# International Ph.D.s: Exploring the Decision to Stay or Return

**Deepak Gupta, Maresi Nerad, and Joseph Cerny**

*Deepak Gupta and Maresi Nerad are at the Center for Innovation and Research in Graduate Education at the University of Washington. Joseph Cerny was dean of graduate studies at the University of California-Berkeley. Address: Miller Hall M221, Box 353600, University of Washington, Seattle, WA 98195, USA. E-mail: cirge@u.washington.edu.*

The core debate over Ph.D. recipients from abroad who earned their degrees at U.S. institutions of higher education centers around the question: who (and how many) stayed in the United States, and who (and how many) returned home? To explore this question, we undertook a study, "Ph.D.s—10 Years Later." Maresi Nerad and Joseph Cerny were the principal investigators for this study, which was funded by the Mellon Foundation. Our national survey examined the career paths of nearly 6,000 Ph.D. recipients who completed their doctoral degrees in the United States between 1982 and 1985 in six fields of study (biochemistry, computer science, electrical engineering, English, mathematics, and political science). Of the international respondents, the largest proportions were in electrical engineering (38 percent) and mathematics (30 percent). The largest group from a single country in both fields came from Taiwan, followed by India. In electrical engineering the third-largest group was from Korea; in mathematics, the third-largest group was from Canada.

The study revealed that around 40 percent of our international respondents were working outside the United States, most in their home countries, at the time of their first jobs after earning their doctorates (not including positions such as postdoctoral fellowships). This percentage increased by about 15 percent 10 to 14 years after Ph.D. completion. The jobs with which they began their careers reflect an interesting interplay between their own doctoral ambitions, the fields in which they studied, and the relative employment structures and markets in the countries in which they chose to reside.

While, overall, 40 percent of the Ph.D.s from abroad returned home to start their post-Ph.D. careers, there was, in fact, considerable variation by field of study, region of origin, and even subregion. Exit rates were the highest for those with Ph.D.s in English and political science, with between one-half to two-thirds leaving the United States. The rates were lowest for technological fields (computer science and electrical engineering), fields in which international Ph.D.s are concentrated, with only around a quarter leaving the United States for their first jobs. There was extensive variation among those who left, depending on geographic region of origin. Those from Africa, Central and Latin America, Canada, and Australia were the most likely to return home for their first jobs, with almost two-thirds making this choice. In contrast, only around a third of the East Asians and Europeans chose to return home for their first jobs. Finally, South Asians were the least likely to return home, with less than one-tenth leaving the United States.

Variations in the first job location choice was not necessarily consistent by region. For example, while most of the Japanese (four-fifths) and Koreans (two-thirds) left the United States for their first post-Ph.D. jobs, only a fifth of those from Taiwan or Hong Kong had done so. Return behavior was not necessarily consistent by country. While none of the 22 computer scientists from Taiwan returned home for their first jobs, almost half of the 25 mathematicians did. On the other hand, 90 percent or more of the Indians in these same fields chose to remain in the United States. Thus, first job location data for the Ph.D.s from abroad are a combination of broad regional trends, with considerable variation by field, country, and other factors.

What factors helped determine the choices on initial job locations made by international Ph.D. holders? Was the deciding factor, as the economic literature suggests, the relative economic conditions in the United States and at home? Was it, as other work suggests, directly linked to U.S. immigration policies? Was the return influenced by specific actions taken by the home governments? Were the factors personal rather than economically or politically motivated, such as the desire to be close to one's friends and family, to live in one's own culture?

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The answer, as may be expected, is "all of the above." However, the one overwhelming trend that ran through the "return" data was this: a predetermination to return, powered by the pull of existing ties. A large number of Ph.D.s from abroad seemed to know by the end of their doctoral studies whether they were seeking to stay in the United States, or to return home, but this was not true in all cases. Those who returned home were somehow "bound" to return, through the strong pull of their ties to cultural values and preferences, to friends and family, to their employers or governments, or to personal values such as the desire to contribute to their nation or society.

Overall, those who stayed in the United States tended to be younger and less likely to be married with dependents upon completion of their Ph.D.s. Gender played a role in biochemistry and mathematics, with the women being relatively more likely to stay in the United States than to return. Fewer than 20 percent of the women with Ph.D.s in mathematics left; almost 50 percent of the women who stayed were mathematicians. Conversely, the women with degrees in English were much more likely to leave than to stay. Two-thirds of the women with Ph.D.s in English left, and more than a third of all the female Ph.D. recipients from abroad who returned home were in the field of English. The men exhibited the opposite behavior (compared to the women). Slightly more than 50 percent of the men with Ph.D.s in mathematics left, as opposed to 25 percent of the electrical engineers.

The "principal source of doctoral funding" emerged as another crucial factor distinguishing these two groups. More than a quarter of those who returned home had been funded through sources such as their national governments or their employers. Conversely, as much as 90 percent of those who stayed had financed their education primarily by working as teachers and research assistants.

Finally, the two groups stated opposing career goals at the time of Ph.D. completion. The returnees in biochemistry, computer science, and electrical engineering were much more likely to indicate an interest in academic employment than those who stayed in the United States. Conversely, in fields where the primary career of choice among Ph.D.s was overwhelmingly an academic job—namely, English, mathematics, or political science—those who stayed were much more likely to indicate a preference for an academic career, compared to those who returned home.

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The thinking behind the decision to stay or to return was echoed in the reasons listed by the respondents as the most important factors in choosing their first jobs. Comparing those Ph.D. recipients whose first jobs were outside the United States with those whose first jobs were in the United States, there were important differences in motivations. Equally important to both groups were these key considerations: "use of my doctoral education," "work that interests/challenges me," or "great opportunity to do research." However, those in computer science, electrical engineering, and mathematics who left the United States were less likely, as compared to those who stayed behind, to list considerations such as salary, career ambitions, or organizational prestige. The Ph.D. holders from abroad who left or were leaving the United States were also less likely, irrespective of discipline, to indicate that they chose their first jobs because of a "limited job market" or because it was the "only job offered." Finally, in a telling clue as to why some of the Ph.D. recipients went back home, those working abroad were typically much more likely than those who stayed to point to "proximity to parents, relatives, or friends" or "contribution to society" as important considerations influencing their first job choices. This held true for all fields. Clearly, these nonpecuniary considerations, while not necessarily relevant to the particular jobs they chose, were very important considerations in their decisions to return home.

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# Venezuelan Higher Education: The Trend toward State Control

**Orlando Albornoz**

*Orlando Albornoz is professor at the Central University of Venezuela, Caracas, Venezuela. Address: Apdo 50.061, 1050A Caracas, Venezuela.*

Venezuela has a well-developed higher education system that was characterized by expansion during the period from 1945 to the end of the century. This growth went from almost zero to what many believe is excess capacity, capturing most of the country's education budget and leaving the basic and secondary levels of education underfunded. The system grew mostly in terms of traditional indicators like the number of institutions, students, and degree recipients. Missing was expansion in the area of science and technology. That is to say, the system was successful from the perspective of training institutions but not in the direction of sustaining the needs of knowledge-generating institutions. This low level of knowledge production explains why Venezuela has never been a regional pacesetter like Argentina, Brazil, or Mexico but has only been a decent follower, like Chile, Peru, or Colombia.

The government that came to power in 1998 brought along a new vision for higher education, although not new in innovative terms—quite the contrary. The system had been developing in the direction of decentralization. The new government, however, is trying to centralize the system along the lines of the only state-controlled