

## HIGHLY-SKILLED IMMIGRANTS IN GLOBAL POLITICAL ECONOMY\*

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### *Introduction*

The advancement of science and technology (S&T) has significantly expanded the range of national policies involved in the promotion of scientific and technological innovation. Although narrowly defined S&T policies (such as state-funded research and development programs) still play a role, today's S&T policies are far more wide-ranging, including trade, finance, monetary, competition, intellectual property, tax, education, defense, and other policies.

The immigration policy discussed in this paper is another policy area that has come into focus in recent years for the promotion of S&T. Specifically, many countries find it essential to attract people with specialized skills and knowledge from overseas in order to enhance and stimulate their own research and development. As a result, the competition for talent is growing on a global scale (Kapur & McHale 2005; Ooi 2010).

This essay discusses the significance of these highly-skilled immigrants in the global political economy. First, it overviews the transnational movement of highly-skilled migrants and examine the global trend of *brain circulation*. Second, it investigates the immigration policy in three major countries: the United States, the world's largest host country of highly-skilled immigrants; China, the world's largest exporter of highly-skilled immigrants; and Japan, a nation struggling in the global hunt for talent. Finally, it discusses some of the major issues in international politics raised by the ever increasing numbers of highly-skilled immigrants.

### I. *Highly-Skilled Immigrants at a Glance*

In this essay, the term *highly-skilled immigrants* refers to those who have left their home country to pursue careers overseas in professions that require highly specialized skills and knowledge. Computer engineers and scientists from China and India working in Silicon Valley in the U.S. are a classic example.

To see the worldwide distribution of high-tech immigrants, Table 1 ranks countries with the number of tertiary educated residents who have migrated from overseas. In 2000, the U.S. was the overwhelming leader with more than 10 million highly-skilled immigrants, followed by Canada (about 2,740,000), Australia (1,540,000), the UK (1,260,000), Germany (1 million), France (610,000), and Japan (330,000). The figures for the decade 1990 to 2000 increase in

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TABLE 1. POSTGRADUATE IMMIGRANTS OF WORKING AGE

Rank		1990		2000	
1	USA	6,203,045	USA	10,354,285	
2	Canada	1,879,495	Canada	2,742,090	
3	Australia	1,109,747	Australia	1,539,670	
4	UK	570,153	UK	1,256,892	
5	Germany	555,735	Germany	996,000	
6	Japan	330,355	France	614,598	
7	France	300,122	Japan	328,870	
8	Switzerland	197,141	Switzerland	286,682	
9	New Zealand	194,937	Netherlands	253,651	
10	Spain	148,044	New Zealand	232,296	

*Note:* OECD Member countries only.

*Source:* Figures taken from Ozden & Schiff, pp. 178-9 (Table 5.5.A) and 182-3 (Table 5.6.A).

most countries (only Japan shows a slight reduction).

As for the origin of highly-skilled immigrants, the majority are from Asia. Asians represent 41% of highly-skilled immigrants in the U.S., 35% in Canada and Australia, and 33% in the U.K. Next are South Americans, who comprise 29% of the highly-skilled immigrants in the U.S. Africans are mainly concentrated in Europe, comprising 34% of the highly-skilled immigrants in France and 79% in Portugal. Highly-skilled immigrants from Europe (both Eastern and Western Europe) migrate mainly within Europe, comprising 43% of the highly-skilled immigrants in Germany and 39% in Spain (IOM 2008, p.520).

Countries worldwide are keen to attract highly-skilled immigrants because of their roles in promoting innovation. The development of Silicon Valley illustrates at least three roles: highly-skilled workers, innovative entrepreneurs, and acting as bridges between host and home countries/regions.

First, highly-skilled immigrants bring their specialized skills and knowledge to their new job in the host country. The development of Silicon Valley would have been impossible without the massive migration of foreign-born engineers and scientists. According to Saxenian (2002 & 2006), in 1990, about a third of scientists and engineers working in information and communication technology (ICT), biotechnology and other high-tech industries in Silicon Valley were from overseas. By 2000, the proportion was more than half (53%). The majority of them were of Asian origin. Of the foreign-born scientists and engineers living in San Francisco's Bay Area (which includes Silicon Valley) from 1985 to 2000, 37% (52,000 people) came from China, 20% (27,000) from India, and 13% (19,000) from Taiwan.

Second, highly-skilled immigrants are not only employees in their new countries, but they start their own businesses and contribute locally in many ways as entrepreneurs. Of the 11,443 companies set up in Silicon Valley between 1980 and 1998, 2001 (17%) were established by Chinese or Taiwanese and 774 (7%) by Indians. Together these companies generated \$16.8 billion in sales, creating 58,282 jobs. Immigrant entrepreneurs not only contribute to their new country in terms of job creation and tax revenues. Many ventures enter niche markets, bring new technologies, products, and services, and stimulate further innovation. In addition, successful immigrant entrepreneurs become venture capitalists, and often assist younger immigrants in starting their own businesses. They pass on their know-how of starting a business to the next wave of immigrants and introduce them to suppliers, customers, lawyers, and other

business partners. Such networks of people and business support the “cluster” and enhance the global competitiveness of the region (Porter 1979, OECD1999).

The effect would end at the local level, however, were it only for the first and second roles. Raising the effect to a global scale is the third role of highly-skilled immigrants; they can act as a bridge between their host and home countries/regions, strengthening the transnational network of people, business, technology, know-how, and new ideas. Saxenian observes a rapid increase in the number of highly-skilled immigrants returning home, particularly Israelis and Taiwanese in the 1990s, and Chinese and Indians from 2000 onwards. They brought Silicon Valley’s technologies, connections, and business models back home, and contributed to the development of high-tech clusters in their home regions. They also created links between their home regions and Silicon Valley, allowing both areas to complement each other. Hsinchu in Taiwan, Zhongguancun (Beijing) in China, and Bangalore and Hyderabad in India have all been successful in establishing partnerships with Silicon Valley.

The *brain drain* resulting from the departure of skilled individuals, particularly from developing countries, is continuing to cause serious concern, especially in the medical field (Shah 2010). However, with the third role of highly-skilled immigrants who act as a bridge between their host and home countries, the *brain circulation* becomes significant in the global political economy. An active two-way flow of skilled migration occurs between Silicon Valley, Hsinchu, Zhongguancun, and Bangalore, and the trans-border network of advanced technologies has become wider and stronger. Both the sending and receiving countries have seen a rapid development in high-tech clusters. The brain circulation is instigating a significant change in international competitiveness and the international politico-economic order (Cornelius 2001, Kuznetsov 2006).

It is therefore more important than ever for all countries to enter/stay in the tide of the global brain circulation and reap its benefits. The next section examines the recent policy measures taken by the U.S., China and Japan to maximize the brain circulation effects on their economy.

## II. *Immigration Policy for the Highly-Skilled: USA, China, and Japan*

### 1. **The United States**

The United States is the overwhelming world leader in attracting highly-skilled immigrants. But it was by no means an easy process; while it is true that immigrants have been attracted by the cultural diversity and economic strength of the U.S., deliberate policy efforts to attract and retain foreign-born skilled workers have been critical, especially since the beginning of the ICT boom in the 1990s.

There are mainly three types of foreign-born highly-skilled workers in the U.S.: 1) those who entered the U.S. as international students and found jobs in the U.S. after graduation; 2) those who work in the U.S. with temporary (non-immigrant) visas for skilled workers; and 3) those who work with permanent residential status.

The majority of those in category 2 obtain the H-1B visa, a work permit for specialty occupations. The H-1B visa was created in 1990 when the U.S. economy started booming with the flowering of the ICT industry and the industry experienced a severe shortage of computer-

related engineers. The visa was issued not only to overseas engineers but also to newly graduated international students who wished to stay and work in the U.S. high-tech companies. Those who work for several years on the H-1B visa can apply for green cards. The H-1B visa is thus designed to connect all the three routes of entry and to keep the skilled workers in the U.S.

The H-1B visa is issued to professionals with a specialty occupation, defined as one that requires advanced specialist knowledge or skills. They include scientists, engineers, accountants, economic analysts, architects, and lawyers. In order to apply for the H-1B visa, a postgraduate qualification from the U.S. or overseas (or equivalent professional experience) is required. The H-1B visa is a type of non-immigrant visa and is valid for 3 years (renewable up to 6 years), but before it expires many H-1B holders apply for permanent residency.

According to the U.S. government statistics, in Fiscal 2005 almost half (45.3%) of new H-1B visas were issued to foreign-born workers in computer-related jobs, followed by education (11.2%), construction and engineering (11.1%), law and accounting (9.5%), and medicine (6.2%). 42.5% of the H-1B were issued to bachelors degree holders, 39.3% to masters degree holders, 12.1% to holders of professional degrees (e.g., JD, MD), and 5.0% to holders of a doctorate (PhD). In terms of the country of origin, India represented almost half (49.0%), followed by China (9.1%), Canada (3.6%), South Korea (3.3%), the Philippines (2.8%), the UK (2.1%), and Japan (2.0%) (Wasem 2007, pp.7-9).

The U.S. government has set a quota of 65,000 H-1B visas per year (there is a separate quota of 20,000 for those with a master's degree or higher). In recent years, the number of applications has dwarfed this figure, and the visas were allocated by lottery. There have been strong calls from ICT-based industries for the quota to be increased. On an almost yearly basis, bills are proposed to Congress for a separate quota for skilled workers in computing, a separate quota for graduates of the most prestigious U.S. universities, and for the quota itself to be abolished.

The difficulty of increasing the H-1B quota results from the lasting debate between the pros and cons of immigrants in the U.S. Supporters of an increase in the quota stress that as the competition for talent intensifies on a global scale, it is essential for the U.S. to secure more of the world's talent in order to maintain its international competitiveness. They also emphasize the critical roles played by highly-skilled immigrants in erasing the domestic talent shortage, creating new jobs and technologies, and maintaining and strengthening the U.S. leadership in S&T and global political economy.

In contrast, those who oppose increasing the quota take a long-term view, stressing that rather than rushing to supply people from overseas, the U.S. should prioritize domestic education and professional training. Their argument is that an increase in the number of companies hiring skilled foreign workers at a lower cost than Americans will result in a pay decrease in high-tech sectors, leading to a vicious circle of talent shortage in which skilled Americans will be lost to other professions. Those who are concerned about national security also claim that foreigners should not be allowed to take part in research on technology that could be put to military use.

Immigration policy for the highly-skilled is a critical part of S&T policy today, but it is also a highly sensitive issue that has been, and will continue to affect employment, social welfare, education, and national security. As the world's largest host nation of highly-skilled immigrants, the U.S. is the first to face this dilemma and continues its efforts to rethink and

adjust its immigration systems.

## 2. China

While the U.S. is the world's largest importer of highly-skilled immigrants, China, together with India, is the world's largest exporter, and the development in recent years of its efforts to bring back their talent is worthy of attention.

China's policy for bringing back their professionals is known as the Hai-gui (Sea Turtle) Policy. One of its measures is the establishment of many Overseas Students Pioneering Parks, which are intended to encourage highly-skilled Chinese emigrants to return home and start their own business.

The Overseas Students Pioneering Park is an institution offering various kinds of business support to Chinese returnees. It was first established in 1994 by the national departments for S&T, education and human resources, and there are already more than 100 such institutions around the country. Of these, about 30 are qualified as the highest, national-level types.

One of the national level institutions, the Beijing Haidian Overseas Students Pioneering Park, was established in October 1997 as an incubator to support high-tech ventures set up in Beijing by Chinese returnees. The area hosts four buildings, each housing many high-tech start-up companies. Returnee entrepreneurs from the U.S., Europe, and Japan make up those residents. The Park offers a variety of business support such as 1) subsidies for starting business, 2) income tax reduction, 3) office rent reduction, and 4) financial and legal consulting.

The Haidian Overseas Students Pioneering Park is in the heart of Beijing Science Park, known as Beijing's Silicon Valley. Returnees are attracted to the area not only because of the support from the Pioneering Park, but also because of the overall business environment and human interaction there. Just like Silicon Valley, The Beijing Science Park is a cluster of top ranking universities, research institutes, and high-tech companies. In addition to prestigious universities such as Tsinghua University, Beijing University, and the People's University of China, the Chinese Academy of Sciences and many other research institutes are clustered in an area of 232 square kilometers. There are about 18,000 companies, 2,000 of which are foreign and include multilateral giants such as Intel, Microsoft, IBM, Google, Nokia, NTT, and Sony. The area is also the home of well-known Chinese ICT companies such as Lenovo, Founder, Baidu, and Sohu.

The Science Park has developed with the return of Chinese professionals from overseas. By the end of 2007, about 9,800 returnees had established more than 4,200 companies. Nearly half (45%) had returned from the U.S., 17% from Japan, 17% from Europe, and 5% from Canada. The Science Park gives those returnees favorable taxation: partial tax refunds for houses, cars, and investment in high-tech businesses are given to those with experienced management and/or S&T skills. They are also exempted from the residential restriction in China and allowed to change their home from rural to metropolitan areas. Furthermore, the children of returnees are given preferential treatment to enter the best schools in Beijing, which is also attractive to highly educated returnees for whom their children's education is a top priority.

Of course government policy is not the only reason for China's success in bringing back their foreign-trained professionals. The high-tech industries have grown rapidly in China, creating jobs with favorable conditions as well as opportunities to start new business, and it is

certain that this, combined with government efforts, has succeeded in encouraging highly-skilled emigrants to return.

Still, it is noteworthy that the Chinese government has been exceptionally active in its immigration policy on the one hand, and on the other is making no effort to stop being the world's largest exporter of highly-skilled migrants. According to China's National Bureau of Statistics, the number of Chinese students leaving for overseas surged from 3,000 in 1990, 20,000 in 1995, 39,000 in 2000, and 119,000 in 2005 to 144,000 in 2007. Conversely, the number of students returning to China from overseas is also continuing to increase with 9,100 returned to China in 2000, 20,000 in 2003, 35,000 in 2005, and 44,000 in 2007.

To conclude, China, as the world's largest exporter of migrants as well as bringing back large numbers of skilled workers from abroad, has a growth strategy that is aimed at maximizing the brain circulation effects that the nation can expect.

### 3. Japan

Japan's immigration policy is perhaps best known for its exceptionally insular nature. Foreigners with permission to reside in Japan (*gaikoku-jin torokusya* or registered aliens) numbered over 2 million in 2005, but the proportion of those foreign-born residents in the overall population is still around 1.7%. The proportion in other developed nations is 20% in Australia, 19% in Canada, 13% in the U.S., 12% in Germany, 11% in France, and 9% in the U.K.

In recent years, however, the Japanese government has doubled its efforts to attract foreign-born professionals. The basic scheme of Japan's immigration system is to divide foreign-born workers into two, skilled and unskilled, and to actively encourage the former to come, while the latter is excluded from obtaining work permits. The quest for skilled workers has been intensified due to the declining birthrate and the aging population, and the nation's lag in the worldwide competition for highly-skilled immigrants.

Japan's policy to attract skilled workers has at least four measures: 1) a strategic blueprint proposed by the government council; 2) plans to attract international students; 3) efforts to attract ICT professionals as part of the "e-Japan" strategy; and 4) bilateral trade agreements through which nurses and care workers come to Japan.

First, the "Council for Increased Acceptance of Highly-Skilled Personnel (*kodo jinzai ukeire suishin kaigi*)" was set up by the Cabinet in July 2008 with the aim of examining the measures necessary to accelerate the immigration of skilled foreign workers. In May 2009 the Council published a report that rang alarm bells with regard to the present situation in Japan.

In order to maintain and strengthen Japan's international competitiveness faced with a declining birthrate and decreasing workforce, the report claimed, it is necessary not only to foster skilled workers domestically (especially the young, women, and elderly) but also to make use of the ideas, specialties, and experience of skilled foreign workers to encourage innovation. At present, however, the immigration of skilled foreign workers is not progressing sufficiently. The dominant factor for this is identified as Japan's lack of attractiveness. Specifically, foreign professionals feel that Japan's institutions, systems, methods, and living environment are too restricted, and they feel that there is little incentive to go to Japan to live or work. As worldwide competition for talent becomes fiercer, the report concludes, it is crucial for Japan to make the immigration policy for highly-skilled workers a "national strategy."

Second, along with this recognition, plans to attract foreign students are already in place. In the report, foreign students are referred to as “would-be skilled workers” or “skilled workers’ eggs”. An initiative to increase them is the “300,000 Foreign Students Plan (*ryugakusei 30 man-nin keikaku*),” which was started by the Ministry of Education, Culture, Sports, Science and Technology and related departments in 2008. It plans to make Japan a country open to the world and to have 300,000 international students by 2020 as part of Japan’s global strategy to increase the flow of people, products, money, and information from Asia and the rest of the world.

The 300,000 Foreign Students Plan is the successor of the 100,000 Foreign Students Plan from 1983-2003, but there are differences. The 100,000 Plan mainly focused on international cooperation and cultural and intellectual exchange, while the 300,000 Plan aims to increase the intake of skilled individuals and talented students, and to support students in finding employment so that they remain in Japan after graduation as skilled workers.

Japan’s third initiative is to attract ICT professionals. In 2001, Japan launched the “e-Japan Strategy,” aiming to be at the forefront of advanced ICT nations. This included increasing the availability of broadband, erasing the digital divide, and creating an e-government, in addition to securing highly-skilled ICT engineers and researchers.

As part of the strategy, reciprocal recognition of ICT qualifications is now in place with India, Singapore, South Korea, China, the Philippines, Vietnam, and Myanmar among others. This could ease the requirements for obtaining work permits in Japan.

Fourth, Japan has started accepting foreign workers in the field of healthcare via the bilateral Economic Partnership Agreements (EPAs). The shrinking workforce in healthcare is one of Japan’s most critical issues, but the nation has long been allowing virtually no foreigners to work in Japan as registered nurses and caregivers. However, in the recent EPA negotiations some countries demanded that Japan allows their workers to enter, and the door was opened to them, albeit in limited numbers and under certain conditions.

One of the EPAs is with the Philippines (signed September 2006, effective from December 2008) through which 1,000 nurses and care workers enter Japan over a two-year period. A similar deal was made with Indonesia (signed August 2007, effective from July 2008).

These initiatives illustrate that even “insular” Japan has strengthened its commitment to increase the number of foreigners if (and only if) they have skills and knowledge widely demanded in the nation. Although the results of the policy remain to be seen, it is important to note that these initiatives alone do not assure Japan the full benefit of *brain circulation*. They are mainly aimed at increasing the brain gain for the nation, but brain circulation is a two-way process that requires wider and longer-term measures beneficial to both the sending and receiving countries.

### III. *Highly-Skilled Immigrants and International Politics*

In many countries facing a surge in the number of immigrants, fears about the deterioration in safety, escalating cost of social welfare, widening economic disparity, cultural and religious friction, danger of terrorism, and the issue of border control have become commonplace. Despite these anxieties, highly-skilled immigrants are welcomed almost everywhere for their expected roles already described. The issue, however, is by no means that

simple.

First, while it is true that highly-skilled immigrants are needed in many countries around the world, their living circumstances in host countries are not as favorable as may generally be perceived.

For example, the H-1B visa system and the fortune of visa applicants/holders have been unsteady due to the economic and political situations in the U.S. When the H-1B visa was created in 1990, the U.S. was at the height of its ICT boom, and the demand for skilled ICT workers was enormous. In response to the call from the industry, Congress increased the visa quota from 65,000 to 195,000 at the end of the 1990s. However, no sooner had the quota been increased than the high-tech bubble burst during the 2001 recession, and the quota became excessive. Workers were laid off and many highly-skilled immigrants had to return home. The recession was actually one of the major impetuses for the increased outflow of returnees from the U.S. to China.

After the quota returned to 65,000, the demand for skilled workers rebounded, and from 2000 onwards, the quota again became insufficient. Industries once again called for the quota to be raised, but Congress did not commit to any increase, fearing over-dependence on foreign-born workers. This continued until the financial crisis hit high-tech industries hard in 2008, and once again, immigrants faced the fear of losing their jobs.

As highly-skilled immigrants return home in large numbers, many of them would have a hard time at home as well. In China, the “sea turtles” who returned home and found no jobs were teased with the term “seaweed,” as if they were only floating on the sea.

The second issue to be considered is that in the shadow of highly-skilled immigrants who receive favorable treatment, the grip is tightening on unskilled ones. The selective approach in managing immigration is becoming increasingly pronounced in almost all developed economies.

In the U.S., while the applications for permanent residency are accepted for skilled workers with the H-1B visa, this is not the case for unskilled workers. In general, the country has become tough on immigration since the terrorist attacks of 9/11. Under the Patriot Act the immigration procedure tightened in 2001, and in 2002 the new Department of Homeland Security integrated the Immigration and Naturalization Office, which was previously part of the Ministry of Justice. In addition to strengthening the border security system with Mexico, surveillance of illegal immigrants became tougher in the unskilled labor market, which includes restaurants, construction sites, and factories.

Other countries have strengthened their selective stance, too. In 2008, the U.K. government decided to prioritize immigrants according to a 5-tier scale. With the point-based system (in which points are given according to academic qualifications, job type, annual income, age, professional achievement, etc), the higher tiers (skilled workers) are prioritized, and their applications for immigration are treated more favorably than others. A similar point-based system is already in place in Australia, Canada, Japan and some other countries. Japan maintains its selective approach in which working visas are issued only to skilled foreign workers and unskilled ones are excluded. Loopholes in the system, such as training and work experience programs, are forcing many trainees from developing countries to work longer hours for less pay. It is important to recognize that the problems of skilled immigrants are not mutually exclusive from those of unskilled immigrants.

Third, although the *brain circulation* is more evident than before on a larger scale, there are still many countries, regions, and fields of industry that are suffering a *brain drain*. In her



book Saxenian illustrates the Silicon Valley's brain circulation with Israel, Taiwan, China, and India, but there still remain several countries, particularly the least developing ones, in which the loss of talent is one of the main obstacles to their development (Saxenian 2007, Ozden & Schiff 2006, Kapur & McHale 2005, Lowell 2004).

In 2001, one in ten college graduates over 25 years of age from developing countries was resident in North America, Australia, or Western Europe. As for the graduates in S&T, it is estimated that 30-50% of those educated in developing countries had moved to developed countries (Lowell 2004).

No other fields are more seriously affected by the brain drain than the medical workforce. There is a chronic lack of doctors and nurses in developed countries with a low birth rate and an aging population, and the result is a global imbalance in the migration of medical workers from developing to developed countries. Clearly, when doctors and nurses are lost from the poorest countries suffering a high rate of infant mortality and AIDS, this not only affects the lives and endangers the health of its citizens but also hinders the country's economic development.

According to an OECD report, 18% of doctors and 11% of nurses working in medical institutions in OECD countries in 2000 were from overseas. Of these, about half were working in the U.S., about 40% in Europe, with the remainder in Australia and Canada. In absolute numbers, the Philippines and India provide the largest number of doctors and nurses working abroad, with about 110,000 Filipino nurses and 56,000 Indian doctors working in OECD countries. In terms of the brain drain, some countries in the Caribbean and Sub-Saharan Africa have experienced 50-70% of their doctors leaving for overseas (OECD 2007, pp.212-215). The global disparity in healthcare is a negative effect of the increased migration of highly-skilled workers.

### *Conclusion*

As is seen in Sections I-II, highly-skilled immigrants are critical players today not only in the creation of immigration policy but also in the promotion of science and technology, and their roles are expanding as the worldwide *brain circulation* becomes more pronounced. Those migrants are also key players in international politics. Section III reveals the strong link between highly-skilled immigrants and some key global political issues of development, disparity, and human rights. There remains much ground to cover in academic and practical research into those highly-skilled, highly-valued, but still highly-controversial immigrants.

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