

Latest Trends in the Physics Workforce

American Physical Society

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Acknowledgements

Data Sources

Surveys by AIP, NSF

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“Double the number of science, technology, engineering, and math graduates by the year 2015.”

Tapping America’s Potential: The Education for Innovation Initiative, Business Roundtable, July 2005

“Rising Above the Gathering Storm”

National Academies, October 2005

20 Recommendations in four areas:

- 1. Add 10,000 science and math teachers in K-12**
- 2. Increase federal investment in science and engineering research**
- 3. Attract and retain best and brightest for study and research in science and engineering**
- 4. Encourage innovation through incentives**

The number of jobs requiring technical skills is increasing and fewer Americans are entering degree programs in science, math and engineering.

Craig Barrett, Chair of Intel
Business Week, December 2005

Protect America's Competitive Edge Act

3-bill package in senate to implement all 20 NAS recommendations, January 2006

American Competitiveness Initiative

State of Union address, President Bush, 2006

National Innovation Initiative

140 business, political and education leaders

Wall Street Journal and Washington Post, Feb. 2006

Underlying Themes:

Supply

Demand

International Competitiveness

Innovation

Investment in Future

“There is no shortage of claims of shortage.”

Michael Teitelbaum, Sloan Foundation

Supply →

Innovation →

International Competitiveness

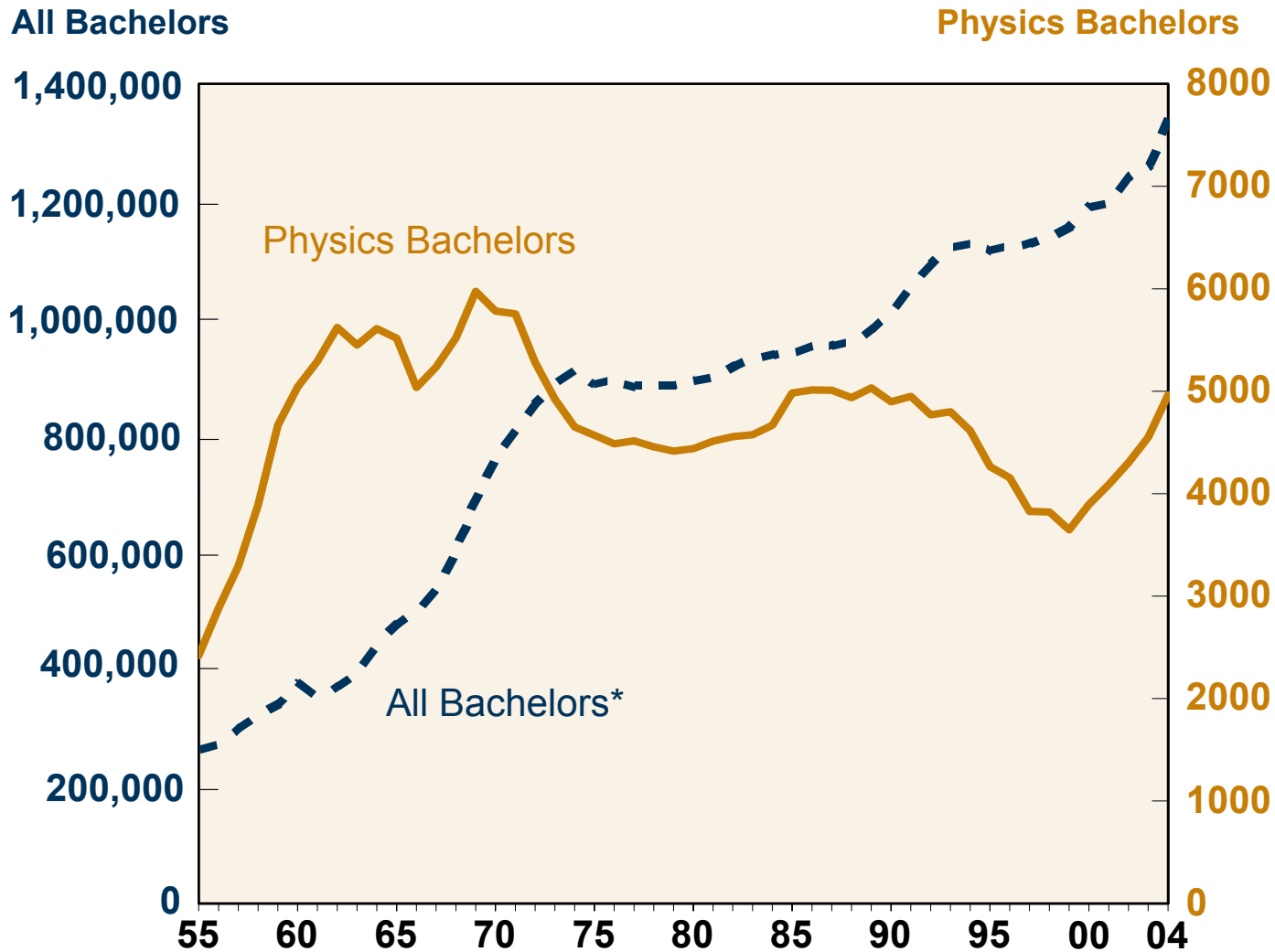
Supply →

Employment →

Innovation →

International Competitiveness

Physics bachelor's and total bachelor's produced in the US, 1955 to 2004.



AIP Statistical Research Center, Enrollments and Degrees Report and
* NCES Digest of Education Statistics

Physics Bachelors 1 Year Later

4000 Bachelors Degrees

50%

50%

Employment

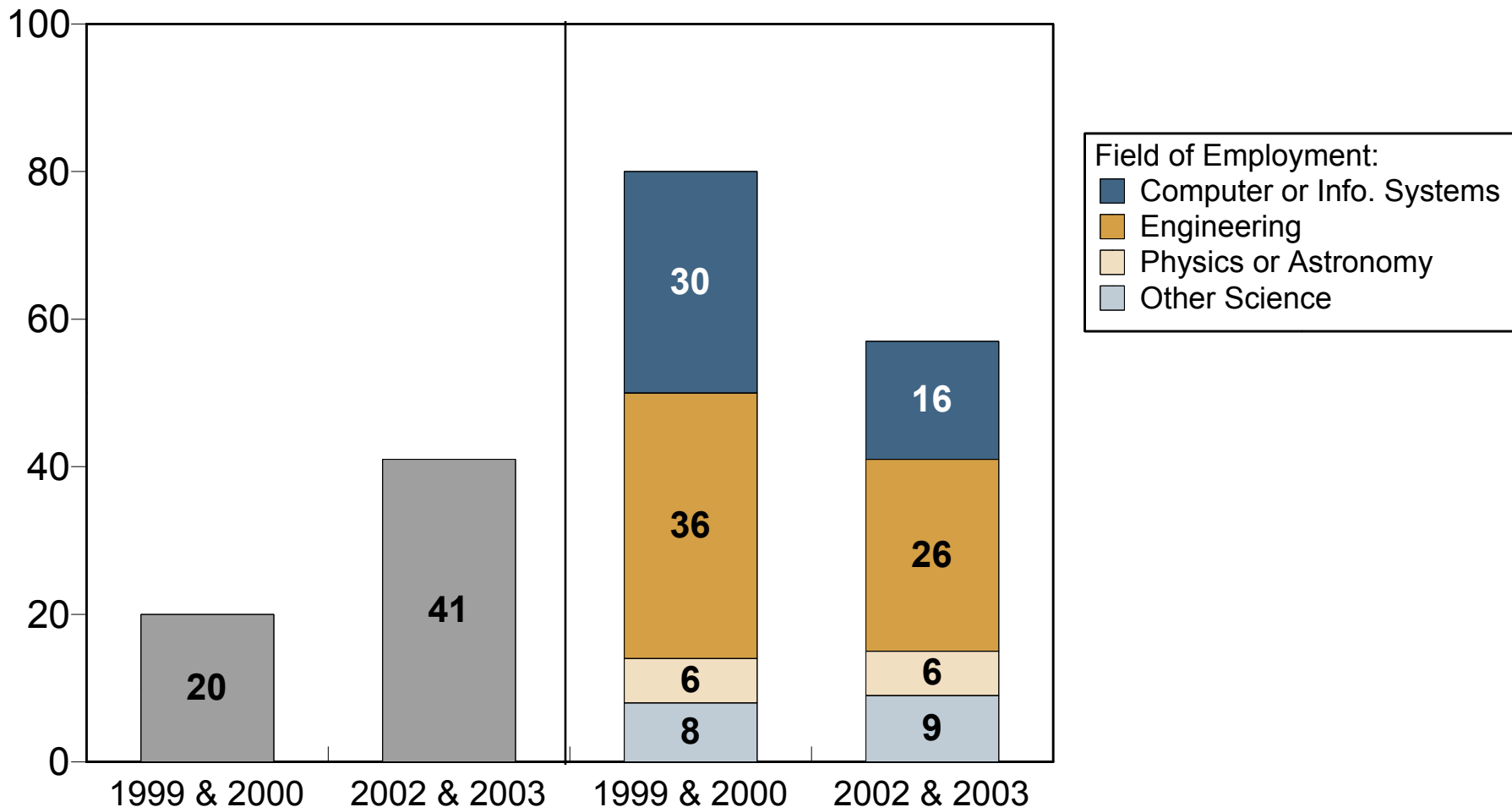
1100 Private Sector
250 High School
190 Government
150 Active Military
230 Other

Graduate School

1160 Physics and Astronomy
320 Engineering
200 Other Science and Math
120 Medicine and Law
130 Education and Other

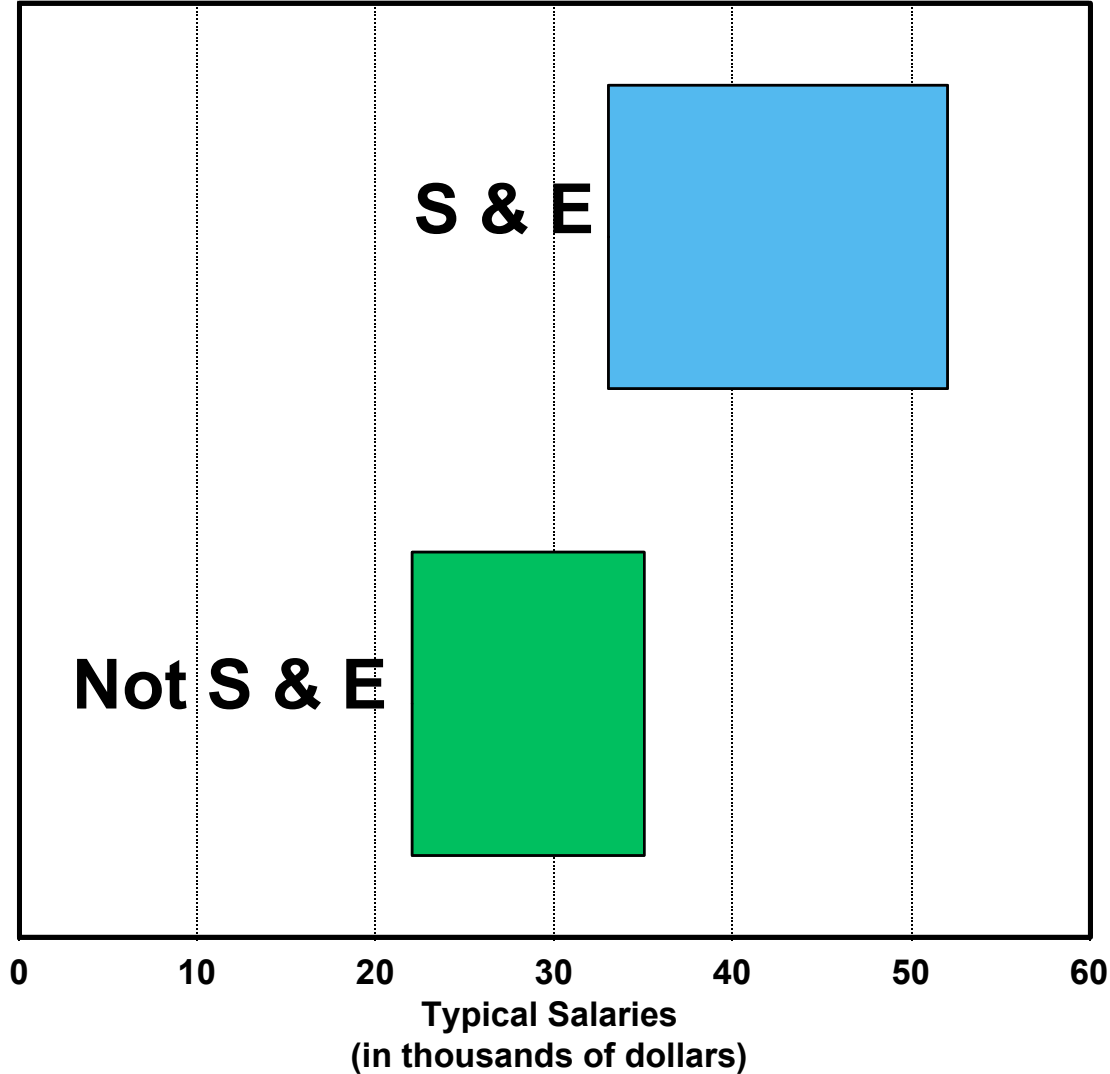
Four percent of the respondents indicated they were unemployed at the time of the survey, which represents about 160 individuals.

Changes in Field of Employment for Physics Bachelors in the Private Sector.



Note: 2% of the classes of 2002-2003 indicated that their employment field was education.

Typical Range of Starting Salaries for Physics Bachelors in the Private Sector, Classes of 2002 & 2003

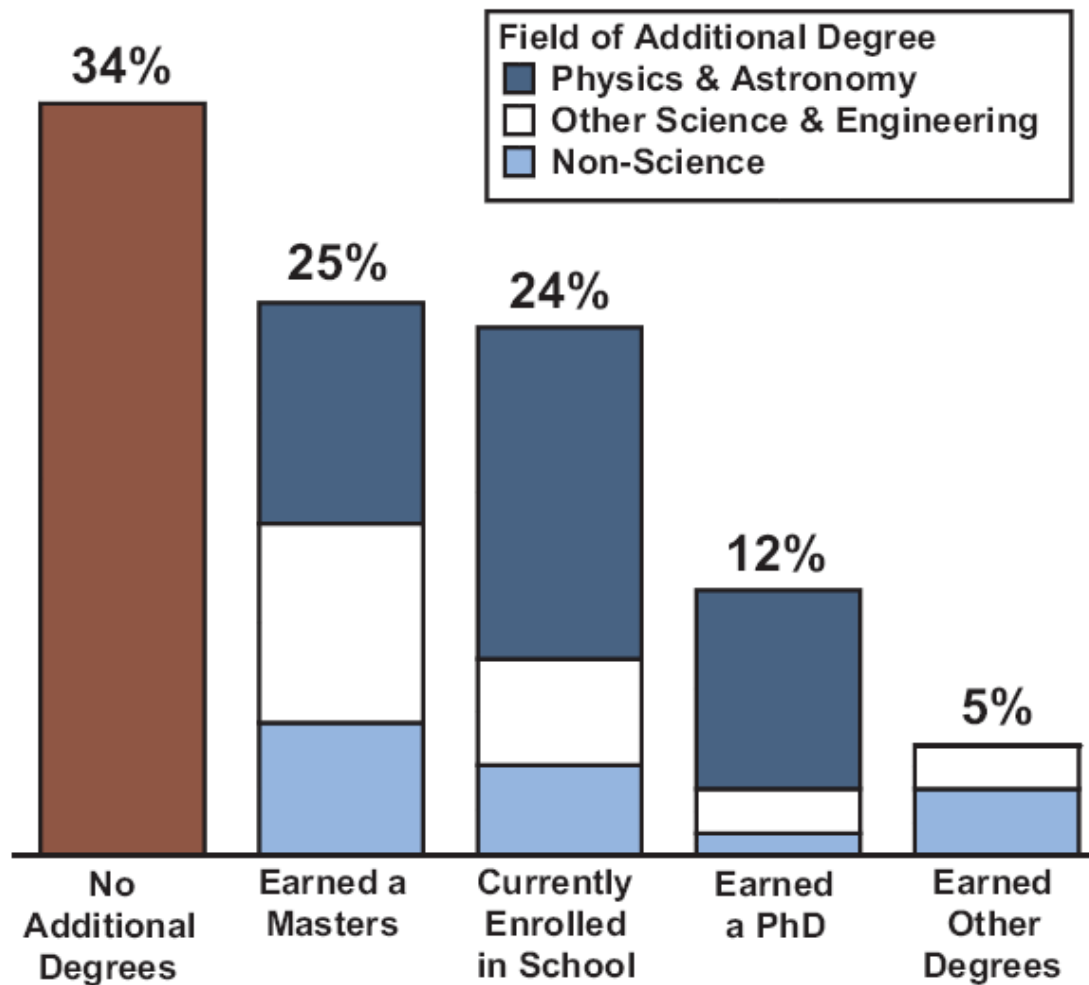


Typical salaries are the middle 50%, i.e. between the 25th and 75th percentiles.

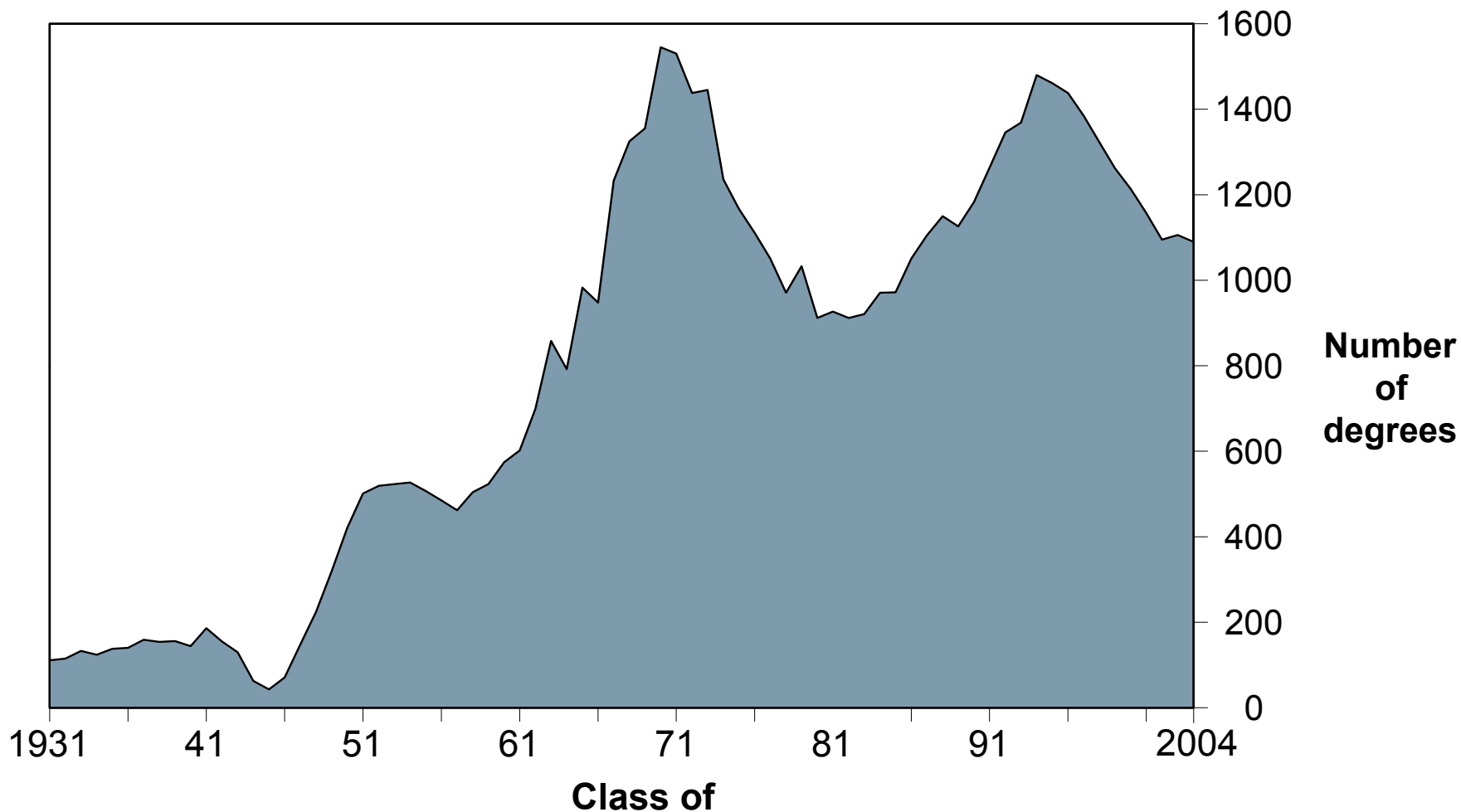
S & E refers to positions in science and engineering related employment

AIP Statistical Research Center, Initial Employment Report

Highest Degree Obtained by Physics Bachelors, Five to Seven Years After Degree



Number of physics PhDs conferred in the United States, 1931 to 2004.

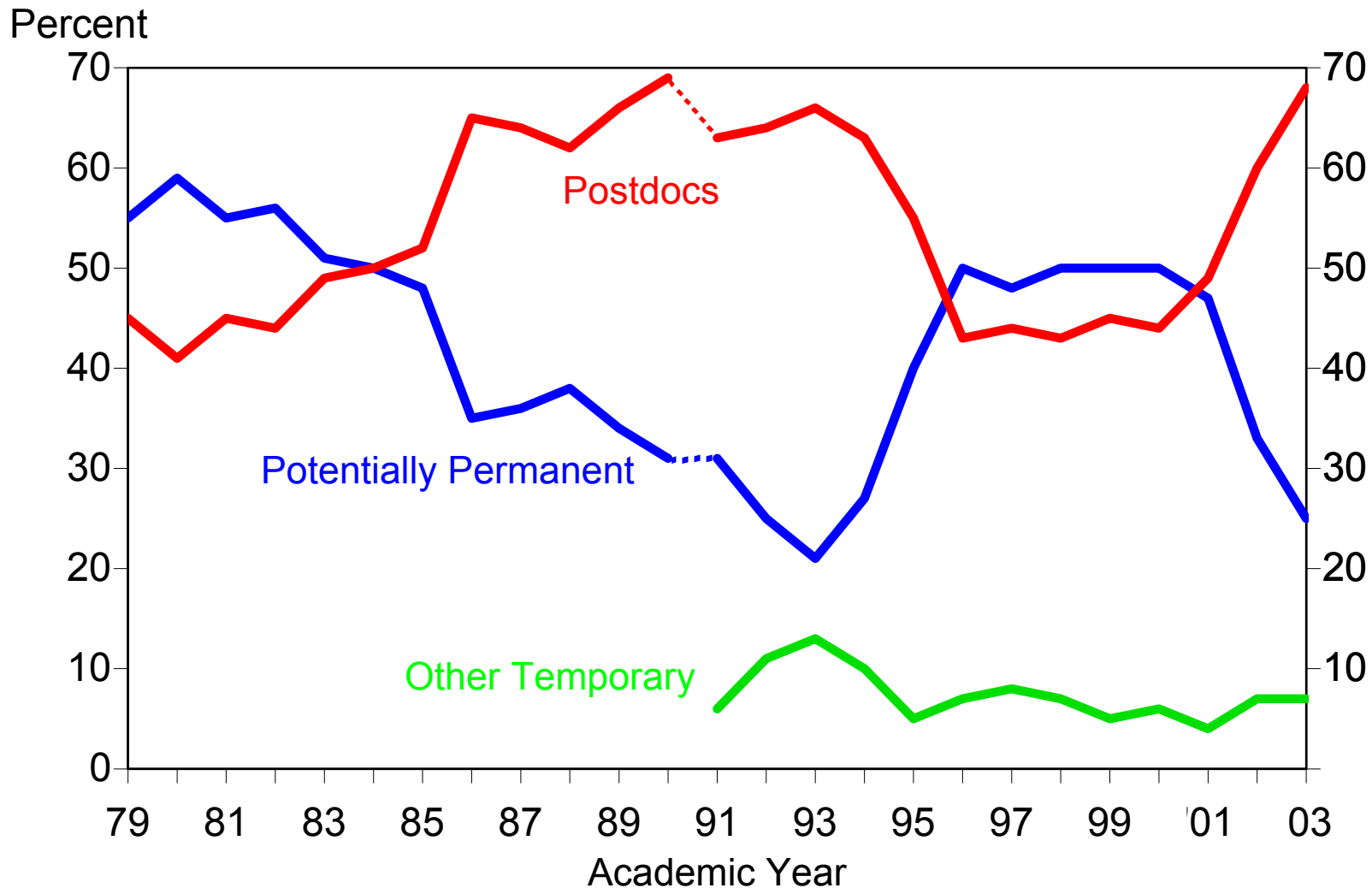


Sources: NAS (1931-1961), AIP (1962-2004)
Statistical Research Center, Enrollments and Degrees Report.

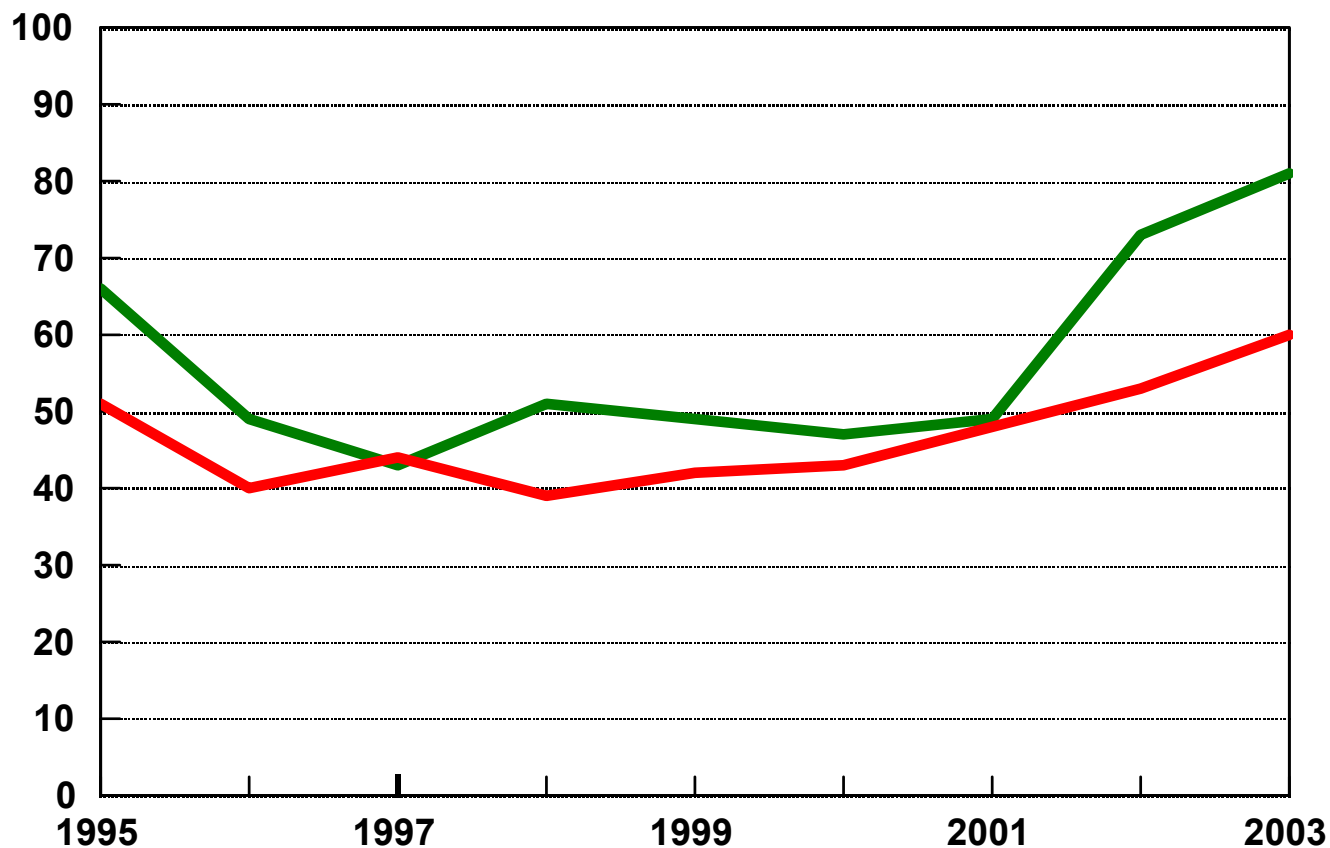
1st Year Students Entering Graduate Physics Programs

Academic Year	Foreign N	U.S. citiz. N
Fall 2004	1292	1746
Fall 2003	1481	1697
Fall 2002	1339	1535
Fall 2001	1434	1343
Fall 2000	1485	1228
Fall 1999	1328	1182
Fall 1998	1251	1166

Initial employment of physics PhDs, 1979-2003.



New Physics PhDs Accepting Postdocs, By Citizenship



— US Citizens & Permanent Residents
— Foreign Citizens

Source: AIP Statistical Research Center, Initial Employment Survey

Concluding Remarks

Millions more jobs in future - *don't believe it*

Americans avoiding science and math - *not accurate*

More people should earn S&E degrees - *definitely*

Employer Type by Year of PhD, 2001

PhD Year	Industry %	Academe %	Gov't, Non-Profit, Hospital
			%
1996-2000	46	40	13
1991-1995	54	30	15
1986-1990	41	36	21
1981-1985	47	34	18
1976-1980	46	28	26
1971-1975	45	31	23
1970 & earlier	37	44	18

Source: NSF Survey of Doctoral Recipients

Thank you