Importance and Consequences of Skilled Mexican Migration To the United States[1]

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The 2007-2008 structural crisis highlighted, even if only indirectly, the importance of skilled migrant workers as a substantial part of deepening the knowledge economy, the solution to the crisis. This means that workers are increasingly needed in the sciences and the fields of technology, engineering, and mathematics (STEM). This is because of the importance of technological innovations, concretely in the areas of nanotechnology, robotics, the aerospace industries, information technologies, etc., all high on the list of creating value. That is, what is central is knowledge, information, and technology.

The United States has been considered a leader in the knowledge economy, and different developed countries have followed this same road with greater or less success. We can say that one characteristic of the globalization that grew out of Margaret Thatcher and Ronald Reagan's proposals in the 1980s has been the application of knowledge, technology, and information to production. The knowledge economy, on the other hand, required society to create the educational conditions to respond to labor market demands. These needs centered on specific professions, many of which were lagging behind the unprecedented sustained capital boom in the United States after the Vietnam War. It is not surprising that in the framework of the new migratory pattern that has emerged from globalization, one of the very important flows has been that of qualified migrants. This is so much the case that the United States is one of the main receivers of highly qualified migrants worldwide, together with Australia, Canada, Japan, and New Zealand, which, taken all together, in 2005 alone received a little over 100 000 skilled workers from abroad.[2]

The structural crisis is giving rise to certain competition for talent globally since countries that before the crisis were already part of the knowledge economy continue to be interested in deepening it so they can move ahead, and, therefore, require this kind of immigrants. To attract qualified migrants, countries have even changed their immigration laws, facilitating entry and stay, in contrast with their policy toward the low-skilled. These countries face a series of difficulties, both in their educational systems and demographically, given low fertility rates. All this explains the need to incorporate skilled migrants; this is in stark contrast with what happened during the Great Depression of 1929, when these countries closed their doors completely, as we have pointed out in our previous research.[3]

The Situation in Mexico

Role as Sender of Skilled Migrants

We can consider Mexico a country whose economic, political, and social conditions made it a reserve of skilled workers, since it cannot absorb them into its work force, and therefore they accept job offers and facilities that other countries offer. Although Mexico trains qualified professionals, they face a

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dearth of research and innovation centers, universities, and scientific laboratories where they can apply their knowledge.

The Dynamics of Higher Learning

The number of graduates from institutions of higher learning grew 2.94 percent on average annually between 2000 and 2009.[4] However, the economy averaged only 1.2 percent growth per year, according to data from Mexico's National Institute of Statistics and Geography (INEGI). This meant that the number of graduates remained above the rate of economic growth, with negative effects on the highly skilled labor market, since in this period, the number of professionals increased by 2.8 million, while their unemployment rate rose from 2.3 to 5.1 percent.[5]

Among the fields linked to jobs required by the knowledge economy, the number of graduates in all kinds of engineering increased from 15 percent to 19 percent from 1999-2000 to 2008-2009. The rest of the areas maintained their relative proportions, except education and teaching, which dropped considerably.[6] The case of engineers is very interesting since the number of graduates from both public and private institutions increased in 2010 to 75 575, a number quite close to their U.S. American counterparts in 2011 (83 000).

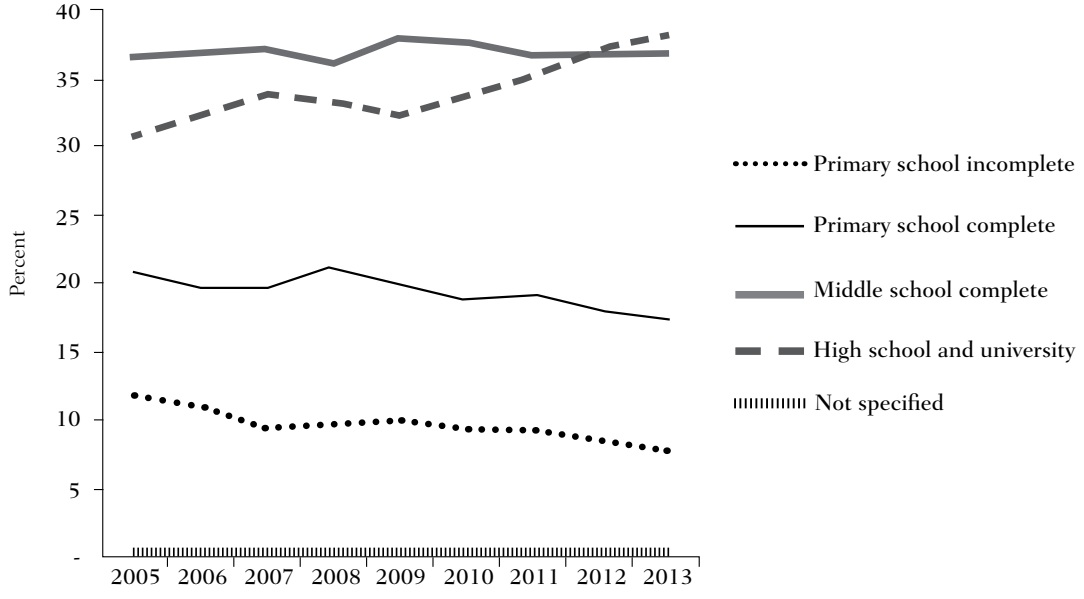
Labor Supply and Investments In Innovation and Development

However, the number of Mexicans employed as engineers has only grown slightly, from 1.1 million in 2006 to 1.3 million in 2012.[7] This indicates that the favorable evolution in the number of graduates causes an increase in the number of professionals vying for jobs; nevertheless, given that the economy has not been dynamic at all, not only has unemployment grown among these workers, but something even worse has happened: the quality of employment has deteriorated.

One central problem is the low investment channeled into innovation and development, particularly if we compare Mexico with other developing economies like Brazil, or developed economies like South Korea. In 2000, these two economies spent 1 percent and 2.3 percent of their GDPs, respectively, on research and development (R&D), while Mexico invested 0.3 percent in 2000 and only 0.4 percent in 2011, according to World Bank data.[8]

This situation explains why unemployment among workers with higher educational levels is even greater than that of the rest of workers. According to INEGI figures, this unemployment has been increasing considerably in recent years, as shown in Graph 1. It seems very clear that Mexico is seriously lagging behind in its full incorporation into the knowledge

GRAPH 1
TOTAL UNEMPLOYED POPULATION BY EDUCATIONAL LEVEL (2005-2013)



Source: Banco de Información Económica-INEGI, http://www.inegi.org.mx/sistemas/bie/, accessed November 25, 2014.

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economy. This explains why these workers must seek opportunities in other countries, particularly the United States, the main destination for Mexican migrants.

Highly Skilled Mexican Migration to the United States

Table 1 shows an important increase in the number of skilled migrants entering the United States with H-1B visas. While in 1996, Mexico was in sixth place with 3.7 percent, by 2010, it was in third place with 6.7 percent. The number of L-1 visas issued to workers transferring internally inside their companies has risen considerably: in 1996, Mexico was also in sixth place with 3.4 percent, while by 2010, it had increased greatly, also climbing to third place, just behind Canada and India (see Table 2).

Similar behavior can be seen in the case of O-1 visas issued to workers with extraordinary achievements or abilities: in 1996, our country was in eighth place with a participation of only 2.4 percent, while by 2010, there had been an extraordinary hike to third place with 6.4 percent, just below the United Kingdom and Canada (see Table 3).

Luke MacGregor/Reuters

We should underline that the main areas hiring qualified Mexican workers are the sciences and engineering. By 2010, Mexican scientists and engineers were 3 percent of all foreign engineers in the United States, with levels similar to countries like Vietnam, Germany, and Taiwan (3 percent each), and only below the United Kingdom and Canada (4 percent each), the Philippines (6 percent), China (8 percent),

TABLE 1
TOP 10 COUNTRIES GRANTED H-1B VISAS BY THE U.S. (SELECTED YEARS)

1996			2000			2010		
	Number	Percent		Number	Percent		Number	Percent
All countries	144 458	100.0	All countries	355 605	100.0	All countries	454 763	100.0
India	29 239	20.2	India	102 453	28.8	India	138 431	30.4
United Kingdom	18 221	12.6	United Kingdom	32 124	9.0	Canada	72 959	16.0
Japan	7 401	5.1	China	14 874	4.2	Mexico	30 572	6.7
Germany	6 117	4.2	France	14 745	4.1	China	19 493	4.3
France	6 076	4.2	Germany	13 533	3.8	United Kingdom	17 099	3.8
Mexico	5 273	3.7	Mexico	13 507	3.8	Japan	12 099	2.7
China	4 377	3.0	Canada	12 929	3.6	South Korea	11 815	2.6
Canada	4 192	2.9	Japan	11 989	3.4	France	10 804	2.4
Soviet Union	2 805	1.9	Brazil	8 719	2.5	Germany	8 380	1.8
Russia	2 190	1.5	Australia	6 882	1.9	Australia	2 229	0.5

Source: Department of Homeland Security, "Yearbook of Migration Statistics" (several years), http://www.dhs.gov/immigration-statistics, accessed November 25, 2014.

TABLE 2
TOP 10 COUNTRIES GRANTED L-1 VISAS BY THE U.S. (SELECTED YEARS)

1996			2000			2010		
	Number	Percent		Number	Percent		Number	Percent
All countries	140 457	100.0	All countries	294 658	100.0	All countries	502 732	100.0
United Kingdom	24 872	17.7	United Kingdom	55 917	19.0	Canada	109 732	21.8
Japan	24 284	17.3	Japan	34 527	11.7	India	68 445	13.6
Germany	10 259	7.3	Germany	23 974	8.1	Mexico	49 650	9.9
China	8 281	5.9	France	19 929	6.8	United Kingdom	45 293	9.0
France	8 088	5.8	Canada	19 221	6.5	Japan	44 902	8.9
Canada	7 037	5.0	Mexico	14 516	4.9	Germany	19 912	4.0
Mexico	4 759	3.4	India	11 945	4.1	France	19 893	4.0
India	2 255	1.6	Australia	9 000	3.1	South Korea	15 310	3.0
Soviet Union	1 519	1.1	Brazil	8 470	2.9	Australia	8 060	1.6
Russia	1 296	0.9	China	4 567	1.5	China	7 923	1.6

Source: Department of Homeland Security, "Yearbook of Migration Statistics" (several years), http://www.dhs.gov/immigration-statistics, accessed November 25, 2014.

TABLE 3
TOP 10 COUNTRIES GRANTED O-1 VISAS BY THE U.S. (SELECTED YEARS)

1996			2000			2010		
	Number	Percent		Number	Percent		Number	Percent
All countries	7 177	100.0	All countries	21 746	100.0	All countries	63 984	100.0
United Kingdom	1 900	26.5	United Kingdom	5 094	23.4	United Kingdom	13 844	21.6
France	495	6.9	France	1 469	6.8	Canada	6 703	10.5
Canada	481	6.7	Germany	1 285	5.9	Mexico	4 082	6.4
Germany	437	6.1	Canada	1 195	5.5	France	3 452	5.4
Soviet Union	276	3.8	Australia	1 082	5.0	Germany	3 096	4.8
Russia	225	3.1	Japan	622	2.9	Australia	2 742	4.3
Japan	220	3.1	India	542	2.5	Japan	2 155	3.4
Mexico	171	2.4	Mexico	542	2.5	South Korea	966	1.5
China	70	1.0	Brazil	404	1.9	India	694	1.1
India	52	0.7	China	305	1.4	China	611	1.0

Source: Department of Homeland Security, "Yearbook of Migration Statistics" (several years), http://www.dhs.gov/immigration-statistics, accessed November 25, 2014.

and India (19 percent).[9] Thus, Mexico is contributing to the expansion of the U.S. knowledge economy given the impossibility of doing the same at home. It is important to point out that another U.S. strategy to foster the STEM areas is to retain students who have studied there.

FOREIGN STUDENTS IN THE UNITED STATES

In accordance with Project Atlas estimates for 2011-2012, the number of foreign students enrolled in U.S. public or private institutions of higher learning came to 764 495. Between 2005 and 2006, on the other hand, enrollment was 564 766; this represents an annual average growth rate of 5.17 percent, an increase that continues even in the context of the U.S. financial crisis. This can be seen in Graph 2.

In the case of Mexican students, 13 931 were pursuing graduate studies between 2005 and 2006; by 2011-2012, this number had dropped to 13 893, although Mexico continues to be among the 10 main countries of origin for foreign students.[10] It is important to point out that Mexican students are concentrated in areas linked to the knowledge

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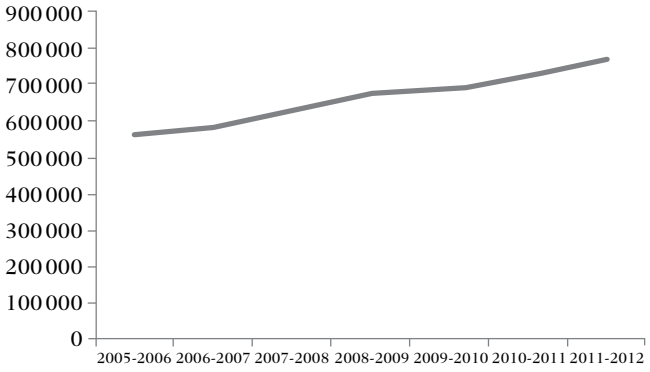
GRAPH 2
NUMBER OF FOREIGN STUDENTS IN THE U.S.
(2005-2012)



Source: Project Atlas U.S., "International Students in the United States," http://www.iie.org/Services/Project-Atlas/United-States/International-Students-In-US, accessed November 25, 2014.

economy: between 1989 and 2009, 3 589 received doctorates in U.S. institutions in the sciences and engineering. This number is much higher than those who earned PhDs in other disciplines (694).[11]

CONCLUSIONS

The demographic and educational difficulties faced by the United States, which we have studied previously,[12] explain why migrant workers are central for overcoming structural lags that make the internal supply of workers insufficient. In addition, the country's proposal for climbing out of the crisis is linked to the strategy of deepening the knowledge economy. This explains why it has become one of the world's most important destinations for skilled migrant workers. The case of Mexico is paradigmatic since, while it does train professionals who are key to developing our own country and who should expand innovations through what is called the knowledge economy, these talented workers cannot contribute because they are forced to emigrate. One of the central problems in Mexico is that it does not invest what is needed in research and development. According to World Bank data, average R&D investment as a proportion of GDP by OECD member countries was 2.4 percent in 2011. But Mexico only invested 0.42 percent in that year.[13] This means that economic growth is weak since it does not favor the knowledge economy, but rather an economy based on maquiladora-style industrial policy, which, as we know, cannot contribute to developing the country because these assembly plants do not generate domestic productive linkages.

On the other hand, it is by no means surprising that many Mexican students educated in the United States consider staying there, since job opportunities in Mexico are not attractive. It is a matter for concern that the number of students who decide to remain there is quite high. In their work, Suter and Jandl estimate that 58 percent of international students who received doctorates from U.S. universities in 1993 continued to live there in 2003.[14] This represents an important loss of highly skilled human resources who cannot contribute to growth and development at home. VM

NOTES

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[2] Lucie Cerna, "Policies and Practices of Highly Skilled Migration in Times of the Economic Crisis," *International Migration Papers* no. 99 (Geneva: ILO-IOM, 2010), pp. 1-47.

[3] Ana María Aragonés and Uberto Salgado, "¿Competencia internacional por la migración altamente calificada?" *Comercio Exterior* vol. 64, no. 2 (March-April 2014), pp. 18-26.

[4] Enrique Hernández, *Mercado laboral de profesionistas en México* (Mexico City: ANUIES, 2013), p. 434.

[5] Ibid.

[6] Ibid.

[7] William Booth, "Mexico Is Now a Top Producer of Engineers, but Where Are Jobs?" *The Washington Post*, October 28, 2012, http://www.washingtonpost.com/world/the_americas/mexico-is-now-a-top-producer-of-engineers-but-where-are-jobs/2012/10/28/902db93a-1e47-11e2-8817-41b9a7aaabc7_story.html, accessed December 1, 2014.

[8] World Bank, "Research and Development Expenditure (% of GDP)," http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS, accessed November 25, 2014.

[9] National Science Board, "Science and Engineering Indicators 2014," National Science Foundation, http://www.nsf.gov/statistics/seind14/, February 2014, accessed November 27, 2014.

[10] Project Atlas, "International Students in the United States," Institute of International Education, http://www.iie.org/Services/Project-Atlas/United-States/International-Students-In-US, accessed November 25, 2014.

[11] National Science Board, "Science and Engineering Indicators 2012," National Science Foundation, http://www.nsf.gov/statistics/seind12/pdf/seind12.pdf, accessed November 25, 2014.

[12] Ana María Aragonés and Uberto Salgado, "La crisis y la economía del conocimiento en Estados Unidos. Su impacto en la política migratoria," *Norteamérica* vol. 8, no. 2 (July-December 2013), pp. 71-104.

[13] World Bank, op. cit.

[14] Brigitte Suter and Michael Jandl, *Comparative Study on Policies towards Foreign Graduates - Study on Admission and Retention Policies towards Foreign Students in Industrialised Countries* (Vienna: International Centre for Migration Policy Development, 2006), p. 99.