Employer Hiring Patterns in the Biological Sciences

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Plan

• Employment patterns of those trained in biological sciences have changed considerably in last 35 years
• Summarize these changes
  – Career outcomes of those who have been out 5-6 years
  – Plans upon graduation
• Also discuss PhD production
• Postdoc positions
• Note: The use of NSF data does not imply NSF endorsement of the research methods or conclusions contained in this presentation.
Biological Sciences: 5-6 Year Cohort

Tenure Track  Non Tenure Track

Biological Sciences: 5-6 Year Cohort

Tenure Track
Non Tenure Track
Post Doc
Summarize Patterns

- Tenure-track position is the “alternative” career path now—less than 15%
- Within academe, higher percent in non-tenure track than in tenure-track, many are on faculty of medical schools but many are staff scientists
- Industry is most likely employer
  - But proclivity to work in industry has not grown recently and is sensitive to conditions in economy and pharma
- Percent employed in government remains constant
What are “others” doing?

• Some are in post doc positions-- likely still hoping for a position in academe
• Some are out of labor force or employed part time
• Some are working in “other” positions
  – Know little about these other positions. There are anecdotes of bioscientists working in
    • Journalism
    • Law
    • Mutual funds
  – But we don’t have counts. Think Frank Gannon is right when he says in EMBO report: “There are not too many escape routes.”
Recent NRC Report

- Despite limited information regarding viability of alternative careers, recent NRC report sees training in biological sciences as good preparation for a variety of alternative careers, including that of high school math or science teacher.
Plans of Graduating PhDs, Biological Sciences: 1981-2008
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- PostDoc
- Academe
Plans of Graduating PhDs, Biological Sciences: 1981-2008
Plans of Graduating PhDs, Biological Sciences: 1981-2008

- PostDoc
- Academe
- Government
- Industry
Plans of Graduating PhDs, Biological Sciences: 1981-2008

- PostDoc
- Academe
- Government
- Industry
- Other
Summary

• Percent with definite plans has decreased, especially since mid-1990s. Percent reflects overall state of economy as well as state of NIH funding

• Of those with definite plans
  – almost 80% take a training position after graduating—sensitive, however, to NIH budget
  – Some take jobs in academe—
  – Some go to government
  – Some to industry—definitely sensitive to what is happening in pharma and biotech as well as overall state of the economy
PhDs, Foreign-Born & Citizens/Permanent Residents in Biological Sciences, 1980-2008
PhDs, Foreign-Born & Citizens/Permanent Residents in Biological Sciences, 1980-2008

- Citizens and Permanent Residents
- Temporary Visa Holders
PhDs, Foreign-Born & Citizens/Permanent Residents in Biological Sciences, 1980-2008
NIH Doubling

• See impact of NIH doubling
  – PhD production began to increase after having been flat
  – Larger increase among those on temporary visas
Postdocs, Foreign-Born & Citizens/Permanent Residents in Biological Sciences, 1980-2007
Postdocs, Foreign-Born & Citizens/Permanent Residents in Biological Sciences, 1980-2007

Citizens & Permanent Residents
Temporary Visa Holders
% Temporary Visa Holders
NIH Doubling

• Increase came from foreign-born (and likely foreign trained)
• Citizens and permanent residents remained flat—likely because moved into non-tenure track positions and in late 1990s into industry
Summary

• Employment opportunities are relatively bleak for newly-trained in biological sciences
• Likelihood of receiving tenure-track position has decreased
  – Due to decline in real NIH budget
  – Also decline in propensity of universities and medical schools to hire in tenure track positions
• Recession of 2001, coupled with restructuring of pharma, has limited employment opportunities in industry. Data don’t permit an examination of post 2008 but unlikely that things have improved
• In recent years postdoctoral positions have not grown, likely reflecting conditions in NIH budget
Questions/comments

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