

Is US immigration policy 'STEMming' innovation?

March 11 2015

Foreign born graduate students in STEM (science, technology, engineering and math) disciplines who wish to pursue a career in industry or NGOs are much more likely to stay in the U.S. than those who wish to pursue a career in academia or government concludes a study by researchers at UC Santa Barbara's Center for Nanotechnology in Society. Published on March 11, 2015 in the open access journal *PLOS ONE*, the study provides new insight into why foreign-born graduate students in STEM fields choose to remain in the United States or return to their home countries after graduation. These students make up one third of the entire student population in STEM fields, and therefore play a crucial role in U.S. economic competitiveness.

This is even more evident when they enter the workforce. Forty-four percent of Silicon Valley startups include a foreign founder, and "foreign born scientists and engineers contribute to more than half of the international patents filed by U.S. based multinational corporations," the study notes.

As growing economies in Asia and Latin America devise incentives to reverse brain drain, it is more incumbent than ever upon policymakers to understand how the U.S. can maintain its leadership in technological innovation. Summing up the policy challenge, study co-author Richard Appelbaum, UCSB MacArthur Chair in Global and International Studies, explains, "While U.S. universities are failing to attract adequate numbers of U.S. [students](#) into STEM fields, countries such as China are sending STEM students to the U.S. in large numbers. This presents two

important challenges to US policy-makers: attracting larger numbers of US students into STEM fields, and making it easier for highly qualified foreign STEM students to remain in the U.S. after completing their degrees or postdocs, for example through visa reforms."

The study, published on March 4, takes the novel approach of looking at the interaction of professional, social, and personal factors that influence three key decision made by foreign born STEM students: whether to pursue higher education in their home country, whether to remain in the U.S. upon graduation or return home, and whether to pursue a career in academia or industry. Such factors may include family ties, economic considerations, or professional networks. The study drew from existing data, as well as surveys and interviews of foreign born science and engineering students at UC Santa Barbara.

Xueying (Shirley) Han, lead author on the study and a postdoctoral scholar at UCSB's Center for Nanotechnology in Society, explained, "In order for policymakers to craft smart policy, they need to consider the complex interaction of factors that go into foreign students' career decisions, and if the U.S. wants to maintain its competitive economic edge, it needs to provide an alternative for highly skilled scientists and researchers to stay."

Inability to attain a Visa was a major one factor in keeping science and engineering graduate students from remaining in the U.S. post-graduation. Of the survey participants who want to work in industry, 90 percent said they'd prefer to remain in the U.S. National data, however, reveal that only about half of foreign born science and engineering doctoral recipients stay.

Visa requirements also restrict the flexibility of foreign high tech workers and make them vulnerable to underemployment or exploitation. One student interviewed for the study said, "The H-1 visa makes you get

a sponsor for five years or so and you are bound to that employer and that is not very attractive. If the U.S. wants to retain talent, people need freedom to pursue what they want to research."

"We were most surprised," said Han, "by the role mentorship and networking played in whether a student decided to stay or leave. Individuals who felt they had strong mentorships and networking actually felt more comfortable leaving the U.S." While this outcome may seem counterintuitive, the study authors hypothesize that individuals with weaker relationships in the U.S. want to stay and strengthen their ties while those with stronger relationships are more confident to leave.

More information: *PLOS ONE*,
[dx.plos.org/10.1371/journal.pone.0118183](https://doi.org/10.1371/journal.pone.0118183)

Provided by University of California - Santa Barbara

Citation: Is US immigration policy 'STEMming' innovation? (2015, March 11) retrieved 25 April 2024 from <https://phys.org/news/2015-03-immigration-policy-stemming.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--