Workforce for the 21st Century

"Rome Workshop on Fostering the Development of Human Resources for Science and Technology"
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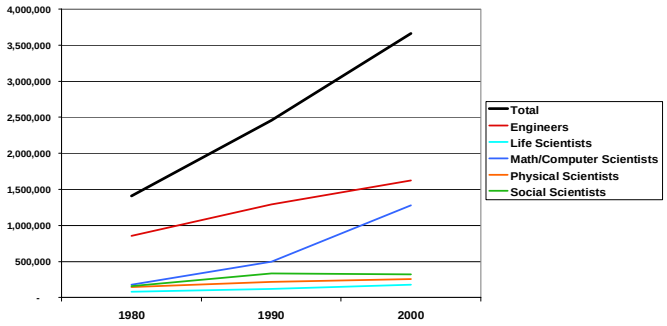
College Graduates in nonacademic S&E occupations

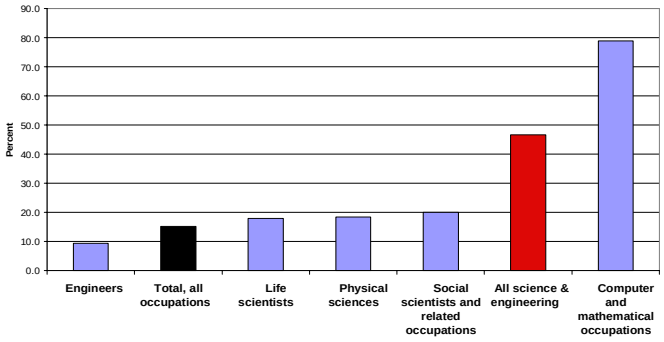


Source: NSF/SRS estimates from U.S. Census 1980, 1990 PUMS, March 2000 Current Population Survey

Employment in S&E occupations as a percentage of total civilian employment

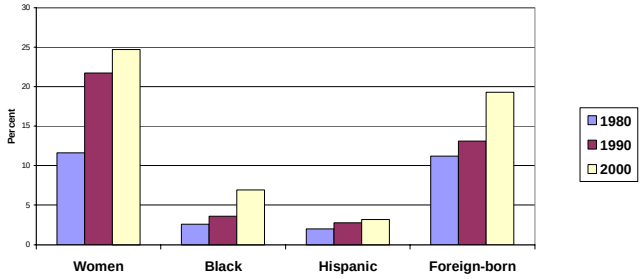
Source: NSF/SRS estimates from U.S. Census 1980, 1990 PUMS, March 2000 Current Population Survey

Projected 2000-2010 Increase in Employment (BLS)



Source: BLS Office of Occupational Statistics and Employment Projections

College Graduates in Non-Academic S&E Occupations: Percent Women and Minority



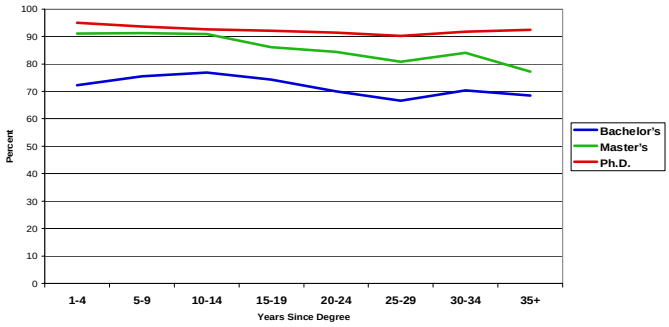
Source: NSF/SRS tabulation of 1980 and 1990 U.S. Decennial Census Public Use Microdata Sample, March 2000 Current Population Survey

Employed science and engineering degree holders, by S&E employment status and field of highest degree: 1999

	Total Employed	Percent in non-S&E Occupation
Total with S&E degree	10,479,800	68.9
S&E is highest degree	7,980,000	62.4
Math./Comp. Sci.	1,045,800	48.6
Life sciences	1,287,700	71.9
Physical sciences	621,700	44.8
Social sciences	3,088,400	85.2
Engineering	1,936,400	32.7
Non-S&E is highest degree	2,499,800	89.8

Source: NSF/SRS Scientists and Engineers Statistical Data System (SESTAT)

Science and Engineering Degree Holders in Job Related to Degree (1999)

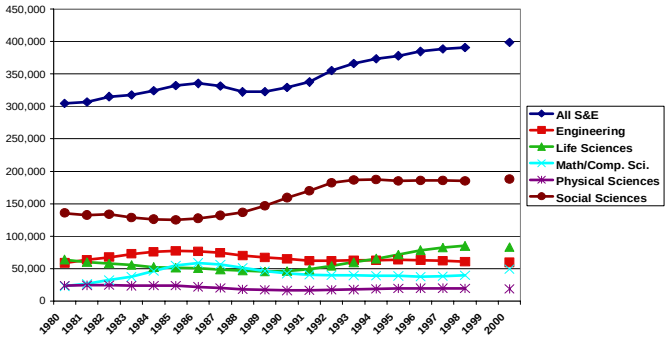


Source: NSF/SRS SESTAT data file

Major points:

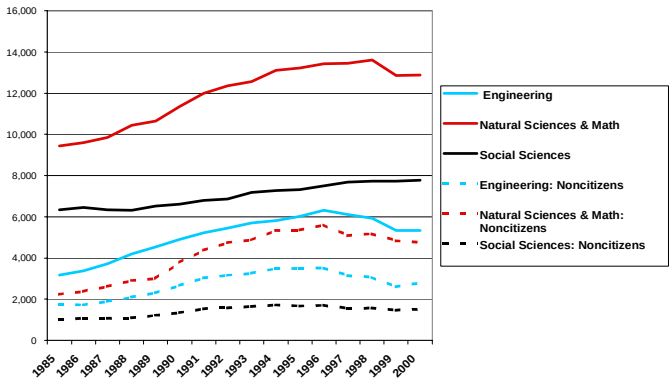
- Strong growth in S&E occupations, historical and projected;
- High degree of relevance of S&E degrees even to those in non-S&E occupations and at later stages of their career;
- Historical importance of women and minorities in helping to sustain growth of the S&E labor force; and
- Growing reliance on foreign talent for our needs.

U.S. Science and Engineering Bachelor's Degrees Awarded



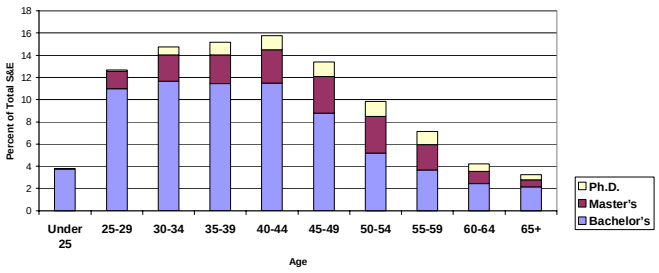
NSF/SRS *Science and Engineering Degrees: 1966-2000*

U.S. Science and Engineering Doctorates Awarded: 1985-2000



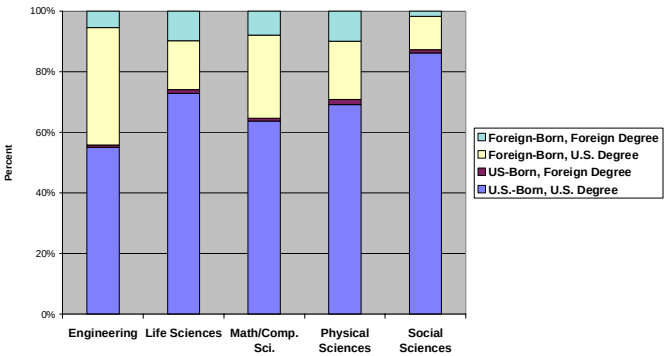
NSF/SRS *Science and Engineering Degrees: 1966-2000*

Age Distribution of Labor Force with S&E High Degrees



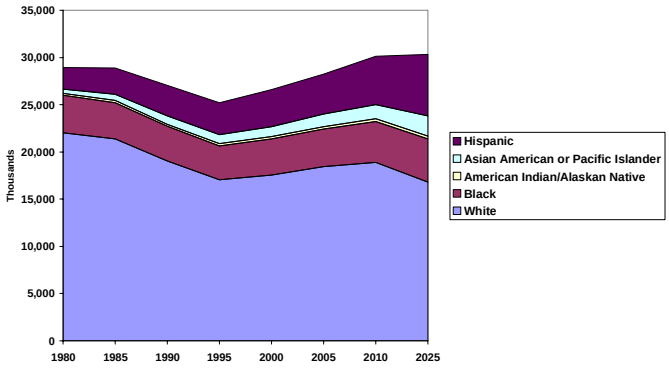
Source: NSF/SRS SESTAT data file

Doctorate Holders By Nativity and Place of Degree



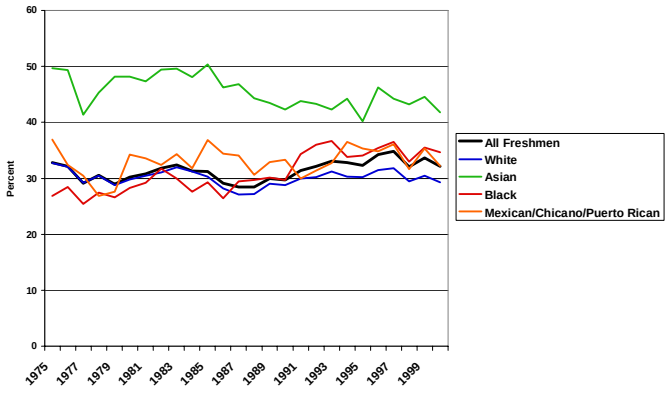
Source: NSF/SRS SESTAT data file

U.S. population of 18- to 24-year olds, by race/ethnicity, 1980-2025



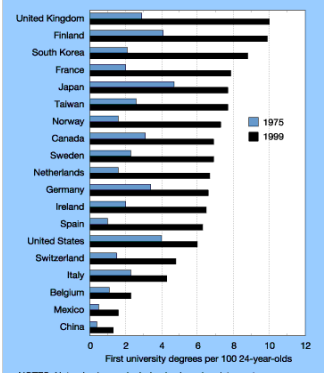
Source: U.S. Bureau of the Census

Percent of College Freshmen Intending S&E Major



Source: Higher Education Research Institute Freshman Survey

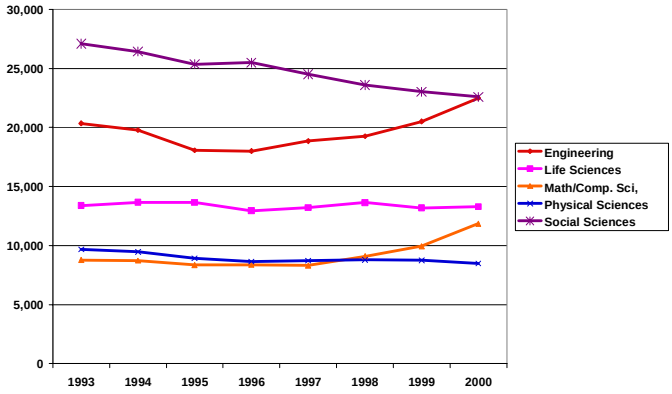
Figure 2-27.
Ratio of natural science or engineering first university degrees to 24-year-old population, by country or economy



NOTES: Natural sciences include physics, chemistry, astronomy, and earth, atmospheric, ocean, biological, agricultural, as well as mathematics and computer sciences. The ratio is the number of natural science and engineering degrees to the 24-year-old population. China's data are for 1985 and 1999. Other countries' data are for 1975 and 1998 or 1999.

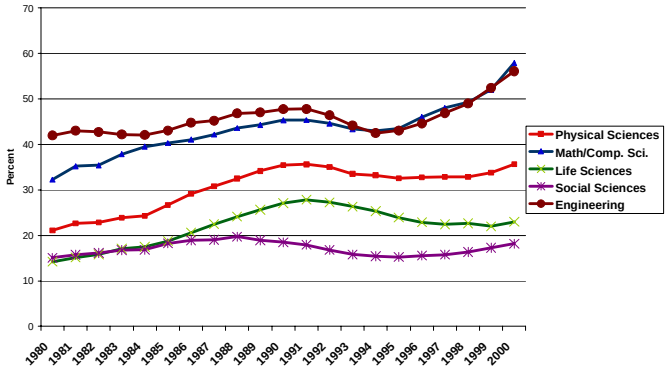
See appendix table 2-18. *Science & Engineering Indicators – 2002*

First-Time S&E Graduate Students Enrolled in U.S. Schools



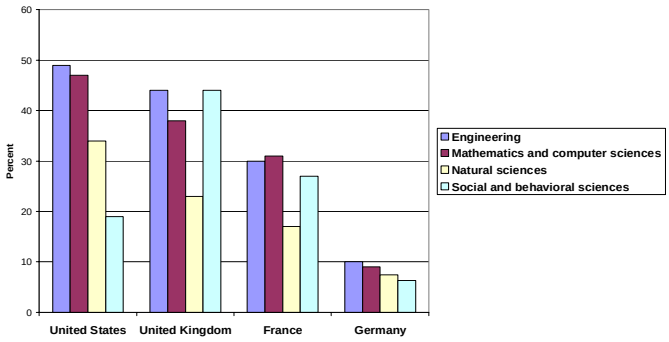
Source: NSF/SRS Survey of Graduate Students and Postdoctorates

Foreign Students as a Percent of U.S. Full-time Graduate Enrollment (Temporary Visa Only)



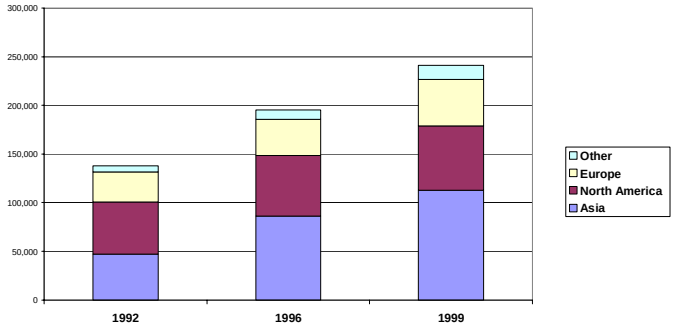
Source: NSF/SRS Survey of Graduate Students and Postdoctorates

Doctoral S&E degree earned by foreign students in selected countries, by field: 1999



Source: NSB Science and Engineering Indicators 2002

High Skilled Worker Visas in Japan (Entries)



Source: Adapted from*Highly Skilled Workers and Japan: Is there International Mobility?,* Scott M. Fuess, Jr., University of Nebraska (Lincoln) and Institute for the Study of Labor (Bonn)

The Challenge for Universities:

How to get more students to major in S&E?

The Dilemma:What if you succeed?

- **More laboratory space**
- **More faculty**
- **Are S&E students more expensive?**