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■ AQ FEATURE

Academic Brain Drain

BY [Jesus Velasco](#)

Why won't U.S.-trained Mexican scholars come home?

A recurrent theme in the immigration debate is how the United States can keep and attract the world's brightest minds. President Barack Obama and others favor maintaining and perhaps even expanding the number of visas for high-skilled immigrants. In his 2013 State of the Union address, Obama said the U.S. needed to “attract the highly skilled entrepreneurs and engineers who will help create jobs and grow our economy.” A few days later, on January 29, 2013, at El Sol High School in Las Vegas, Nevada, Obama underlined the point: “Right now, there are brilliant students from all over the world sitting in classrooms at our top universities[...]but once they earn that diploma, there's a good chance they'll have to leave the country[...]That's why we need comprehensive immigration reform.”

But there's one highly skilled group of foreign professionals Obama doesn't have to worry about: Mexican academics trained outside Mexico.

With its low salaries and a weak infrastructure that provides little grant support, Mexico is already doing more to ensure that its star scholars don't return home than anything Obama or the U.S. Congress could achieve.

The *Consejo Nacional de Población* (Mexican National Population Council—CONAPO) estimates that for every 19 Mexicans living in Mexico with a BA or higher degree, one lives in the United States. And it's likely this number will increase, reflecting the high number of Mexicans now attending U.S. educational institutions and the lack of attractive jobs available to them at home after they graduate. According to the *Consejo Nacional de Ciencia y Tecnología* (National Council of Science and Technology—CONACYT), the institution in charge of promoting scientific activities in Mexico, in 2012, 4,559 Mexicans were studying for MA or PhD degrees abroad. Of those, 1,271 (27.9 percent) were in the United States. The U.S. is the highest recipient of Mexican students abroad—though Great Britain may soon overtake the United States.

The fact that so many qualified Mexicans are moving to the U.S. has serious implications for a country in which the average years of schooling is 7.2.

Goodbye Señor Chips

There are at least four reasons why so many well-prepared Mexicans move to the U.S., or remain there after completing their education.

The first is the lack of proper research infrastructure and resources at home. Many Mexicans go abroad to receive specialized training in science and technology, but return to find that the basic culture, infrastructure and funding critical to continue their research does not exist.

In 2012, Mexico invested only 0.40 percent of its GDP in research and development, while Brazil invested 1.25 percent. The situation is more dramatic when we compare Mexican investment with South Korea (3.45 percent) or the United States (2.68 percent). President Enrique Peña Nieto has promised to invest 1 percent by 2018, and the country has already started to fulfill that pledge. This year's budget included \$6 billion for science, technology and innovation, an increase of 12 percent from the previous year.

According to CONACYT, in 2011 Mexico had only 0.8 researchers per 1,000 participants in the workforce. That compares to 11.9 in South Korea, 10.2 in Japan, 9.9 in Portugal, 9.5 in the U.S., and 2.4 in Argentina (in 2010). Likewise, in 2012, Mexico's research production was significantly lower when compared with the academic production of other countries. In that year, Mexico produced 10,181 scholarly articles, while the U.S. research community published 335,072; China, 154,860; the United Kingdom 96,692; and Brazil, 35,042. Of course, these numbers say nothing about the quality of the articles themselves, but they do paint a picture of the overall dearth of research and research dissemination undertaken in Mexico.



Illustration by Dan Bejar.



Often, young scholars trained in the U.S., Canada or Europe simply cannot find academic positions in Mexico. “There are fewer academic jobs in my field in Mexico,” asserted Gabriela Sánchez, a young Mexican sociologist and demographer at the University of Texas at San Antonio (UTSA). Professor Sánchez works on international migration and family demography. Her

research concentrates on how international migration affects young people’s education and family life in Mexico and the United States. According to her, “Mexico has great demography programs, some of which would have been a good fit for me. However, in the year I went on the job market, very few positions became available. I was only able to apply to two jobs in Mexico, compared to almost 50 in the United States and Canada.”

Laura Trejo, who directs the Laboratory of Virology and Cancer at the Autonomous University of Nuevo León but was trained in France, found it difficult to pursue her research, especially in Mexico’s regional universities, “because researchers do not have all the elements—infrastructure, money, time—to do their work.”

Trejo estimates that more than 50 percent of her students pursue graduate studies in the U.S., Canada or Europe—with no plans to return to Mexico after obtaining their degrees.

“We do not have resources,” asserted Clara Gorodezky, a distinguished Mexican scientist and head of the Department of Immunology and Immunogenetics at the Secretariat of Health. “I am a first-rate professional beggar.” According to Irazema González, secretary of the Commission of Science and Technology in Mexico’s lower house of Congress, and as reported in the Mexican newspaper *Milenio* on November 15, 2013, of the 2014 budget for science technology and innovation of 81 billion pesos (\$6,293,076), only 24 percent is dedicated to scholarships for MA or PhD programs, and 12 percent to support Mexican research through the *Sistema Nacional de Investigadores* (National System of Researchers—SNI).

The second reason is the instability of Mexican research institutions. Politics play a large role in the Mexican academy. Union strikes, pressures from the government on universities to move research into one area or another, and political appointees in academic institutions are some manifestations of this problem.

A simple way to observe the penetration of politics in Mexican academia is to compare the appointees in CONACYT to those in its counterpart in the U.S., the National Science Foundation (NSF). In Mexico and the U.S., the president of the country appoints the head of those institutions. However, in the U.S., the appointment has to be confirmed by the Senate. In Mexico, not only is the head not approved by the Senate, the board is weighted heavily by law toward government officials, including representatives of seven ministries. In contrast, in the U.S., the great majority of the members of the NSF board is professors emeriti, active professors and high-ranking university functionaries—in other words, people with long careers in universities and research who understand academic work.

As a result, in Mexico, research institutions and the allocation of funds are highly affected by the arrival of a new administration and its priorities. “We have not received any money for research since the beginning of the year,” said Laura Trejo. “The new administration has not appointed the person in

the Ministry of Education who is in charge of transferring the money.”

Without the stable guarantee of funding and support for research in Mexico, many Mexican scholars prefer to embed themselves in a more stable environment that rewards independent long-term research, such as in the U.S. or Europe.

Salaries are a third important reason. In Mexico, as in many other countries, there are large discrepancies in salary among institutions. In the *Centro de Investigación y Docencia Económicas* (Center for Research and Teaching Economics—CIDE) in Mexico City, a premier institution in social science, the salary of an assistant professor at the entry level is 29,524.59 pesos per month (the equivalent of approximately \$2,362 dollars, or \$28,344 per year). The average entry salary of an assistant professor in political science at the University of Texas at Austin is \$85,022.

Similarly, a researcher in medical sciences at the *Universidad Nacional Autónoma* (National Autonomous University—UNAM) in Mexico earns about 22,000 pesos monthly (\$1,760, or \$21,120 annually) while at UT Austin the average annual salary of an assistant professor in molecular genetics and microbiology is \$79,817.

The situation improves for very good senior professors. According to Xavier Soberón, general director of the *Instituto Nacional de Medicina Genómica* (National Institute of Genomic Medicine—INMEGEN). In Mexico City, a senior Mexican scientist at a premier institution might earn 100,000 pesos per month (\$8,000). However, in other institutions, the salary could be no more 30,000 pesos (\$2,400). At UT Austin, the average annual salary of a full professor in molecular genetics and microbiology is \$156,627, but it can go up to \$301,122.

Gorodezky earns 15,000 pesos a month (about \$1,200). She receives an additional stipend of 21,000 pesos (\$1,680) from the SNI, for a total of \$2,880 per month. At the most, this is the low salary of an assistant professor in the U.S.; hardly the level of reward and recognition that a highly respected, published senior scholar would receive in the U.S. or in many developed countries.

The issue goes beyond take-home pay. Tenure-track positions at U.S. universities also often come with good quality of life, employment stability, a clear route for professional development, and adequate pensions. In Mexico, people have *definitividad* (a sort of tenure) but the appointment is less stable.

Fourth, many Mexican scholars are leaving the country (or not returning home) for security reasons. According to a survey conducted by Camelia Tigau, a professor at UNAM, of 148 highly skilled Mexican workers surveyed on all five continents, 113, or 76 percent, asserted that insecurity and the threat of violence was a direct or indirect reason for their decision to live in other countries.

“Young scholars spend years abroad listening to stories about violence in Mexico,” said Soberón. “They are happy to start their families out of this environment.” Many Mexicans, especially the younger generations, are globalized, sensitive to the external world and therefore less attached to their country. “Young Mexicans are citizens of the world,” Soberón said. “They are happy to live in other lands, [and] learn and interact with people of other nationalities. They are not nostalgic about their country.”

Mexicans living abroad have always missed their food, their soccer games or their habits and customs. Today, though, globalization has made access to Mexican food and soccer possible. Often the Mexican national team plays in the U.S., while habits and customs are maintained within families and with Mexican friends. Mexicans are also willing to modify and learn other cultural traditions.

Family ties also matter less now. Just a generation ago, it was difficult for Mexicans living in the U.S. to sustain communication with their relatives in Mexico. Today, communication technology like Skype permits ubiquitous and direct contact among friends and relatives on both sides of the border.

Academic Retention

Asian countries, especially China and Korea, have created important incentives to lure home their professionals and students living abroad. In 2011, about 186,000 Chinese students returned home after completing their degrees overseas—40 percent more than in 2010. The reason: the Chinese government is offering lucrative incentives—salaries, housing and research infrastructure—to bring their people back to China.

In contrast, Mexico has done very little to stop the emigration of high-skilled workers. Currently, CONACYT has two main programs to prevent the migration of scholars and to bring them back to Mexico—but neither is sufficient in scope or reward to staunch the flow of research talent. In 1984, CONACYT created the SNI to “promote and enhance the quality of technological and scientific research” by providing stipends, ranging from \$466 per month to \$2,175, to augment researchers’ salaries. While these have helped provide some incentives for Mexican scholars to remain in their home country, the grants are not enough to compensate or match the levels of remuneration of professors in more developed countries—especially given all the other factors mentioned earlier, such as job stability, research facilities and insecurity.

CONACYT also runs a repatriation program, but that too has problems. First, the researcher must find an institution willing to hire him or her. But as mentioned earlier, academic jobs in Mexico are scarce. To compound matters, universities do not properly advertise the job openings. “I searched for jobs in CONACYT,” declared Salvador Mogel, a molecular biologist at Union College in Nebraska, “but I did not find anything.”

Moreover, the mechanisms of hiring are not well established, nor necessarily based on merit. To be hired at many Mexican universities, you often need contacts. According to Carlos Martínez, a professor in the Department of Zoology and Physiology at the University of Wyoming, “If something has had a negative effect on Mexico’s science, it is nepotism. Nepotism has created a horrible intellectual endogamy.”

That system clearly handicaps scholars who have left Mexican institutions to study abroad.

The answer to Mexico’s brain drain may not lie so much in the traditional retention or attraction of its national scholars from overseas but rather in adopting new technologies and techniques to better share scholars’ work with Mexican students. Beyond the static notion of brain drain, the globalization of technology and travel has created a system of “brain circulation.”

High-skilled workers who have settled abroad can contribute to their home country through activities

such as cross-border research collaboration, circulation of workers among firms, the use of technology and video for communication and telecommuting, and investment in cross-border joint ventures.

Implementing “brain circulation” requires governments, businesses and universities to think differently about knowledge production by committing themselves to collaboration across borders. To begin, the Mexican government needs to identify the Mexican scholars and researchers working abroad and their institutional affiliations. The list could then serve as a tool for developing agreements with those institutions. To a certain extent, this has been the main goal of the Mexican Talent Network (MTN), a program created in 2005 to connect Mexico with its diaspora. The program has faced several problems, however, mainly because of the weak commitment of the Mexican government to the program.

A second step would be to expand SNI and CONACYT support to Mexican scholars working outside Mexico. That would help tie Mexican researchers and academics to their home country while benefiting from the research priorities and practices in more developed economies. Some of this is already underway. According to a high-ranking official of CONACYT, Mexico is “working with the U.S. NSF to build a common agenda, and it is possible that in the future, Mexico will offer this kind of economic support with money from both agencies.”

Third, the development of collaborative research projects between Mexican and foreign universities is a logical outgrowth of joint agenda-setting. Again, there are signs of progress on this front: currently there are 15 such agreements between educational institutions in Mexico and other countries; and with Stanford and Harvard universities in the United States.

Fourth, Mexican universities, research institutes and government agencies must adopt and use teaching models that include communication technologies like Skype or Google Groups. These could enable professors in the Mexican diaspora to be in contact with students and professors in Mexico and other parts of the world to co-teach courses or oversee research projects from afar.

Fifth, Mexican and U.S. institutions and governments should promote transnational dual appointments. It is fairly common in the U.S. to find senior faculty members who spend the fall and spring semesters in different universities. Why shouldn't that approach be expanded to include joint appointments at Mexican and U.S. universities? Such an arrangement of joint appointments could be expanded throughout Mexico with support from the government and universities, allowing Mexican and American professors to spend one semester in Mexico teaching, researching and interacting with professors and students.

Preventing the immigration of high-skilled Mexican workers to the U.S. and other parts of the world is a lost cause. But brain drain no longer needs to be a zero-sum game in a world made smaller by information technology and travel. Ensuring that Mexican academic institutions—and scholarship—benefit from the globetrotting activities of its most talented scholars, however, requires a major intellectual reset at home. The Mexican government, along with research institutes and universities, needs to adopt a more nimble and creative approach to collaboration and funding than it has shown so far. If that happens, Mexico's growing transnational professional class will become a source of inspiration as well as an asset to its homeland.

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Yes very interesting article. I am doing similar investigations myself on the brain drain in Colombia and how Colciencias is bringing back its talented academics. Thanks for sharing!

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Guillermo Cuevas · 6 months ago

Very interesting points. However, I think that Obama's pledge is more related to what you stated at the beginning, rather than to the current retention problems Mexico experiences. That is, that soon the US won't be the largest recipient of Mexican MSc and PhD students. That is worrisome to the US because employers usually struggle to find qualified applicants for highly skilled occupations and they'd rather have a of highly educated applicants as large as possible.

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