

The Push-Pull Factors of Japanese Migration

Asako Kajiura

Abstract

Worry about brain drain of experienced and/or talented researchers with PhD. Degrees is growing in Japan. Researchers, especially those who have received PhD degrees in science and engineering in the US desire to stay in the US (National Science Foundation; 2002). Some scholars (Nitomi; 1993, IOM; 2005) believe the brain drain problem in Japan cannot be analyzed with the same theoretical framework as is done with developing nations and other advanced western nations. It is necessary to analyze the impact of highly talented and educated people on a regional basis. The elements involved in the talent migration are economically and historically very different between developing nations and advanced nations. Japan has its own distinctive and exclusive culture and history. This paper examines the distinctive case of Japanese who are working in academia for research institutions and who are the candidates for elite universities.

Key terms: brain drain, brain gain, brain circulation, push factors, pull factors

Introduction

Many Japanese school administrators, faculty members and politicians worry about Japan experiencing a serious growing brain drain problem. The number of Japanese who have received PhD degrees in science and engineering in the US and anticipate to stay in the US is increasing (National Science Foundation; 2002). Some scholars (Nitomi; 1993, IOM; 2005) believe the brain drain problem in Japan cannot be analyzed with the same theoretical framework as is done with developing nations and other advanced western nations. It is necessary to analyze the impact of highly talented and educated people on a regional basis. The elements involved in the talent migration are economically and historically very different between developing nations and advanced nations. Japan, like any other nation, has developed its own distinctive and exclusive culture and history. This paper examines the distinctive case of Japanese who are working in academia for research institutions and who are the candidates for elite universities.

Objectives

- 1) Examine both of the unique elements and cross-border elements of Japanese migration to capture its dynamics.
- 2) Address the push factors of brain drain in Japan, and analyze the factors from its unique cultural and social-structural points of view.
- 3) Suggest the possible pull factors to establish the brain circulation system.

Brain Drain, Brain Gain, and Brain Circulation

Brain Drain

The “brain drain” phenomenon has been extensively investigated since the mid-1960s by academic researchers and by policymakers. Many countries are facing the problem of brain drain. In general, brain drain is seen mostly as a loss of highly qualified professionals from developing countries to developed countries. The

problem, however, is not only for developing countries, but also for some developed countries. From developing countries, both high-level and low-level people migrate to other countries. On the other hand, a large proportion of migrants from developed nations are from an elite and talented manpower group. For instance, approximately 75% of European graduate students prefer to stay in the USA after completing their doctoral work in the U.S.

Brain Gain and Brain Circulation

While the pace of economic globalization accelerates, some researchers of migrations have more optimistic views of brain drain. From an economic point of view, free circulation of labor will provide more gains than free commerce and capital movement (Rodrik; 2002). A case in which jobs held by foreign migrants created more job opportunities for domestic laborers has been reported (Migration Dialogue; 1997). Moreover, from the balanced growth point of view, by sharing the knowledge to increase individual's knowledge and skills, the gap between inter-country knowledge and income disparities will be narrowed; therefore, the simultaneous and coordinated development of multi-nations will be possible.

It is generally agreed that long-term and perpetual emigration creates positive effects on the countries of destination, but it results in a substantial brain drain for the origin countries of the migrants (Bosch, 2003; Tansel & Gungor, 2003; Mutula, 2001; Marginson, 2006). A new study indicates the impact of skills development directly affects the positive economic growth of the countries measured by GDP and labor productivity (Coulombe, Tremblay & Marchand, 2004; Jackson, 2005). The loss of investment in human capital leads to the nations' stagnation or even declination of a knowledge-based economy. If the home countries of the high-value people can successfully attract them to return, brain drain will turn to brain gain for those countries, and it may lead to the establishment of the effective brain circulation. The experience and skills those people obtained in the host countries will stimulate the economic growth of their home countries.

In order to make the conditions and environment of the origin nations attractive enough for the high-value people who have left their nations, it is vital to understand what hinders them from returning to their home countries and what keeps them in their host countries. The specific conditions that need to be analyzed are the conditions of studying or working, employment expectations, and motives for studying and working (Myers, 1972; Tansel & Gungor, 2003). According to previous research, the factors deemed attractive for a career in the U.S. are a number of high quality research centers with accommodating and open career options, a dynamic entrepreneurial culture and material standards of living and quality of life (Bosch, 2003). More specifically, four elements to stimulate brain gain are presented: increasing government spending on research and development, providing funding for students in higher education, encouraging active financial markets, and supporting the willingness to take financial risks for the future economic growth (Mookherjee, 2004).

Push-pull factors of migration in Japan

Japanese people who are leaving their country can be classified into three groups of roughly the same age. The first is the youth group, which includes high school graduates, undergraduate students, and postgraduate students. The next group is young Japanese professionals who are seeking better work abroad, as well as middle-aged Japanese professionals have already found work abroad. High achievers who are nearing mandatory retirement are the members of the last group. There are mainly four influences which stimulate the brain drain in Japan for all three groups: economic conditions, education, cultural changes and social structural changes.

Push-pull factors of student migration (secondary school and higher education)

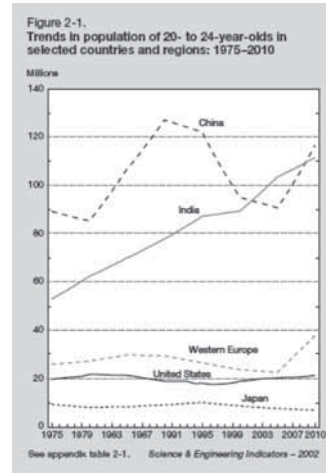


Figure 1 Source: MEXT (2007)

The size of the college-age population in Japan is shrinking due to rapidly falling birthrates after the second baby boom. From 1971 to 1974, over two million babies were born each year. In 2003, Japan had the lowest record on average of 1.29 births per woman's lifetime. The downward trend in the size of the Japanese college age population started in 1995. As Figure 1 (MEXT, 2007, p7) show, unlike other developed nations, the Japanese college age population is projected to have a steeper decline. The projected increase of the population of the United States is from 17.5 million in 1997 to 21.2 million by 2010. The population in India ceaselessly increased from 78 million in 1980 toward a projected 139 million in 2020. Due to the One Child Policy in China, the population has declined to 116 million in 2000, but it is still almost 12 times bigger than that of Japan (IIE, 2006). Furthermore, the population is expected to increase again and reach 137 million.

For the people who view migration as a hindrance to the development process of nations through brain drain, the declining young-age population could be seen as a factor of economic stagnation. Those countries have plentiful human resources to serve their economic and social development. The Japanese population, however, is projected to reach a low of seven million in 2010. It represents a loss of thirty percent. On the other hand, the number of Japanese people who left Japan to study overseas has been rapidly increasing. In 2002, approximately 79,000 Japanese people left Japan for thirty-three major countries for the purpose of studying abroad. Within the twenty years between 1983 and 2002, the number of the expatriate Japanese students increased about 8 times. Due to the decline of the college age legion in Japan, many universities in the country began to seek their university candidates in foreign countries (Figure 2).

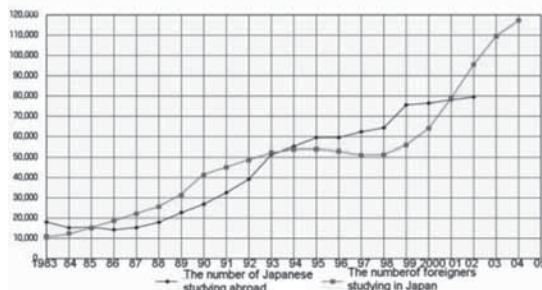


Figure 2 Source: MEXT (2007)

Signs that Japan is going to have critical brain drain problems in the near future are observed not only in the quantity of Japanese students studying abroad, but also in the quality of those students. According to Nakai (2002), the quality trend in Japanese students who decide to study abroad is changing. In the sixties, most Japanese students who were chosen to study abroad were selected elites from selected families. Those students were known for their brilliance and steadfast objectives. The number was too small to be significant, and most of them returned to Japan because of their obligations to their family, employers or nation. In the seventies, a new type of student emerged with no clear goals for the future. These students began to go overseas. During the Japanese bubble economy period, the number of Japanese youths who did not have explicit goals for their academic studies increased dramatically.

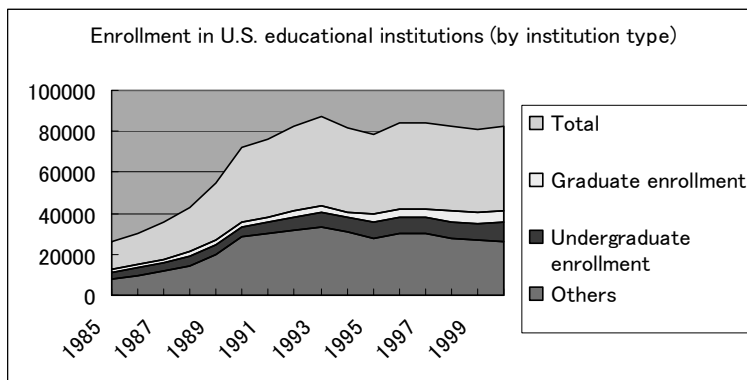


Figure 3 Sources:
 Open Doors 2004: Report on International Educational Exchange
 (Open Doors: Institute of International Education) by Hey-Kyung Koh
 Annual Report of Statistics on Legal Migrants ed. 2001

Figure 3 shows that only a small number of overseas Japanese university students registered as full-time regular students. Other students were part-timers or the students enrolled in English as Second Language schools in affiliation with American universities. Fostered by the strong economy and a growth of available programs offered by American universities to the children of the first baby boomers, studying abroad became no longer a privilege reserved for the wealthy or intellectually gifted elites. Considering the characteristics of the students, they were not classified as brain drain migrants.

After the bubble economy burst in the nineties, this trend started to gradually change. In addition to a small number of elite students, a large number of mid-level academic students started to make up the majority of expatriate students in American universities. Those students were not intellectually gifted top elites but rather middle achieving students. On the other hand, due to the increasing shift to the right in the U.S. student visa regulations, the number of academically unsuccessful students began to decline. Moreover, the new educational reform movement became an incentive for brain drain of even higher achieving students. Such trends have even emerged in high school education; for students not only at the level of higher education, but also at the level of secondary school, studying abroad is a potential option. With the implication of the Japanese education reform in 1990s, an increasing number of top-ranking high schools started new curricula whose objective is providing students with a wide range of future directions. The aspirations of students enrolled in upper-ranking and upper-middle-ranking high schools were enhanced by the reformed curriculum (Arakawa, 2001). As a result of the

reform, curricula emphasizing diversification and individualization in accordance with students' individual interests have been introduced in those high schools, and students are given more opportunities to consider the diverse academic paths. A substantial number of students of academic high schools are not seeking entrance into high-status universities (Tsukada, 1988). Students who are accepted by prestigious elite universities like Tokyo University and Kyoto University, may not choose foreign countries as their destination of study, but students who have enough abilities to be candidates for national universities have begun to consider studying abroad as well as at Japanese universities as their future academic paths (Nakai, 2002).

Push factors of Japanese professional migration

If those students who chose foreign countries as their locus of study return to Japan following the completion of their studies, it would be the “brain gain” to Japan. However, the number of Japanese who have received PhD degrees in science and engineering in the US and anticipate or have a definite plan to stay in the US is increasing (National Research Council, Information Technology Research, 2002).

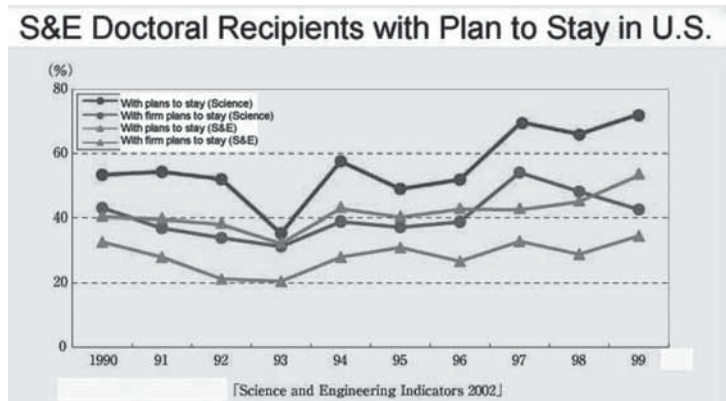


Figure 4 Source: JSSO (2007)

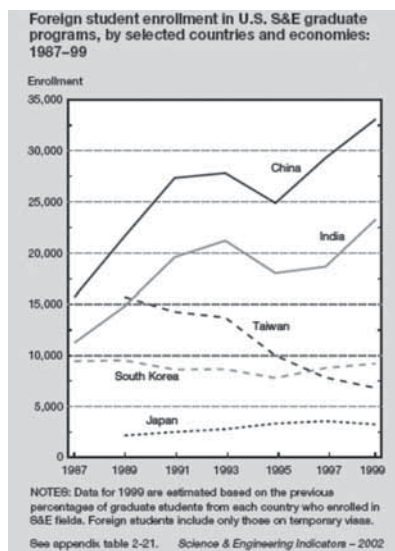


Figure 5 Source: MEXT (2003)

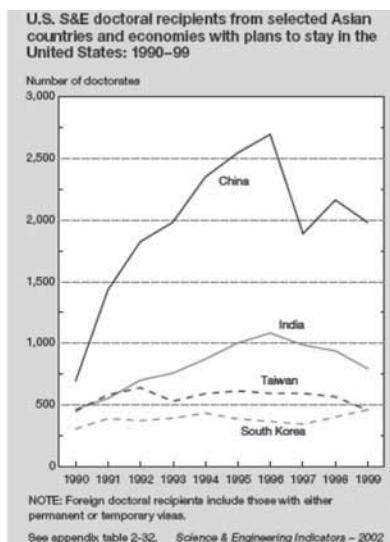


Figure 6

Figure 4 indicates the rates of immediate reverse flow of Japanese doctoral recipients are not increasing. Many Japanese doctoral recipients in the U.S. seem to seek a more rewarding work environment. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) is apprehensive about this situation and attributes the causes to a low satisfactory rating for recruiting for competent talents and career stability (Ministry of Education, Culture, Sports, Science and Technology, 2002). On the other hand, in spite of the rising enrollment rate of Chinese, Indian and Taiwanese students for advanced education in the U.S., the returning rates of those students are increasing (Figure 5 and Figure 6).

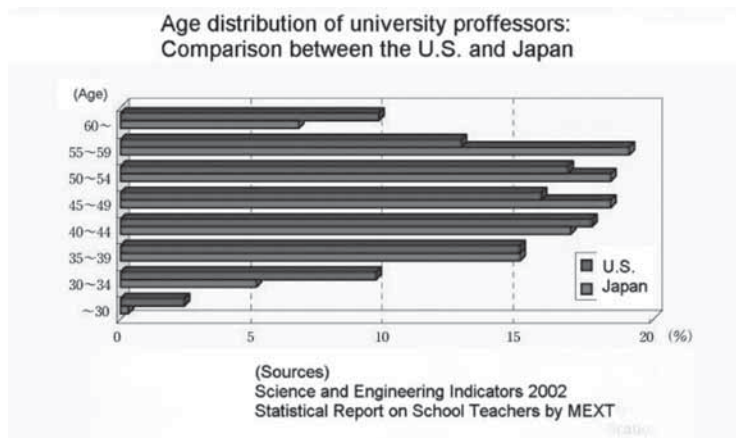


Figure 7

The push factor that pushes Japanese professionals away from their home country could be attributed to the unsatisfactory financial conditions for their research. The above figure shows in Japan the number of full time university professors who are in their early thirties is far less than that in the U.S. The number increases in proportion to the age range. As the age group gets older, the number increases in Japan. The proportion, however, is not as obvious in the U.S. as in Japan. There is severe competition among young Japanese researchers for the limited number of tenure track positions both in Japan and the U.S. According to the figure, the difference between the two countries is that in Japan, because of its seniority system, judging candidates for professorial positions is based on their age rather than their abilities.

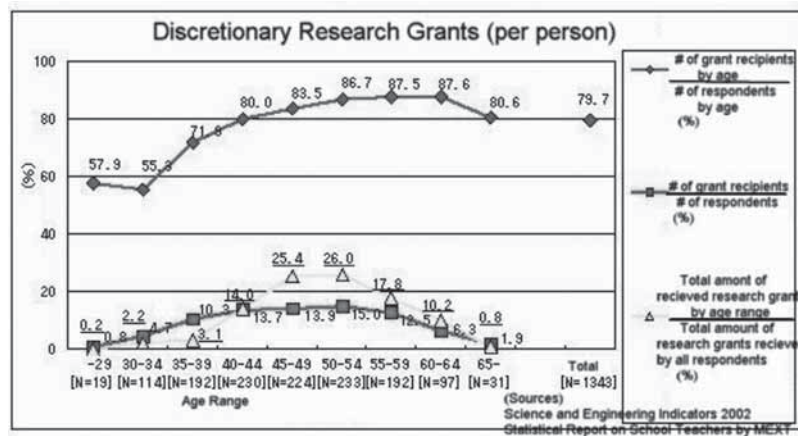


Figure 8

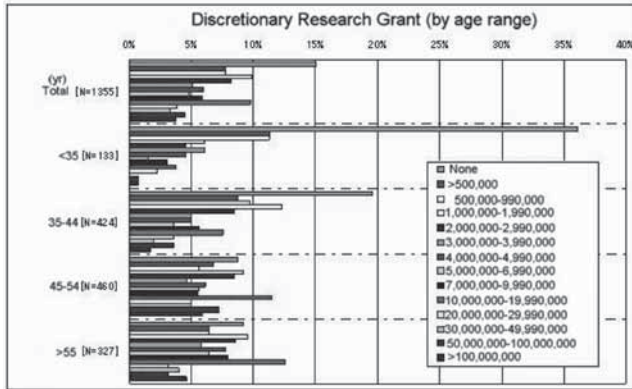


Figure 9 Sources:
 Science and Engineering Indicators 2002
 Statistical Report on School Teachers by MEXT

The lack of research grants available to young full-time researchers could also be one of the major factors for researchers leaving Japan or preventing them from returning to Japan after completing their study abroad experience. According to the survey conducted by MEXT (2002), the decisions about how to distribute research grants available for research institutes are left to the discretion of researchers above forty-five years old (Figure 8). Respondents over forty-five years of age are approximately 58 percent of the total survey respondents given the discretion to control over 80 percent of research grants. Age reflects the proportion of research grants available to the researchers. One third of researchers whose age is below thirty-five years and approximately twenty percent of researchers in the age range of thirty-five to forty have no discretionary research grants. As the age range increases, control over research grants becomes greater. The percentage share of researchers over forty-five without any authority to decide the usage of research grants is less than ten percent. The figure indicates the positive correlation between the age factor and the amount of the total grants which the individuals receive; Only 1.6 percent of researchers under 35 years old have grants of more than 50,000,000 yen; on the other hand, over thirty percent of researchers who are in the age range of forty-five to fifty-four receive more than 50,000,000 yen grants (Figure 9).

China and Taiwan have succeeded in solving their brain drain issues and created the efficient brain circulation. As the Taiwanese economy grew in 1960s, the return flow percentage started to increase. Taiwan has established an economy based on global networking. A large number of high value Taiwanese who leave their home country to acquire better education and career opportunities decide to return their home. Those returnees were able to establish more open and flexible policies and give effective incentives to support the Taiwanese economic growth. Such open policies have provided Taiwan not only with opportunities to build a strong economy, but also access to better academic careers (IOM, 2006). Furthermore, Taiwanese who have become long-term or even permanent residents of their host countries are enjoying business and research partnership with people in the home country. The Chinese government decided to foster the foundation of research activities in academia. Recently, China revealed that 98% of Chinese students who studied abroad at the expense of the Government returned to China after completing their study.

Pull-push factors in Japanese Culture and Social Systems

Push factors for Japanese youth

Any governmental and institutional policies should be based on a comprehensive understanding of culture as a vast and interactive whole. Changes in culture, therefore, must be reflected in institutions' or governments' objectives and policies. The failure of understanding of this relationship will result in a degradation of quality in social and economic conditions. The primary cultural traits of the post-World War II in Japan were well-known for a strong sense of belonging, loyalty to the society and companies, obedience and diligence (Kakuchi, 1998; Yoshizaki, 1997). The rapid post-war economic recovery and development was based on a strong traditional Confucianism ethics. However, noteworthy cultural changes are occurring in Japan.

An increasing number of the Japanese youth shows less respect for, or even ignorance of the traditional values and is becoming more individualistic. They have a tendency to make decisions without taking the traditional values into account. The survey conducted by the Ministry of Internal Affairs and Communications clearly indicates the cultural transition (2004). The survey, which has been implemented every five years starting from 1972, was conducted to increase the understanding of values of young Japanese people by comparing them with the results from five other countries.

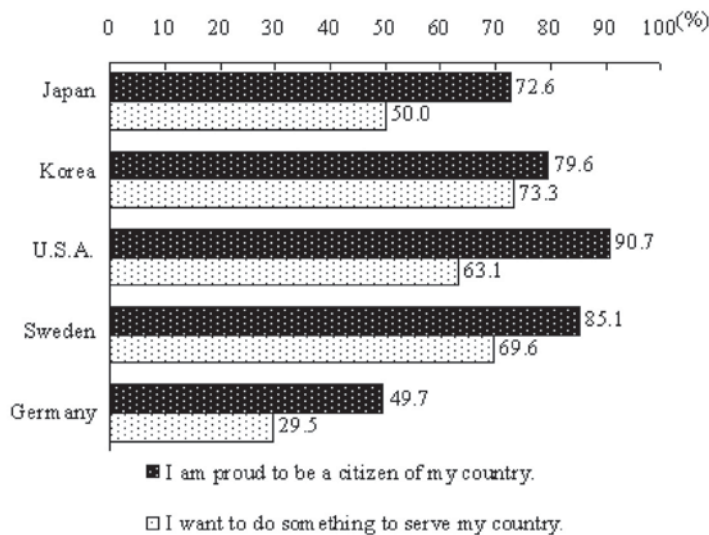


Figure 10

Source:

Ministry of Internal Affairs and Communications (2004)

The Japanese youth in comparison with the youth of the world a summary report of the seventh world youth survey, 2003

According to the survey (Figure 10) among the five countries, Japanese ranked second from last both in their pride of citizenship of their country and in their desire to serve for their country. Only 11% of Japanese youths in the age range of eighteen and twenty-four felt satisfied in doing something helpful for their society. The results of the survey also address the decline of level of satisfaction within Japanese society. In comparison with other countries, Korea, U.S., Sweden, and Germany, Japanese 'dissatisfaction' exceeds those of 'satisfaction' in three other nations. The reasons for their dissatisfaction are also changing. Until the 1993

survey, unrewarded diligence was always in the five problems in society list; however, it disappeared from the list in 1998 and 2003. The Japanese youth used to see the importance of social and public welfare. In 1993, the Japanese youth saw the issue as being less relevant, and social welfare for socially and physically disadvantaged people was considered most important. The percentage of the respondents mentioning the importance of the issue has been declining since the second survey. Some educators worry about the lack of ethical consciousness among Japanese youth and education on public duty (Kakuchi, 2006)

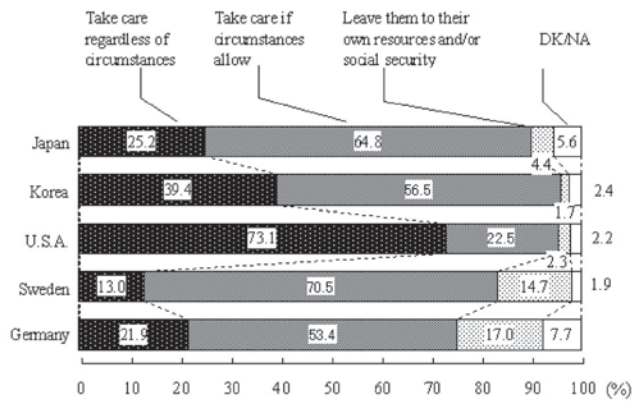


Figure 11

Source:

Ministry of Internal Affairs and Communications (2004)

The Japanese youth in comparison with the youth of the world a summary report of the seventh world youth survey, 2003

Japan is also experiencing the transition time of its value and obligation towards family. Privately centered concerns have become positive values. With the traditional family, 'ie', system in Japan, children, especially the eldest son of a family, had an obligation to return to their hometown to take care of their aged parents. However, as the Japanese tradition could not survive in the rapidly changing society, many young people are no longer feeling obligated to support their parents, and the dominance of the parents has declined (Figure 11). There is no family obligation to hinder Japanese people from leaving their hometown or even migrating to other nations long-term to pursue their own personal interests. The younger generation has a strong inclination to spend its money for their personal comfort instead of supporting their parents (Matsubara, 1986; Yoshizaki, 1997).

Push factors for Japanese professionals

These cultural changes are not restricted to the youth group in Japan. Matsumoto affirms such cultural changes are not "a fad or a generation gap that the youth will 'get over,' but are signs of real and drastic changes in the culture of the Japanese society" (2002; p. 36). These cultural changes and also the changes in social structures affect the trend of international mobility of the intellectual workforce in Japan. After the bubble economy burst in Japan, a number of corporations in Japan have changed their management systems and business strategies. Traditionally, the Japanese human resource management of most Japanese firms had been based on the life-long employment, which was perceived as a major element of the Japanese management system, but it is anticipated to decline. Japanese were famous for high employee loyalty to their firms which was demonstrated by their diligence (Kaneko; 2007). A survey shows the changing trend in Japanese loyalty towards their firms (Figure 12).

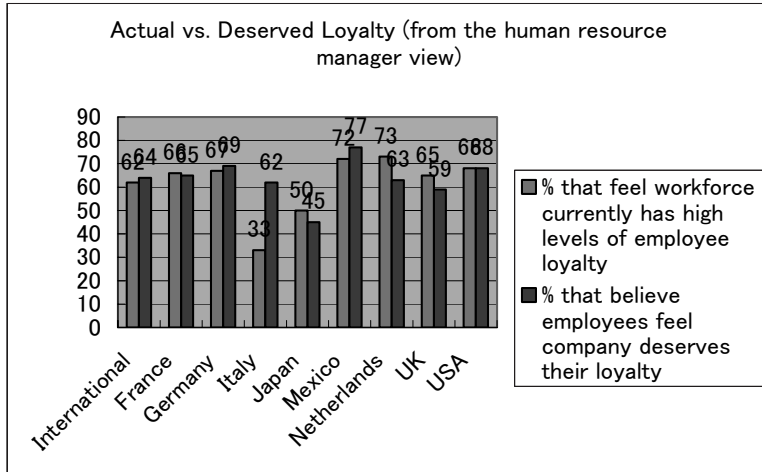


Figure 12 Source: International Employee Loyalty Survey 2002 by MANPOWER

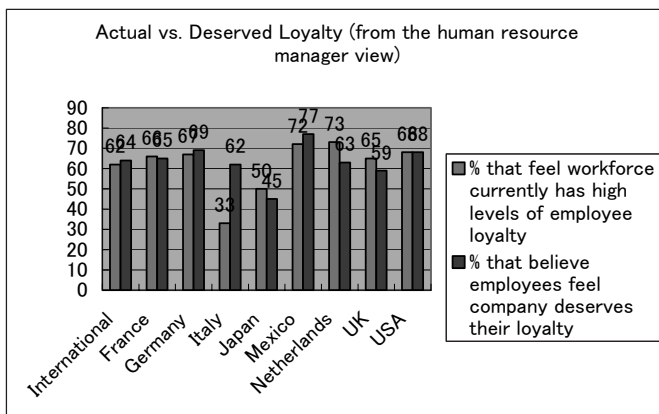


Figure 13 Source: International Employee Loyalty Survey 2002 by MANPOWER

The percentage share of Japanese human resource managers believing that their employees are very loyal to their firms ranked lowest among the eight nations which have more individualistic cultures than Japan, with the lone exception being Mexico, according to an examination of culture conducted by Hofstede (2001). The percentage share of Japan is much lower than the international average. The percentage share of the managers feeling their employees have high loyalty is only 50%, which is also lower than the international average. Moreover, less than half of one percent of the managers believe that their employees think the firm is worthy of their loyalty while the international average is 64%. The proportion of Japanese human resource managers, who feel their employees' loyalty has decreased in the past three years (22%), is outweighed by the proportion of ones who believe it has increased. According to the results of the survey (Figure 13), internationally, a greater number of people felt an increasing loyalty in recent years and anticipate the increase of their loyalty in the future. Unlike the high degree of future optimism in the world, Japanese people have a pessimistic view of loyalty to firms. The survey results also illustrated how the factors which inspire employees' loyalty to their company vary among different nations. Japanese rated all loyalty stimulation factors in the survey lower than the international average; the listed factors are open and honest communication, strong teamwork, giving

employees recognition, rewarding the right people, having visible values, job interest/ variety, development of employees, talent of colleagues, strong leadership, and strong employer brand in recruitment market. Although traditional Japanese collectivism consisted of the focus on group harmony, the strong teamwork factor is not valued in modern Japanese society.

Push factors for older Japanese professionals

The rigid tradition of mandatory retirement, which seems to be unchangeable regardless of the social and cultural changes, is another cause of the national loss of the high value people who are willing and able to work if they are allowed to continue working beyond their retirement age. According to a survey conducted by the Ministry of Welfare and Labor in 2002, over 90 percent of Japanese companies set the mandatory retirement age of 60 which is the legal minimum age. Seike (2003) claims the mandatory retirement experience gives considerable negative impact on the labor force participation of elders. The most astounding news released recently is of a prominent, world leading researcher for a cure for stomach cancer who is leaving his university, Kyoto University because of its mandatory retirement employment practice, and taking an offer from a Singapore research institution, the Institute of Molecular and Cell Biology (IMCB). Kyoto University sets its mandatory retirement age at 63; all faculty must leave their workplace regardless of their talents and accomplishments at that age. IMCB gave an offer which included an excellent research facility, and good housing and education systems. However, the most surprising news is that he could bring his entire research team of nine with him, and the doctoral students in the team will receive the full scholarships (Nikkei net; October 28, 2007).

Implemented Strategies

In order to stem brain drain among Japanese youth, some Japanese universities have started doctoral program reforms since the privatization of Japanese national universities was completed in 2004. Since the national universities became the national university corporations, they are no longer under the direct control of the central government; they have acquired more autonomy. The main restructuring projects of the national universities involve four major innovations: a greater autonomy in their budget and personnel decisions, the president centered management system, management input from external experts, and external evaluation implementation. Some universities are undertaking a more radical restructuring method. On September, 2007, Tokyo University, which is regarded as the nation's most prestigious university, decided to exempt the full tuition for students in their doctoral program who are currently paying 520,800 in annual tuition fees (Nikkei net, 2007). One month later, Tokyo University dispatched additional news for undergraduate students who are financially less privileged; that is, their family's annual income is less than four million yen. Both plans will be applied to the students from the academic year of 2008 to lure more gifted students and to prevent brain drain of talented college students going overseas (Sugimoto, 2007).

The challenge to enhance brain gain and brain circulation is not limited to within a nation. In 1995, the sixth APEC Education Forum meeting was held in China. One of the agendas for the meeting was facilitating the mobility of people and information for the development of human resources. The participants of the meeting indicated the actual actions necessary for accomplishing the objective. The actions are assisting cross-border trade and investment in education services and applying performance indicators for students and other educational exchanges. Moreover, APEC is leading the promotion of engineers' mobility across nations. To facilitate engineering qualifications which are recognized across borders in the Asia Pacific region and improve the quality assurance of engineering education which meets international standards, the Japan Accreditation Board for Engineering Education, JABEE, was established in 1999. One of the missions of JABEE is to

establish mechanisms for effective scientific information flow through networking between scientists of different countries.

Conclusion

Migration of talented people brings about great shifts in the world, and these shifts could cause both serious domestic and international problems. At the same time, the shifts could provide great opportunities to the people and nations involved. Countries that facilitate systems that recruit elites from overseas enjoy the benefits of brain gain. Some countries experience temporary brain drain, but the contribution of the returnees educated or trained in foreign countries is enormous.

The cultural and economic changes that Japan has experienced since World War II are extremely drastic, but the social systems have not been able to respond to the changes quickly. In particular, changes in modern times have influenced a wide variety of generations. The values of traditions and the respect for Japanese culture began to lose importance. On the other hand, some institutional traditions, which demand a rigid hierarchy, still remain in higher educational institutions, for instance, the seniority system and mandatory retirement. After the burst of the bubble economy in Japan, Japan needs to reestablish its international competitiveness through human development: establishing an environment in which the citizen can develop their talents and skills.

Some people who fear the shrinking population in Japan and see the migratory process as the development of stagnation are impatient about improving recruiting systems and creating more opportunities for those who return after earning advanced degrees or being trained abroad like people from China and India, the two most rapidly growing countries in the world. Others might see the changes in Japanese population, culture and economy as an opportunity for Japan to become a model nation of balanced growth. Either way, the fast and profound social and cultural changes must be taken into consideration in facilitating new systems for brain gain and circulation.

References

- Arakawa, Y. (2001). The Educational Reform Movement and Changes in the Career Path Consciousness of Students in Japanese Senior High Schools: The Emergence of New Selection and Distribution Mechanisms. *The journal of educational sociology*, 68, 167-185.
- Bosch, X. (2003). Brain drain robbing Europe of its brightest young scientists. *Feature*, 361, 28, 2210-2211.
- Coulombe, S., Tremblay, J.F. & Marchand, S. (2004). Literacy scores, Human capital and growth across fourteen OECD countries. *Statistics Canada*, CAT. No. 89-552-MIE, No. 11.
- Hofstede, G. (2001). *Culture's consequences: comparing values, behaviors, institutions, and organizations across nations*. CA: Sage Publications, Inc.
- IIE. (2006). *Open doors 2006: Report on international educational exchange*. NY
- IOM. (2005). *World migration 2005: costs and benefits of international migration*. Geneva.
- Jackson, A. (2005). *Productivity and building human capital for the "bottom third"*. Retrieved Nov. 4, 2007, from http://72.14.235.104/search?q=cache:laWCEpce3p4J:canadianlabour.ca/updir/Productivity_and_Building_Human_Capital-R+38.pdf+coulombe+%22skills+development%22+GDP+productivity&hl=ja&ct=clnk&cd=2
- Kakuchi, S. (2006). *Japan: old values clash with individualism in public schools*. N.Y.: Global Information Network.
- Kaneko, M. (2007, January 13). Telecommuting becoming viable option: better job-life balance seen as key to

- countering shrinking workforce. Retrieved November 1, 2007, from *The Japan Times Online*:<http://search.japantimes.co.jp/cgi-bin/nn20070113f1.html>
- Manpower. (2002). *International employee loyalty survey*. California.
- Marginson, S. (2006). *Dynamics of national and global competition in higher education*. *Higher Education*, 52, 1-39.
- Matsubara, H. (1986). *Kakukazoku jidai (Nuclear family)*. Tokyo: NHK Publishing Co.
- Matsumoto, D. (2002). *The new Japan: debunking seven cultural stereotypes*. London: Intercultural Press.
- MEXT. (2002). *Science and engineering Indicators 2001: Statistical report on school teachers*. Tokyo: MEXT
- (2003). *Science and engineering Indicators 2002: Statistical report on school teachers*. Tokyo: MEXT
- (2007). *Promoting communication among international students*. Retrieved November 1, 2007 from http://www.mext.go.jp/b_menu/soshiki2/46.htm.
- Migration Dialogue. (1997). Congress: No major legislation expected in 1997. Retrieved November 1, 2007 from *Migration News*, 4, 4: http://migration.ucdavis.edu/MN/more.php?id=1151_0_2_0
- Ministry of Internal Affairs and Communications. (2004). The Japanese youth in comparison with the youth of the world a summary report of the seventh world youth survey, 2003.
- Mookherjeel. S. N. (2004). The rise of offshore outsourcing to India: Distinctive capabilities and low labor costs. *Strategic Direction*, 20, 14-16.
- Mutula, S. M. (2001). Financing public universities in eastern and ouuthern Africa: Implications for information services. *Emerald*, 14, 3, 116-132.
- Myers, R. G. (1972). *Education and emigration*. NY: David Mckay Co.
- Nakai, K. (2002). *Kokosotu kaigai icchokusen: Erito kokosei no zunou ryushutu (Studying abroad paths for high school students: Brain drain of elite high school students)*, Tokyo: Chuko Shinsho Publishing Co.
- National Research Council, Information Technology Research, Innovation, and E-Government. (2002). Tokyo: National Academy Press.
- NSB. (2006). *Science and engineering indicators 2006*, National Science Board, Virginia.
- Nitomi, Y. (1993). Brain drain; its sociological analysis. *The Journal of Educational Sociology*, vol.29 (108-120).
- National Science Foundation. (2002). *Science and engineering indicators 2002*. Arlington, VA: National Science Foundation, Division of Science Resources Statistics.
- Nikkei net. (2007, September 29). Todai, hakasekatei no jyugyoryo zero: zunou ryuushutu hadome nerau (Tuition fee 'zero' for Tokyo University doctoral students: stopping brain drain). Retrieved November 8, 2007 from *Nikkei net*: <http://www.nikkei.co.jp/news/past/honbun.cfm?i=AT1G2805M%2029092007&g=K1&d=20070929>
- Rodrik, D. (2002). *Global Governance as if Development Really Mattered*, New York: United Nations Development Program.
- Seike, A. (2003). The necessary reform for the age-free active society. *Keio University Market Quality Discussion Paper Series*, DP-2003-06.
- Sigimoto, K. (2007, November, 6). Todai to exempt poor students from tuition. Retrieved November 8, 2007 from *The Asahi Shimbun* <http://www.asahi.com/english/Herald-asahi/TKY200711060053.html>
- Tansel, A. & Gungor, N. D. (2003). "Brain drain" from turkey: survey evidence of student non-return. *Career Development International*, 8, 2, 52-69.
- Tsukada, M. (1988). "Institutionalized supplementary education in Japan: The yobiko and ronin student

adaptations.” *Comparative Education*, 24 (3), 285-303.

Yoshizaki, Y. (1997). *The value shift of Japanese youth*. *Comparative Civilizations Review*, 35, 1-14.