US policy should encourage highly skilled, foreign Ph.D. students to stay, study finds

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Attracting more talented foreign students to study at U.S. universities and encouraging them to launch entrepreneurial ventures here could help "revitalize innovation and economic growth" in this country, a trio of economists led by University of Colorado Boulder Professor Keith Maskus concludes.

Maskus and co-authors Ahmed Mushfiq Mobarak, associate professor at the Yale School of Management, and Eric T. Stuen, assistant professor at the University of Idaho College of Business and Economics, make this case in the Policy Forum of the Nov. 1 edition of the journal *Science*.

The economists' perspective draws on their study of 100 research-intensive U.S. universities in 23 science and engineering fields, which found that both U.S. and foreign students are "essential causal inputs into scientific discovery." The trio has also found evidence that increased student diversity boosts innovative research.

Maskus and his collaborators have found that high-performing foreign-born Ph.D. students improve the "creation of knowledge" in U.S. universities. When knowledge is created, it tends to drive entrepreneurial investment and economic growth.

In fact, the researchers found, "The productivity of the average American university science and engineering laboratory in generating publications is a bit higher if it has students from 10 different countries than if it has 10 students from one country."

That might not seem intuitive, Maskus acknowledged. "What it comes down to is that people trained in different traditions tend to have different specialties in terms of how they come to a teamwork environment. And teamwork is more productive, more efficient if you have people with divergent ideas, so they can play off of each other."

Such diversity of intellect, capacities and specializations makes a measurable difference, Maskus added. "It doesn't matter so much on a factory line, but it matters a lot in an intellectual sense when you're trying to be innovative and creative."

The publication comes as Congress weighs whether and how to change the U.S. immigration system. A bipartisan bill that cleared the U.S. Senate in June but has stalled in the House includes provisions that partly mirror those recommended by Maskus and his team.

Based on data showing that highly skilled Ph.D.s in science and engineering tend to generate new jobs where they work, the bill would pave the way for Ph.D.s in science and engineering who are from foreign countries to gain permanent U.S. residency after graduation.

U.S. law requires foreign students to leave the country after earning their Ph.D.s unless they find employers willing to sponsor their visas, which, Maskus and his colleagues note, might not lead to permanent U.S. residency. In recent years, the percentage of foreign Ph.D.s remaining in the United States after graduation has declined.

The Senate bill would grant a green card, or permanent residence, to foreign students who get a Ph.D. in science or engineering at American universities. The bill would also facilitate green-card status to those who have recently earned doctoral degrees in science and engineering at recognized scientific institutions worldwide.

Maskus and his colleagues also recommend an entrepreneurship visa. Such a visa could be granted to those who have secured a patent and met certain milestones for getting that idea commercialized. The idea is similar to an investment visa—granted based on immigrants' investment in the U.S. economy.

This year, Canada implemented an entrepreneurship visa that includes inventive foreign Ph.D.s. The program aims to attract science and engineering graduates from U.S. universities.

"Ultimately we think this is an important way of reinvigorating economic growth and technological change in the U.S.," Maskus said.

Additionally, the trio contends that decisions to grant student visas to prospective graduate students from foreign countries should be granted on more factors than just their ability to pay. Historically, the ability-to-pay requirement has been used by immigration officials as an indicator that foreign students will return to their countries of origin.

In the case of foreign Ph.D.s in science and engineering, such a requirement "is short-sighted," Maskus said. "The country should welcome people who can contribute in developing innovation and new technology and permit them to stay."

"You have to have access to the best innovative inputs and resources in the world," Maskus said. "The Europeans recognize that, the Australians, the Canadians."

Addressing a commonly expressed fear, Maskus and his collaborators do not find evidence that granting green cards to high-performing foreign Ph.D.s would displace American Ph.D.s.

The research of Maskus, Mobarak and Stuen reinforces

recommendations of groups ranging from the U.S. Chamber of Commerce to the National Academy of Sciences.

Provided by University of Colorado at Boulder