

Mobility of highly skilled retirees from Japan to Korea and Taiwan

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Mobility of highly skilled retirees from Japan to Korea and Taiwan*

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Abstract

Attracting highly skilled workers is a major element for the economic development of many countries, especially developing countries. However, the general international mobility of workers is from developing countries to developed ones. Historical evidence has indicated that Korean and Taiwanese firms scout for highly skilled Japanese workers (either retired or soon-to-retire) to accrue knowledge and achieve catch-up. Therefore, this paper investigates how the highly skilled Japanese workers were scouted by firms in Korea and Taiwan. Aiming at producing evidence rather than testing hypotheses, the findings of this paper shed practical information for firms in developing countries to attract highly skilled workers for their growth. In addition, this paper provides insights into the international mobility of highly skilled workers from a developed country to developing countries, which has not been examined in previous literature.

Keywords: Highly skilled, Mobility, Japan, Korea, Taiwan

JEL classification: F22, J61, O15

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1 Introduction

In the era of global competition for talent, the international mobility of highly skilled workers has become widespread (OECD, 2002; OECD, 2008). Due to its significance not only for firms but also for governments, the international mobility of highly skilled workers has been attracting considerable attention from scholars and policymakers. Prior studies have shown that the mobility of highly skilled workers offers many advantages (Arrow, 1962; Von Hippel, 1994; Szulanski 1996; Almeida & Kogut, 1999; Song et al., 2001; Song et al., 2003; Oettl & Agrawal, 2008), of which one representative merit is knowledge flow. Knowledge moves together with the possessors of said knowledge. Previous studies have identified the possessors as one of three major mediums associated with embodied knowledge: trade, foreign direct investment and labour.

Korea and Taiwan are often remembered as the countries that have achieved tremendous technological progress and economic growth. Scholars have partly attributed Korea's and Taiwan's tremendous technological progress and economic growth to technological knowledge originating from Japan (Hu & Jaffe, 2003; Nabeshima et al., 2016). For these countries, the mobility of highly skilled workers has contributed the most among the three mediums of knowledge flow (Kang, 2016). Historical evidence has shown that highly skilled Japanese workers were recruited by firms in Korea and Taiwan since the 1980s and such recruitment has helped the firms accrue technological knowledge and competence (Kim, 1997; Fukagawa, 2012; Tabata, 2012).

However, two aspects in particular have not been examined in any of the earlier studies. First, previous studies have not focused on the mobility of highly skilled workers from developed countries to developing ones. Instead, they only focused on two directions: 1) from developing countries to developed ones; and 2) between developed countries. Thus, the present paper argues that the mobility of highly skilled workers from a developed country to a developing country is not trivial. Second, prior studies have not discussed how the mobility of highly skilled workers occurred. Hence, this paper answers the following questions: 1) how were the highly skilled workers in Japan scouted by firms in Korea and Taiwan? And 2) how did these firms approach and make offers to the highly skilled Japanese workers? In addition, this paper questions if the findings in the previous studies are applicable to the present case regarding the mobility of highly skilled occurred from Japan (a developed country) to Korea and Taiwan (developing countries).¹

The contributions of this paper are twofold. First, it investigates the mobility of highly skilled workers, which has not been previously discussed in detail. Aiming at producing

¹ Some may argue if Korea and Taiwan should be classified as developing countries. This paper selected cases in which companies in Korea and Taiwan were looking for highly skilled workers from abroad to catch-up and compete in the global market.

evidence, rather than testing hypotheses and finding causalities, this paper reveals the detailed processes regarding how highly skilled Japanese workers were hired by firms in Korea and Taiwan. The arguments in this paper help develop further discussions regarding the international mobility of highly skilled workers. Second, this paper discloses the detailed processes regarding how highly skilled professionals are hired by firms in developing countries. The analyses provide detailed and practical information for practitioners and offer insights into what firms in developing countries should do to attract highly skilled workers. For example, a similar mobility process will further occur from China, Japan, Korea and Taiwan to Association of Southeast Asian Nations (ASEAN) countries in the near future.

The remainder of this paper is organised as follows. Section 2 reviews the theories from prior studies on which this study is based. Section 3 describes how the data was collected and analysed, while Section 4 presents and discusses the findings. Finally, Section 5 concludes the paper by listing the policy and strategy implications for governments and firms in developing countries.

2 Theoretical development

Due to its significance, not only for firms but also for governments, scholars have been studying the international mobility of highly skilled workers. The existing literature varies in its nature and it can be roughly divided into the following categories: 1) the definition of highly skilled workers; 2) the trend and determinants regarding the international mobility of highly skilled workers; and 3) the results of the international mobility of highly skilled workers. After a brief review of the bodies of literature, this paper will discuss the challenges faced by developing countries in attracting highly skilled workers.

2.1 Definition of highly skilled workers

A reason why the definition of highly skilled remains an important issue is that the measurement of being highly skilled differs according to the definition. It is generally considered that highly skilled professionals are those with abilities/capabilities that cannot be easily obtained/replaced and are simultaneously expected to bring outstanding benefits to the hiring entities, compared with average employees. However, there is no agreed concept or definition of what constitutes a highly skilled professional. Governments and international organisations apply different proxies to define highly skilled workers for statistical purposes (OECD, 2002), whereas some countries do not define any proxies and judge the workers on a case-by-case basis. Proxy examples include educational attainment, special talents, special knowledge, annual salary and previous work experience. By using such proxies, workers with higher education and experience are generally regarded as highly skilled positions while those

with a high level of responsibility are considered to be highly skilled.

There has been an effort to define an internationally agreed conceptual framework (OECD, 2002). For example, the Organisation for Economic Co-operation and Development (OECD) and Eurostat have defined highly skilled workers as workers who fulfil one of two conditions: 1) workers who have successfully completed education at the tertiary level in a science and technology field of study; and 2) workers who are employed in a science and technology occupation where the qualifications in the first condition are normally required.

2.2 Trend and determinants of the international mobility of the highly skilled workers

If we divide countries into developed and developing ones, then there are four directions regarding the international mobility of labour (Gould, 1988): 1) the mobility between developed countries; 2) the mobility from developing to developed countries; 3) the mobility from developed countries to developing ones; and 4) the mobility between developing countries. However, the majority of such labour mobility occurs toward and between developed countries. The same mobility trend is found in cases regarding the mobility of highly skilled workers (OECD, 2002; OECD, 2008).

Numerous studies have investigated the determinants of the international mobility of workers. However, there is no study that tested the determinants of such international mobility by using all countries. Although the following studies introduced provided partial insights into international mobility by focusing on selected samples (e.g. specific countries and regions, specific industries, specific jobs and specific conditions), evidence from these studies indicate that these factors are the determinants of the international mobility of workers.

The mobility trend of workers is driven by several factors, which can be classified into two types: pulling and pushing. First, the pulling factors (e.g. higher incomes) are those that attract workers to inflow into a country (Freeman, 2006). *Ceteris paribus*, higher wages can be expected in higher GDP per capita countries, which explains why general mobility occurs from a lower GDP per capita country to a higher GDP per capita country. Evidence has been found in other studies as well (Rotte & Vogler, 1998; Nerdrum & Sarpebakken, 2006). Employment opportunities are also a pulling factor. Saxenian (2006) observed that highly skilled workers from China and India did not return, whereas those from Taiwan did return, the reason being that there were greater employment opportunities in Taiwan. In addition, a higher living standard also attracts workers. For example, a significant number of foreign workers in Norway responded that the quality of life in Norway, such as relative equality between genders, well-managed work-life balance, played a key role for them to come and remain in the country (Nerdrum & Sarpebakken, 2006). Overall, when all of the 'hard' pulling factors are well practised, a country may further gain 'soft' pulling factors, such as positive reputations, which

can increase further inflow (Harvey & Groutsis, 2015).

Second, the pushing factors (e.g. unstable political situations in a country) are those that make workers outflow. In general, having less pulling factors actually works as pushing factors, e.g. lower wages, underemployment for workers, low living standards and negative reputations. Political terror against the population of a country can also make people leave (Rotte & Vogler, 1998). Furthermore, the difference in social protocol can be a pushing factor. For example, culture and lifestyle, family considerations and individual social networks were key factors in the decision of highly skilled, British-born and Indian-born scientists working in Boston to return to their home countries (Harvey, 2009). Additional studies have shown that, when firms were choosing who to dispatch to overseas offices, these pushing factors even caused employees to avoid being reallocated, especially to developing countries (Lanier, 1979, Torbiörn, 1982).

Overall, there are no countries with only pushing factors or only pulling factors. All countries include both factors, with each country offering a different amount of each factor. Hence, which factors are dominant can determine whether a country exports or imports workers. Of course, the larger the gap between the pushing factors and the pulling factors, the larger the mobility.

2.3 Impact of the international mobility of the highly skilled workers

Previous studies have shown that the mobility of highly skilled workers offers many advantages (Arrow, 1962; Von Hippel, 1994; Szulanski 1996; Almeida & Kogut, 1999; Song et al., 2001; Song et al., 2003; Oettl & Agrawal, 2008), of which one representative merit is knowledge flow. Knowledge embodied in possessing workers flows in three levels: 1) the firm/organisation level; 2) the local/region level; and 3) the community level (OECD, 2008). Regarding the first level, when a worker with a specific type of knowledge moves into a new workplace, he/she brings the knowledge into the new workplace. Through interactions, the knowledge flows from the original possessor to the colleagues and it is simply absorbed as it is or reinterpreted and applied in a new way. This type of learning effect by a firm is often referred to as 'learning-by-hiring' (Song et al., 2003; Palomeras & Melero, 2010). Learning-by-hiring is most effective when the hiring firm is less path dependent and when the hired employee possesses knowledge distant from that of the hiring firm. In other words, learning-by-hiring is most effective when a firm starts initiates a new plan or strategy.

The second level is the local/region level, which is based on the concept that knowledge tends to geographically localise. Jaffe et al., (1993) examined the origins of universities' and selected firms' patents in the United States and found that patent citations are localised more than one would imagine. This implies that knowledge flows within the same city and region. In addition, this implies that knowledge will create different trajectories when knowledge creators are in different locations, even if the knowledge is in the same technological field (Verspagen,

2007; Fontana et al., 2009). Thus, when a worker with a specific type of knowledge moves into a new location, he/she has opportunities to encounter new people with different knowledge. Spatial proximity also increases the possibilities of meeting local people and exchanging knowledge. This is supported by the fact that highly skilled scientists and engineers tend to be concentrated by area (Zucker & Darby, 2014). If this type of knowledge flow is achieved nationwide, then the human capital of a country can be enhanced. Furthermore, since the general accumulation of capital and human capital is the key driver for economic growth, this aspect is important for developing countries.

Finally, the third level is the community level. Communities of practice are defined as groups of workers informally bound together by their shared experience, expertise and commitment to a joint enterprise (Gertler, 2003). Communities of practice include a single firm, suppliers, customers, etc. If a worker from a community of practice becomes a part of another or new community of practice, then the knowledge from one community can be diffused into the other community through the mobility of the workers. In this regard, Sorenson et al. (2006) measured the level of social proximity on the basis of collaborations between patent inventors and indicated that patent citations increase between collaborating inventors.

2.4 Challenges faced by developing countries in attracting highly skilled workers

Attracting highly skilled workers is a major element for the economic development of many countries, especially developing ones (Salt, 1997). However, attracting highly skilled workers from developed countries poses a significant challenge for developing countries. In general, the international mobility of workers is from developing countries to developed countries since they tend to have more pushing factors and less pulling factors. In order to reverse the general flow direction, they must solve the following issues:

- Search: How to find and approach appropriate highly skilled workers.
- Goal: What to achieve by hiring highly skilled workers and how to achieve certain goals.
- Incentives: How to design pulling factors, e.g. higher wages, working opportunities, improved work environments, etc.
- Problems: How to minimise pushing factors, e.g. lower living standards, etc.

In this regard, the present paper examines how firms in Korea and Taiwan can successfully attract highly skilled workers from Japan, as a successful case in which developing countries attract highly skilled workers.

3 Data and research method

3.1 Sample: interviewees

The interviewees for this paper were found through the following three ways. First, an Internet search was conducted for Japanese workers who worked at a Korean and Taiwanese company after working at a Japanese company. Their contact information was obtained from their personal web pages or from previous/current companies. Second, since some Japanese workers published books about their work experiences in Korea and Taiwan, their contact information (following the authors' approvals) was obtained from their respective publishing companies. Third, information regarding Japanese workers currently working in Korea and Taiwan was obtained (again, after the workers' approvals) through Japan's diplomatic offices, which maintain such information according to their jurisdiction.

However, three reasons prevented this author from interviewing all of the candidates. First, some of the candidates were not qualified since they did not match the focus of this paper. For example, as stated in the aforementioned literature review, working in a science and technology field is a requisite for a worker to be classified as 'highly skilled'. In this case, some of the candidates were not in this field of study or research. Second, some of the qualified candidates failed to reply to the interview request. Third, some of the qualified candidates, despite their initial agreements, stopped answering the emails/phone calls during the planning stage.

Overall, interviews were conducted with 10 candidates in Japan, Korea and Taiwan. The eight Japanese engineers were used for data collection, while the other two were employed to ensure the validity of the interviews. Interviewing multiple sources with different perspectives of evidence was used to minimise any biases caused by subjectivity. The detail is follows:

The eight Japanese engineers worked as research and development (R&D engineers) and sales engineers in chemical, electrical, electronic and mechanical engineering. Four of them worked in firms in Korea, while the other four worked in firms in Taiwan. As of 2016, their work experience in Japan (before receiving offers from firms in Korea and Taiwan) ranged from 13 years to 44 years, while their work experience in Korea and Taiwan ranged from 3 years to 21 years. They ranged in age from 53 years to 79 years (mean: 66, median: 65), and they were evenly distributed across the 50–59, 60–69 and 70–79 age groups. As of the moment when they were interviewed, some were still living and working in Korea and Taiwan, while the others were living and working in Japan or retired and remaining in the country.

In addition to the eight Japanese engineers, we also interviewed the other two; one retired vice-president of the human resources department in the largest conglomerate in Korea, and one retired recruitment agent whose business was to introduce highly skilled workers in Japan to Taiwanese firms. In a qualitative analysis, the validity of the interviews must be ensured (Yin, 2009). The retired vice-president helped confirm the interview results and offered supplementary explanations regarding the details of Korean cases (if necessary). In fact, he actually recognised some of the interviewees when presented with the entire list. For example, he explained the performances, impacts and results of the interviewees as well as the CEO's and company's

expectations of them. Moreover, he reviewed to what extent the interviewees were actually involved in top management and had experience leading projects. The retired recruitment agent also reviewed and confirmed the interview results of the Taiwanese case. She explained the efforts and expectations of Taiwanese firms that were looking for and attempting to hire highly skilled workers in Japan.

3.2 Data collection and analytical method

This paper employs a set of required questions and follow-up probes. This method invited the interviewees to 'walk through' their experiences, according to the following required questions. One set of questions focused on background information (age and education) and situations before receiving offers from firms in Korea and Taiwan. For example, 'What was your last position in Japan?'; 'What was your technological field?'; 'How many subordinates did you lead?'; and 'Can you describe your career path before receiving offers from firms in Korea/Taiwan?'. The second set of questions focused on the factors that led them to sign a contract with a firm from Korea/Taiwan. Such question included: 'What made you want to leave your last job in Japan?'; 'Did you know the firm in Korea/Taiwan before?'; 'Can you describe the procedure of how the firm approached you, with dates as far as you remember?'; 'What was expected of you by the firm in Korea/Taiwan?'. Finally, the third set of questions focused on actual work in firms in Korea and Taiwan, including: 'What was your role/position in Korea/Taiwan?'; 'How did the firm support you to maximise your work performance?'; 'Can you list the satisfactory and unsatisfactory points (pros and cons) of working for a firm in Korea/Taiwan?'. In the end, the relevant texts as well as the interview results were sent to each interviewee. After their final confirmation, which was conducted to double check the facts (if necessary) and deal with any follow-up questions, the interview results were drafted.

In this paper, the author acted as the interviewer. All of the interviews were face-to-face and carried out by the author several times in Japan, Korea and Taiwan between June 2015 and December 2015. Each interview lasted approximately two to three hours. The interviews were not digitally recorded since the interviewees appeared to be uncomfortable in the presence of a recording device. Instead, detailed notes were taken during the interviews, with the approval of interviewees. As mentioned earlier, contact with the interviewees was maintained after the interviews in order to double check any points (if necessary). After the interview, the interview results were sent to each interviewee for their confirmation and additional information was requested (if necessary).

This paper employed an embedded, single-case study design (Baxter & Jack, 2008; Yin, 2009). Based on the amount of case studies and analyses, a case study includes four types. Single- and multiple-case studies reflect the differences in the amount of case studies. Since interviews with various information sources were conducted, the present paper may look like a

multiple-case study. However, the data was pooled for the analysis. As a result, the interviews became part of a larger, main unit of analysis. Meanwhile, holistic and embedded designs reflect unitary or multiple units of analysis. The embedded design is advantageous for combining various information sources. Therefore, the present paper employs embedded design to discuss the multiple aspects regarding the international mobility of highly skilled workers from Japan to Korea and Taiwan.

4 Findings and discussions

4.1 What motivated the retired or soon-to-retire highly skilled workers in Japan to look for opportunities overseas

As shown in the earlier literature review, labour migrates to a location much like gravitation. In this regard, firms in Japan attract significant attention since they include human resources policies that differ in the following ways from those in Western firms. First, firms in Japan provide lifetime employment and a seniority wage system (Ornatowski, 1998). Under this system, the salary principally increases with the employee's age and duration of employment as well as job responsibilities. The amount of increase varies with educational attainment, tenure, firm size, etc., but the variation difference is minimal. Second, firms in Japan impose mandatory retirement on their employees (Clark & Ogawa, 1996; Clark & Ogawa, 1997). This is a policy that employees must retire at a certain age. More than 90% of all Japanese firms used to have mandatory retirement policies. Although more Japanese firms are facing significant pressure to change such policies, due to the labour force shortage from the country's rapidly ageing demographic structure and because of the American-style human resource management practices, the basic structure of the human resources system has not changed. In fact, many companies in Japan still believe that the system is an important one (Pudelko, 2006).

Accordingly, under such a system, employees in Japan enjoy stability and hence, they have little motivation to leave their current jobs and take on new challenges and risks outside of the country. However, when they reach a certain age, they basically lose their financial stability, regardless of their health, experience, capability and drive. Moreover, the average life expectancy in Japan is 83.7 years² (the world's highest), and if the mandatory retirement age is set to, for example, 60, then one will probably live another 23.7 years and only rely on his/her pension, which is far less than what he/she received before retirement. Since Japan's ageing society appears to be increasing in number, the average life expectancy will further increase. In this reality, it is natural for the retired or soon-to-retire to find work opportunities to secure financial stability. Except for the handful of lucky individuals who find domestic jobs after their mandatory retirement, most employees are offered enticing work opportunities abroad.

In sum, job opportunities and expected incomes after the mandatory retirement policy

² World Health Statistics, 2016.

in Japan have motivated retired or soon-to-retire employees to search for overseas work opportunities. This is similar to the phenomenon in Australia where older workers remain in the labour market, even after they quit (retire from) their previous job (Perera et al., 2015). The difference in Japan is that the labour market for older individuals is almost closed.

4.2 How firms in Korea and Taiwan found the appropriate highly skilled workers

Another issue is how firms in Korea and Taiwan found a highly skilled pool of workers and attracted the most appropriate ones to join their teams. In this regard, finding the appropriate highly skilled workers differs between large firms and small- and medium-sized firms. Based on their business portfolios, large firms in Korea and Taiwan develop a database of global talent in each technology and industry field. Such talent includes young innovators with high potential to senior workers with superior knowledge and insight obtained from decades of work experience. One way to collect information about highly experienced workers is to use publicly available information, which includes papers and patents. Since this information is related to the performance of workers, such information is useful for finding a list of highly skilled workers. For example, if they conduct R&D, workers often publish papers and file patents, after which such achievements are easily found online. In this case, the better one performs, the more his/her papers and patents are published. Another way to find highly skilled workers is to meet them at seminars, conferences and exhibitions since such workers have opportunities to represent their companies at these types of events. Similar to the case of papers and patents, the better one performs, the more often he/she appears at external activities. Using available methods, large firms in Korea and Taiwan consistently monitor and update this global list of 'star' workers.

Meanwhile, small- and medium-sized firms in Korea and Taiwan must rely on recruitment agencies since such firms do not have enough resources to maintain and periodically update a global database of the highly skilled workers. Since there are almost no opportunities to find a job after mandatory retirement in Japan, many retired or soon-to-retire workers apply for work opportunities in firms in developing countries. Recruitment agencies develop a database of highly skilled workers based on these applications, after which they provide information to their clients in Korea and Taiwan. However, successful recruitment occurs on a case-by-case basis. Although the recruitment agencies screen the qualifications of the applicants, it is impossible to determine if the applicants are suitable for the firms in Korea and Taiwan until they start working for the firms. In fact, there are cases in which highly skilled workers immediately quit after they start working in Korea and Taiwan, which is a significant loss for the small- and medium-sized firms in the two countries.

Third, sometimes information about highly skilled workers in Japan comes from casual conversations in meetings between firms in Korea and Taiwan and their clients in Japan. In this

regard, by working with clients in Japan, firms in Korea and Taiwan collect information (e.g. reputations, work records and personal situations) beyond the statistics and facts that recruitment agencies provide. For example, firms in Korea and Taiwan hire highly skilled workers in Japan after they retire. Since the retired employees of their clients have knowledge such as the quality required to procure products, future direction of markets, etc., they can provide helpful advice to the hiring firms in Korea and Taiwan. Moreover, their clients in Japan also trust the products procured by their suppliers in Korea and Taiwan more since their ex-employees control the quality without any additional costs or communication.

In sum, firms find the appropriate highly skilled workers in three ways. First, large firms in Korea and Taiwan maintain a highly skilled worker database on their own and approach such workers when necessary. Second, small- and medium-sized firms in Korea and Taiwan find highly skilled workers through recruitment agencies and their clients. The information from their clients is more reliable than that from recruitment agencies since the former reduces the risk of mismatches.

4.3 What types of highly skilled workers were actually hired?

This section focuses on what types of highly skilled workers in Japan were hired by firms in Korea and Taiwan, which is relevant to the contributions to their respective firms. First, the highly skilled workers with significant R&D experience, such as top engineers, were hired by firms in Korea and Taiwan since they could contribute to upgrading the current technological capability of the firms. In the market, firms in Korea and Taiwan produced products and provide services similar to those of firms in Japan. However, since the quality of the products was considered to be inferior to that of Japan, hiring key workers from Japan (as technological advisers and business/project leaders) can help the Korean and Taiwanese firms upgrade their capabilities. We must note that ‘upgrading’ does not necessarily mean creating a copy of the products. In most cases, the technological knowledge of the Japanese workers was not directly applicable to the Korean and Taiwanese products since the product and technological trajectories as well as certain conditions, such as cost and design, still greatly differed. Nevertheless, the knowledge and insights obtained from the Japanese workers’ decades of work experience were still helpful for reinterpreting technological principles and solving technological issues, which, in turn, helped improve the overall quality of the products and services.

Second, highly skilled workers with management experience were hired, after which they became business leaders and managers in firms in Korea and Japan. In some instances, the highly skilled workers from Japan were assigned to lead new businesses. One reason that these workers left their firms in Japan was that they had lost the opportunities to realise their technological strategies. Mismatches in such strategies often occur between employers and

employees for various reasons, including shifts in technological focus, the restructuring of business portfolios, mergers and acquisitions, etc. However, since highly skilled workers are confident in their skills, they tend to look for suitable opportunities outside of their countries. In this regard, firms from Korea and Taiwan can offer these workers the opportunities to realise their ideas, which include providing financial support, research members and research equipment with up-to-date facilities. As a result, the hiring firms obtain new technological capabilities and launch new businesses.

Third, highly skilled workers with sales experience were hired, after which they helped construct new supply and distribution channels as well as build trust about the products. In other words, they helped the hiring firms participate in the global production networks. A sales engineer is a hybrid position of sales and engineering that exists in industrial and commercial markets. This is different from other engineers since they do not conduct R&D on their own. However, this does not mean that they lack technological knowledge. In fact, it is important that they possess such knowledge since they sell technologies and systems, and they have to understand the customers' needs in the market. While these highly skilled workers provide advice regarding technological improvements to firms in Korea and Taiwan, they also work as liaison officers for external companies. In some cases, other firms place orders from the hiring firms, based on the condition that the highly skilled workers manage the quality control of the products. As a result, the hiring firms obtain more trust and better reputations in the market, after which they obtain new suppliers and clients.

In sum, three types of highly skilled workers from Japan were generally hired by firms in Korea and Taiwan: 1) top engineers with significant R&D experience; 2) engineers with management experience; and 3) sales engineers. The first two types contributed by nurturing and upgrading the technological capabilities of the hiring firms. These two types are cases in which the knowledge flow occurred at the firm (organisation) and local (region) levels. The third type contributed by constructing new supply chains and building trust among the clients. This type is the knowledge flow between the communities of practice (Gertler, 2003).

4.4 Contracts to overcome obstacles

As shown in the literature review, there are obstacles that make an employee in a developed country avoid working in developing countries. Thus, the remaining issue is to determine what firms in Korea and Taiwan did to overcome such obstacles and discuss what types of contracts were provided by the Korean and Taiwanese firms for the highly skills workers in Japan.

The first is high salaries and work opportunities. According to the interviewees, the minimum salary increase was 30% higher than the earnings in Japan before retirement, while the maximum salary was an increase of several times the earnings in Japan (with stock options). In this regard, such salary increases were based on various aspects such as experience, specialty,

position in the hiring firm and management size. This finding is also supported by another study that revealed that the wage offered by Taiwanese firms to highly skilled workers from Japan was much more than what they had received in Japan (Tabata, 2012). Needless to say, the salary amounts correspond to expected performance and the roles of the highly skilled workers in the hiring firms. Such expectations include leading projects, launching new businesses, managing subsidiaries, advising technology strategies to top managers (such as CEOs and owners' families), etc.

The second is the work environment. Firms in Korea and Taiwan sometimes offer customised layouts of offices and language support, as incentives for the highly skilled workers. In regard to the latter, there is always a language issue when hiring foreign employees who cannot speak the local language. Firms in Korea and Taiwan deal with this problem in two ways. First, they hire Japanese-speaking secretaries and interpreters. At the executive level, firms in Korea hire Japanese-speaking secretaries for each individual. For the non-executive level, these firms hire Japanese interpreters to help the highly skilled workers communicate with local staff members and allocate them into groups that consist of Japanese workers. However, hiring Japanese-speaking staff members includes one limitation. Although Japanese-speaking secretaries and interpreters are able to interpret general conversations, they are unable to interpret technical terminologies and industry-specific business vocabularies. Second, firms also offer local language courses to highly skilled workers from Japan so that they can communicate with local staff members without the use of interpreters and secretaries. Local language courses can also help the limitation mentioned above. Since most technical terminologies and industry-specific business vocabularies are common among engineers, understanding some of the local language is sufficient for having work-related conversations with local engineers. For example, after several weeks of an intensive Korean language course, our interviewees reached the level in which they could completely communicate in meetings and emails with relative ease.

The third is guidance and support for daily life in the local environment. Such support varies by position and the size of the hiring firm. The highly skilled workers recruited from Japan, especially those in high management positions, are provided various services. Support teams, formed under the human resources department group, are exclusively dedicated to the highly skilled workers from Japan. For example, the firms in Korea offer housing and automobiles with drivers so that the highly skilled workers would not have problems with transportation. Some were even allowed to use the automobiles for private purposes such as shopping and enjoying their day off. Such support lessened the stress that the highly skilled workers experienced while living in Korea.

The fourth is family support. The highly skilled workers recruited by the firms in Korea and Taiwan generally arrived alone since their families had work opportunities or other reasons

to remain in Japan. As a result, the highly skilled workers from Japan lived alone in Korea and Taiwan. Thus, hiring firms in Korea and Taiwan provided flight tickets so that their families could visit them in Japan. Instead of visiting Japan, the highly skilled workers could invite their families to Korea and Taiwan with the same amount of money as the contracted flight tickets. Large firms in Korea even added their children's higher education support in the contracts. Such detailed conditions allow the highly skilled workers to concentrate more on their work in Korea and Taiwan.

Based on their annual performance reviews, the contracts with the highly skilled workers are generally renewed. In some cases, if the performance exceeded expectations, then the contract is updated with better conditions. However, if the performance was substandard, then the contract is either updated with fewer conditions or, in the worst case, not renewed. If the highly skilled workers are not satisfied with the suggested contracts, then they can request additional services (subject to the firm's approval).

In sum, all of these efforts made by the local companies help the highly skilled workers have less stress and concentrate on their work. Although nationwide situations in the local society are sometimes unattractive, such contracts provide incentives for the highly skilled workers in Japan to relocate to the host country.

5 Conclusions and implications

This paper examined the mobility of highly skilled workers, based on the case of highly skilled workers' mobility from Japan to Korea and Taiwan; that is, the mobility from a developed country to a developing country. By presenting the detailed hiring process, this paper argued that the mobility of the highly skilled workers from developed countries to developing ones is not trivial. In addition, by indicating how the highly skilled workers from Japan were managed by and contributed to firms in Korea and Taiwan, this paper provides practical knowledge and insights into how firms should manage the highly skilled workers after recruitment.

This paper includes three implications for managing the mobility of highly skilled workers. The first implication specifically concerns companies and government organisations in developing countries. Attracting highly skilled workers from developed countries is an effective strategy to upgrade innovation levels of developing countries. However, in order to attract them, the incentives for highly skilled workers must be carefully designed. The literature review indicated the pulling factors of the highly skilled workers. This paper also showed how firms in Korea and Taiwan designed pulling factors (i.e. incentives) at the micro-level in order to attract a handful of highly skilled workers from Japan. In these instances, the pulling factors included high salaries, support for the work environment and family support. The findings show that well-designed incentives made the highly skilled workers from the developed country come to

the developing countries.

The second implication applies to government organisations in developing countries. The literature review indicated the pushing factors of the highly skilled workers. Some of the pushing factors can only be alleviated by government organisations. For example, the environmental and social conditions of a developing country can be considered as pushing factors. In this case, the firms themselves cannot create an attractive environment and social system to retain highly skilled professionals. Thus, government organisations must take certain actions to improve their environmental and social conditions. If a government does not have sufficient resources to implement such actions nationwide, then it could establish exclusive zones to implement the necessary actions. As stated earlier, reducing the pushing factors can make the pulling factors more effective.

The final implication specifically concerns the human resources in the developing countries. In general, it is the firm's role to find and hire the highly skilled professionals. However, monitoring the international labour market and scouting highly skilled professionals from abroad is not an easy task, especially for small- and medium-sized companies in developing countries. Accordingly, a great deal of effort is required to identify them. This paper indicated how small- and medium-sized firms in Korea and Taiwan found appropriate highly skilled workers. Using recruitment agencies, clients and suppliers turned out to be effective for finding highly skilled workers in the labour market. Government organisations can also help companies, for example, by allocating subsidies to companies without sufficient assets to hire highly skilled professionals from abroad. Although the mid- to long-term effects of public financing were not accessed, public financing is effective to attract highly skilled workers, at least for the short term (Cruz-Castro & Sanz-Menéndez, 2005). Thus, government organisations should focus on how companies can resolve certain issues related to the recruitment of highly skilled professionals from abroad.

Finally, this paper includes one limitation. Since it employs a qualitative analysis, the general limitations of such an analysis are applicable. Knowing such limitations, this author attempted to minimise certain issues, such as subjectivity, reliability and validity, by interviewing several employees with different backgrounds and mobility paths and by also interviewing employers in Korea and Taiwan who were actually involved in the hiring of highly skilled engineers from Japan. However, through this approach, this paper revealed the detailed process regarding the mobility of highly skilled workers in Japan who are retired or soon-to-retire.

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