



Underrepresented Groups and the Science and Engineering Pathway DATA MARKERS

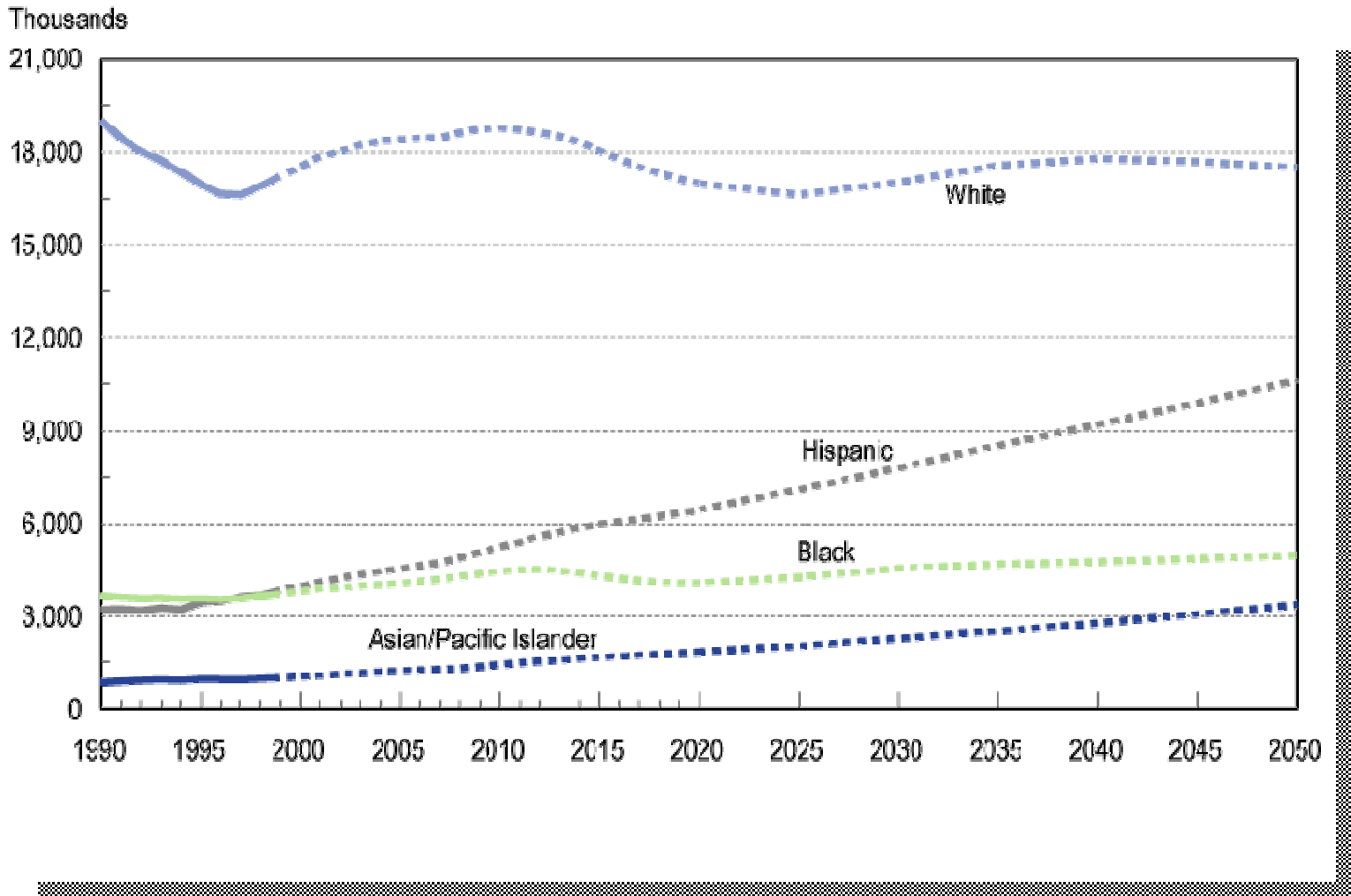
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The Evidence

- The “pathway” for underrepresented minorities is nonlinear
- Socioeconomic factors impact the success of minorities
- Student interest in S&E majors does not show a large increase from 1985-2006, except Hispanics
- Minority student enrollment in MSIs continues to rise
- Retention and attrition and persistence in major impact the pathway for minority students

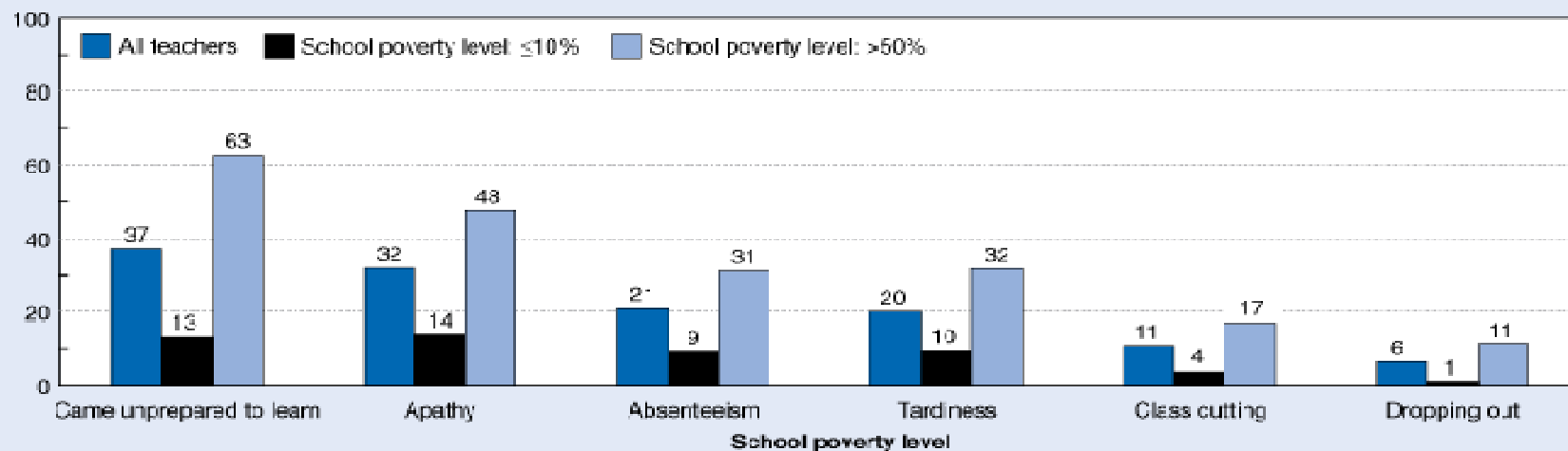
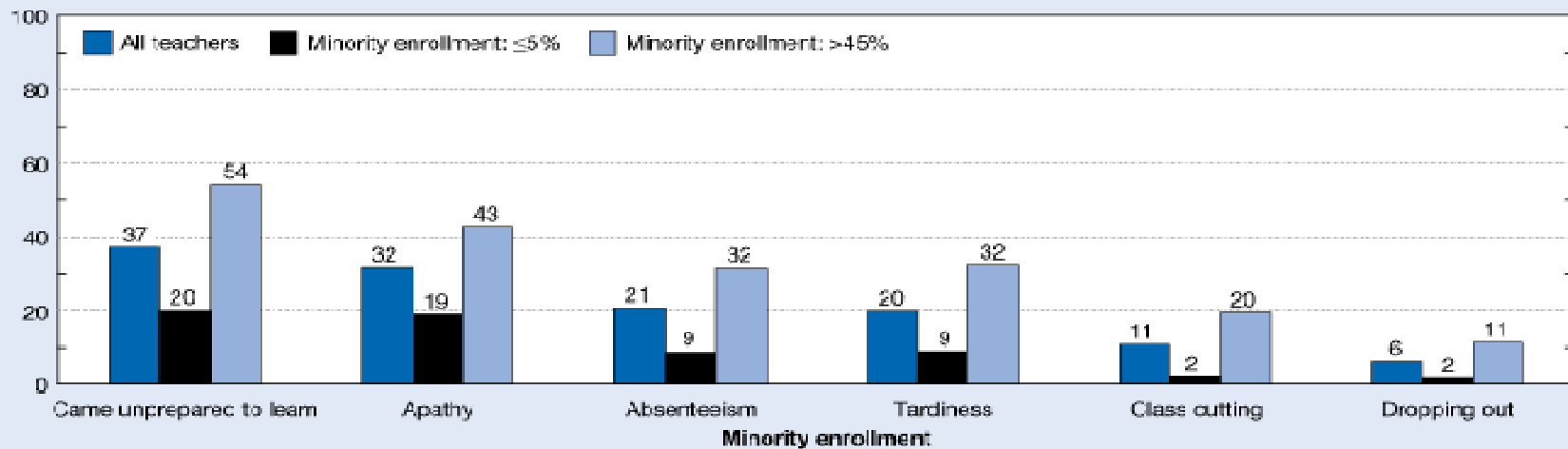
U.S. Population 18-24 Years Old, by Race/Ethnicity: July 1990-99 and Projections to 2050



SOURCE: NSF Women, Minorities and Persons with Disabilities in Science and Engineering-2004

Figure 1-21
Serious student problems reported by public middle and high school mathematics and science teachers, by minority enrollment and school poverty level: Academic year 2003–04

Percent



NOTES: Teachers asked to indicate the seriousness of various student problems in their schools. Response categories include "serious problem," "moderate problem," "minor problem," and "not a problem." Percentages based on teachers viewing various student problems as "serious." School poverty level is percentage of students in school qualifying for free/reduced-price lunch.

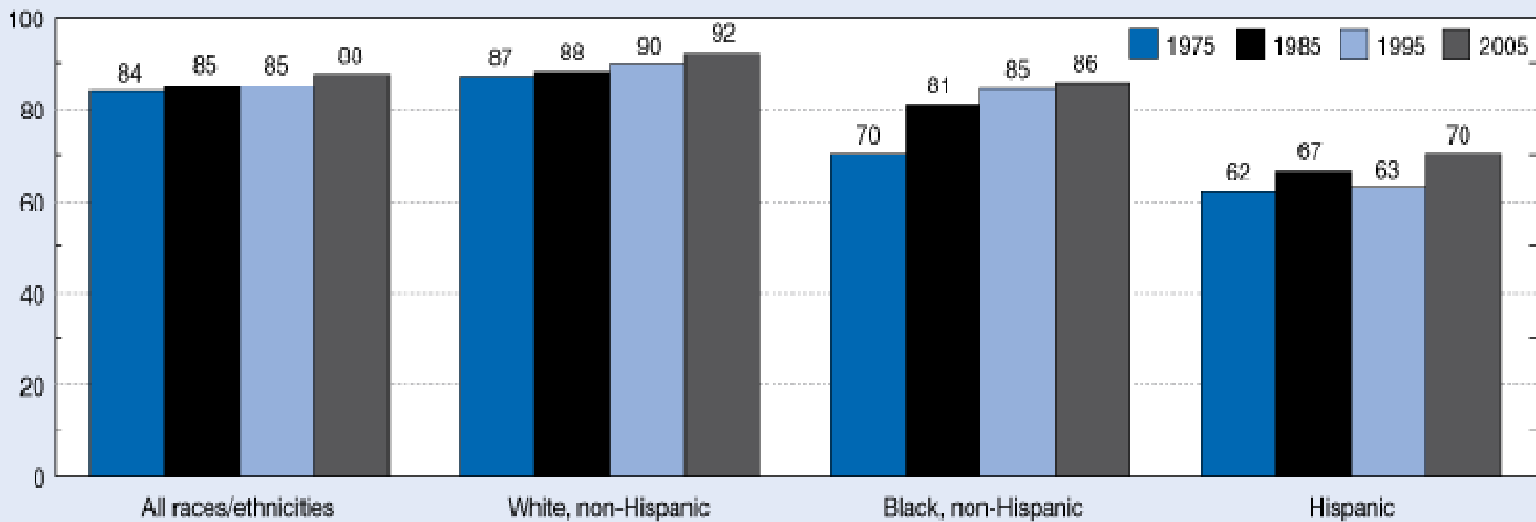
SOURCES: National Center for Education Statistics, Schools and Staffing Survey, 2003–04; and National Science Foundation, Division of Science Resources Statistics, special tabulations.

Between 1975 and 2005, high school completion rates increased in all racial/ethnic groups

Figure 1-22

High school completion rates of 18–24-year-olds, by race/ethnicity: Selected years, 1975–2005

Percent



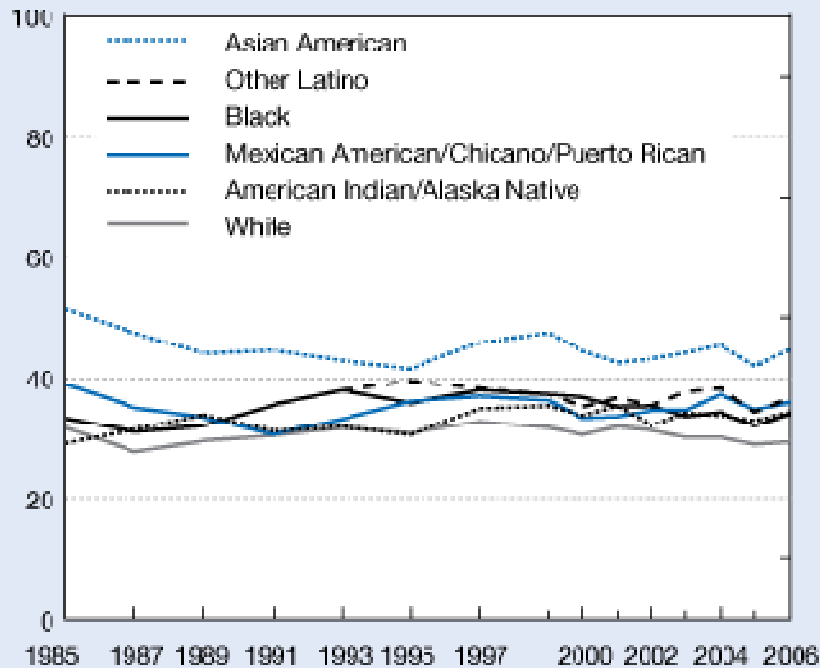
NOTES: High school completion rates measure percentage of 18–24-year-olds not enrolled in high school and holding a high school diploma or equivalent credential such as a General Equivalency Diploma (GED) certificate. Those still enrolled in high school excluded from analysis.

SOURCE: Laird J, DeBell M, Kienzl G, Chapman C, Dropout Rates in the United States: 2005, National Center for Education Statistics (NCES), NCES 2007-059 (2007).

Student Interest in S&E

Figure 2-7
Freshmen intending S&E major, by race/ethnicity:
Selected years, 1985–2006

Percent

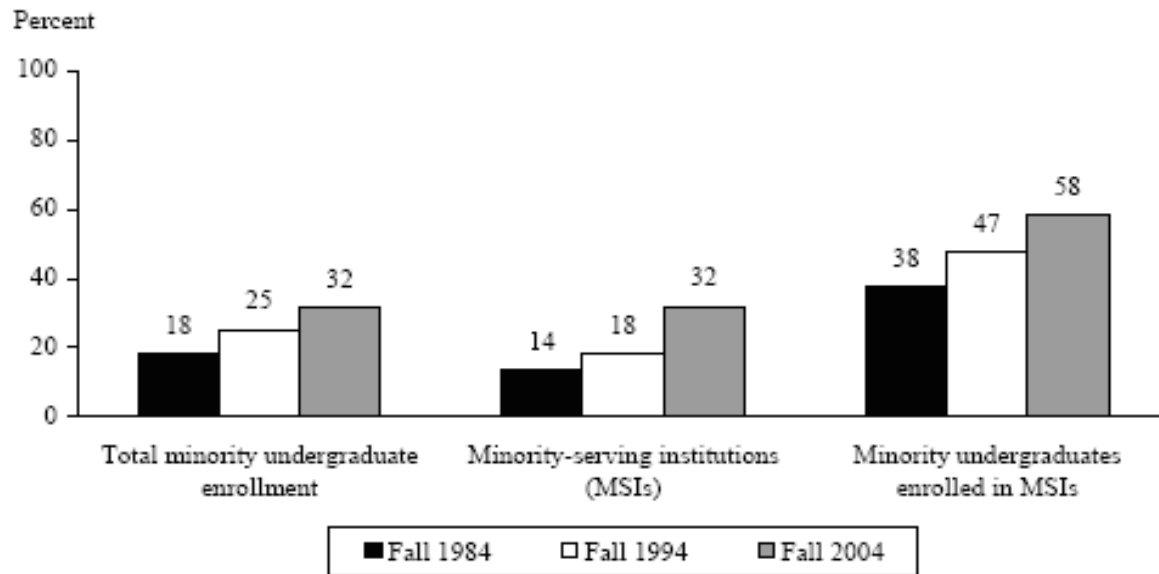


SOURCE: Higher Education Research Institute, University of California at Los Angeles, Survey of the American Freshman: National Norms, special tabulations (2007).

Science and Engineering Indicators 2008

- White students declined from 84% in 1985 to 72% in 2006
- Asian students increased from 4% to 12%
- Hispanic students increased from 2% to 9%
- American Indian students increased from 1% to 2%
- Black students increased from 10% to 11%

Figure A. Percentage of minority students in total undergraduate enrollment, percentage of all degree-granting postsecondary institutions that were minority-serving, and percentage of all minority undergraduate students who were enrolled in minority-serving institutions: Fall 1984, 1994, and 2004



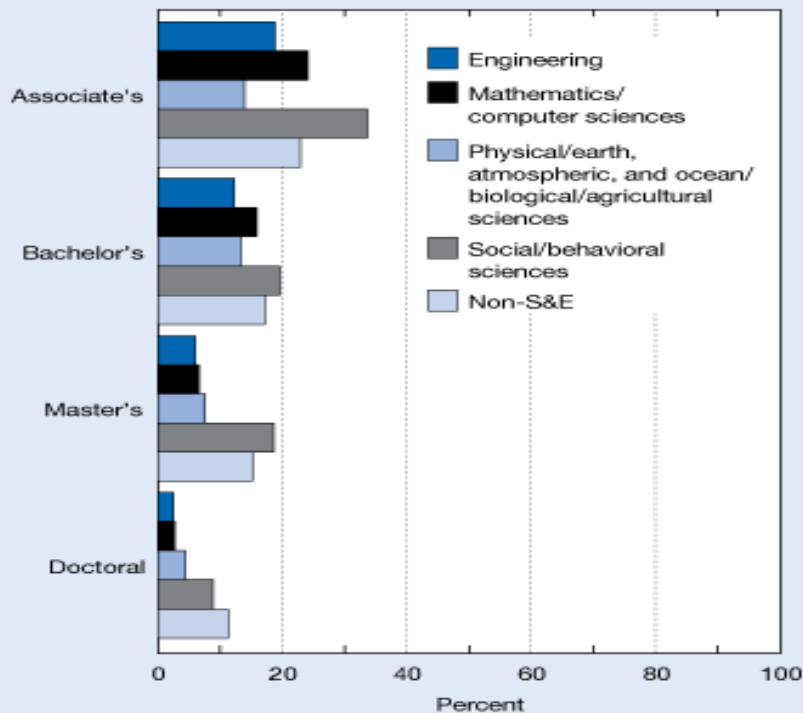
NOTE: "Minority-serving institutions (MSIs)" refers to the following six mutually exclusive categories of institutions: (1) HBCU (Historically Black Colleges and Universities); (2) Black-serving, non-HBCU (institutions that are not HBCU but in which Black undergraduates constitute 25 percent or more of the total undergraduate enrollment); (3) Hispanic-serving (institutions in which Hispanics constitute 25 percent or more of the total undergraduate enrollment or institutions designated as Hispanic-serving in 2003 by the Office for Civil Rights); (4) Asian-serving (institutions in which Asian/Pacific Islander undergraduates constitute 25 percent or more of the total undergraduate enrollment); (5) American Indian-serving (Tribal Colleges and Universities [TCU] or institutions in which American Indian/Alaska Native undergraduates constitute 25 percent or more of the total undergraduate enrollment); and (6) Other minority-serving institutions (those that fall into none of the above minority-serving categories but in which students in at least two of the four individual minority groups constitute at least 25 percent of the total undergraduate enrollment or minority students combined constitute at least 50 percent of the total undergraduate enrollment) (see detailed definitions in report text). Data are for degree-granting institutions of higher education that were located in the 50 states and the District of Columbia and had reported undergraduate enrollment in the survey year; nonresident alien students were excluded from the minority enrollment counts.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Fall 1984, 1994, and 2004.

Source: Characteristics of Minority-Serving Institutions and Minority Undergraduates Enrolled in These Institutions
U.S. Department of Education, National Center for Educational Statistics

Pipeline Indicators

Figure 2-13
Underrepresented minority share of S&E degrees,
by degree level and field: 2005



NOTE: Underrepresented minority includes black, Hispanic, and American Indian/Alaska Native.

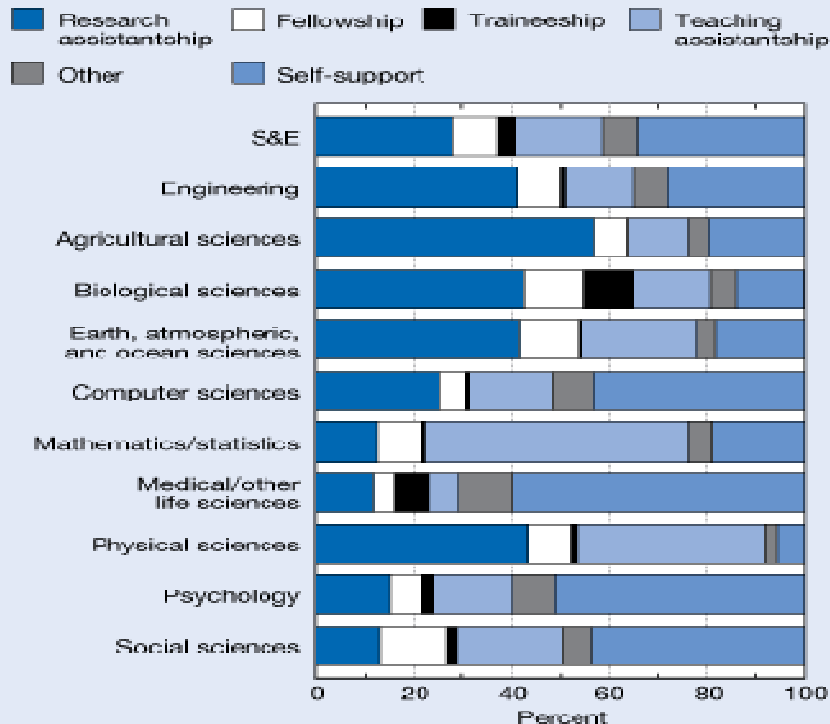
SOURCES: National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey; and National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix tables 2-26, 2-28, 2-30, and 2-32.

Science and Engineering Indicators 2008

- Minorities earn higher proportion of associate's degrees than they do of bachelor's or more advanced degrees
- Minorities earned $>1/3$ of all associate's degrees in social and behavioral sciences and about $1/4$ of associate's degrees in mathematics and computer sciences in 2005

Financial Support for S&E Graduate Education

Figure 2-4
Full-time S&E graduate students, by field and mechanism of primary support: 2005



NOTE: Self-support includes any loans (including federal) and support from personal or family financial contributions.

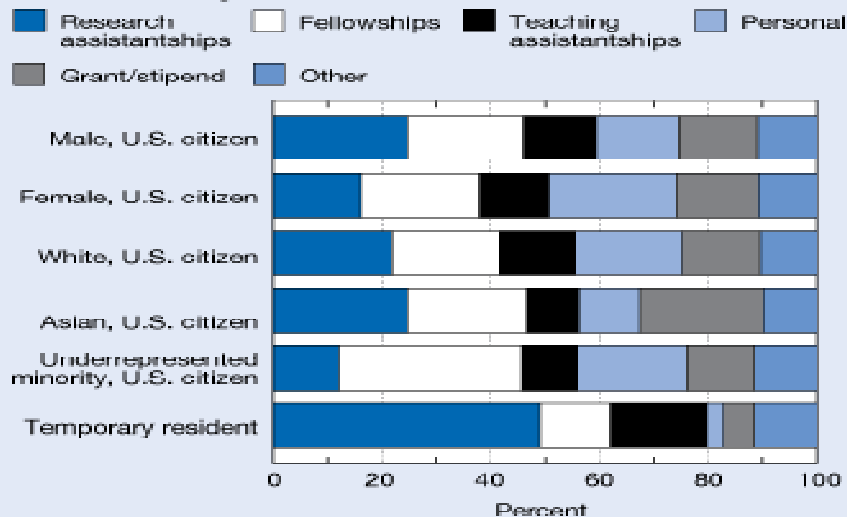
SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Graduate Students and Postdoctorates in Science and Engineering, WebCASPAR database, <http://webcaspar.nsf.gov>. See appendix table 2-8.

Science and Engineering Indicators 2008

- About 1/3 of S&E graduate students are self-supporting
- RA's are the most prevalent primary mechanism
- The federal government funded 67% of S&E graduate students on traineeships, 51% with RAs and 23% with fellowships in 2005

Financial Support for S&E Doctoral Students by Representation

Figure 2-6
**Primary mechanisms of support for S&E
 doctorate recipients, by citizenship, sex, and
 race/ethnicity: 2005**



NOTES: Personal sources include personal savings, other personal earnings in graduate school, other family earnings or savings, and loans. Other includes employer reimbursement or assistance, foreign support, traineeships, other assistantships, and other and unknown sources. S&E includes health fields (i.e., medical and other life sciences). U.S. citizen total includes unknown sex. Underrepresented minority includes blacks, Hispanics, American Indians/Alaska Natives, Native Hawaiians/other Pacific Islanders, and multiple races/ethnicities.

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates, special tabulations (2007).

Science and Engineering Indicators 2008

- Whites and Asians/Pacific Islanders more likely to receive RAs
- Minorities supported more by fellowships