

International Students' Crucial Contributions

Why U.S. Policymakers Need to Know Students' Economic Impact

Barry Canton is a good example of a new breed of entrepreneurs who U.S. policymakers should know. Canton was accepted to the Massachusetts Institute of Technology (MIT) in 2002 as an international student from Ireland with a goal of obtaining a PhD in biological engineering. At MIT, he and other classmates became passionate about the potential of using organisms in new ways. In 2008, Canton, along with three peers and an MIT professor, formed Ginkgo Bioworks, an organism design company that is engineering microbes to replace traditional fertilizers and designing enzymes to produce food and beverages in new ways.

Canton is the head of foundry at Ginkgo Bioworks, based in Boston, Massachusetts, which has 200 employees and is valued at \$1 billion. However, had Canton not had the opportunity to study in the United States and meet his future business partners, the company and its economic and innovative contributions would not be making such a remarkable impact today.

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New enrollment of international students at U.S. universities has declined since 2015, according to the Institute of International Education's *Open Doors* report, and one reason for this shift is a lack of urgency among U.S. policymakers to fix the problem of falling enrollment. Several initiatives proposed or implemented by the Trump administration have made it more difficult for international students to stay or work in the United States, and members of Congress have not objected strongly enough to cause administration officials to reconsider the policies.

Some policymakers lack a sense of urgency to act because they often do not fully appreciate the many benefits that maintaining welcoming immigration policies can and do bring to the country. Such policies would ensure that international students can receive an education at U.S. universities without fear that their visas will be denied or revoked, as well as enable them to use programs such as Optional Practical Training (OPT) and potentially work in the United States after graduation.

Building on the Historical Case

There are two traditional arguments in favor of international education. The first is that bringing students to the United States exposes them to American ideas and culture, and that benefits America in the long term when those students return home and become leaders in politics and business in their home countries. The other favoring argument is that international students give U.S. students a chance to learn from and engage with people from other cultures and backgrounds without ever leaving the United States. These are both valid and important arguments.

Recent research demonstrates a third supporting argument for international education: International students are playing increasingly important roles in the U.S. economy and technology innovation sector. In particular, research from the National Science Foundation and the National Foundation for American Policy focuses on the number of international graduate students in important specialties, how international students increase the availability of programs for U.S. students, and the impact of international students as entrepreneurs and key sources of talent for companies. If this productive relationship was more widely understood by policymakers, it could raise their urgency level in implementing welcoming immigration policies and, in turn, help to reverse the trend of declining international student enrollment.

Cultivating a Deep Talent Pool

Policymakers must recognize that without international students as employees, U.S. companies could not meet their hiring and talent needs in the United States and would need to move far more resources outside the United States to compete in the global marketplace. International students are a critical source of talent for U.S. employers because the majority of the new job candidates with advanced degrees in major fields are international students.

The numbers tell the story: At U.S. universities, foreign nationals represent 81 percent of the full-time graduate students in electrical engineering and petroleum engineering, 79 percent in computer science, 75 percent in industrial engineering, 69 percent in statistics, and approximately 60 percent in mechanical engineering, economics, statistics, civil engineering, chemical engineering, and pharmaceutical sciences, according to National Science Foundation data.

Keeping Existing Programs Afloat

Policymakers must also understand that the physical and financial presence of international students enables many U.S. universities to meet enrollment requirements to keep their programs in many technical fields viable for U.S. students. What is at stake is the country's ability to maintain global leadership in essential disciplines, both at universities and in business, and the capacity to continue educating U.S. students in these fields, including at the highest academic levels.

"In electrical engineering, the majority of full-time graduate students (master's and doctoral) are international students at 93 percent of the U.S. graduate school programs with at least 30 students, or 175 U.S. universities total," according to a 2017 National Foundation for American Policy report. "In computer science, the majority of full-time graduate students are international students at 237 universities, representing 88 percent of the U.S. graduate school programs. ... The story is similar in other fields."

Fostering an Innovative Spark

Taking the risk to study in a foreign country involves an entrepreneurial spirit, so it is not surprising that a decrease in international student enrollment may have a corresponding effect on the number of new start-up companies in the United States, which has shown to be a key engine of growth and innovation for the U.S. economy. International students are founders of many of the United States's most valuable privately held companies, particularly those with valuations above \$1 billion.

According to a 2018 study from the National Foundation for American Policy, "entering the United States as an international student has shown to be a good avenue for both immigrants and America for starting successful U.S. companies." Additionally, "Nearly one-quarter (21 of 91) of the billion-dollar startup companies had a founder who first came to America as an international student."

Innovation is driven by employees as well as founders. Seventy-five of the 91 privately held, billion-dollar companies, or 82 percent, had at least one immigrant helping the company grow and innovate by filling a key management or product development position. While precise figures are not available on how many of these individuals first came to the United States as international students, there are several notable examples. German-born Sven Krasser, who earned a PhD in computer engineering at the Georgia Institute of Technology,

is chief scientist at CrowdStrike, one of the United States's top cybersecurity companies. Indian-born Ganesh Bell, who earned a master's degree from North Dakota State, is the president of Uptake, a leading industrial artificial intelligence software company.

Welcome to Succeed

U.S. policymakers need to know what is at risk if the flow of international students coming to the United States subsides. Not only does the country benefit when international students return home with exciting knowledge and connections, but the presence of international students on U.S. campuses has many economic effects. It ensures that U.S. employers can hire from a deep pool of talent; critical academic programs are able to survive and thrive for both U.S. and international students; and the entrepreneurial spirit is sparked and supported for students to become innovators.

To encourage students like Barry Canton to study in the United States, policymakers should make it easier for international students to gain visas to enter and, once here, have the opportunity to receive practical work experience and even start a business or become a key employee of a U.S. company. When a world of choices is made open to talented young people, history shows that the United States benefits from those choices. ■

STUART ANDERSON, former head of policy and counselor to the Commissioner of the Immigration and Naturalization Service under U.S. President George W. Bush, is executive director of the National Foundation for American Policy, a policy research organization based in Arlington, Virginia.

ADVERTISER Index

ADVERTISER	PAGE
Cambridge Assessment	5
NAFSA 2019 Annual Conference & Expo	C4
NAFSA Membership	35
NAFSA New Century Circle	C2
NAFSA Preconference Workshops	43
NAFSA Publications - Guides for Students and Parents	34
NAFSA Publications Spring Catalog	33
NAFSA Signature Programs	C3
Nanyang Technological University	3
Relation Education Solutions	9