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POLICY BRIEF

Relinquishing Excellence: Closing the Door to Foreign Professionals Undermines the U.S. Economy

According to a recent National Science Foundation report, restrictive U.S. visa policies are beginning to close the door to highly skilled foreign professionals who have long helped maintain U.S. preeminence in science and technology.

A key issue that is frequently overlooked in the debate over immigration is the extent to which foreign-born professionals have helped build many of the most advanced and internationally competitive industries in the U.S. economy. Nowhere is this more apparent than in science and engineering. The diverse contributions of foreign professionals were pivotal in creating the high-tech economy of the 1990s and remain indispensable in maintaining the global preeminence of the United States in a wide range of scientific and technical fields. However, as a recent report from the National Science Foundation (NSF) makes clear, continued U.S. leadership in these areas is increasingly uncertain.¹ Other nations, particularly in Asia, are becoming more successful in persuading their own skilled professionals to remain or return home and in attracting other professionals from abroad. At the same time, a large portion of the science and engineering workforce in the United States is approaching retirement age. Yet the U.S. government has implemented restrictive visa policies since the terrorist attacks of 2001 which have inadvertently made it more difficult for scientists and engineers to come to the United States. As a result, policies that were intended to enhance U.S. national

security are beginning to undermine the U.S. economy.

A Global Workforce

Science and engineering (S&E) are the foundation for what the NSF report refers to as the increasingly “knowledge-based economy” of the United States, in which the commercial use of intellectual advancement is an engine of economic growth. Not surprisingly, the ideas and innovations that fuel a knowledge-based economy are not readily defined by nationality or national borders. According to the report, “Science is a global enterprise. The common laws of nature cross political boundaries, and the international movement of people and knowledge made science global long before ‘globalization’ became a label for the increasing interconnections among the world’s economies.”² As the NSF noted in a previous report on the science and engineering workforce, “Progress in science and engineering relies on knowledge and skills found throughout an international community...The US needs the perspectives and talents of both the native-born and foreign-born for the best possible S&E workforce.”³

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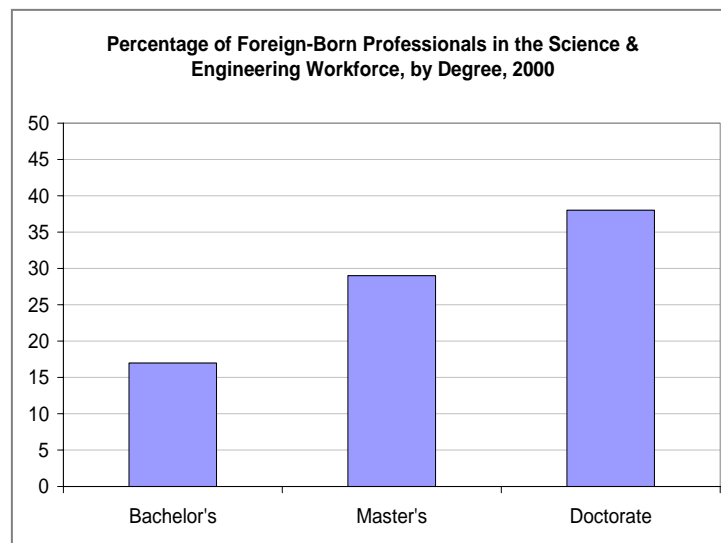
One reason the United States has achieved preeminence in the global scientific endeavor is its traditional ability to attract large numbers of scientists and engineers from around the world, who “contribute talent, scientific ingenuity, and technical sophistication” to U.S. science and technology industries.⁴ The degree to which foreign-born professionals helped to power the high-tech boom of the 1990s, and remain a driving force in U.S. science and engineering, is illustrated by the extent of their participation in the high-skilled labor force. According to the NSF, in science and engineering occupations, the foreign born accounted for roughly 17 percent of workers with bachelor’s degrees, 29 percent of those with master’s degrees, and 38 percent of those with doctorates in 2000.⁵ Over half of doctorate holders in engineering and roughly 45 percent of doctorate holders in mathematics and computer sciences, physical sciences, and life sciences were foreign born.⁶ In comparison, the foreign born represent 11.5 percent of the total U.S. population.⁷

Many of these foreign professionals joined the U.S. labor force after receiving at least some of their advanced education in U.S. universities. In science and engineering fields, foreign students accounted for 26 percent of master’s degree recipients in 2000 and 35 percent of Ph.D. recipients in 2001. Foreign students comprised 49 percent of Ph.D. recipients in mathematics and computer sciences and 56

percent of Ph.D. recipients in engineering.⁸ The large numbers of foreign students who earn advanced degrees in science and engineering in U.S. universities present policymakers with a stark choice as they debate the appropriate role of foreign professionals in U.S. society: these newly minted “foreign” professionals can be recruited to join the U.S. economy, or sent back home to compete with it.

Growing Competition

As the NSF report emphasizes, there are many countries that would gladly welcome the skills and expertise of these professionals were U.S. policymakers to decide they were no longer needed. The report notes that foreign governments “are implementing policies designed to lure more of their citizens into S&E; keep their researchers at



(Source: National Science Board, *Science and Engineering Indicators 2004*. Arlington, VA: National Science Foundation, 2004.)

home...and attract highly trained S&E personnel from abroad.”⁹ China, South Korea, Malaysia, Singapore, and Taiwan in particular are showing signs of “growing competitive strength” in science and technology as evidenced by “an expanding world market share of high-technology production” and “a growing share of the [science and technology] articles appearing in the world’s leading journals.” In addition, they “are increasing their production of S&E degrees” and “have in place, or are instituting, policies and incentives to retain their highly trained personnel, attract expatriates,

or otherwise benefit from their nationals working abroad, chiefly in the United States.”¹⁰

A Demographic Challenge

At the same time international competition for scientists and engineers is increasing, the United States faces a growing demographic challenge: the impending retirement of a large portion of the science and engineering workforce. According to the NSF, “the S&E workforce in the United States will experience rapid growth in total retirements over the next 2 decades” given that “more than half of those with S&E degrees are age 40 or older.” Barring “changes in degree production, retirement behavior, or immigration, these figures imply that the U.S. S&E workforce will continue to grow, but at a slower rate than before, and that its average age will increase.”¹¹ The NSF report concludes that “If this slowdown does occur, the rapid growth in [research and development] employment and spending that the United States has experienced since World War II may not be sustainable.”¹²

Closing the Door

Despite facing the dual challenge of growing competition for skilled workers abroad and an aging skilled workforce at home, the federal government has crafted visa policies that have had the unintended effect of making it more difficult for the United States to attract highly educated professionals. The security checks put in place since the terrorist attacks of 2001 have been poorly implemented and not backed by additional resources, resulting in needless bureaucratic delays in the issuing of visas. The U.S. General Accounting Office reports that delays of two months or more are common in the adjudication of visas for science students and scholars, particularly

those from China, India, and Russia. Moreover, these delays are not the inevitable result of increased security, but stem in large part from preventable causes such as the absence of clear guidelines on how to implement new security procedures, incompatibility in the computer systems of the State Department and the FBI, and insufficient staff at consular posts to conduct required interviews with visa applicants.¹³

In addition, more visa applications are being rejected when they finally are processed. The NSF found that from Fiscal Year (FY) 2001 to FY 2003, the State Department refusal rate rose from 27.6 percent to 35.2 percent for F-1 student visa applications, from 7.8 percent to 15.9 percent for J-1 exchange visitor applications, and from 9.6 percent to 17.8 percent for all other high-skilled visa applications (those in the L, H, O, and TN categories).¹⁴ In the case of H-1B visas for highly skilled foreign professionals, further limitations are imposed by arbitrary congressional caps on the number of visas that can be issued each year, currently set at 65,000. According to the NSF report, these added obstacles to entering the United States have resulted in an ironic situation in which “Many countries are actively reducing barriers to high-skilled immigrants entering their labor markets at the same time that entry into the United States is becoming somewhat more difficult.”¹⁵

Self-Defeating Restrictions

The need for additional security screening of visa applications after 2001 is undeniable, as is the need to increase the number of native-born scientists and engineers in the U.S. workforce. However, needlessly limiting the longstanding ability of the United States to recruit skilled professionals from around the world by imposing unfunded security

mandates or arbitrary numerical limits does nothing to enhance national security or raise the number of native-born students earning science and engineering degrees. As the NSF observed in a 2003 report, “The United States is in a long-distance race to retain its essential global advantage in S&E human resources and sustain our world leadership in science and technology. For international students and workers, attractive and

competitive alternatives are emerging around the world.”¹⁶ If the United States closes its doors to the global scientific community on which scientific progress is based, other nations will reap the benefits and the U.S. economy will suffer in the long run.

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Endnotes

¹ National Science Board, *Science and Engineering Indicators 2004* (vol. 1, NSB 04-1; vol. 2, NSB 04-1A). Arlington, VA: National Science Foundation, 2004.

² NSB 2004, p. 3-31.

³ National Science Board, *The Science and Engineering Workforce: Realizing America’s Potential*. Arlington, VA: National Science Foundation (NSB 03-69), 2003, p. 36.

⁴ NSB 2004, p. O-3.

⁵ NSB 2004, p. O-3.

⁶ NSB 2004, p. O-13.

⁷ Dianne Schmidley, *The Foreign-Born Population in the United States: March 2002*, Current Population Reports, P20-539. Washington, DC: U.S. Census Bureau, February 2003.

⁸ NSB 2004, p. 2-28.

⁹ NSB 2004, p. O-3.

¹⁰ NSB 2004, p. O-19.

¹¹ NSB 2004, p. O-10.

¹² NSB 2004, p. 3-39.

¹³ U.S. General Accounting Office, *Border Security: Improvements Needed to Reduce Time Taken to Adjudicate Visas for Science Students and Scholars* (GAO-04-443T), February 2004.

¹⁴ NSB 2004, p. O-14.

¹⁵ NSB 2004, p. 3-39.

¹⁶ NSB 2003, p. 41.