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**STEM Workers**  
**Data Sources**

BY **MARLENE LEE** AND **NADWA MOSSAAD**

**Science, Technology, Engineering, and Mathematics**

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AUGUST 2010

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POPULATION REFERENCE BUREAU

# UNITED STATES STEM WORKERS DATA SOURCES

BY **MARLENE LEE** AND  
**NADWA MOSSAAD**

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## ACKNOWLEDGMENTS

The authors wish to thank: Ellen Carnevale, PRB's vice president of Communications and Marketing for her assistance with design, and Tyjen Tsai, PRB writer/editor, Lisa Aronson, PRB program assistant, and Jonathan Stall, PRB intern for their assistance. We also wish to acknowledge Jeanne Batalova, Michelle Mittelstadt, and Mark Mather, co-authors of *Immigration: Data Matters*, after which this guide has been modeled.

This project is underwritten through the generosity of the Alfred P. Sloan Foundation.

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# INTRODUCTION

Businesses, governments, and individuals are trying to understand and plan for shifts in the demand for highly skilled workers, particularly those workers with advanced degrees and experience in science, technology, engineering, and mathematics. Global shifts in production, consumption, education, and training are affecting regional, national, and local economies and their labor markets. To understand and respond to shifts in the demand for and supply of skilled labor, it is critical to have access to authoritative and high-quality data about skilled workers—both those currently in the labor force and those in the education pipeline.

We hope that *STEM Workers: Data Sources* will provide useful information about where to find credible and accessible data on the skilled labor force in the United States. We include information from U.S. government sources, nongovernment sources, and international organizations. This guide is by no means a comprehensive list of all sources for data related to the skilled workforce in the United States. Instead, we are sharing resources identified in our search for comparable indicators with which to assess the stock of skilled workers in the United States relative to other countries, the flow of skilled workers into the United States from other countries, and the production of future workers.

Key Topics (U.S. Data)	What Is Available	Where Can it Be Found	How Often Is it Updated
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## GLOBAL MOBILITY

### Immigration/ Visa Status

The U.S. data provide limited information on permanent and temporary visa holders based on immigration status at the point of entry. The data are from the Department of Homeland Security's (DHS) U.S. Citizenship and Immigration Services (USCIS) administrative sources; they are not available in census or population-based survey data.

Permanent immigrants: information on the number of immigrants admitted for legal permanent residence ("green card" holders) over time and by detailed class of admission. Country of birth information is available only by broad class of admission (e.g., employment-based immigrants). No relevant information by occupation prior to migration is available.

Office of Immigration Statistics (OIS), *Yearbook of Immigration Statistics*, tables on legal permanent residents, [www.dhs.gov/files/statistics/publications/yearbook.shtm](http://www.dhs.gov/files/statistics/publications/yearbook.shtm)

Annually

Temporary immigrants: information on the number of admissions (entries, not people) by visa type, including temporary workers and foreign students. No information is available by prior occupation/profession. Also, *Characteristics of Specialty Occupation Workers (H-1B)* report provides data on the main countries of origin, educational attainment, industry, occupation, and median salary of temporary workers who were issued/extended H-1B visas during the previous fiscal year.

OIS, *Yearbook of Immigration Statistics*, tables on nonimmigrant admissions, [www.dhs.gov/files/statistics/publications/yearbook.shtm](http://www.dhs.gov/files/statistics/publications/yearbook.shtm); USCIS, *Report on H-1B workers*, [www.uscis.gov/USCIS/Resources/Reports%20and%20Studies/H-1B/h1b-fy-09-characteristics.pdf](http://www.uscis.gov/USCIS/Resources/Reports%20and%20Studies/H-1B/h1b-fy-09-characteristics.pdf)

Annually

Foreign students: information on the number of visas issued to foreign students over time by country of origin.

Department of State *Report of the Visa Office*, [www.travel.state.gov/visa/statistics/statistics\\_1476.html](http://www.travel.state.gov/visa/statistics/statistics_1476.html)

Annually

### International Students

Number and characteristics: U.S. total number of students by country of citizenship, visa status, level of education, and course of study. Based on surveys of U.S. postsecondary institutions.

Institute of International Education, *Open Doors* annual report, <http://open.doors.iienetwork.org/>

Annually  
(usually in  
November)

Information for individual U.S. colleges/universities: online tables with data on foreign students' number, share of total enrollment, graduation rates, degree level by U.S. individual institutions of postsecondary education. Note: 1. Foreign students are reported as "nonresident aliens."  
2. Not all data might be available for all institutions.

National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), IPEDS Data Center, <http://nces.ed.gov/ipeds/>

Annually

Key Topics (U.S. Data)	What Is Available	Where Can it Be Found	How Often Is it Updated
<b>International Students (continued)</b>	Student and Exchange Visitor Information System (SEVIS) has quarterly administrative data on the number, country of origin, degree level, and majors of foreign students and exchange visitors. Also includes data on the institutions in which these students are enrolled such as geographic location and number of foreign students.	DHS, U.S. Immigration and Customs Enforcement (ICE) report <i>SEVIS By the Numbers</i> , <a href="http://www.ice.gov/sevis/">www.ice.gov/sevis/</a>	Quarterly
<b>Multinational Companies</b>	U.S. data on multinational corporations is available from the Bureau of Economic Analysis. However, indicators relevant to investment in development of science, engineering, and technology resources are sometimes easily accessed in international databases.	BEA, <a href="http://www.bea.gov/international/">www.bea.gov/international/</a>	
	Data for latest available year includes number of parent corporations and number of foreign affiliates in country economy.	UNCTAD, Annexes in World Investment Reports (1991-2009), <a href="http://www.unctad.org/Templates/Page.asp?intItemID=1485&amp;lang=1">www.unctad.org/Templates/Page.asp?intItemID=1485&amp;lang=1</a> ; Online information on multinationals (transnational corporations) by country may also be accessed at <a href="http://www.unctad.org/Templates/Page.asp?intItemID=3198&amp;lang=1">www.unctad.org/Templates/Page.asp?intItemID=3198&amp;lang=1</a>	Annually
	R&D expenditures of foreign affiliates in host economy.	OECD <i>Science, Technology and Industry Scoreboard 2009</i> , <a href="http://www.oecd.org/sti/scoreboard">www.oecd.org/sti/scoreboard</a> or directly to the online tables: <a href="http://www.oecdilibrary.org/content/book/sti_scoreboard-2009-en">www.oecdilibrary.org/content/book/sti_scoreboard-2009-en</a>	Every 2 years
<b>Research Collaborations</b>	Data on international cooperation in R&D, patents and scientific publications among countries; technological balance of payments; international flows in inventions and doctoral students.	OECD <i>Science, Technology and Industry Scoreboard 2009</i> , <a href="http://www.oecd.org/sti/scoreboard">www.oecd.org/sti/scoreboard</a> or directly to the online tables: <a href="http://www.oecdilibrary.org/content/book/sti_scoreboard-2009-en">www.oecdilibrary.org/content/book/sti_scoreboard-2009-en</a>	Every 2 years
<b>EDUCATION</b>			
<b>STEM Graduates</b>	Characteristics of graduates with doctoral degree: data on the size, educational characteristics, and postgraduation plans of individuals receiving research doctoral degrees from all accredited U.S. institutions. Includes information on field of degree, country of birth, citizenship status at graduation, race and ethnicity, gender, educational debt, and postgraduate plans (work, postdoc).	Survey of Earned Doctorates, National Science Foundation, <a href="http://www.nsf.gov/statistics/srvy/doctorates/">www.nsf.gov/statistics/srvy/doctorates/</a> . Results are available in the form of online reports, custom-built online tables ( <a href="https://webcaspar.nsf.gov/">https://webcaspar.nsf.gov/</a> ), and a restricted-license dataset for further analysis. Easy to view tables from this survey are also available: <a href="http://www.nsf.gov/statistics/doctorates/">www.nsf.gov/statistics/doctorates/</a>	Annually
	Foreign science and engineering students: report on the foreign students enrolled in U.S. Sciences and Engineering programs plus tables showing the size, degree level, country of origin, and estimates of cross-country mobility.	NSF report, <i>Foreign Science and Engineering Students in the United States</i> , <a href="http://www.nsf.gov/statistics/infbrief/nsf10324/?org=NSF">www.nsf.gov/statistics/infbrief/nsf10324/?org=NSF</a>	Periodic

Key Topics (U.S. Data)	What Is Available	Where Can it Be Found	How Often Is it Updated
<b>Postsecondary Education</b>	Student and institutional-level characteristics of U.S. primary providers of postsecondary education: survey-based data about students in individual higher education institutions. Custom-built online tables provide information on student enrollment, graduation rates, awards given by race and ethnicity, gender, degree level, field of study. Tables also include institution-level data such as enrollments, program completions, faculty, staff, finances, student financial aid, and academic libraries.	National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), IPEDS Data Center, <a href="http://nces.ed.gov/ipeds/">http://nces.ed.gov/ipeds/</a>	Annually
	University rankings: “America’s Best Colleges” is a ranking of 1,400-plus accredited colleges/universities in the United States. Also available are the rankings of the top 400 universities worldwide by school subject, including engineering and the IT, natural and physical sciences, and life sciences and biomedicine. The rankings are based on five criteria: academic peer review, employer review, student-to-faculty ratio, citations, and international faculty and students.	<i>U.S. News &amp; World Report’s</i> “America’s Best Colleges” ( <a href="http://colleges.usnews.rankingsandreviews.com/best-colleges">http://colleges.usnews.rankingsandreviews.com/best-colleges</a> ) and “World’s Best Universities” ( <a href="http://www.usnews.com/sections/education/worlds-best-universities/index.html">www.usnews.com/sections/education/worlds-best-universities/index.html</a> )	Annually
	U.S. investment into education compared to other countries: annual expenditure on educational institutions by broad level of education: total, as a percentage of GDP, per student, and public vs. private.	OECD, <i>Education at a Glance</i> , Chapter B “Financial and Human Resources Invested In Education,” <a href="http://www.oecd.org/dataoecd/41/25/43636332.pdf">www.oecd.org/dataoecd/41/25/43636332.pdf</a>	Annually
<b>Lifelong Learning (formal learning)</b>	<p>1. Number, share, and select characteristics (educational degree, broad occupation, nativity) of adults who are enrolled in work-related courses.</p> <p>2. ACS data on percent of adults already with professional qualifications (by degree or occupation) who are currently enrolled in college/university.</p>	<p>1. National Center for Education Statistics (NCES), 2005 Adult Education Survey. Suggested reading: <i>Career and Technical Education in the United States: 1990 to 2005</i>, <a href="http://nces.ed.gov/pubs2008/2008035.pdf">http://nces.ed.gov/pubs2008/2008035.pdf</a>. A number of pregenerated tables are available online (<a href="http://nces.ed.gov/pubs2006/adulted/tables.asp">http://nces.ed.gov/pubs2006/adulted/tables.asp</a>). Users can also use the Education Data Analysis Tool (EDET) to create online tables based on select variables, <a href="http://nces.ed.gov/nhes/dataproducts.asp">http://nces.ed.gov/nhes/dataproducts.asp</a>. Users also might request and analyze restricted-data microdata from NCES, <a href="http://nces.ed.gov/nhes/surveytopics_adult.asp">http://nces.ed.gov/nhes/surveytopics_adult.asp</a>;</p> <p>2. U.S. Census Bureau, American Community Survey (ACS), <a href="http://www.census.gov/acs/www/">www.census.gov/acs/www/</a>. Researchers can download microdata for further analysis either through American Fact-Finder (<a href="http://factfinder.census.gov/home/saff/main.html?_lang=en">http://factfinder.census.gov/home/saff/main.html?_lang=en</a>) or through Minnesota Population Center’s IPUMS USA (<a href="http://usa.ipums.org/usa/">http://usa.ipums.org/usa/</a>)</p>	

Key Topics (U.S. Data)	What Is Available	Where Can it Be Found	How Often Is it Updated
<b>LABOR FORCE CHARACTERISTICS</b>			
<b>STEM Workers</b>	U.S. government collects detailed social, demographic, educational, and economic data on the U.S. population, including the foreign-born. In terms of occupations that can be used to identify STEM workers, the United States uses the Standard Occupation Classification System ( <a href="http://www.bls.gov/soc/">www.bls.gov/soc/</a> ) and releases crosswalks between this classification system and systems used by other international agencies; New Immigrant Survey (NIS) provides premigration and postmigration information on occupations, salary, English ability, education, etc., for immigrants granted legal permanent resident (LPR) status from 2003-2004. NIS is expected to track the economic and social outcomes of this cohort of LPRs over time.	U.S. Census Bureau, American Community Survey (ACS), <a href="http://www.census.gov/acs/www/">www.census.gov/acs/www/</a> . Researchers can download microdata for further analysis either through American FactFinder ( <a href="http://factfinder.census.gov/home/saff/main.html?_lang=en">http://factfinder.census.gov/home/saff/main.html?_lang=en</a> ) or through Minnesota Population Center's IPUMS USA ( <a href="http://usa.ipums.org/usa/">http://usa.ipums.org/usa/</a> ); Princeton University, New Immigrant Survey (NIS). Researchers can download microdata for further analysis from <a href="http://nis.princeton.edu/index.html">http://nis.princeton.edu/index.html</a>	Annually
<b>Foreign-Born Workers</b>	Researchers can analyze ACS data to estimate the number and share of foreign- and U.S.-born workers among overall and STEM workforce for the nation and individual states; generate data on employment by industry; calculate mean and median age, salary, years of education. See also about NIS above.	Same as above.	Same as above
<b>Highly Skilled Workers (those with at least a bachelor's degree)</b>	Researchers can analyze ACS data to estimate the number and share of foreign- and U.S.-born workers among U.S. college-educated workers for the nation and individual states; generate data on employment by industry; calculate mean and median age, salary, years of education. See also about NIS above.	Same as above.	Same as above
<b>R&amp;D INVESTMENT</b>			
<b>Expenditures</b>	Gross domestic expenditures on R&D: total amount, percent GDP, per capita, by source of funding (government, private, foreign, etc.)	UNESCO Institute for Statistics, Data Centre, Science & Technology Tables, <a href="http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx">http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx</a>	Annually
	R&D spending, venture capital, patents and trademarks, and employment.	OECD <i>Science, Technology and Industry Scoreboard 2009</i> , <a href="http://www.oecd.org/sti/scoreboard">www.oecd.org/sti/scoreboard</a> or directly to the online tables: <a href="http://www.oecdilibrary.org/content/book/sti_scoreboard-2009-en">www.oecdilibrary.org/content/book/sti_scoreboard-2009-en</a>	Every 2 years

Key Topics (U.S. Data)	What Is Available	Where Can it Be Found	How Often Is it Updated
<b>Employment</b>	R&D workers in sciences and technology fields: total, by gender, by degree level, by field of science.	UNESCO Institute for Statistics, Data Centre, Science & Technology Tables, <a href="http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx">http://stats.uis.unesco.org/unesco/ReportFolders/ReportFolders.aspx</a>	Annually
<b>Patents</b>	Information on the nationality and current residence of the inventors of applied and granted patents.	World Intellectual Property Organization, <a href="http://www.wipo.int/ipstats/en/statistics/patents/">www.wipo.int/ipstats/en/statistics/patents/</a> ; OECD <i>Science, Technology and Industry Scoreboard 2009</i> , <a href="http://www.oecd.org/sti/scoreboard">www.oecd.org/sti/scoreboard</a> ; OECD Patent Database, <a href="http://www.oecd.org/">www.oecd.org/</a>	Annually

**Note:** Though many people routinely use the words “immigrant,” “foreign-born,” and “foreigner” interchangeably, the terms have different meanings and definitions for individual government agencies and data providers. The Department of Homeland Security (DHS) and Department of State (DOS) use the term “immigrants” for foreign nationals who have been admitted for legal permanent residence in the United States. The U.S. Census Bureau classifies people by whether they had U.S. citizenship at birth. Thus, the bureau uses the term “foreign-born” to include naturalized citizens, legal permanent residents (“green card” holders), refugees and asylees, legal temporary migrants (those on work, student, and some other temporary visas), and undocumented migrants.



## U.S. GOVERNMENT SOURCES

### Census Bureau

#### American Community Survey (ACS)

Provides annual estimates of the foreign-born population with detailed sociodemographic, educational, economic, and housing characteristics. About 3 million households are surveyed each year, from every U.S. county. From 2005 on, one-year ACS estimates are available for geographic areas with a population of 65,000 or more. In 2008, the Census Bureau released its first multiyear estimates based on 2005 to 2007 ACS. The three-year estimates are available for geographic areas with a population of 20,000 or more. Many pregenerated tables (from one- and three-year files) are available through U.S. Census Bureau's American FactFinder. To create customized tables, users need statistical software and training. The microdata may be downloaded free of charge from the Minnesota Population Center's IPUMS, <http://usa.ipums.org/usa/>. Note: The IPUMS website allows users to create simple online tables through its "Analyze Data Online" feature. Another important advantage of using the IPUMS data is that most of the variables are harmonized (made as similar as possible) across survey years.

#### Current Population Survey (CPS)

CPS is a monthly survey of about 50,000 households conducted by the Census Bureau and the Bureau of Labor Statistics. The CPS is the primary source of information on the labor force characteristics of the U.S. civilian population. Immigration variables (citizenship status and place of birth of respondents and their parents) are available from 1994 on. The survey is designed for national-level analysis and users seeking state-level data should combine years to obtain a more precise estimate. It is not recommended for use at the metropolitan or submetropolitan level. Users may use microdata (individual records) to perform customized research. The microdata may be downloaded free of charge from the Minnesota Population Center's IPUMS, <http://cps.ipums.org/cps/>. Note: The IPUMS website allows users to create simple online tables through its "Analyze Data Online" feature. Another important advantage of using the IPUMS data is that most of the variables are harmonized (made as similar as possible) across survey years.

### Department of Education

#### National Center on Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

IPEDS is a system of interrelated surveys conducted annually by the National Center for Education Statistics (NCES), <http://nces.ed.gov/ipeds/about/>. IPEDS gathers information on enrollments, program completions, graduation rates, faculty and staff, finances, institutional prices, and student financial aid from every college, university, and technical and vocational institution that participates in the federal student financial aid programs. IPEDS provides basic data needed to describe and analyze trends in postsecondary education in the United States, in terms of the numbers of students enrolled, staff employed, dollars expended, and degrees earned. More than 6,700 institutions complete IPEDS surveys each year. These include research universities, state colleges and universities, private religious and liberal arts colleges, for-profit institutions, community and technical colleges, nondegree-granting institutions such as beauty colleges, and others. Note: Postsecondary institutions that do not participate in the federal student financial aid programs are not required to respond to IPEDS surveys although some chose to do so.

#### National Center on Education Statistics, Adult Education Survey

The survey includes data on adults' participation in educational activities in the United States (<http://nces.ed.gov/pubs2006/adulted/index.asp>). Full-time only participation in postsecondary programs have not been considered adult education so were excluded. The survey collected information on both formal adult educational activities and on informal learning activities pursued for personal interest. Interviews were conducted with a nationally representative sample of the civilian, noninstitutionalized population age 16 or older who were not enrolled in grade 12 or below. Data were collected from early Jan. through April 2005. A total of 8,904 telephone interviews were completed with adults representing a weighted total of about 212 million people.

**Department of  
Homeland Security  
*Yearbook of Immigration  
Statistics***

This publication from the Department of Homeland Security's Office of Immigration Statistics provides annual inflow data on the number and select characteristics of foreigners who, during a fiscal year, were granted lawful permanent residence (became legal permanent residents or "green card" holders), were admitted into the United States on a temporary basis (tourists, students, or temporary workers), applied for asylum or refugee status, or became U.S. citizens through naturalization. The *Yearbook* also includes data on apprehensions, removals, and prosecutions of unauthorized migrants, [www.dhs.gov/files/statistics/publications/yearbook.shtm](http://www.dhs.gov/files/statistics/publications/yearbook.shtm). Users cannot customize tables online. Microdata are not available.

**Student and Exchange  
Visitor Information  
System (SEVIS)**

This web-based system collects real-time information on foreign students, exchange visitors and their dependents, as well as schools in which the students and visitors are enrolled. SEVIS' main goal is to track and monitor these foreign nationals throughout the duration of approved participation within the U.S. education system. Users cannot customize tables online. Microdata are not available.

**Department of State  
*Report of the Visa Office***

This set of statistical tables, published annually, provides information on the number of immigrant and nonimmigrant visas issued by U.S. consular offices around the world. It also provides information on the use of visa numbers in each of the admission categories for lawful permanent residence. Users cannot customize tables online. Microdata are not available.

**National Science  
Foundation (NSF)  
Survey of Earned  
Doctorates (SED)**

The SED gathers information annually from 45,000 new U.S. research doctorate graduates about their educational histories, funding sources, and postdoctoral plans, [www.nsf.gov/statistics/srvydoctorates/](http://www.nsf.gov/statistics/srvydoctorates/). Each year the SED data are added to a larger historical record of doctorate degree graduates, the Doctorate Records File (DRF). Begun in 1920, the DRF contains annual information used to track the number of graduates in various fields; the educational paths of scientists, engineers, and humanists; movement of graduates into the labor market; etc. A related study to the SED is the NSF Survey of Doctorate Recipients (SDR), which tracks the employment history and research productivity of members of the labor force as they move through their careers in research and practice, [www.nsf.gov/statistics/srvydoctoratework/](http://www.nsf.gov/statistics/srvydoctoratework/). Note: Many of the questions in the Canadian SED have been modeled on the U.S. Survey of Earned Doctorates, allowing for cross-country comparisons.

**Master's- and  
Baccalaureate-Origins of  
U.S. Research Doctorate  
Recipients**

Users can purchase Master's- and Baccalaureate-Origins of U.S. Research Doctorate Recipients: 1999-2008 tables that provide counts of doctorate recipients from each master's-origin institution and are broken down by broad field of doctorate study, gender, citizenship status, and race/ethnicity for 2008, [www.norc.org/projects/survey+of+earned+doctorates.htm](http://www.norc.org/projects/survey+of+earned+doctorates.htm)

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**NON-U.S. GOVERNMENT SOURCES****Institute for International  
Education (IIE)  
*Open Doors***

This annual report, <http://opendoors.iienetwork.org/>, provides information on U.S. students studying abroad and on international students in the United States. It is available in print and as online tables and contains data on place of origin, sources of financial support, fields of study, host institutions, academic level, and rates of growth of the international student population in the United States, as well as on the economic impact of international students to the host state and national economies. The data are obtained each year through surveys sent to about 2,800 accredited U.S. institutions, who report on the international students enrolled at their colleges and universities. Statistics on international students in high school or youth exchange programs are not included in this report. An international student is defined as anyone who is enrolled at an institution of higher education in the United States who is not a U.S. citizen; an immigrant (permanent resident); or a refugee. International students include holders of F (foreign student) visas, J (exchange visitor) visas, and M (vocational training) visas.

**New Immigrant Survey  
(NIS)**

NIS is a longitudinal study of legal permanent immigrants admitted for permanent residence in the U.S. from 2003-2004, conducted by Princeton University. The survey provides information on a wide range of premigration and postmigration experiences, including employment, occupation, salary, English ability, educational attainment, place of the highest degree received, and category of admission such as family, employment, and refugee. The survey sample included 8,753 adults. The first wave of microdata were collected in 2004 and released in Sept. 2007. The next round of microdata (collected in 2007) are expected to be released later in 2010. To create customized tables, users need statistical software and training. The microdata may be downloaded free of charge from the NIS project page (<http://nis.princeton.edu/index.html>). Note: Given its limited scope, NIS does not collect information on legal permanent residents admitted every year. Neither does it collect data on those who are in the United States on temporary visas. The main drawbacks of the survey are that it is not easy to use and that it has been released behind schedule.

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**INTERNATIONAL DATA SOURCES****World Intellectual Property  
Organization (WIPO)**

WIPO, a specialized agency of the United Nations, maintains an international intellectual property (IP) system, [www.wipo.int/portal/index.html.en](http://www.wipo.int/portal/index.html.en). Its online database allows users to search more than 1.7 million international patent applications, [www.wipo.int/pctdb/en/](http://www.wipo.int/pctdb/en/). However, users might need to obtain access to detailed data records for their analysis. Note: The WIPO database records an inventor's nationality at the time of filing; therefore, the data do not capture the contributions of immigrants who became U.S. citizens before filing patent applications.

**Organisation for Economic  
Co-operation and  
Development (OECD)**

The OECD Science and Technology Scoreboard brings together indicators that reflect the level and structure of the efforts undertaken by OECD member countries and selected nonmember economies in the field of science and technology with R&D investment data in a time series. Not all countries provide data with the same frequency or of similar reliability.

**UNESCO Institute for  
Statistics (UIS)**

UIS, [www.uis.unesco.org](http://www.uis.unesco.org), a source of international data on education, science, and technology. Users may access data and build statistical tables. The Data Centre contains over 1,000 types of indicators and raw data on education, literacy, science and technology, culture and communication, collected for over 200 countries.

**Citizenship.** A person's formal legal status that links them to their country of birth or naturalization, and conveys a set of legal rights, protections, and responsibilities.

**Flow.** Cross-border migration that involves the movements of foreigners and citizens alike.

**Foreign-born population.** People who reside long-term in one country, whether in legal or unauthorized status, but were born somewhere else.

**Foreign students.** Foreign nationals who are enrolled at U.S. institutions of higher education who are not U.S. citizens, legal permanent residents, or refugees. Foreign students are typically in the United States on F (foreign student) visas, J (temporary educational exchange-visitor) visas, and M (vocational training) visas.

**Highly skilled.** No consistent definition is available. One of them refers to individuals who possess a bachelor's degree or higher.

**Immigrant.** "Immigrant" and "foreign-born" are often used interchangeably although the terms have different meanings and definitions for individual government agencies and data providers. The Department of Homeland Security (DHS) and Department of State (DOS) use the term "immigrants" for foreign nationals who have been admitted for legal permanent residence in the United States. The U.S. Census Bureau classifies people by whether they had U.S. citizenship at birth. Thus, the bureau uses the term "foreign-born" to include naturalized citizens, legal permanent residents ("green card" holders), refugees and asylees, legal temporary migrants (those on work, student, and some other temporary visas), and undocumented migrants.

**Immigrant visa number.** U.S. immigration law limits the number of immigrant permanent resident visas (green cards) that can be issued each year for various categories of immigrants. As a result, the U.S. Department of State regulates the flow of visas to ensure that the annual statutory limit is not exceeded.

**Legal permanent residents (LPRs).** Foreign nationals who have been granted lawful permanent residence in the United States. They are also known as "green card" recipients. They have permission to reside and work in the United States and may travel abroad and return if they do not abandon their U.S. residence. They may apply for U.S. citizenship after living in the United States, in most cases, for at least five years.

**Microdata files.** Files that contain information on individuals who took part in a survey. To protect identity and ensure confidentiality of collected information, the individual-level records do not include sensitive information such as respondent's name.

**Patent.** "A patent is a document which describes an invention which can be manufactured, used and sold with the authorization of the owner of the patent. An invention is a solution to a specific technical problem. A patent document normally contains at least one claim, the full text of the description of the invention, and bibliographic information such as the applicant's name. The protection given by a patent is limited in time (generally 15 to 20 years from filing or grant). It is also limited territorially to the country or countries concerned." (World Intellectual Property Organization, Glossary)

**Refugee.** A person who, owing to a well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group, or political opinion, lives outside the country of his or her nationality or residence and is unable or unwilling to return.

**STEM.** Science, Technology, Engineering, and Mathematics. There is no consistent definition of STEM occupations, industries, or workers. In this publication, we consider STEM-related occupations as architecture and engineering occupations; computer and mathematical occupations; life, physical, and social science occupations; and health care practitioner and technical occupations. STEM industries may be defined in relation to the concentration of STEM-related occupations in the industry group. STEM-educated workers are those with advanced (postsecondary) degrees in fields relevant to the STEM occupations.

**Stock.** Represents snapshots of a population at a single point in time by counting (as in a census) or estimating (as in a survey) the distribution of that population according to some characteristic, such as place of birth, citizenship, age, income, or gender.

**Unauthorized migrant.** A person who arrives or resides in a country without valid authorization from the country's government. Also known as illegal, clandestine, undocumented, or irregular migrant.

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## Links To Useful Research and Other Resources

Atlas of International Student Mobility  
<http://atlas.iienetwork.org>

Bertelsmann Stiftung and Migration Policy Institute, eds., *Talent, Competitiveness and Migration* (Gütersloh, Germany: Bertelsmann Stiftung, 2009).

Jeanne Batalova, and Michael Fix, *Uneven Progress: The Employment Pathways of Skilled Immigrants in the United States* (Washington, DC: Migration Policy Institute, 2008), accessed at [www.migrationpolicy.org/pubs/BrainWasteOct08.pdf](http://www.migrationpolicy.org/pubs/BrainWasteOct08.pdf).

Migration Policy Institute  
[www.migrationpolicy.org](http://www.migrationpolicy.org)

National Science Foundation  
(about Doctoral scientists and engineers)  
[www.nsf.gov/statistics/doctoratework](http://www.nsf.gov/statistics/doctoratework)

Vivek Wadhwa et al., *Intellectual Property, the Immigration Backlog, and a Reverse Brain-Drain* (Durnham, NC: Center on Globalization, Governance & Competitiveness, 2007), accessed at [www.cggc.duke.edu/documents/IntellectualProperty\\_theImmigrationBacklog\\_andaReverseBrainDrain\\_003.pdf](http://www.cggc.duke.edu/documents/IntellectualProperty_theImmigrationBacklog_andaReverseBrainDrain_003.pdf).

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