Construction of Indicators on human resources

Higher Education Indicators

Jean Johnson- National Science Foundation
Construction of Indicators on human resources

Higher Education Indicators

- S&E first university degrees (bachelor’s)
- Ratio of university degrees to the population
- Ratio of science & engineering degrees to the population
First university S&E degrees earned by region: 2001

Trends in population of 20- to 24-year-olds, by selected countries and regions: 1980–2015

Thousands

Science & Engineering Indicators – 2004
Ratio of first university degrees to the college-age population, selected countries: 2001

- China
- Venezuela
- Greece
- Brazil
- Czech Republic
- Mexico
- Portugal
- Costa Rica
- Canada
- Spain

Degrees per 100 of college-age population:

0 5 10 15 20 25 30 35

SOURCE: National Science Board, Science and Engineering Indicators 2004
Ratio of first university NS&E degrees to college-age population, selected countries: 2001

Degrees per 100 of college-age population

Brazil
Venezuela
Greece
Portugal
Mexico
Costa Rica
Czech Republic
United States
Canada
Spain

NS&E = natural sciences and engineering
NOTE: Natural sciences include physical, biological, earth, atmospheric and ocean sciences, mathematics and computer sciences.
S&E doctoral degrees

• Snapshot
• Regions
• Latin American countries
S&E doctoral degrees earned by region: 2001

NOTE: Countries/economies included within each region listed in Science and Engineering Indicators 2004, appendix table 2-36.

S&E doctoral degrees earned in the Americas, by selected countries: 2001

S&E doctoral degrees earned in selected Latin American countries: 2001


Sources: Higher Education Statistics Agency (HESA), Cheltenham and National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates.

Latin America total

Mexico
Brazil
Argentina

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates.

SOURCE: Higher Education Statistics Agency (HESA), Cheltenham

SOURCES: China-Educational Yearbook; National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates.
Mexican S&E doctoral recipients within Mexican, U.S., and U.K. universities: various years

Number


SOURCE S: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates; Asociacion Nacional de Universidades e Instituciones de Educacion Superior (ANUJS); Higher Education Statistics Agency (HESA)
Taiwanese S&E doctoral recipients at Taiwanese and U.S. universities: 1975-2002

SOURCES: Taiwan-Educational Statistics of the Republic of China; National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates.
S&E doctoral degrees earned in Brazilian universities and by Brazilian students in U.K. and U.S. universities

S&E foreign graduate student enrollment in selected countries, by field: 2001

United States

- Engineering: 45%
- Social/behavioral sciences: 15%
- Mathematics/computer sciences: 35%
- Natural/agricultural sciences: 10%

United Kingdom

- Engineering: 40%
- Social/behavioral sciences: 40%
- Mathematics/computer sciences: 30%
- Natural/agricultural sciences: 15%

Japan

- NA

NA not available

Science & Engineering Indicators - 2004
Foreign S&E graduate students and postdoctorates in the U.S.: 1983-2002

S&E doctoral degrees earned by foreign students in selected countries, by field: 2001

United States

United Kingdom

France

Japan

Germany

Percent

United States: 55% Social/behavioral sciences, 45% Natural/agricultural sciences, 60% Mathematics/computer sciences, 50% Engineering

United Kingdom: 60% Social/behavioral sciences, 40% Natural/agricultural sciences, 50% Mathematics/computer sciences, 55% Engineering

France: 30% Social/behavioral sciences, 20% Natural/agricultural sciences, 35% Mathematics/computer sciences, 40% Engineering

Japan: NA

Germany: 10% Social/behavioral sciences, 15% Natural/agricultural sciences, 20% Mathematics/computer sciences, 25% Engineering

NA not available

SOURCE: Science & Engineering Indicators –

NOTE: Foreign doctorate-holders include permanent or temporary residents.

SOURCE: Science & Engineering Indicators – 2004
Foreign Student Flows

- Graduate S&E enrollment
- Foreign student share of U.S. degrees
- Foreign doctoral recipients
- Plans to stay
S&E doctoral degrees earned by Latin American students in U.S. universities and their plans to stay: 1980, 1990-2002

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates.
Stay rates of foreign recipients of U.S. S&E doctoral degrees, by place of origin: 1990 and 2001

- India
- China
- United Kingdom
- Canada
- France
- South Korea
- Germany
- Taiwan
- Mexico
- Brazil

NOTE: Stay rate refers to firm plans to stay at the time of degree conferral.

SOURCE: Science and Engineering Indicators – 2004
Firm plans of Latin American S&E doctoral recipients to stay in the U.S., selected countries: 1990-2001

SOURCE: National Science Foundation, Division of Science Resources Statistics, Survey of Earned Doctorates.
Scientific Mobility

- NSF SESTAT database
  - Foreign-born S&E Degree holders residing in the U.S.
    - By level of education
    - By occupation group
    - By sector of employment
    - By research activity
Foreign-born residents in the United States who hold an S&E degree as their highest degree, by education level: 1993-1999

National Science Foundation, Division of Science Resources Statistics, SESTAT.
U.S. residents whose highest degree is in S&E, by highest degree level and region of birth: 1999

NOTES: Europe includes Eastern and Western Europe and the Former Soviet Union; Latin America includes Caribbean countries. SOURCE: National Science Foundation, Division of Science Resources Statistics, SESTAT.
Latin American residents in the United States who hold an S&E degree as their highest degree, by education level, selected countries: 1999

National Science Foundation, Division of Science Resources Statistics, SESTAT.

- Physical
- Life
- Math/Comp
- Engineering

Number in thousands

National Science Foundation, Division of Science Resources Statistics, SESTAT
Foreign-born scientists and engineers in the United States, by occupation group and region of birth: 1999

SOURCE: National Science Foundation, Division of Science Resources Statistics, SESTAT.
Latin-American born scientists and engineers in the United States, by occupation group, selected countries: 1999

SOURCE: National Science Foundation, Division of Science Resources Statistics, SESTAT.
Foreign-born scientists and engineers in the United States by sector of employment:
1993-1999

Number in thousands

National Science Foundation, Division of Science Resources Statistics, SESTAT
Foreign-born scientists and engineers by sector of employment: selected regions, 1999

- **Business**: The largest number of foreign-born scientists and engineers are employed in the business sector. The bar for Latin America is significantly smaller compared to Asia and Europe.
- **Government**: The number of foreign-born scientists and engineers in the government sector is relatively small across all regions.
- **Education**: The number of foreign-born scientists and engineers in the education sector is also small, with Latin America showing the least.

The bars represent the number in thousands, with a maximum of 600 thousands.
Latin American scientists and engineers in the United States, by sector of employment: selected countries, 1999

NOTE: Data on government for Peru and Venezuela are suppressed for small numbers.
SOURCE: National Science Foundation, Division of Science Resources Statistics, SESTAT

National Science Foundation, Division of Science Resources Statistics, SESTAT
Foreign-born scientists and engineers in the United States who perform R&D as a primary activity, by selected regions: 1993-1999

National Science Foundation, Division of Science Resources Statistics, SESTAT
Latin American-born scientists and engineers in the U.S. who perform R&D as a primary activity, selected countries: 1999

SOURCE: National Science Foundation, Division of Science Resources Statistics, SESTAT
For further information:

International Degree Data and Foreign Student Flows in:
Science & Engineering Indicators 2004,
Chapter on Higher Education Methodology section for all reports available on web:
National Science Foundation Division of Science Resources Statistics
http://www.nsf.gov/sbe/srs