

# Experiences and Strategies Skilled Migration from Mexico and Taiwan

José Carrillo Piña\*

**S**killed migration is one of the most important phenomena of the twenty-first century; in some countries it is surpassing that of low and unskilled labor. Mexico is one of the top six countries that expel highly qual-

ified human resources and, although Taiwan is not part of that group, a large amount of its local talent does go abroad.<sup>1</sup>

These two countries have different experiences. Mexico has been hurt by the migration of these skilled workers, who often return neither temporarily nor permanently, nor are interested in doing business or having any other kind of contact with their country of origin mainly because of the vio-

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\* Doctoral candidate in international relations at the UNAM, josecarrillo.inter.mx@gmail.com.



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lence, insecurity, economic problems, and corruption there. Taiwan, on the other hand, has had a different experience: a large number of its talented migrants who leave to study or work abroad return home temporarily or permanently, and in some cases, they do business inside the country or set up networks of contacts with their government or specific sectors.

Mexico's main economic income comes from oil, tourism, and the sale of raw materials; therefore, there is no broad job market for highly qualified workers. As a result, they migrate, and most often do not return. In contrast, in Taiwan, science and technology, concretely the manufacture of semiconductors, computing equipment, and biotechnology, are strategic sectors of the economy. This has meant that qualified human resources who have left at one point are motivated to return or establish some kind of contact with their country of origin, whether to work, do business, or exchange experiences. It should also be mentioned that Taiwan's large infrastructure and promotion of research and development (R&D) has turned it into an economy that attracts talent from the world over. This has been an incentive for its government to develop strategies to use them as a motor for economic development in a globalized context, where knowledge

and innovation that generate highly qualified human resources are what are important.

In this article, I will analyze the main experiences and strategies used in the last three decades by Mexico and Taiwan about this kind of migration.

## BACKGROUND

At the end of World War II, Mexico's economy was dynamic, allowing it to grow at constant rates to transition to the import substitution model. The economy produced mainly raw materials and basic manufactured goods that did not require large numbers of skilled workers. However, it should also be pointed out that large contingents of highly skilled workers did not emigrate since the labor market was able to absorb the graduates the universities were producing at the time. The number of people who at one point or another decided to leave the country temporarily or permanently was not large.

Taiwan, for its part, focused on strengthening its agricultural sector. Only a small group of experimental agricultural research units and institutions linked to state-owned companies existed at the time. In the 1950s, after noting that human resources were scarce in the field of science, several scientists fostered the design of a government policy to deal with the situation. Taiwan's Executive Yuan approved long-term directives for national scientific development, creating in that same decade the National Science Council, in charge

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of the country's scientific development. It should be mentioned that at that point, the number of highly skilled workers to migrate was significant and increasing because the country's growing industry could not provide a broad job market.<sup>2</sup>

The first international studies of skilled migration were published in the 1960s and 1970s, but the Mexican government paid little attention because, due to political conflicts in other countries in Latin America and Europe, at the time, Mexico was beginning to receive political refugees and exiles. The country benefitted from these highly qualified human resources who took jobs in the country's main universities and research centers.

In the 1960s, Taiwan changed its strategy, focusing its efforts on improving the investment atmosphere, promoting labor-intensive industries, and creating a manufacturing sector with export capabilities. This strategy required human resources with mainly technical knowledge and low skills; therefore, a broad job market for the highly qualified did not exist. In this period, the government strengthened basic research capabilities and improved the teaching of science in schools and universities with an emphasis on the basic and applied sciences. Public and private companies also decided to participate in R&D; therefore, new scientific research institutes were set up that did not really employ many highly qualified workers because the institutions were very new.<sup>3</sup>

In the 1970s, permanent migration of qualified workers reached its peak, which Taiwan considered very worrisome. In response, the government focused its strategies on this sector: it strengthened industrial infrastructure and set up government and private bodies to promote technology. This would be the origin of new demand for highly skilled human resources in the following decades.<sup>4</sup>

## THE 1980S

In the 1980s, the Mexican government established strategies for creating an R&D infrastructure to contribute to national development and use the qualified human resources the uni-

versities were turning out. It created and strengthened specialized institutions like the Mexican Oil Institute (IMP), the Institute for Electrical Research (IEE), the Federal Electricity Commission (CFE), the National Council for Science and Technology (Conacyt), and the National Institute for Nuclear Research (ININ). These changes required certain qualified human resources to academically manage them, which helped decrease the migration of Mexican talent abroad.<sup>5</sup>

To promote and strengthen the country's technological development, the Consortia Program was created to foster links between science and industry. The program's main objective was to build a critical mass of knowledge through qualified human resources. However, the fact that it only operated for a short time, the lack of commercialization of its research results, and the absence of on-going institutional support made big results impossible.<sup>6</sup> All of this meant that talented Mexicans began to leave the country to work or study.

In Taiwan, one of the most important moments of this decade was when the Hsinchu scientific-industrial park opened in December 1980. Today, it employs the largest number of qualified workers in all of Taiwan. Its objective has been to generate an atmosphere more conducive to high-tech industrial development. The National Science Council also opened a research and evaluation department, which began to require specialized human resources.<sup>7</sup>

These strategies' overall objective was to deal with the growing demands of globalization and liberalization, promoting select technologies and generating basic scientific research by creating better educational opportunities for highly trained workers. All this meant that workers began to return both temporarily and permanently, some in order to set up businesses in their own country linked to their fields of study.

In 1982, the Taiwan government held the Second National Science Conference, where the successes and failures of previous strategies and policies were examined, and guidelines for the future were drawn. The conference also reviewed and formulated programs focused on science and technology, as well as measures to strengthen recruitment and preparation of highly qualified human resources required by national development.

In order to build a solid foundation for basic scientific research, the Center for Biotechnological Development and the Center Specialized in Precision Instruments were set up, and plans were put in motion for the construction of the Center for Radiation Research using a synchrotron. Taken altogether, these strategies increased the country's research

capabilities and its international competitiveness, sparking the return of highly skilled workers and attracting talented workers of other nationalities.<sup>8</sup>

## THE 1990S

At the beginning of this decade, national and international economic trends sparked changes in Mexico's science and technology sector: the government reduced its budget in an attempt to incentivize private funding. This put an end to several projects because of corporate requirements like certain forms of evaluation and the demand for constant achievements. All of this constricted the labor market for qualified workers and caused a spike in their migration to developed countries.

In response to this, in 1991, the Conacyt created a program to retain and repatriate Mexican researchers. But results were scanty because the number and quality of job opportunities were insufficient to entice them to return in large numbers. In 1995, the Program for Mobility in Higher Education in North America (Promesan) was established, involving 348 academic institutions in Mexico, the United States, and Canada.<sup>9</sup>

Later in this same period, the Mexican government attempted to increase the science and technology structure to turn back the constant migration of Mexican talent abroad. To do this, it created nine regional research systems and the state councils for science and technology. All this helped improve Mexico's R&D system, but did not decrease skilled migration caused by the national economic crisis.

In this decade, when the world's economies were setting up to compete in scientific development, Taiwan adapted with no difficulty to the changes and new trends. In 1996, it held the fifth National Science and Technology Conference, where it established strategies for technological development for the twenty-first century. The second scientific-industrial park was also inaugurated in the country's South; this would support and raise scientific-technological production, causing an increased demand for qualified human resources.<sup>10</sup>

1998 saw the approval of strategies to turn Taiwan into a nation based on science and technology with an increased demand for highly qualified human resources; the Basic Law for Science and Technology was also passed.<sup>11</sup>

The international community gradually eased into the era of an economy based on knowledge. This led Taiwan to place

even more importance on this sector, mainly on the generators of this knowledge, highly qualified human resources, by establishing strategies for their training, retention, and attraction. High-tech industries also grew; thus, the productive factors previously essential for traditional manufacturing, like land, raw materials, and capital, were displaced by technologized knowledge, science, and innovation in other fields.

## THE TWENTY-FIRST CENTURY

### *Mexico*

In the early 2000s, a series of changes took place in science and technology, making them more attractive for talent abroad. One of these was the passage of the Law to Foster Scientific Research and Technology (FICyT); another was the Program for Science and Technology (Pecyt) established in the 2001-2006 National Development Plan.<sup>12</sup>

In 2002, the Law on Science and Technology was passed, one of the most important contributions and that would be the cornerstone for developing the sector, including qualified human resources. Mexico also designed its first plans for working with the qualified Diaspora: the Special Program for Science and Technology pointed to the need to create working networks of Mexicans abroad.

In 2005, the Network of Mexican Talent was created, which aims to maintain constant contact for the transfer of knowledge, abilities, and experience among Mexican talents abroad and at home. This network is organized by chapters distributed as follows: eight in the United States, three in Canada, and four in Europe. Up until now, its main achievement has been to speed up technology business in Michigan and the Silicon Valley.<sup>13</sup>

In the last decade in Mexico, skilled migration strategies have centered on creating networks of knowledge, since promoting return migration has become more complicated because now not only is the unstable economy acting as a factor expelling skilled labor, but so are the insecurity and violence levels of recent years.

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### Taiwan

In 2001, Taiwan held its sixth National Science and Technology Conference, which approved the 2001-2004 Program, bringing with it an increase in science and technology spending, including investment in skilled human resources, with the private sector contributing up to 63 percent. In 2003, the third scientific-industrial park was inaugurated in downtown Taiwan, which, just like the first two, has served as a center for developing and attracting national and foreign talent.<sup>14</sup>

Later, to adjust to the science and technology challenges and the changes in globalization, the Yuan Executive created the National Development Program in 2008. It consists of ten investment programs with strategic objectives: cultivating talent, incentivizing R&D, and generating an atmosphere of high quality of life to attract foreign talent.<sup>15</sup> Lastly, in early 2014, together with the National Development Council

and other ministries, this body developed a series of public policies that converge in a program for training, retaining, and attracting qualified human resources; the aim is to turn the country into one of the most attractive in the world for talented migrants.<sup>16</sup>

### FINAL THOUGHTS

It would be difficult to suggest that Mexico should follow the same strategies as Taiwan since the two countries' history, population, and geography are different. What is possible to say is that our country must put more emphasis on one of the most important sectors for economic development in a globalized world in which knowledge and its creators will be key. **MM**

### NOTES

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<sup>3</sup> *Ibid.*, 1970.

<sup>4</sup> Kevin O'Neil, "Brain Drain and Gain: The Case of Taiwan" (Washington, D.C.: Migration Policy Institute, September 1, 2003), <http://www.migrationpolicy.org/article/brain-drain-and-gain-case-taiwan>.

<sup>5</sup> Mónica Caselet, "Los cambios en el diseño institucional y la construcción de redes de modernización tecnológica," *Redes, jerarquías y dinámicas productivas* (Buenos Aires: Flacso/OIT/Miño Dávila Editores, 2005), p. 141.

<sup>6</sup> Federico Andrés Stezano Pérez, *Redes ciencia-industria para la transferencia en México, Estados Unidos y Canadá. Regímenes institucionales y tecnológicos y mecanismos de intermediación* (Mexico City: Flacso, 2011), p. 338.

<sup>7</sup> Hsinchu Science Park, *Annual Report 2013*, February 2014, p. 46.

<sup>8</sup> National Science Council, "National Science Council Review 1990," Ministry of Science and Technology, <http://www.most.gov.tw/mp.aspx?mp=7>, December 1990, accessed September 20, 2014.

<sup>9</sup> Camelia Tigau, "Mexican Brain Drain to the U.S. and Canada," *Voices of Mexico* no. 92, 2011, pp. 40-41.

<sup>10</sup> Southern Taiwan Science Park, "Development History," Southern Taiwan

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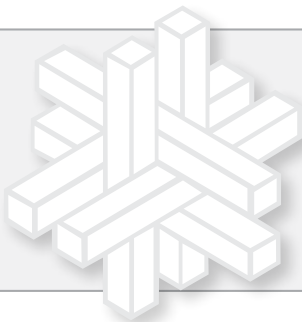
<sup>12</sup> Giovanna Valenti, Mónica Casalet, Rosalba Casas, Jorge Dettmer, Mario Cimoli, Annalisa Primi et al., *Instituciones, sociedad del conocimiento y mundo del trabajo* (Mexico City: Plaza y Valdez, 2008), pp. 330-335.

<sup>13</sup> Guillermo Aguirre Esponda, Bruno Figueroa Fisher, and Jorge Zavala, "La red de talentos, un mecanismo para capitalizar la diáspora mexicana en América del Norte," IIMAS-UNAM, [http://turing.iimas.unam.mx/~remidec/difusion/textos/Red\\_de\\_20\\_Talentos\\_GAE\[1\].pdf](http://turing.iimas.unam.mx/~remidec/difusion/textos/Red_de_20_Talentos_GAE[1].pdf), July 2008, accessed February 19, 2014.

<sup>14</sup> Central Taiwan Science Park, "Origins," <http://www.ctsp.gov.tw/english/00home/home.aspx?v=20>, July 4, 2014, accessed October 8, 2014.

<sup>15</sup> National Science Council, "National Science Council Review 2009," Ministry of Science and Technology, <http://www.most.gov.tw/mp.aspx?mp=7>, December 2009, accessed October 10, 2014.

<sup>16</sup> National Development Council, "Integrated Program to Cultivate, Retain and Attract Talent," [http://www.ndc.gov.tw/encontent/m1.aspx?sNo=0013652#VGE7P8\\_3XIU](http://www.ndc.gov.tw/encontent/m1.aspx?sNo=0013652#VGE7P8_3XIU), April 29, 2014, accessed November 7, 2014.



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