National Foundation for American Policy

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New Research: Attracting More Immigrant Talent Critical To U.S.-China Competition

Foreign-Born Scientists And Engineers Key For America in 21st Century

Arlington, Va. – Admitting more foreign-born scientists and engineers will be essential for the U.S. economy and American companies to compete with China and its companies in the 21st century, according to new research from the National Foundation for American Policy (NFAP).

The report, "U.S. Immigration Policy And The Competition With China," can be found at https://nfap.com/.

"Americans will benefit from the increased innovation, productivity and economic growth these immigrants and visa holders bring whether the United States pursues a policy of mutually beneficial economic ties with China or adopts a more confrontational posture," said Stuart Anderson, the study's author and NFAP's executive director. Anderson was head of policy and counselor to the Commissioner of the Immigration and Naturalization Service (INS) in President George W. Bush's administration.

The findings in the research include:

- Among doctorate holders (Ph.D.'s) in the U.S. performing research and development (R&D) as a major work activity, 83% in computer and information sciences and 80% in electrical and computer engineering are foreign-born, according to an NFAP analysis.

- Foreign-born scientists and engineers have been increasingly important in the U.S. labor force but are not displacing natives. Between 2003 and 2021, the number of U.S.-born college graduates employed in STEM-related occupations increased by over 5.5 million, or 69%, according to a National Foundation for American Policy analysis of government data. (Millions of U.S. professionals with STEM degrees also use their skills in jobs not classified by government statistics as STEM occupations, such as management.) U.S.-born college graduates employed in computer occupations increased by over 1.1 million, or 62%, between 2003 and 2021.

- At least since 2008, China's government has designed policies and incentives to attract, retain and entice back scientists and engineers to strengthen its capacity in key technology fields. Analysts have labeled these policies successful. Under a new program called Qiming, the government pays signing bonuses of $420,000 to $700,000 for top researchers. Some Chinese scientists and engineers have left China for political and economic reasons but are not choosing the United States.

- Immigration into the United States since 1965 "may have contributed to an additional 8% growth in innovation and 5% growth in wages," according to research by Konrad B. Burchardi (Stockholm University) and other economists. Immigration and a diverse

population helped make the United States an innovation superpower, as the country benefited from connections and social interactions between diverse minds that are critical drivers of innovation, according to a study by Max Posch (University of Exeter) and colleagues.

- The domestic pipeline gives little hope that U.S.-born scientists and engineers alone can provide a sufficient quantity or quality of scientists and engineers to power industry, create innovations and engage in essential research. At U.S. universities, international students account for 71% of full-time graduate students in computer and information sciences and 73% in electrical and computer engineering.

- America's most significant challenges in attracting and retaining talent remain its immigration policies. The United States lacks an immigration system that allows many international students and other highly skilled individuals to work in America. The United States loses talent and investment to other nations.

- The 85,000 yearly limit on new H-1B petitions for high-skilled foreign nationals is low, equaling 0.05% of the U.S. labor force. Employers have exceeded the U.S. limit on H-1B petitions every fiscal year for the past two decades. H-1B temporary status remains typically the only practical way for an international student or other high-skilled foreign national to work long-term in the United States. Without H-1B status, a foreign national would likely need to leave the United States and work in China, India, Canada or elsewhere.

- A proposed rule would narrow the degrees allowed for positions that qualify a foreign-born scientist and engineer in an H-1B specialty occupation, preventing a number of current and future foreign-born professionals from working in the United States.

- Numerical limits act as a significant restriction on immigration and push more jobs outside the United States: "[A]ny policies that are motivated by concerns about the loss of native jobs should consider that policies aimed at reducing immigration have the unintended consequence of encouraging firms to offshore jobs abroad," concluded a study by Britta Glennon, an assistant professor at Wharton.

- Under the Immigration Act of 1990, Congress set the annual limit on employment-based green cards at 140,000, including dependents, and kept a per-country limit of 7%. In practice, the two limits have produced long wait times for employment-based immigrants from India and China and, at times, the Philippines.

- Failure to update the employment-based immigration limits has resulted in decades-long backlogs for many foreign-born scientists and engineers. In the employment-based second preference (EB-2), the backlog of Indians as of March 2023 was 716,156, according to an NFAP analysis of USCIS data, an increase of 20% since 2020. The Congressional Research Service (CRS) estimated it would take 195 years to eliminate the backlog. CRS concluded, "The total backlog for all three [employment-based] categories [for Indians] would increase . . . to an estimated 2,195,795 individuals by FY 2030."

- Immigrants remain vital to the U.S. economy as entrepreneurs and researchers. Immigrants have started more than half (319 of 582, or 55%) of America's startup companies valued at $1 billion or more, according to research by the National Foundation for American Policy. NFAP also concluded in research: "Immigrants have founded or cofounded nearly two-thirds (65% or 28 of 43) of the top AI companies in the United States and 70% of full-time graduate students in fields related to artificial intelligence are international students."

- The average annual salary for an H-1B visa holder in computer-related occupations in 2022 was $129,000, according to USCIS statistics. Legal and government fees could add $31,800 for an H-1B, including extensions, and $10,000 to $15,000 to sponsor an individual for permanent residence.

- According to the Australian Strategic Policy Institute, "China's global lead extends to 37 out of 44 technologies that ASPI is now tracking, covering a range of crucial technology fields spanning defence, space, robotics, energy, the environment, biotechnology, artificial intelligence (AI), advanced materials and key quantum technology areas." Scientific output quantity is not the same as quality, but the ASPI report indicates the relative strength of Chinese academic applied research in specific technology areas. In 2022, the National Science Board in the United States found rapid growth in science in China as of 2018, but not the leading role in so many fields as suggested by the ASPI report.

- A National Academy of Sciences report concluded, "Internationally, the United States needs to find new and better ways to encourage scientists, engineers, and their families to come to this country to work and live."

- The Semiconductor Industry Association (SIA) has warned that "the United States faces a significant shortage of technicians, computer scientists, and engineers."

- To evaluate national security and immigration policy, one must weigh the benefits the United States gains from admitting highly skilled immigrants and the costs of America spurning talent. In 2021, the Department of Defense (DOD) released a *Fiscal Year 2020 Industrial Capabilities Report* that identified finding sufficient technology talent as essential to U.S. national security. "This issue directly threatens U.S. national self-determination in commerce and geopolitics."

- According to the National Security Commission on Artificial Intelligence (NSCAI), "America is not prepared to defend or compete in the AI era." The report cites shortcomings in U.S. policies to admit highly skilled immigrants as a primary reason America is unprepared. Retaining international students in the United States after graduation is essential to U.S. leadership in artificial intelligence, according to the commission. The report recommended expanding the number and portability of high-skilled temporary visas, exempting from employment-based green card limits individuals with Ph.D.'s from U.S. universities in STEM fields, creating an entrepreneur visa and doubling the annual limit on employment-based immigrant visas.

- The United States already operates a longstanding program to vet potential students based on concerns over the transfer of sensitive technologies. The U.S. government also restricts foreign nationals from working on technologies deemed sensitive with national security implications, including via export control attestations when hiring H-1B, L-1 and O-1A visa holders.

- The United States has also adopted an extremely restrictive visa policy toward Chinese graduate students. In 2020, the Trump administration issued Presidential Proclamation 10043, which denies a visa to Chinese graduate students who studied at a particular university in China (one with any connection to the country's military) whether or not any negative information exists about the individual. U.S. consular officers have denied thousands of visas under the proclamation and likely dissuaded many more students from applying to U.S. universities.

- Before imposing additional requirements, Congress should consider a cost-benefit analysis that weighs current and additional restrictions against the opportunity costs of admitting fewer highly educated or potentially outstanding researchers from China or elsewhere. A National Foundation for American Policy analysis found every 1,000 Ph.D.'s blocked from

> attending U.S. universities costs the U.S. economy an estimated $210 billion in the expected value of patents produced at universities over 10 years and nearly $1 billion in lost tuition over a decade. That does not include additional economic costs from losing highly productive scientists and engineers prevented from working in the United States and patents or innovations produced outside universities.

Most technology develops over time, with one advancement building on previous or existing research. As such, it benefits a nation's economy to have many scientists and engineers engaging in research. Focusing policies on trying to prevent the entry of the one in 10,000 or one in 1 million who might engage in potentially undesirable conduct is counterproductive.

In *Chip War*, author Chris Miller noted that Soviet industrial espionage in semiconductors backfired by focusing Soviet researchers on past rather than future technology. Miller said, "Attracting talented scientists and engineers has been crucial to U.S. technological capabilities in the past. It is the easiest step the U.S. could take to reinforce its position at the center of the world's technology development ecosystem."

Many U.S. policymakers, including members of Congress, want the United States to compete with China. Given the priority on knowledge and innovation in the 21st century, facilitating the entry of foreign-born scientists and engineers can play a crucial role in any competition between China and the United States.

About the National Foundation for American Policy

Established in 2003, the National Foundation for American Policy (NFAP) is a 501(c)(3) nonprofit, nonpartisan public policy research organization based in Arlington, Virginia focusing on trade, immigration and related issues. The Advisory Board members include Columbia University economist Jagdish Bhagwati, Ohio University economist Richard Vedder, Cornell Law School professor Stephen W. Yale-Loehr and former INS Commissioner James W. Ziglar. Over the past 24 months, NFAP's research has been written about in the *Wall Street Journal*, the *New York Times*, the *Washington Post*, and other major media outlets. The organization's reports can be found at www.nfap.com. Twitter: **@NFAPResearch**

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