

DATA BRIEF

Immigrants Are 23 Percent of U.S. Residents With S&E Doctorates

by Mark C. Regets

Immigrants with science and engineering doctorates are more likely to be engaged in research and development than are native-born U.S. citizens with doctorates.

Immigrants make up a significant proportion of U.S. personnel trained in science and engineering—9.8 percent of bachelor’s degree holders and 23.0 percent of those with doctorates in science or engineering.¹ Immigrants are even more important to research and development—representing 28.0 percent of doctoral scientists and engineers engaged in R&D.

This Data Brief presents these and other selected statistics on immigrant scientists and engineers from data just released from the 1993 National Survey of College Graduates (NSCG). The NSCG is a National Science Foundation followup survey of the education and labor market experiences of 215,000 individuals under age 76 who had any college degree at the time of the 1990 census. A particular strength of this survey in studying immigrants is its ability to identify individuals with science or engineering degrees from foreign institutions. Tables and micro records from the NSCG will be available soon on the Division of Science Resources Studies’ World Wide Web site (<http://www.nsf.gov/sbe/srs/stats.htm>) or on a public-use computer file on tape from NSF.

The highest proportion of foreign-born scientists and engineers at each educational level is in engineering, ranging from 13.9 percent of engineers with bachelor’s degrees to 40.3 percent of those with doctoral degrees, as shown in table 1. The lowest proportion of the foreign-born in science and engineering (S&E) occurs in the social sciences (13.1 percent of doctorates), with

¹ In this publication the terms “immigrant” and “foreign-born” refer to those born outside of the United States or U.S. territories to parents who were not U.S. citizens at the time. Of immigrants with doctoral degrees in science and engineering, 54.9 percent are U.S. citizens.

Table 1. Foreign-born share of individuals trained in science and engineering, by highest degree, as of April 1993

[In percent]

Field of degree	Bachelor's	Master's/ professional degree	Doctorates
Engineering.....	13.9	28.4	40.3
Chemical.....	17.0	32.5	38.6
Civil.....	17.3	36.4	50.6
Electrical/electronic.....	14.8	28.6	39.1
Mechanical.....	12.8	30.3	38.1
Life sciences.....	8.0	15.0	21.3
Agricultural.....	5.6	16.0	20.7
Biological.....	9.4	15.5	21.5
Mathematical/comp. sci.....	11.3	21.9	33.6
Computer.....	13.6	29.0	39.4
Mathematical.....	9.2	13.2	31.1
Physical sciences.....	11.3	17.1	25.9
Chemistry.....	14.8	23.6	25.7
Geosciences.....	5.2	9.7	16.8
Physics/astronomy.....	11.2	20.0	30.6
Social sciences.....	6.7	10.1	13.1
Economics.....	11.1	25.5	23.6
Political science.....	6.9	12.4	14.9
Psychology.....	5.9	6.1	9.0
Sociology/ anthropology.....	4.4	13.1	14.4
All S&E.....	9.8	18.0	23.0
Non-science and engineering.....	6.8	7.7	12.4

SOURCE: NSF/SRS, National Survey of College Graduates, 1993

the exception of economics (23.6 percent of doctorates), which has a slightly greater proportion of foreign-born than does S&E as a whole.

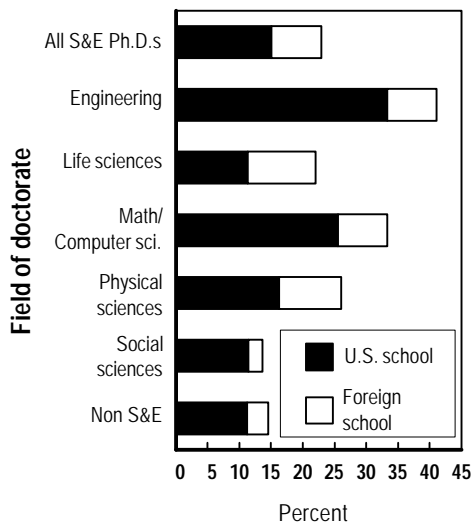
Although U.S. graduate schools are the most important source of doctoral degrees for immigrant scientists and engineers, many bring foreign graduate training to the U.S. labor

Electronic Dissemination

SRS data are available through the World Wide Web (<http://www.nsf.gov/sbe/srs/stats.htm>) and also through STIS, NSF’s online Science and Technology Information System, described in NSF flyer 95-64, “Getting NSF Information and Publications.” For a paper copy of the flyer, call 703-306-1130. For an electronic copy of the *STIS User’s Guide*, send an e-mail with the phrase “get NSF9410.TXT” to stisserv@nsf.gov. For NSF’s Telephonic Device for the Deaf, dial 703-306-0090.

market and research community. Chart 1 shows the proportion of foreign-born doctorates by field and source of most recent doctorate. Of all immigrants with S&E doctorates, 34.1 percent received their most recent doctorates from foreign schools.

Chart 1. Share of U.S. resident doctorates who are foreign born: 1993



KEY: S&E = science and engineering

SOURCE: NSF/SRS, National Survey of College Graduates, 1993

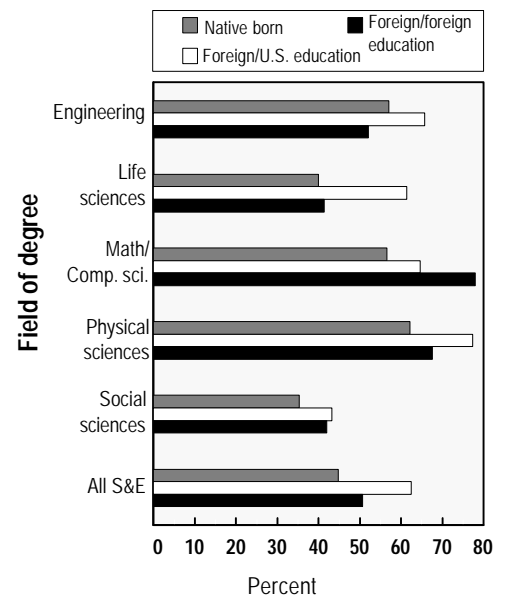
Foreign-school doctorates are particularly important in the life sciences and physical sciences and are of less importance in the social sciences and among non-S&E doctoral fields.

Immigrant scientists and engineers are more likely to engage in research and development activities than are their native-born counterparts. As shown in chart 2, this pattern holds true for each major S&E field, and it is particularly the case for foreign-born graduates of U.S. doctoral programs. For all S&E fields, 58.4 percent of the foreign-born doctorates are engaged in R&D, as compared with 44.8 percent of the native-born doctorates. This difference is driven by foreign-born doctorates from U.S. schools, 62.4 percent of whom are engaged in R&D. Foreign-born doctorates from foreign schools have a smaller R&D differential to the native born, with 50.6 percent being engaged in R&D. By field, the foreign-born/native-born differential in R&D activities is greatest in the physical sciences—73.6 percent for foreign-born doctorates and 62.1 percent for native-born doctorates.

The importance of foreign-born scientists and engineers to the United States is not a new phenomenon and is not limited to the youngest scientists and engineers. Although the percentage foreign-born is greatest for doctorates at the youngest age groups (28.4 percent of 31- to 35-year-olds), it

remains above 20 percent of doctorates for all age groups up to age 65.

Chart 2. S&E doctorates engaged in research or development: 1993



KEY: S&E = science and engineering

SOURCE: NSF/SRS, National Survey of College Graduates, 1993

For free *printed* copies of SRS Data Briefs, write to the above address, call 703-306-1773, or send e-mail to databrief@nsf.gov.

NATIONAL SCIENCE FOUNDATION
ARLINGTON, VA 22230

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

RETURN THIS COVER SHEET TO ROOM P35 IF YOU DO NOT WISH TO RECEIVE THIS MATERIAL , OR IF CHANGE OF ADDRESS IS NEEDED , INDICATE CHANGE INCLUDING ZIP CODE ON THE LABEL (DO NOT REMOVE LABEL).

**BULK RATE
POSTAGE & FEES PAID
National Science Foundation
Permit No. G-69**