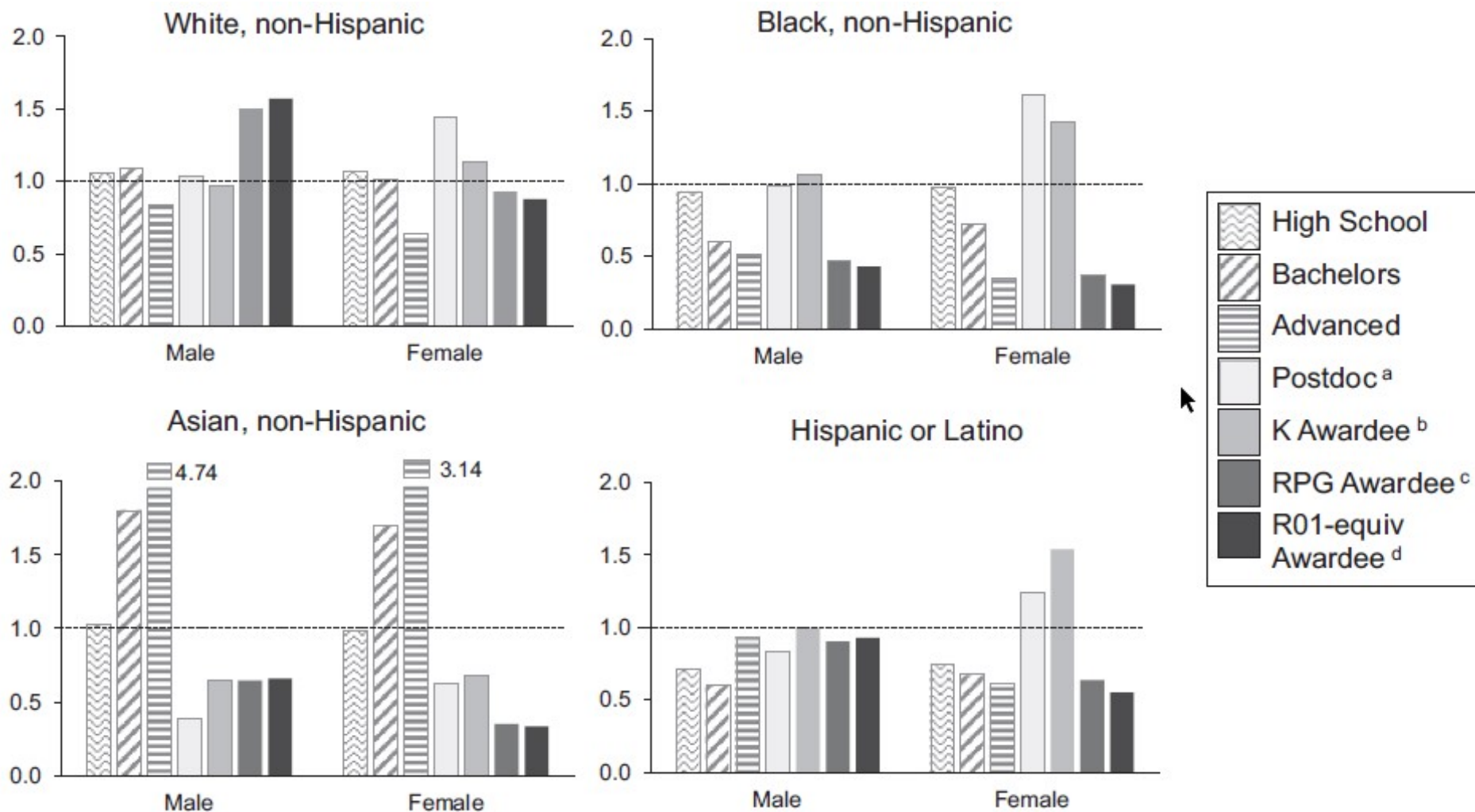


Demographics: Family-Work Life Balance



Research and Evaluation

- Representation Study
 - Women and minorities overrepresented in training; underrepresented in independent research

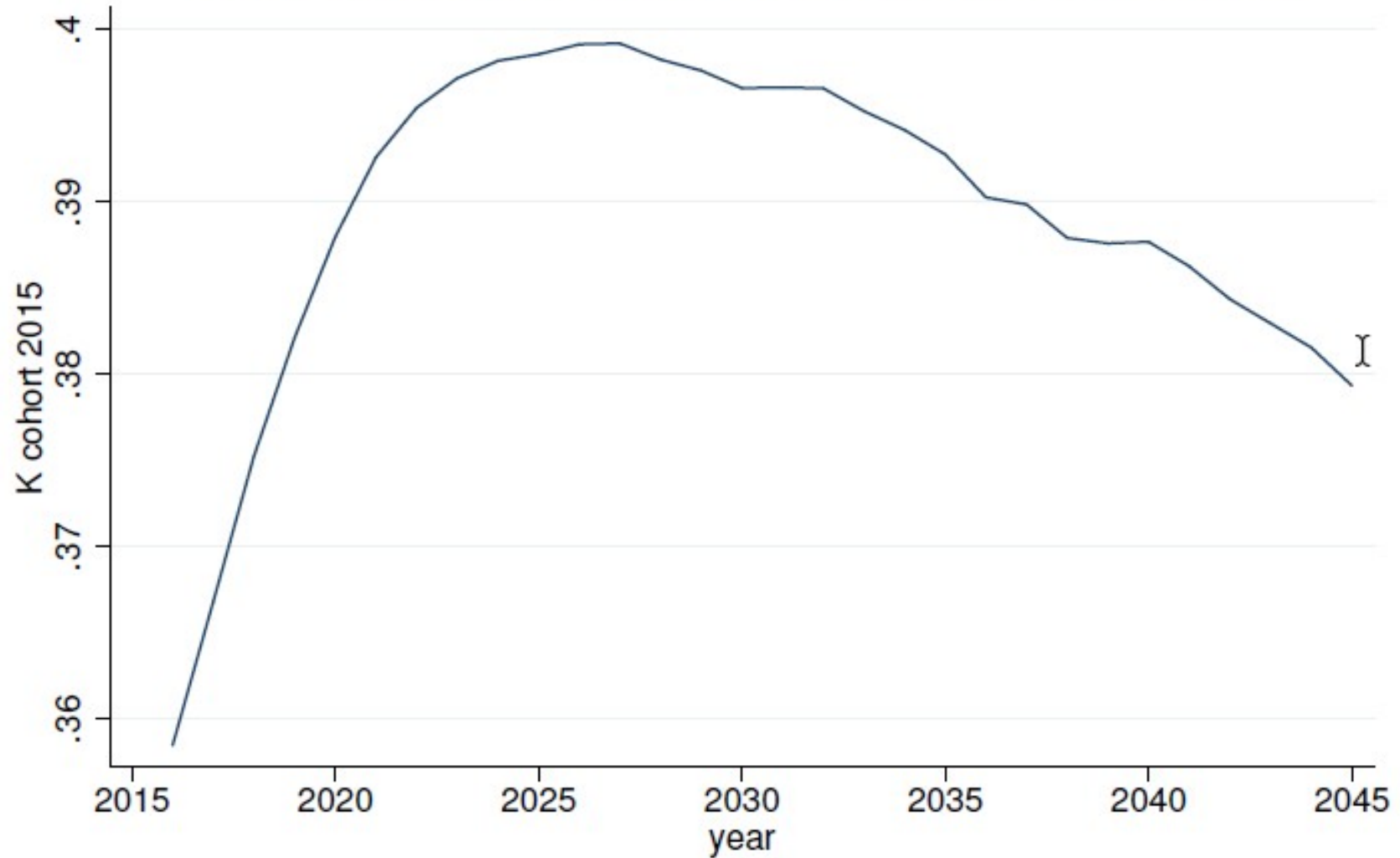


Heggeness et al., *Academic Medicine*, 2016

Research and Evaluation

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- Modeling Women in Leadership Study
 - With no policy intervention, women's representation in RPGs increases only 4-6%

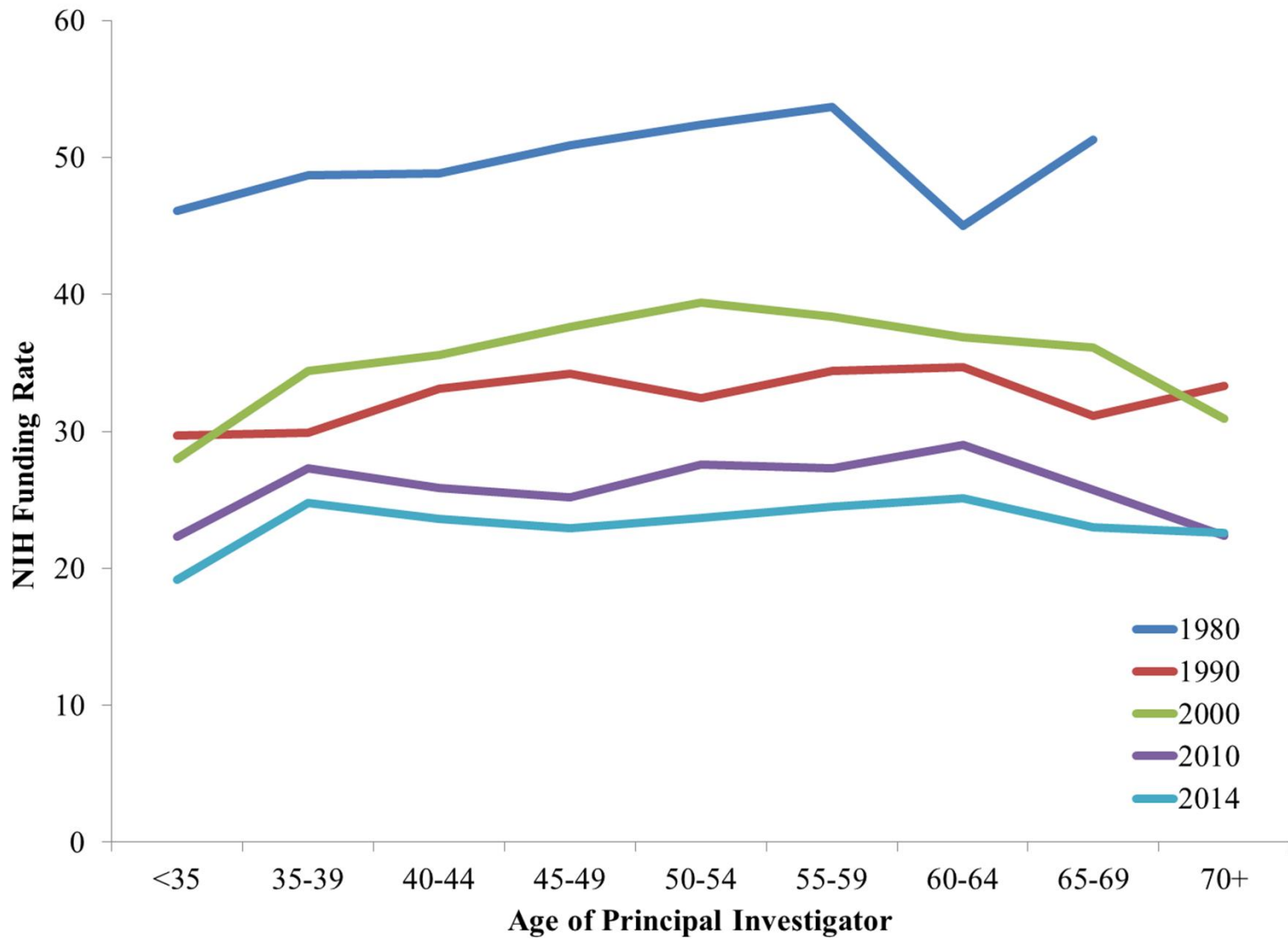
Share of Women in RPG Awardees for Cohort 2015



Zeng & Heggeness, Will the Gender Diversity of Young Scientists Today Improve the Diversity of Older Cohorts in the Future?, *Under Review*

Research and Evaluation

- Representation Study
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- Modeling Women in Leadership Study
 - With no policy intervention, women's representation in RPGs increases only 4-6%
- 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*
 - http://sites.nationalacademies.org/cs/groups/pgasite/documents/webpage/pga_172730.pdf
 - 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>

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)
- 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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