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CONTENTS

EDITORIAL

TALENT MIGRATION AS A DEVELOPMENT STRATEGY:
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Abstract

The international migration of qualified human resources is one of the pillars of immigration governance. Immigration policies set instruments for organizing and managing the human resources to attract skilled workers and international students in a context of global competitiveness. The main component influencing the dynamics of international migration flows to Japan is the transnational labor market of skilled resources, as well as the mechanisms that shape it. The objective of this paper is to describe the socioeconomic factors that shape, drive, and lend context to the mobility of skilled workers. The main question to answer would be: What are the characteristics of the main factors shaping migration flows between Mexico and Japan?

Keywords: Skilled migration, geographic mobility, human resources, socioeconomic factors, labor markets, migration policy.

INTRODUCTION²

Japan's economic growth in the latter half of the twentieth century was underpinned by innovation, with minimal foreign labor migration. Starting in the nineteen-eighties, economic development began to demand immigrant workers, preferably people with ties to Japan or of Japanese background, known as the *nikkei* population. This century, Japan has seen the rise of immigration programs for qualified immigrants, professionals, and students alike.

Japanese immigration policy is tied to the labor market and education system, which is borne out in its migration flows, marked by the globalization of education and the mode of global economic production. Three factors support the Mexico-Japan migration flow: the presence of *nikkei* communities, and the labor and educational advantages Japan has to offer to human resources. In the short term, looking at the statistical trends, migration flows are expected to increase.

Skilled immigration to Japan is shaped by the principles the country uses to select people who will boost its economic, social, and cultural development. Emphasis is given to educated people. Japan avoids letting low-skilled laborers in. The viewpoint runs that a segment of Japanese society will continue to perform low-skilled jobs. For example, the taxi trade is eminently Japanese. The labor market is protected and opened up only in those rungs of the ladder where it is needed.

This paper furnishes a structural overview of the phenomenon of the international migration of qualified human resources. Migration is a social outcome resulting from macro-level factors, such as the machinations of the trans-national labor market, as well as *mezzo* aspects, such as nation-states' immigration policies. Moreover, *micro* factors, including those that are subjective or place value in international workers, where the variable of rejecting inferior jobs and, therefore, going beyond the national borders in search of better living conditions, comes into play. This paper tackles the *macro* elements that are shaping international migration flows to Japan, sketching out the general features of the transnational qualified labor market and the mechanisms behind it, all of which is encompassed by the tools involved in organizing and managing international migration.

Likewise, this document sets out to focus primarily on the Japanese factors that shape, drive, and provide the backdrop for qualified worker mobility. The research question is: What is the nature of the main factors involved in the surge of Mexico-Japan migration flows?

The bonds between Mexico and Japan have been around for over 400 years (Girón, Vargas & Uscanga, 2015). The Hasekura Mission headed for New Spain in 1624 and has become the essential benchmark since the onset of the twentieth century and into the present day to express the old ties of friendship between Mexico and Japan" (Uscanga, 2015, p. 45). At the moment, the Japanese presence in Mexico is very visible from the viewpoint of foreign direct investment, concentrated in Mexico's central region. Companies and financial and human resources of Japanese origin are reviving the economic outlook for this geographical region. Naturally, this is a driver of contemporary migration flows.

With that said, start with development strategies. What building blocks emerged in Japan to drive the migration flow? Historically, population mobility has been considered a development strategy for societies. In this particular case, Japan's migration track record evinces a strong link between migration and development; for example, the migration flow from Japan to Brazil in the twentieth century (Lesser, 2003). From the perspective of the source countries, international emigration as a development strategy has been broadly documented through analysis of remittances. Scores of governments explicitly hold up emigration as a development strategy, including the Philippines. In Mexico, emigration is recognized as a way to unleash growth through remittances.

MOBILITY, MIGRATION, AND FLOWS

The movement of people in search of material resources to earn a livelihood is a process deeply interwoven with capitalist economic history, as documented by Saskia Sassen (2014) in a study on 200 years of migration in Europe. Migration as a model acquires mobility in the political systems of nation-states, and is expressed in various ways, pursuant to specific spaces and times. Therein arises the analytical distinction between the concepts of mobility, migration, and flows. However, these terms are frequently mutually embedded. For that reason, the geographical mobility of trained human resources has generally been analyzed through the lens of diverse concepts in migration studies (Bartram, Poros & Monforte, 2014): the diaspora, talent circulation, return migration, guest workers, and more.

International migration as human capital mobility can be one of the cornerstones of welfare in the nation-states receiving the flow, and for the sending countries. Seen from that angle, in broad strokes, migration policy is designed to fuel development and stem poverty in both the origin and destination countries. The migration flow exists pursuant to migration governance principles, which establish the mechanisms for migration management and control. At the moment, the backbone of these mechanisms resides in the principle of selectivity. For that reason, countries devise a wide range of criteria to admit immigrants. These circumstances have made migration policies increasingly restrictive and selective.

This paper is essentially concerned with the category of *economic migrants*, specifically, the qualified worker and international student cohorts. Both groups comprise the talent migration pie. In this regard, migration policies have tended to focus on the process to accept and admit the qualified worker and student population. This process has historically been spearheaded by nation-states that are subject to the structural and situational contexts of their economies. As a result, diverse criteria have been applied to select immigrants over time. These include economic resources, education level, family ties, and cultural affinities. Selective migrant admissions systems commonly stipulate variables such as age, schooling, mastery of the destination country's official language, professional skills, and work experience.

Nation-states, including both the origin and destination countries, manage and restrict migration flows via the search for qualified labor. The share of qualified migrants in total migration flows is elucidated by the fact that in 67 of 170 countries around the globe, policies to admit qualified people have been enacted. Moreover, 137 of 145 countries recorded an increase in the number of qualified migrants (Zapata-Barrero & Pasetti, 2015, p. 84).

Qualified human resource migration as a topic has been addressed in the social sciences field, where certain terms have been used to classify the groups of people, each of which entails its own analytical perspective. Over time, descriptive concepts have been coined, as is the case of the *brain drain*; a term which itself has gone through various iterations. In the nineteen-sixties, it first emerged to refer to the mobility of students and professionals in the science and technology fields. Research focused on analyzing the national factors underlying why people left. A second term would be the *brain gain*, emphasizing the mechanisms that countries have in place to attract immigrants through the immigration systems. A third term is *brain circulation*, bringing to fore this idea of the return of qualified human resources who then rejoin the economic life in their countries of origin. For example, there have been studies that observe that talent has returned to undertake and lead transnational companies. By contrast, the circularity or return of international students (minors) to their places of origin brings with it its own set of difficulties related to the challenges of reinsertion (Bazán-Ramírez & Galván-Zariñana, 2013).

These approaches have considered talent migration to mean a displacement between two poles. However, as the migration phenomenon has become increasingly globalized, it is starting to pose new challenges for research, thanks to the network of wide-ranging migration flows between different poles. Qualified migration is facing a whole suite of problems in the destination societies, too. Recent studies have pointed to the multiple barriers facing qualified migrants in joining the destination society given that the official language is not the immigrants' mother tongue (Sardana, Zhu & Veen, 2016). But at the same time, migrants face discrimination when they try to get a desirable job. Generally speaking, they earn low wages and are unsatisfied in their jobs, principally due to the systems to accredit and revalidate education. Migrants accept jobs below their skill sets despite the fact that they are considered to be the "appropriate human capital" for national development in the framework of global competitiveness.

Migration flows are notable for two remarkable facts: the migration of qualified workers and mobility for international students both converge on the migration route and, according to studies, where the process of immigration has been favored for those who possess academic credentials. These groups differ in their migration paths. While qualified workers can become citizens in just a few years, international students are estimated, for example, to acquire citizenship status 16 years after entering the United States (Hawthorne, 2014, p. 6). Other countries have implemented measures to retain international students, such as Canada with its *Canadian Experience Class* principle implemented in 2008.

Globalization has caused the education export market to proliferate. Institutions of higher learning offer quality international education in various fields, such as information technology, engineering, and business, to name a few. Where the migration of international students is concerned, eminently commercial behavioral patterns have been observed among private educational institutions, as in Australia where students generated nearly 18 billion Australian dollars annually between 2001 and 2009, catapulting education to Australia's third-most important industry (Hawthorne, 2014, p. 6).

International Human Capital Migration in Japan

National governments are revamping development strategies in the face of globalization. The discourse of international competitiveness dominates national development planning. Generally speaking, Mexico's competitive strategy has consisted of developing cheap products by curtailing labor costs; by contrast, countries like Japan implemented strategies predicated on economies of scale and technological innovation. Specifically, competitiveness also applies to

human resources. This is illustrated in the fact that human resources are trained to compete in a globalized world, carrying out tasks that are international in nature.

Japan is likely the most-developed country that managed to achieve economic growth in the nineteen-sixties and seventies, without having to resort to importing foreign labor, because its development was grounded in labor productivity. That does not mean that there were no foreign workers in the Japanese market. Both before and after the Second World War, the number of Koreans in Japan was notable (calculated to be 2.1 million). Successive waves of Korean immigration to Japan go as far back as the early twentieth century (Weiner, 1994).

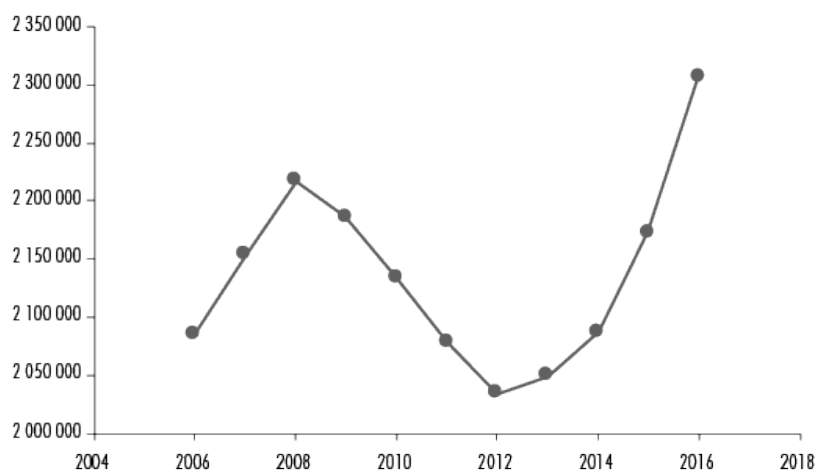
In the twentieth century, the movement of people in Japan went through a variety of moments, ranging from Japan being considered a sending country of labor to becoming a country that attracted labor, principally from countries in the Asian region, including: China, south Korea, and Vietnam. According to Junichi Goto (2008), in that century, Japanese migration went through five emigration and immigration phases. The first four stages were marked by migrant-sending as an economic growth strategy. In this final phase, in the present day, Japan is defined as a country that attracts immigrants, against the backdrop of globalization.

Traditionally, migration studies hold that colonial empires created the first strong bridges for migration. However, nowadays, it is important to also consider that transnational economic activities forge migration links (Sassen, 2014, p. 203). Pursuant to that notion, in the case of Mexico, Japanese direct investment in the Bajío economic zone is especially notable in driving population mobility. Now, how has Japan's immigration policy shaped up in recent years?

Authors like Tsuda and Cornelius (2004) underscore the divide between official migration policy and the Japanese economic reality. On the one hand, migration flow regulations and controls closed the door to untrained foreign workers. Between 1975 and 1985, six million jobs were created in Japan (Sassen, 2014, p. 198). Moreover, between 1986 and 1991, the labor market added 4.4 million jobs (Tsuda & Cornelius, 2004, p. 444). In the nineteen-eighties, Japan became a country that began to attract immigrants in the Asian region due to an invigorated economy and, of course, the wage difference. The migration flow is the result, as has been said, of diverse transnational economic factors and Japan's direct investment in Korea, China, the Philippines, and Thailand, not to mention sociopolitical factors like the presence of refugees, a group to which the Vietnam population has historically belonged. Also germane are ethnic and cultural factors as seen in the *nikkei* community (the people living in countries all over the world of Japanese ancestry). By the twenty-first century, Japan had become a country very appealing to qualified workers and international students.

It has been asserted that the flow of Japanese capital and multinational firms' relocation of production are creating job opportunities for native local workers, and giving them access to the resources and connections they need to migrate to Japan (Sassen, 1991, p. 32). Despite the fact that Japan's political cultural and identity are not particularly friendly to immigration (Sassen, 2014, p. 200), the country continues to attract international workers from countries around the world. The number of foreign workers in Japan has been on an upswing year after year (see Figure 1). In 2016, the Japanese Ministry of Justice reported 2,307,388 foreigners, revealing that the primary source of immigrants is Asia, from where 82.5% of foreigners in Japan hail. Notable are countries like China, Korea, and the Philippines. The American continent contributes 13.2% of Japan's foreigners, coming mainly from Brazil, the United States, and Peru. Europe adds 3.3% into the mix, mainly from the United Kingdom and France.

Figure 1. Number of Foreigners in Japan, 2006-2016



Source: Created by the author, *Ibidem*, www.e-stat.go.jp

In particular, in 2016, 304,865 people from the continent of the Americas were living in Japan. Of them, 99% had roots in just 10 different countries. As shown in Table 1, there are quite a few Brazilians in Japan. Brazil is the top country sending immigrants from the Americas to Japan, thanks to a large *nikkei* population in Brazil; Mexico ranks eighth on this list.

In order to examine the of Mexicans in Japan, the Secretariat of Foreign Relations is tasked with keeping a register of Mexicans living abroad, using the Mexicans Abroad Enrollment System (the online platform can be found at <http://sirme.sre.gob.mx>). Although this tool makes it easy to count how many Mexicans are abroad at a given point in time, this information is only partial, as it is supplier voluntarily. Recently, the Institute for Mexicans Abroad (IME), has

begun to forge ties with Mexican students living abroad and support the talent diaspora. The IME reports that 12,496 Mexicans lived in Asia in 2015. By contrast, in 2009, the figure was just 7,233, meaning the number had risen 72% by 2015.

Table 1. Countries from the Americas Ranked by Number of People Living in Japan

Ranking	Country	Number of people in Japan
1	Brazil	176 284
2	United States	53 050
3	Peru	47 670
4	Canada	9 672
5	Bolivia	5 467
6	Argentina	2 650
7	Colombia	2 319
8	Mexico	2 262
9	Paraguay	1 924
10	Chile	649

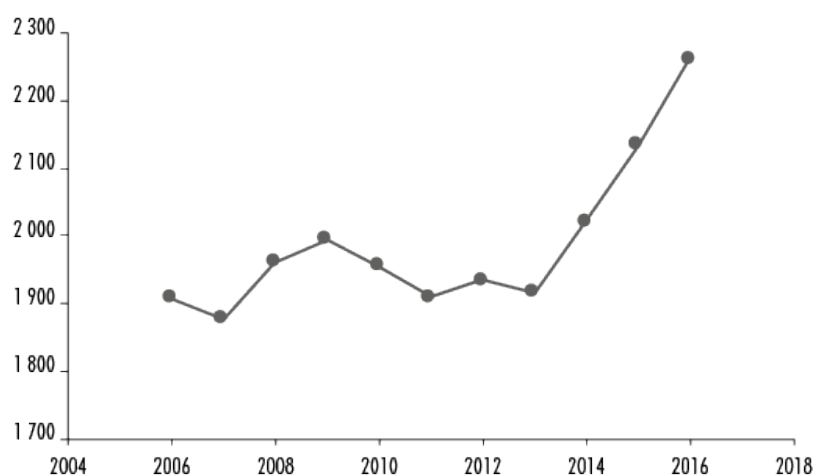
Source: Created by the author, *Ibidem*, www.e-stat.go.jp

The top countries with a significant Mexican presence are, in order of volume, China, Japan, Israel, Lebanon, and the United Arab Emirates. It bears mention that 44% of them are students and professionals.

According to data published by the Japanese Ministry of Justice, the number of residents of Mexican origin has been on the rise since 2014, reaching 2,262 people in 2016. These figures did not include diplomats or Mexicans with short-stay status. Only medium- and long-stay status Mexicans are counted in this number (see Figure 2).

Looking at the case of Mexico, another source, the Japanese chapter of the Mexican Talent Network, which is part of the Secretariat of Foreign Relations' Institute for Mexicans Abroad, keeps a registry of talented Mexicans in Japan. According to the Japanese chapter's database, there is a wide array of professionals and activities represented in different residence categories: spouse of a Japanese citizen, permanent resident, spouse of a permanent resident, and fixed resident. The database shows that 57% of Mexicans in Japan are in academia and 34% work for companies. Broken down by schooling, 28% hold doctoral degrees, 38% have master's degrees, and 34% have earned bachelor's degrees.

Figure 2. Number of Residents in Japan of Mexican Origin, 2006-2016



Source: Created by the author, *Ibidem*, www.e-stat.go.jp

The Features of Migration Policy in Japan

The migration flow is, in general, screened and regulated by a nation-state's immigration laws. In Japan, the migration system laws are wide-ranging and complementary. The main law is the Immigration Control Act, which sets the special rules for the primary law on permanent residents. The Ministry of Foreign Affairs and the Ministry of Justice are tasked with enforcing immigration law.

The main tenets of this piece of immigration legislation state that foreign workers should be professionally qualified and trained to take an active part in the labor market and in society, in the hope of developing internationalization in Japan. As a second point, the law establishes that unqualified or low-skilled workers should be closely monitored because they can have a serious impact on the economy and on society, specifically, by affecting the lives of Japanese citizens.

The third pillar consists of seeing migration not from the angle of labor force replacement due to job shortages, an aging population, and declining fertility, but rather as something that contributes to shaping a society in which the elderly and women can work more actively.

The immigration policy is clear: professionals and qualified workers are welcome. But admission is limited for unqualified foreign workers, naturally, the *nikkei* population exempt. The immigration policy prevents immigrants from obtaining low-skilled jobs, with the exception of the *nikkei* population of people, who are allowed to hold low-skilled jobs with hourly wages. For example, the *Brazilian-nikkei* tend to work as machine operators in the city of Ozumi, north of Tokyo, in the Gunma Prefecture in Japan's Kanto region. This job requires neither complex training or experience nor language skills. Wages, at year-end 2016, were 1,100 to 1,350 yen per hour for men, and 900 to 1,000 yen per hour for women. This type of contract does not come with any additional benefits. Other places with a significant presence of *nikkei* workers include Hamamatsu, Toyota, and Toyohashi.

To elucidate the volume of immigrants in Japan, they have been divided into three categories in the table below. The first group covers the interval of 140,000 to 220,000 people, and includes international students, permanent residents, and the partners or children of Japanese people. As seen in Table 2, international students account for the largest group of foreigners living in Japan. This type of immigration is called education immigration. A close second are family-tie immigrants. At the moment, when Japanese (men or women) form a relationship with a foreigner, it has led to the demographic phenomenon of mixed children known as *hafu*.

The second group consists of temporary education immigrants who come for job training. This flow is related to the Japanese investment presence in countries around the world, and the way in which multinational companies train their personnel. Finally, the third group includes employees who have been transferred from multinational companies headquartered in Japan. Altogether, the immigrant flow in Japan is quite clear, with an emphasis on students and specialized workers.

Table 2. Foreigners in Japan, by Residence Conditions, 2010-2014

<i>First Group</i>	2010	2011	2012	2013	2014
Students	201 511	188 605	180 919	193 073	214 525
Long-term resident	194 602	177 983	165 001	160 391	159 596
Spouse or child of Japanese citizen	196 248	181 617	162 332	151 156	145 312
<i>Second group</i>					
Technical training 2	49 585	80 816	88 196	93 526	90 110
Technical training 1	50 423	61 178	63 281	61 680	77 516
Humanities and international services	68 467	67 854	69 721	72 319	76 902
Engineers	46 592	42 634	42 273	43 038	45 892
Specialized labor	30 142	31 751	33 863	33 425	33 374
Designated activities	72 374	22 751	20 159	22 673	28 001
<i>Third group</i>					
Intra-company transfers	16 410	14 636	14 867	15 218	15 378
Investors and business managers	10 908	11 778	12 609	13 439	15 184
Entertainment	9 247	6 265	1 646	1 662	1 967
Training	9 243	3 388	1 804	1 501	1 427

Source: Created by the author based on data from the 2015 Immigration Bureau, Ministry of Justice; Japan, Tokyo.

THE DYNAMICS OF RESEARCH AND HUMAN RESOURCE TRAINING IN MEXICO AND JAPAN

Basic and applied research are broadly held in high regard in Japan. The numerous Nobel Prizes awarded to Japanese professors in recent years is a sign of the emphasis placed on scientific research- Another indicator of the vigor of scientific research is the number of papers published; for example, in 2011, the top five countries in this ranking were: United States, United Kingdom, Germany, Japan, and France. Mexico was ranked 22nd (Muñiz Trejo, 2016, p. 107).

Mexico is known as a country that is a source of unskilled labor, as well as skilled workers and professionals. Cyclical economic crises and economic vulnerability have prompted a constant international emigration flow. Mexico is losing qualified human resources, including scientists, researchers, and scholars, to the extent that going abroad frequently affords better career opportunities. The National Researchers System was formed with the intention of holding on to or recovering researchers through scholarships in exchange for productivity. In 2011, the number of researchers was just 17,637. To this day, the number of researchers in Mexico continues to be relatively low (González Alamilla, 2016, p. 105). In 2015, the number of domestic researchers rose to 23,302. Moreover, private enterprise investment is minimal in research and development.

In Mexico, research and development is in the realm of universities and other higher education institutions. However, companies in Mexico register far more patents than universities do. Patents are a means of knowledge dissemination and appropriation, giving rise to a market of knowledge in which the parties demanding knowledge for production interact.

In this knowledge market, Japanese companies have fueled and spread intra-industry know-how (Cohen *et al.*, 2002).

According to the Mexican Industrial Property Institute, in 2012, Mexican institutes of higher learning registered just 71 patents. By contrast, the main foreign companies with offices in Mexico registered 1,369 patents. That same year, foreign companies hailed from the following countries, in order of decreasing importance: United States, 716; Japan, 246; Germany, 231; and France, 176. The top Japanese patent-registering companies in Mexico were: Onic Co., NTT Docomo, Inc., Sharp Kabashiki Kaisha, Sumitomo Metal Industries Ltd., and Nippon Steel Co. (Nieto González & García Lima, 2016, pp. 69-70). The latter two companies merged in 2012.

These Japanese companies were founded and flourished in the twentieth century, and currently dominated diverse sectors of the global economy. For example, the corporation NTT Docomo, a telecommunications company that has developed a wide range of technologies, is planning to make a 5G project reality by 2020 (data transmission would be 100 times faster than it is now). This company, as of March 2016, had registered 5,300 patents in Japan and 8,400 patents outside of the country.³ The company is present through offices, global investments, and partnerships in Europe, America, and Asia. Specifically, it does research and development (R&D) in Yokosuka Research Park, a facility with 90,000 square meters of infrastructure.

For its part, the company Sharp Kabashiki Kaisha works on manufacturing and sells telecommunications equipment, household appliances, and electrical components. As of June 30, 2016, Sharp employed 42,670 employees: 19,795 in Japan and 22,965 outside of the country. The corporation has 58 companies in 24 countries. It operates under the name Sharp Corporation México, S.A. de C.V. in Mexico. Its research and development centers are located in Japan and in other countries.

The corporate group Nippon Steel & Sumitomo Metal (NSSMC) is the result of the 2012 merger of two companies whose origins date back to the mid-twentieth century, when steel was vitally important to construction in Japan. Thirteen thousand employees work for the corporation around the world. NSSMC also has various research centers. In 2014, Thomas Reuters awarded the company its Global Innovators Prize for the volume of patents it had registered, their success rate, the company's global research agenda and portfolio, and the influence its patents wield. The corporation is a patent leader in its sector, with over 1,200 registered between 2010 and 2014.

As is evident, there is a wide gap between the research conducted by Japanese companies in scientific research applied to innovation and Mexican development. The gap began to grow starting in the twentieth century. Now, in the second decade of the twenty-first century, the distance between the two countries in the realm of knowledge creation and application is wider than ever. The exploration of the three Japanese companies makes it possible to calibrate the volume of research and development and the global patent creation model. This situation has boosted the flow of highly qualified immigrants to Japanese R&D. Thus, understanding the rise in the mobility for highly-skilled human resources can elucidate the dynamics of knowledge creation and application on the part of global companies, which in turn supports the training of human resources at international universities.

Research as an Appealing Factor

Japan is known for implementing selective immigration policies, with a preference for skilled immigrants and professionals. Traditionally, it has been said that highly-skilled human resources leave a country to head to another. Regardless of this idea, mobility nowadays is more complex, because global companies are transcending national borders and solidifying research and development systems around the world, in which resource mobility can head in any direction, including domestically. At the moment, highly-qualified people tend to immigrate to work for global companies; this mobility is significant and screened in advance by way of academic rankings or post-graduate degrees earned from prestigious universities. As such, skilled immigrants are recruited using evaluation systems that include research and publication rankings and degrees earned from international post-graduate programs with a global presence. Together, they comprise a high-level transnational human resources workforce. It bears mention that academic activities are quantitatively monitored through digital platforms (Lupton, 2015, p. 79).

Highly-skilled workers tend to migrate primarily to research institutions. In Japan, research and basic R&D currently exists in three spheres: Japanese university researchers, Japanese industry, and Japanese government labs, with a collaborative model that seeks to actively participate in the competitive global market (Wen & Kobayashi, 2001).

The collaborative model is key in the Japanese innovation system. There is widespread consensus in Japan that collaboration between Japanese universities and industry should be strengthened in order to meet growth expectations in the competitive global market (Wen & Kobayashi, 2001). Collaboration between academia and industry has grown during the recent recession. In April 1998, the Japanese government approved the "Act for the Promotion of Technology

Transfer from Universities to Industry." The expectation is for universities to contribute to the Japanese economy and society, principally by creating new business (Fujisue, 1998). The relationship between university and industry has opened up a channel for the sharing of knowledge with small technology enterprises in Japan, boosting their productivity (Fukugawa, 2013; Motohashi, 2005). Since the nineteen-eighties, programs linking university researchers with industry have proliferated (Hayashi, 2003).

Lately, large Japanese companies have been taking research global. Japan's largest electronic goods companies are conducting research around the world. These include: Hitachi, Toshiba, NEC, Mitsubishi, Fujitsu, Matsushita, and Sony (Shirabe, Niwa, Okuda, and Otsuji, 1997). The Fujitsu Group structure encompasses Fujitsu Laboratories (Japan), which partners with three research labs abroad: Fujitsu Laboratories of America, Fujitsu Development Center (China), and Fujitsu Laboratories Europe. These centers in turn forge ties with the top universities and research institutions in their respective fields (Kimura, Naoi & Nakata, 2016).

Companies also collaborate with the academic world, including Toshiba, Shimizu Corporation, and the Japanese Advanced Science and Technology Institute (JAIST), which together are developing an innovative health data reporting system (Uchihira, Hirabayashi, Sugihara, Hiraishi & Ikawa, 2012). This initiative has fostered inter-disciplinary collaboration between, for example, doctors and engineers (Yoda, 2016). In the face of the growing importance of science and technology, university researchers are being called upon to help solve social problems. In Japan, research receives strong backing from economic policies and growth strategies (Sakai, 2016) and knowledge management models (Sakakura & Kobayashi, 1991).

Although multinational companies are taking some R&D global, most of the research is done in the companies' countries of origins and, to a lesser degree, at research centers outside of the companies, subject to economies of scale, costs of coordinating international R&D activities, and the degree to which companies are anchored in R&D (Belderbos, Leten & Suzuki, 2013).

One solid link between universities and industry comes in the form of post-doctoral researchers, who frequently work at state-sponsored national research centers, university labs and institutes, and Japan's largest corporations' research and innovation labs. Grants or contests for spots are opened to international students. Salaries vary depending on the research center. For example, as of the end of 2016, a post-doctoral researcher at the National Astronomical Observatory of Japan⁴ (NAO) was 350,000 yen a month (3,400 dollars); at the National Institute of Information and Communication Technology (NICT), it would be 430,000 yen (4,200 dollars),⁵ and at the National Institute of Advanced Industrial Science and Technology (AIST), 470,000 yen (4,500 dollars).⁶

Training International Human Resources: Education in Japan

Pursuant to the idea that international students are potential human capital resources, national governments design strategies to attract future qualified workers. The student migratory system is considered the *ad hoc* way to enter the international labor market.

Perhaps the first rung of the ladder of qualified human resource migration is to study in the Japanese education system, which consists of diverse levels and categories: upper secondary, technical colleges, junior colleges, universities, master's, and doctoral programs, as seen in Diagram 1. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) was tasked with conducting surveys about the Japanese education system until 2003, at which point in time these duties were transferred to the Japan Student Services Organization (JASSO), formed in 2004.

The Ministry of Justice reports a significant increase in the number of international students at every level of studies. The number of foreign students in Japan amounted to 257,739 in 2016; in 2015, there were 226,131; in 2014, 196,882; and in 2013, 178,551. JASSO reports that in 2015, 152,000 students were enrolled in higher education institutions (see Table 3). Of them, 11,000 were enrolled in short-stay education programs, meaning programs that last less than six months, which students attend with a college student visa. Of them, 55.8% of the students were male and 44.2% female.

Diagram 1.

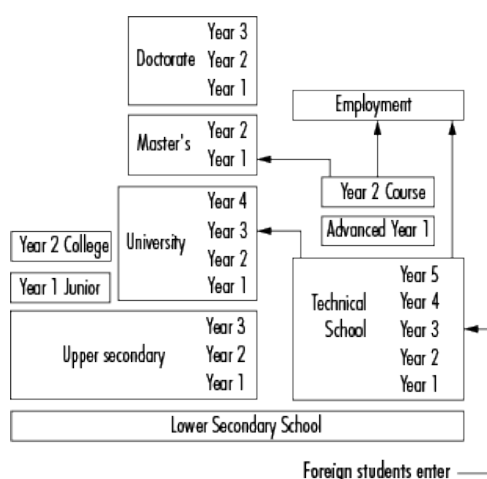


Table 3. International Students by Institutional Type in Japan, 2011-2015

	Total	Institutions of higher education	University: bachelor's degree, university college, technical college	Post-graduate	Japanese language institutes	Specialized training schools	University prep courses
2011	163 697	138 075	71 244	39 749	25 622	25 463	1 619
2012	161 848	137 756	71 361	39 641	25 167	24 092	1 587
2013	168 145	135 519	69 339	39 567	32 626	24 586	2 027
2014	184 155	139 185	67 782	39 979	44 970	29 277	2 197
2015	208 379	152 062	69 405	41 396	56 317	38 654	2 607

Source: Created by the author using Graph 2 of Trends in Number of International Students by Institutional Type. Japan Student Service Organization, Result of an Annual Survey of International Students in Japan, 2015. Starting in 2011, pursuant to the visa unification process, the total number of students began to include Japanese language institutes.

Prior to 2011, the data were recorded pursuant to a different system, but as can be seen in Figure 3, the growth trend for the number of foreign students has taken off considerably since the nineteen-eighties. The education options available to international students are very diverse.

With that said, which groups stand out among foreign students in Japan? First, there are people there on Japanese government scholarships. These are young adults studying in Japan with the government grant program (MEXT) set up in 1954. Second, there are people on foreign government-sponsorships, with scholarships from their countries of origin, or Japanese Grant Aids for Human Resource Development (JDS), as well as joint grants offered with the Korean government. Third, there are short-term international students studying in Japan for one year or less. These students do not necessarily expect to earn a degree, but rather to meet the requirements to be admitted to a Japanese university or to experience the Japanese culture or master the language.

The Refugee Recognition and Immigration Control Act (enacted July 5, 2009) stipulates that a foreign student with residence status through a college student visa must be enrolled in one of the following seven types of educational institutions: a) Japanese university, b) graduate school, c) junior college, d) technical college, e) professional training college, f) university prep course, and finally, g) Japanese language institute.

From the geographical point of view, Japan is home to eight regions, each of which is composed of prefectures. All of them have education infrastructure for students. International students are distributed throughout the regions, naturally concentrated in the Kanto prefecture, which includes the Tokyo megalopolis (see Table 4).

International students attend both private and public universities. Top on the list are institutions located in Tokyo and Osaka: Waseda University, University of Tokyo, Japan University of Economics, Ritsumeikan Asia Pacific University, Kyushu University, and Osaka University. The top areas of study are engineering, humanities, and social sciences.

Figure 3. Number of Foreign Students in Institutions of Higher Learning in Japan

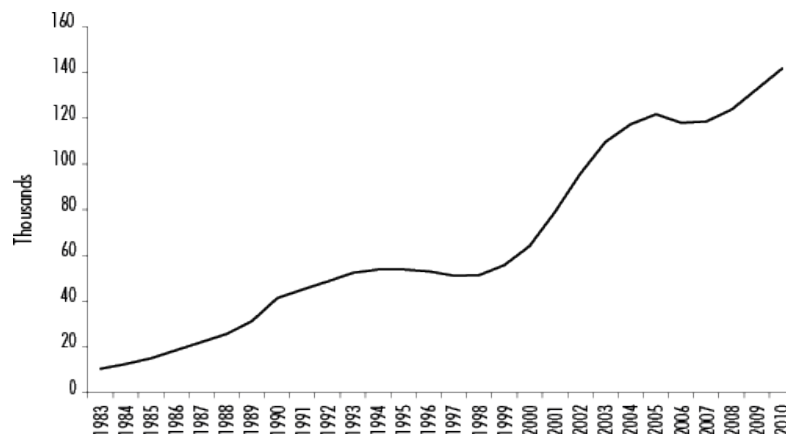


Table 4. Number of Foreign Students by Region in Japan

<i>Region</i>	<i>Año 2015</i>	<i>Año 2014</i>
Hokkaido	2 974	2 755
Tohoku	5 050	4 328
Kanto	114 778	97 057
Chubu	17 947	16 990
Kinki	34 491	31 135
Chugoku	7 881	7 230
Shikoku	1 578	1 424
Kyushu	23 680	23 236
Total	208 379	184 155

Source: Created by the author based on information from the Japan Student Service Organization, Result of an Annual Survey of International Students in Japan, 2015.

According to data from the Japanese Ministry of Justice, the number of Mexican students in Japan has been on the rise (see Figure 4); their presence at institutions of higher education and language institutes reveals the emergence of a new destination for university education. Japanese universities have begun to offer courses in English, aiming to reach more international students.

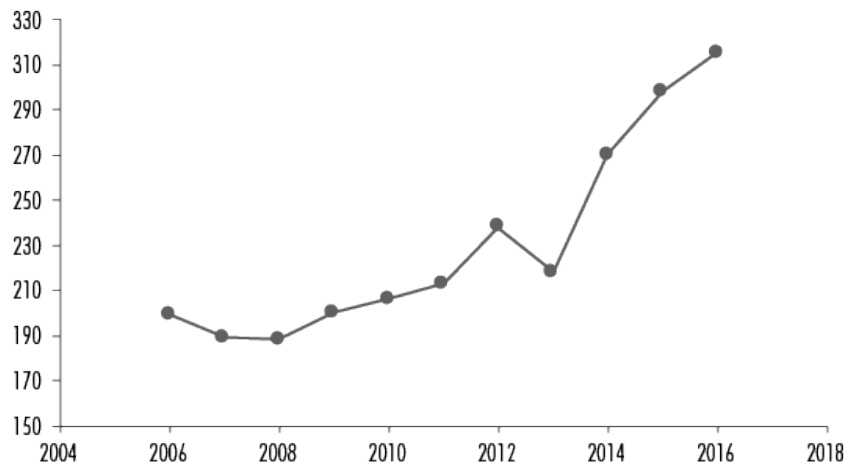
It is worth noting that students of Mexican origin have historically tended to head to the United Kingdom, Spain, the United States, and Canada due to, among other reasons, their proximity to the English language. On the other hand, the remoteness of the Japanese language is one of the reasons why so few students go to Japanese universities from Mexico.

Every year, though, more and more Mexican students are studying abroad thanks to grants. Most Mexicans who are sponsored to go abroad receive their grants from the National Science and Technology Council (Conacyt), a body decentralized from the Mexican state. Looking at the list of new scholarships for study abroad offered by field, level, institution, country, and gender in 2014 on the platform datos.gob.mx, it emerges that 31 and 30 scholars went to study abroad in Asia with these scholarships, respectively. In Japan, four and six, respectively, students went to study engineering. There are more Mexican students in Japan besides these, but they resort to other forms of financing, including Japanese government programs.

The Japanese education system is designed to involve foreign students at various points in time: first, at 18 years of age, when an international student might be admitted to the third-year of a technical college program. At the end of the fifth year, these students could transfer to a university, or continue their studies at the advanced course level, and following two years of accreditation, transfer to a master's degree program. Naturally, the school system is able to accept foreign students with bachelor's degrees, master's, and doctoral degrees at diverse universities.

Recently, programs have begun to appear that offers courses in English, although most studies are done in Japanese. As such, the number of international students from the continent of the Americas is represented by the *nikkei* community that has remained in touch with the Japanese language in their countries of origin. Migration is limited by language mastery. In the near future, the idea is to include more foreign students as Japanese universities look to go increasingly global.

Figure 4. Number of Foreign Students of Mexican Origin in Japan, 2006-2016



Source: Created by the author, *Ibidem*, www.e-stat.go.jp. From 2006 to 2009, the total number of students in higher education institutions (Ryugakusie) and pre-college were added together.

Table 5. Number of New Scholarship Awardees from Mexico by Continent

Continente	2015	2014
Europa	1 652	1 652
América	743	649
Oceania	76	81
Asia	30	31
África	1	
Total	2 632	2 515

Source: Conacyt, digital archives: New Grants for Study Abroad by Destination Country 2015 and 2014, at <<https://datos.gob.mx/busca/dataset/becas-al-extranjero>>

CONCLUSIONS

In recent decades, the number of immigrants in Japan has risen, primarily powered by the arrival of *nikkei* and qualified workers. This paper detail with the interstices involved in Japanese immigration policy for qualified human resources, ranging from people with knowledge of the Japanese or English language studying at colleges to university students with some programs available in English. Recently, Waseda University opened up the automotive electronics, smart cars, and robotics majors, which are given in English. Nevertheless, the course is offered mainly in Japanese; on the contrary, graduate school programs are more English friendly. The conclusions are as follows:

1. When it comes to highly-skilled resources, Japan is competitive, as evident in academic indicators: number of patents, number of papers, Nobel Prizes, number of research centers, and number of researchers. Japan is one of the most attractive poles for highly-skilled human resources in the region, for both international students and highly-skilled workers. Most students come from China, Korea, and Vietnam. The international students are accepted as part of a quality-formation strategy and because there have been migration flows with these countries throughout history that have helped Japan set up its strong social networks.
2. The immigration pattern adheres to the principle of cultural identity, which is present in the migration flow with the *nikkei* migration channel, which allows for both skilled and unskilled jobs. In this migration pattern, citizenship is relevant, due to ethnic-national principles.
3. There is a significant number of women who come as international students. For qualified workers, women cluster in the "entertainment" field. Perhaps due to the fact that Japanese women only recently joined the labor market, there is no real phenomenon of women immigrating to do domestic labor, as is seen in other developed countries: for example, the city-state of Singapore and several European countries, like Spain, are notorious for the number of women who immigrate to do domestic care.
4. Immigration in Japan favors qualified people who bring economic benefits to the Japanese economy and society. It is worth noting that having highly-skilled human resources requires having multiple research and development centers, located throughout Japan's prefectures.
5. International students do not, as of yet, following a path to obtain permanent residence. Moreover, international graduates must face the employee hiring system, with its own pre-set rhythms and timeframes, expressed in the local hiring dynamics.
6. The education system is open at various levels to foreigners, from technology colleges to universities, where courses are given in Japanese. Some courses are offered in English. The education system is extremely flexible,

which helps meet the Japanese labor market's needs.

7. Against the backdrop of globalization, Japan has implemented a policy to be more open to foreigners as a step towards internationalization. But immigration closes the doors to unskilled labor. Low-skilled jobs continue to be performed primarily by the local people. The Japanese economic model, in general, is not underpinned by downward wage competition, except in a few productive processes. For that reason, mobility is permitted for the *nikkei* community, by virtue of Japanese companies' competitiveness in the world.
8. Finally, there is some illegal immigration, but not for qualified human resources. Japan responds in one of two ways: rectify the illegal standing or deport.

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³ <https://www.nttdocomo.co.jp/english/corporate/technology/ipr/#p01> (viewed September 30, 2016).

⁴ <http://www.nao.ac.jp> (viewed October 10, 2016).

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⁶ Idem.

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