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## **The Implications Of Immigrant Entrepreneurship**

Knowledge@Wharton 07.03.07, 6:00 AM ET

A survey of 28,000 companies found that immigrants were key founders in more than a quarter of all the engineering and technology companies set up in the U.S. between 1995 and 2005.

The new research--led by Vivek Wadhwa, an executive-in-residence at Duke University's Pratt School of Engineering--is a follow-up of a study published earlier this year by Wadhwa and his team that had counted \$52 billion in annual sales by these immigrant-founded companies. Total employment at those companies: roughly 450,000.

In their latest effort, the researchers built upon the findings of the first part of their project by attempting to ascertain the educational backgrounds of immigrant founders of companies, and the relationship between their education and entrepreneurship. They also wanted to find out if these well-educated immigrant founders came from elite universities, and if the companies they set up had a correlation with immigrant populations across technology hubs in the U.S., such as California's Silicon Valley and Research Triangle Park in North Carolina.

The researchers say the "startling statistics" they have put together show that the U.S. economy depends upon the high rates of entrepreneurship and education among immigrants to "maintain its global edge." Wadhwa, in particular, says the findings call for substantial relaxations in U.S. immigration policy. Other experts who have weighed in on the project, however, don't see that as the logical next step.

### **Educated And Driven**

The second phase of Wadhwa's study was co-authored by Ben Rissing, a research scholar at Duke's Pratt School of Engineering; AnnaLee Saxenian, dean and professor of the School of Information UC Berkeley; and Gary Gereffi, director of the Center on Globalization, Governance & Competitiveness at Duke. The researchers conducted three new sets of surveys covering more than 28,000 start-ups; interviews with 144 immigrant company founders; and surveys of 1,572 companies in 11 leading technology centers across the country to find out if a key founder was foreign born, and if so, what country he or she was born in.

According to the study, 96% of the immigrant founders held graduate or postgraduate degrees, with 47% holding master's degrees and 27% having Ph.D.s. About three-quarters had their highest degrees in the STEM fields. The largest concentrations outside of that were in business, accounting and finance.

Wadhwa says the Duke project underscores the point that a significant portion of immigrants in the U.S. are highly educated, fueling a tech boom, leading innovation and creating jobs. The

report cites U.S. Census data to say that immigrants from India, the U.K., China, Taiwan, Japan and Germany are better educated than native U.S. citizens.

The results of the study are especially significant for Indian immigrants, according to Wadhwa. "Indians are among the best educated of all immigrant groups," he says, adding that Indians founded more engineering and technology companies in the U.S. in the decade up to 2005 than the next four groups combined--those from the U.K., China, Taiwan and Japan. They accounted for 26% of all start-ups, about 117,000 jobs and \$14 billion in revenue in 2005.

But that trend could be arrested or reversed by a growing phenomenon: Large numbers of skilled Indian immigrants are returning home. Many of them are heading back, Wadhwa says, because of the six-to-10 years it takes for their green cards--or permanent immigrant status--to arrive.

"This is a double loss for the U.S. One is that we lose good people. The second loss is that they will become our competitors," he notes, adding that this is true for many Chinese, Russian and European immigrants too. As a way to curb the outflow of immigrant talent, he suggests that the H1-B (temporary, nonimmigrant) visa be abolished altogether. "Instead, [we should] expand the number of green cards we issue to skilled immigrants" and allow these skilled immigrants to come in on permanent visas.

H1-B visas are problematic because they distort salaries, "and they do reduce American salaries; the critics are right about that," says Wadhwa. "If you come on an H1-B visa, your wife cannot work and she cannot get a driver's license. For six or 10 years, you cannot buy a house, because you don't know if you are going to be here or not."

David Hart, professor at George Mason University's School of Public Policy in Fairfax, Va., who has seen Wadhwa's findings, agrees that "there are a lot of things that need to be fixed in the present immigration system." But he doesn't see a strong case for scrapping H1-B visas, because "you may need temporary people in particular occupations." Also, he feels temporary H1-B visa holders shouldn't see their prevailing status as "a holding pattern for a green card."

But Wadhwa argues that H1-B visas enable employers to exploit the vulnerability of skilled temporary workers. "No matter what we say, if you have an employee who can't leave you, you are not going to pay him more money than you have to," he says. "You are not going to treat him as nicely as someone who can leave."

### **A Cautious Assessment**

"The study raises important questions," says Hart, whose research focuses on how public policy influences scientific knowledge and technological innovation. Yet, he says he wouldn't want to take "one study of an important subject like immigration as gospel truth," and urges follow-up studies. "It's great that they opened up the subject. I would like to see a vigorous debate on this."

Wadhwa is leading another research project that looks specifically at the share of immigrant patents, and a study that looks at the contributions of Indians and Chinese to that total. Both studies will conclude by August.

Hart, however, says he has "concerns about how strong the evidence is on what are the causes of this phenomenon." He feels the Duke University team should have engaged a research firm with a specialty in the subject to do the surveys. "[It] can be sensitive ... to ask about someone's immigration status, so it is possible that the response isn't totally accurate," he says. "We don't know which way the bias could have been. There are survey techniques that can minimize those biases."

According to Wadhwa, there are many who don't like the study's findings and try to "explain them away. Our students simply called up companies and asked if their CEO or CTO was an immigrant and what country they were from. How could the question be simpler, and how could there be bias in this? It doesn't make any difference who asks this question--in fact, I would argue that students have less bias than others."

Wadhwa notes that his team also conducted two separate surveys--one with 2,000 companies and another with 1,500 companies--and that the results were consistent. "The fact is that legal, skilled immigrants are contributing significantly to the U.S. economy, have created more jobs than all the numbers of such skilled immigrants we have admitted over the last decades, and are helping the U.S. keep its global lead," he says.

In anticipation of skeptical reactions, Wadhwa has increased his sample size to "two or three times what we would have needed." In fact, he feels he could have gotten away with a fifth of the sample he had. "I wanted to have too much, rather than too little, because I knew there would be a lot of criticism."

Robert Litan, vice president for research and policy at the Ewing Marion Kauffman Foundation in Kansas City, Mo., which funded part of the project, says the study highlights "the importance not only of immigrants in forming these high-growth companies, but also of the role of our educational institutions in attracting immigrants." His takeaway from the Duke project: "We as a nation would be foolish to cut back on accepting immigrants who want degrees in science, technology, engineering and mathematics."

But Hart says that's not so clear, noting that oftentimes when people write about such issues, they end up saying that the U.S. needs more highly skilled immigrants. "It is not obvious that it is the right conclusion to draw, because it could be that native born people are being deterred from entering some of the fields by the number of immigrants," he says.

Evidence exists to show that for native-born citizens, the payoff for going into science and engineering occupations is not that high compared to, say, law or medicine, Hart adds. "You could go to law school or do a Ph.D. in molecular biology, but the lifetime difference in earnings is about a million dollars. The payoffs of going into science are pretty uncertain. But if you were to come to the U.S. and the average salary in your country is a fifth of what it is here, it's a much different set of options."

### **Education Comes First**

Did these immigrants enter the U.S. with the intent to be entrepreneurs? The answer is no, according to the study's findings. In their interviews with the immigrant founders of companies,

the researchers learned that more than half of them came to the U.S. to pursue higher education; another 40% came for employment; 5.5% came because of family reasons, and only 1.6% came expressly with the intention of starting a business. More than three-quarters of the immigrant founders surveyed came to the U.S. after 1980, but took an average of 13 years after arrival to set up their firms.

In what may run counter to conventional wisdom, the researchers found that more than half (53%) of the immigrant founders of technology and engineering companies secured their basic undergraduate degrees in their home countries. They went on to acquire their highest degrees from U.S. universities.

About 91% of Indian immigrant founders completed their undergraduate degrees in India, while that number was 35% for Chinese immigrants and 97% for the Taiwanese. "This shows that undergraduate education in India is pretty good," says Wadhwa, adding that the data doesn't show that to be the case with China. In addition, most of these immigrants did not come from the elite schools in their countries. Instead, they graduated from a diverse set of schools "many of which are considered second- or third-tier universities."

India's famed Indian Institutes of Technology (IIT) produced only 15% of the Indian immigrant founders of tech and engineering companies covered by the study. But IIT-Bombay and Delhi University accounted for 7% each of the undergraduate education of Indian immigrant founders.

Similarly, China's Peking University accounted for only a fifth of the founders from that country, while 15% graduated from China's Shanghai Jiao Tong University. That trend was different among Taiwanese entrepreneurs, of whom 55% graduated from National Taiwan University and National Chiao Tung University.

Companies founded by immigrants tended to cluster in the country's major technology centers, which also predictably overlapped with concentrations of immigrant population, the study found. In the 11 tech centers covered by the study, 31% of the start-ups had an immigrant key founder, compared with the national average of 25%.

Immigrant-founded companies accounted for a large portion of the total in the key technology centers, including Silicon Valley (52%), New York City (44%) and Chicago (36%), according to the research. Immigrant founders scored the lowest in other technology clusters like Portland, Ore., (18%), Research Triangle Park (19%) and Denver (19%).

While the Duke project appears to have generated renewed interest in understanding the contributions of immigrants in the U.S., Wadhwa doesn't see it getting much traction in policy circles, where "the focus right now is on illegal immigrants. It's very difficult to get them to focus on legal immigrants."

Unlike in earlier years, Wadhwa doesn't expect the Indian government, for one, to lobby for easier green cards for its people in the U.S. "Right now, India wants its people to come back home," he says. "India has gone from a country which was dependent on revenues from foreign workers to one that is booming on its own. It needs all the skilled people it can get."