On Motivations for Mobility of International Students Studying at Japanese Research-Intensive Universities

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Abstract

The reasons why foreign graduate students studied or study at Japanese research-intensive universities were investigated, based on a questionnaire survey and interviews. According to the questionnaire survey, the main three reasons were that the research or education level of Japanese universities was high, that they liked Japan, and that they got scholarships. Supervisors' recommendations, positive willingness, Japanese culture, and advantage in promotion also seem to be incentives for acquiring doctorates. These reasons were also mentioned by three Thai interviewees. This study showed that exchange of culture and supervisors was important in addition to factors known in previous studies. This study also implied international students across borders of more than three nations with strong willingness. It is important for Japanese policymakers to arrange environments so that exchange of culture and supervisors is activated, and international students can move freely.

Keywords: international student mobility, doctoral students, Southeast Asia, questionnaire survey, interviews

Introduction

Many top ranked higher education institutions are found in the Asia-Pacific region, where there is a large young population (Richardson, 2015). International student mobility refers to migration of international students across national borders. International students are those who received their prior education in another country and are not residents of their current country of study (OECD, 2020). International student mobility is important for sustainable economic growth and prosperity of the Asia-

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Pacific region. The Japanese government also emphasized importance of international student mobility for strengthening ties with other Asian countries in the Asian Gateway Initiative (Kuroda et al., 2018).

In 2008, the Japanese government launched a new policy "300,000 International Students Plan," which aimed to increase the number of international students studying in Japan to three hundred thousand by 2020. The number has been approximately increasing since 2008 and reached 312,000 in 2019 (Japan Student Services Organization, 2020). Foreign students, familiar with artificial intelligence for example, are expected to stay in Japan after graduation and to contribute to improvement in global competitiveness of Japanese enterprises and improvement in research activities of Japanese universities, in the decreasing Japanese work force **(**Ministry of Education, Culture, Sports, Science and Technology, 2018). Research-intensive universities play an important role to educate such excellent students. The Japanese government launched the top global university project in 2014. It designated thirteen universities as "top type" universities, which conducted world-leading education and research.

In this study, I address the research question: What implications can be given for Japanese policymakers on attracting more excellent foreign students to Japan? It investigates why foreign students studied or study at Japanese research-intensive universities. First, I administered a questionnaire survey for foreign recipients who acquired doctoral degrees of engineering or related fields or economics or management at seven Japanese national universities (Hokkaido University, Tohoku University, the University of Tokyo, Nagoya University, Kyoto University, Osaka University, and Kyushu University) of thirteen research-intensive "top type" universities. Second, I conducted interviews for three Thai doctoral students majoring in engineering at the University of Tokyo.

According to the 2019 Academic Ranking of World Universities (ShanghaiRanking Consultancy, 2019), the University of Tokyo, Kyoto University, Nagoya University, Tohoku University, Hokkaido University, Osaka University, and Kyushu University were ranked first, second, third, fourth, sixth, sixth, and eighth among Japanese universities, respectively. As these seven universities can be considered as top research-intensive universities in Japan, this study focused on these seven universities.

There are some studies on motivations for graduate student mobility (Mazzarol et al., 1997; Mazzarol et al., 2001; Li & Bray, 2007; Chen, 2008). However, they are much less than studies on motivations for undergraduate students (e.g., Funatsu & Hotta, 2004; Sato & Horie, 2015; Kobayashi, 2018). Then this study focused on doctoral students.

Southeast Asians occupied about 31 percent of international students studying in Japan in 2019 (Japan Student Services Organization, 2020). The rapid economic growth of the Southeast Asian region is primarily attributed to the rise of the manufacturing industry (PwC Singapore, 2017). Then this study

focused mainly on Southeast Asian doctoral students majoring in engineering. Economics or management was also selected as a major of subjects because it is often researched with a mathematical method, as is similar to engineering.

According to the email message from Japan Student Services Organization to the author on February 19, 2020, the number of Thai doctoral students studying at Japanese higher education institutions in 2018 was 319 and the second highest after Indonesia among seven Southeast Asian countries (Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand, and Vietnam). As Thai and Indonesian doctoral students would be representative of Southeast Asian doctoral students in Japan, I interviewed Thai doctoral students. Selection bias of interviewees would be caused by not including Indonesian doctoral students in interviewees. Bias among experiment participants was noted in previous studies (e.g., Yanamoto, 2015).

Literature Review

International student mobility was classified into three categories (Sugimura, 2011): In the first case, international students move only between source countries and destination countries. Trends in international student mobility have changed over the period 1999-2020 (Choudaha, 2017). Traditional source countries like China, Korea, and Japan attract many international students now, from Asian countries in particular (Asian Development Bank Institute, 2014). However, mobility between two countries has been typical of international student mobility. In the second case, international students move within universities tied up between different countries. Erasmus+ and AUN/SEED-Net are examples of such tie-up. In the third case, international students move within more than three countries, based on their own willingness and interest. She called this third mobility “transit-type” mobility.

In this study, the questionnaire survey was conducted for foreign recipients who studied in bachelor’s or master’s courses in countries different from their countries of origin and then acquired doctoral degrees at Japanese universities, and for foreign recipients who came from their countries of origin to Japan directly and then acquired doctoral degrees at Japanese universities. The complementary purpose of this study is to investigate whether or not foreign recipients who moved via other countries to Japan had characteristic of “transit-type” mobility by comparison of the both.

Both students and institutions benefit from international student mobility. International student mobility experienced graduates enjoyed a steeper wage growth after graduation (Kratz & Netz, 2018). International students can contribute to quality improvements of educational practices and study conditions by comparing their home and host institutions (Klemenčič et al., 2017). From international students, host institutions can receive tuition fees which are often higher than from national students (OECD, 2010).

International student mobility is also relevant to immigration: International students are attractive as prospective skilled immigrants for some destination countries (Caruso & de Wit, 2015). Also, one motivation for students' studying abroad is to immigrate permanently to a destination country (Levatino, 2017).

Motivations for international student mobility are often analyzed, based on push-pull model (Mazzarol & Soutar, 2001; Furukawa et al., 2013; Caruso & de Wit 2015; Levatino, 2017): Factors promoting international student mobility are divided into push factors in source countries and pull factors in destination countries.

Theoretical Framework

The quantitative method such as questionnaire surveys and the qualitative method such as interviews can be used simultaneously or sequentially to solve the same research problem (Morse, 1991). This approach is utilized not only in fields of education, psychology, nursing, sociology, and law, but also in studies on European student mobility (McKinley, 2019). The simultaneous approach of quantitative and qualitative methods means that two methods are used at the same time. One method is complemented by the other. The sequential approach of quantitative and qualitative methods means that planning one method follows completion of the other. The purpose of the sequential approach in which the quantitative method precedes the qualitative method is to examine unexpected results from the quantitative method by the qualitative method. This study was methodologically designed, based on this approach: First, why doctorate recipients studied in Japan was investigated by the questionnaire survey. Subsequently, interviews for doctoral students were conducted in order to investigate unexpected results from the questionnaire survey further.

Extraction was conducted from recipients who acquired doctorates in 2006-2014, so as to satisfy requirements described in Procedure of the Questionnaire Survey. Full inspection was carried out for the extracted recipients in the questionnaire survey.

Most of international students, who acquired doctorates at seven Japanese universities, graduated from foreign universities and were enrolled at Japanese graduate schools from the master's or doctoral course. A small portion of international students graduated from foreign high schools and were enrolled at Japanese universities and subsequently at Japanese graduate schools.

Creation of Options in the Questionnaire Survey

Options in the questionnaire survey were created referring to Mazzarol and Soutar (2001), because many factors influencing student mobility from four source countries to Australia were ranked. The decision process through which a student studies abroad proceeds via at least three stages: First, a student decides to study internationally rather than locally. Second, a student selects a host country.

Third, a student selects an institution. Option creation in this questionnaire survey is discussed referring first to the third stage, subsequently to the second stage, and finally to the first stage. I decided seven options on why international students came to Japan. Having a reputation for quality influences selection of the host institution at the third stage most strongly. Other studies also pointed out that the world university ranking was a significant pull factor in institutional selection (González et al., 2011; Furukawa et al., 2013; Li, 2016). Then I selected the high research or education level of the host institution as the first option.

Six factors were found to influence student selection of the host country at the second stage (Mazzarol & Soutar, 2001): (a) knowledge and awareness of the host country in the home country, (b) personal recommendations from student's parents, relatives, friends, and others, (c) cost issues, including the cost of fees, living expenses, travel costs, and social costs such as safety, (d) environment such as climate and quietness in the host country, (e) geographical proximity of the host country to the home country, and (f) social links which relate to whether a student has family or friends living in the host country.

Knowledge and awareness of the host country in the home country includes high quality and good reputation of education of the host country. Then it is relevant to the first option, high research or education level of the host institution. I did not select knowledge and awareness of the host country in the home country as an option. As to recommendations, parents' agreement was important for Chinese undergraduate students' decision to study abroad (Matsubara et al., 2008). Recommendations from professors were one of important factors for graduate students to select Canada as the host country (Chen, 2008). As graduate students were the subject of this study, I selected personal recommendations from supervisors in the home and host countries as the second and third options, respectively. As to cost issues, previous studies also noted that low tuition fees and low costs of living were attractive (Hawthorne, 2010; OECD, 2010; Asian Development Bank Institute, 2014). Then I selected scholarships as the fourth option. Good environment would lead to favourable impression of the host country. According to the questionnaire survey on 1,001 Japanese who experienced studying abroad, the second most popular reason why Japanese selected host countries was because they liked host countries (28.9 percent) (Japan Student Services Organization, 2018). Then I selected liking the host country as the fifth option. Geographical proximity of the host country to the home country was unimportant for Taiwanese students studying in Australia (Mazzarol et al., 1997). I did not select geographical proximity as an option, because Japan was not very close to countries except China, Korea, and Taiwan. Social links were unimportant, compared with other factors (Mazzarol et al., 1997). Then I did not select social links as an

option. This study showed 244 recipients (9 percent) who moved within more than three countries including Japan among 2,700 doctorate recipients of engineering or related fields. Considering that such recipients would have strong positiveness, I selected wanting to build students' careers abroad positively as the sixth option. Finally, I selected "other" as the seventh option.

The most important factor influencing students' decision to study internationally rather than locally at the first stage was that an oversea course was better than a local one (Mazzarol & Soutar, 2001). This factor is relevant to the first option "the high research or education level of the host institution" mentioned above. The second most important factor at first stage was that a student could gain a better understanding of a foreign culture. This factor is relevant to the fifth option "liking the host country" because understanding of culture of a country would lead to good impression of it. Then new options were not created, referring to the first stage by Mazzarol and Soutar (2001).

Procedure of the Questionnaire Survey

Names of doctorate recipients were obtained from doctoral degree theses database of seven universities. I regarded recipients having foreigner-specific names as foreign recipients, and information on them was retrieved. This process has a limitation: Foreign recipients having Japanese-specific names were excluded. Foreign doctorate recipients having Japanese-specific names could not be distinguished from Japanese doctorate recipients on the doctoral degree theses database. Giving names of doctorate recipients having foreigner-specific names and universities which awarded doctorates to them as search words, information retrieval was performed by Google search engine. By changing settings in LinkedIn or Facebook, links to profiles are not displayed on information retrieval by Google search engine. This would be one reason why links to profiles of all doctorate recipients were not displayed on retrieval. However, in most cases, links were displayed to pages of social networking services such as LinkedIn or Facebook, homepages of current affiliated institutions or universities which awarded doctorates to them or personal homepages. Acknowledgements and curricula vitae in doctoral degree theses were referred to in case that helpful information was not retrieved in the above method. Information on nationalities, that is, countries of origin of foreign doctorate recipients was published on doctoral degree theses database (fiscal years: 2010-2012) by Kyushu University. Curricula vitae often gave such information. When information on countries of origin of recipients was not obtained, I inferred them: In case that recipients' careers were obtained from social networking services, I inferred their countries of origin from locations of universities where they obtained bachelor's degrees, or where they lived at present, although it was not always guaranteed that inference was correct. Countries of origin were also inferred from descriptions of acknowledgment in doctoral degree theses. When countries of origin could not be

inferred in the above method and names of nations were included in titles of their doctoral degree theses, I regarded them as countries of origin. Then proportion of recipients whose countries of origin were unknown was 12.7 percent for doctorate recipients of engineering or related fields (N=2,700) and 7.2 percent for doctorate recipients of economics or management (N=83). Many people have country-specific names, as seen in Thailand and Vietnam typically. In most cases, countries of origin of recipients judged or inferred in the above method were consistent with countries or regions inferred from names, although inference of countries of origin only from names was problematic. Information on careers of recipients was obtained from descriptions on homepages of current affiliated institutions, social networking services, curricula vitae, and so on.

Three groups of foreign doctorate recipients were extracted from doctoral degree theses database of seven universities as a result of information retrieval. First, forty-eight foreign recipients, who proved to study in their bachelor's or master's courses in countries different from their countries of origin and then acquired doctoral degrees at Japanese universities, were extracted from two data sources (N=2,123), as shown in Table 1(a) in Appendix. Their present addresses were known. One data source consisted of foreign recipients who acquired doctorates of engineering or related fields in fiscal years 2011-2013 at seven universities. The number of these foreign recipients increased in the order of Nagoya University, Hokkaido University, Osaka University, Tohoku University, Kyoto University, Kyushu University, and the University of Tokyo. The other data source consisted of foreign recipients who acquired engineering doctorates in earlier fiscal years 2006-2010. Recipients over a longer period from the second data source were added to recipients from the first data source for universities such as Nagoya University and Hokkaido University, where the number of recipients from the first data source was less. On the other hand, none from the second data source were added for universities, such as the University of Tokyo and Kyoto University, where the number of recipients from the first data source was more. Questionnaire sheets were distributed to these forty-eight recipients by postal mail, and 21 responded. Nine of 21 respondents studied in their bachelor's or master's courses in the United States or European countries. Seven studied in Southeast Asian countries. Five studied in China, Korea or Taiwan.

Subsequently, 36 foreign recipients were extracted from 83 foreign recipients who acquired economics or management doctorates at seven universities in fiscal years 2011-2013, as shown in Table 1(b). Questionnaire sheets were distributed to these thirty-six foreign recipients who did not prove to move from their countries of origin via other countries to Japan and whose present addresses were

known. They were classified as recipients who moved from their countries of origin to Japan directly. Ten recipients responded.

Finally, 116 Southeast Asian recipients were extracted from recipients who acquired doctorates of engineering or related fields at seven universities in fiscal years 2013-2014, as shown in Table 1(c). These Southeast Asian recipients did not prove to move from their countries of origin via other countries to Japan, and their present addresses were known. They were classified as recipients who moved from their countries of origin to Japan directly. Seven recipients who moved to countries different from their countries of origin after acquiring doctorates in a fiscal year 2013, were excluded from this group (N=116), because a sufficient number of responses were obtained from recipients who got jobs at their countries of origin or Japan. One Singaporean, who acquired a doctorate in a fiscal year 2014, was excluded from this group, because no questionnaire sheets were distributed to Singaporeans in this survey. Eight Vietnamese, who acquired doctorates in a fiscal year 2014, were excluded from this group because retrieval rate from Vietnamese, who acquired doctorates of engineering or related fields, was 22 percent and not very high in this survey. Questionnaire sheets were distributed to sixty-nine recipients except females, because retrieval rate from females was not very high in this survey. Thirty-five recipients responded.

The number of extracted doctorate recipients was relatively small, as shown above. In two cases seen in Table 2(a) and 2(c), the number (N=2,123 or N=1,143) of original doctorate recipients was relatively large, but extraction procedures decreased recipients drastically. In the other case in Table 2(b), the number (N=83) of original doctorate recipients was relatively small.

Most of questionnaire respondents were male. The number of distributed and retrieved questionnaires is shown in Table 2 in Appendix for each country or region. The total retrieved number was sixty-six and retrieval rate was 43 percent. Forty-nine of 66 respondents had jobs in their countries of origin after acquiring doctorates. Eleven had jobs in Japan after acquiring doctorates. Six moved to countries different from their countries of origin after acquiring doctorates.

All doctorate recipients, to whom questionnaire sheets were distributed, were asked why they studied at Japanese universities. They selected the appropriate from seven options as shown in Question 1 in Appendix. Subsequently, engineering or related fields doctorate recipients, who proved to move from their countries of origin via other countries to Japan, were asked why they studied in bachelor's or master's courses in countries different from their countries of origin, for comparison with reasons why they came to Japan. They selected the appropriate from seven options as shown in Question 2 in Appendix. Finally, the last question was prepared, as many respondents selected "because

they liked Japan" in Question 1. A part (7) of engineering or related fields doctorate recipients, who proved to move from their countries of origin via other countries to Japan, and all engineering or related fields doctorate recipients (35), who moved from their countries of origin to Japan directly, were sent questionnaire sheets with Question 3 and asked why they liked Japan if they chose "because they liked Japan" in Question 1. They selected the appropriate from eight options as shown in Question 3 in Appendix. Multiple answers were allowed in the above three questions. When respondents selected the seventh or eighth option "other", I had them write comments.

Procedure of Interviews

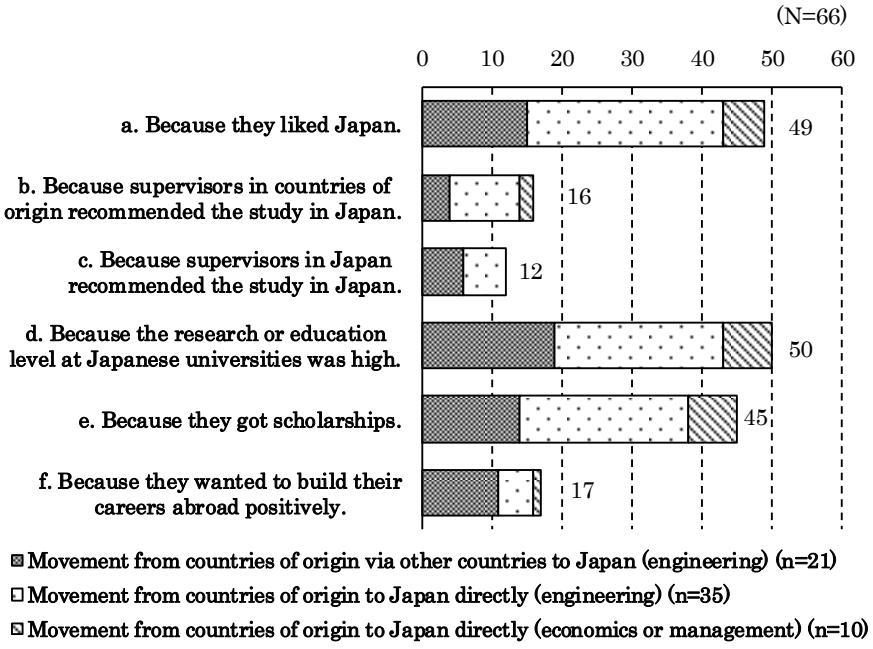
Two of three Thai interviewees were male. The other one was female. All three are enrolled at the graduate school of engineering of the University of Tokyo now. I searched for faculty members involving in international exchange on the official homepage introducing faculty members of the school of engineering of the University of Tokyo. I wrote a letter to one professor, requesting him to introduce a Southeast Asian graduate student. One male interviewee was a doctoral student introduced by the professor. The others were his Thai friends. Each interview was conducted as a semi-structured interview for about thirty minutes (e.g., Kallio et al., 2016). Conversations were recorded in a voice recorder. Three interviewees were enough for checking unexpected results from the questionnaire survey.

Results of the Questionnaire Survey

As seen in Figure 1, the most popular reason why international students studied at Japanese universities was that the research or education level at Japanese universities where they studied was high. Fifty (76 percent) of 66 questionnaire respondents selected this answer. This implies that research-intensive "top type" universities where they studied were attractive for them focusing on research. The second and third most popular reasons were that they liked Japan and that they got scholarships, respectively. These three reasons were the most popular three for each of three groups of respondents. The fourth most popular reason was that they wanted to build their careers abroad positively for recipients who moved from their countries of origin via other countries to Japan and then acquired doctorates of engineering or related fields at Japanese universities. The fourth most popular reason was that supervisors in countries of origin recommended the study in Japan for recipients who moved from countries of origin to Japan directly and then acquired doctorates of engineering or related fields or economics or management. Eighteen to 26 percent of all respondents selected that they wanted to build their careers abroad positively, that supervisors in countries of origin recommended the study in Japan and that supervisors in Japan recommended the study in Japan.

Figure 1

Why Did International Students Study at Japanese Universities?



As other reasons why international students studied in Japan, five mentioned Japanese culture: One mentioned that he wanted to learn Japanese culture. One mentioned that he wanted to learn Japanese language. One mentioned that he had learned Japanese language for many years. One mentioned that he was fascinated by Japanese culture in his childhood.

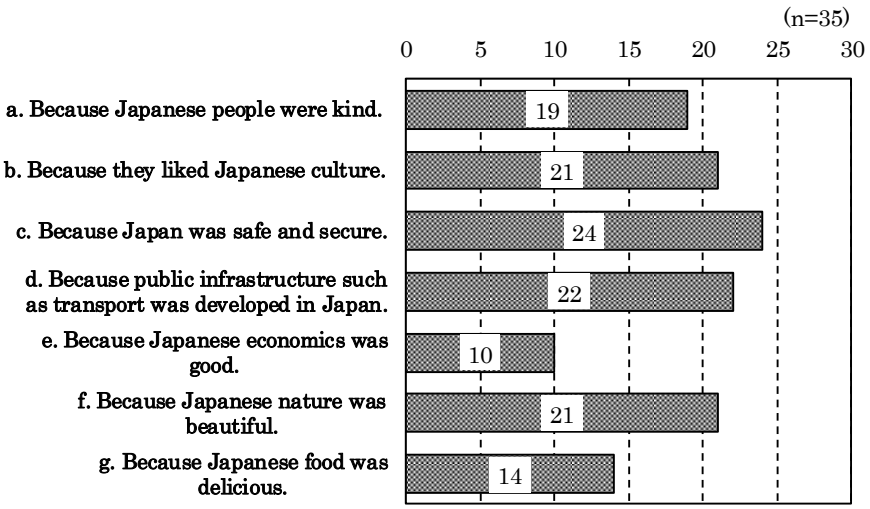
As other reasons, two mentioned the importance of doctoral degrees in their careers: One mentioned that holding a doctorate degree would give a higher opportunity of career development and promotion in his country of origin. The other mentioned that the government of his country of origin asked him to acquire a doctoral degree. As other reasons, three mentioned high-level technology of Japan.

As the reasons why international students liked Japan, “c. Because Japan was safe and secure”, “d. Because public infrastructure such as transport was developed in Japan.”, “b. Because they liked Japanese culture”, “f. Because Japanese nature was beautiful”, and “a. Because Japanese people were kind.” were popular, as shown in Figure 2.

As other reasons why international students liked Japan, three mentioned warmness of Japanese supervisors: Two mentioned that relationship with Japanese supervisors or support from them would last long. The other one mentioned having warm treatment from his supervisor when he left Japan. As other reasons, one mentioned usefulness of Japanese seminars. As other reasons, one mentioned that he liked Japanese cartoons.

Figure 2

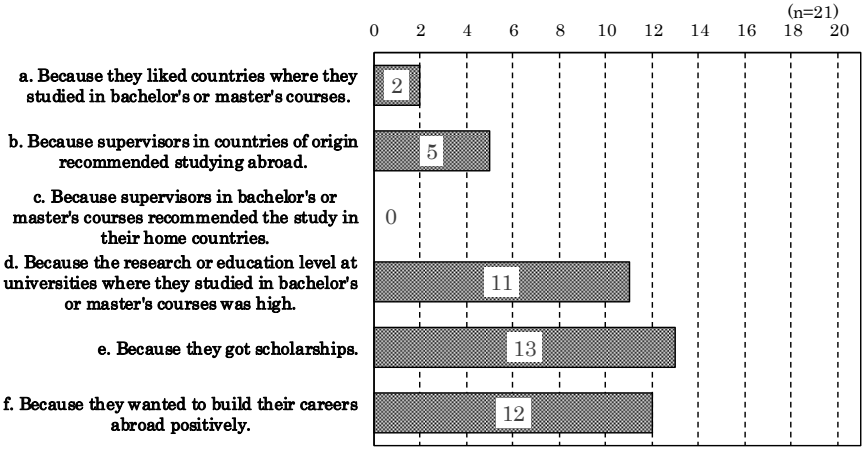
Why Did International Students Like Japan?



The reasons why engineering or related fields doctorate recipients, who moved from their countries of origin via other countries to Japan, studied in bachelor's or master's courses abroad were shown in Figure 3. The number (2) of recipients, who selected the reason that they liked countries where they studied in bachelor's or master's courses, was much less than the number (15) of recipients who selected the reason that they liked Japan. Difference in proportion between the both was statistically significant (p<0.001) according to the McNemar test. This implies that Japan was more attractive for various reasons as shown in Figure 2.

Figure 3

Why Did International Students Study in Bachelor's or Master's Courses Abroad?



Statistical Analysis

Pearson's correlation coefficients between six options (a-f) on the vertical axis of Figure 1 were calculated. Only two options "b. Because supervisors in countries of origin recommended the study in Japan." and "c. Because supervisors in Japan recommended the study in Japan." correlated significantly (p<0.01) and positively. This implies that doctoral students tended to be recommended simultaneously by two supervisors. In fact, one questionnaire respondent mentioned that his supervisors of his country of origin and Japan had known each other, and his supervisor of Japan had visited his country of origin for selecting a field research location, before he started the study in Japan. Pearson's correlation coefficients between five options (a, b, d, e, f) on the vertical axis of Figure 3 were calculated, where the option (c) was excluded in calculation because its frequency was zero. There were no significant correlations between the five options (p<0.01).

Proportion of recipients who selected the option "f. Because they wanted to build their careers abroad positively." in Figure 1 was 52 percent among recipients who moved from their countries of origin via other countries to Japan and then acquired doctorates of engineering or related fields at Japanese universities. Proportion was 14 percent among recipients who moved from countries of origin to Japan directly and then acquired doctorates of engineering or related fields. Difference in proportion between the both was statistically significant (p<0.01) according to the two-proportion z-test. This implies a possibility that more international students, who moved from their countries of origin via other countries to Japan, had strong motivations to build their careers abroad positively. "Transit-type" researchers would be expected to select this option preferentially to other options, because this option would reflect their own willingness. Then it is implied that respondents, who moved from their countries of origin via other countries to Japan, tended to have characteristic of "transit-type" mobility.

Interviews

From Figure 1, questionnaire respondents who selected that they liked Japan were as many as those who selected that the research or education level at Japanese universities was high or that they got scholarships. This was surprising to me because the first option had not been previously reported as frequently as the second and third options. Then it was verified if interviewees knew or liked Japan before they came to the University of Tokyo. Additionally, why they came to the University of Tokyo was asked to investigate whether or not they mentioned popular reasons seen in the questionnaire survey. They were also asked why they chose their research subjects and what advantages they would have in their careers by studying in Japan, because they were expected to be relevant to their motivations for

coming to Japan. These questions were sent to interviewees by e-mail prior to interviews and answered in interviews. In interviews, additional questions were asked to obtain more useful information.

One of two male interviewees said in English as follows: The first reason why he came to the University of Tokyo was that his present supervisor of the University of Tokyo was an expert in an academic field in which he was engaged in his master course in Thailand. The second reason was that he got a scholarship. The third reason was that it did not require background on the field he studies now at the University of Tokyo to join the doctoral course of the University of Tokyo. When he was asked if he liked Japan before he came to Japan, he answered, "I liked Japanese food, Japanese culture, and also Japanese anime, but I did not have any knowledge about Japanese language and also Japanese styles." While he was engaged in his research subject from a viewpoint of social science in his master course, he is so now from a viewpoint of engineering in his doctoral course. Interdisciplinary approach, which he learns at the University of Tokyo, would be important in his career in future. Critical, logical, and systematic thinking skills, which he learns at the University of Tokyo, would also constitute the important part in his career. He dreams having a laboratory in Thailand in future. Then such thinking skills would be useful. Japanese culture and working styles, which he learns, would be also important for his career.

The other of two male interviewees was interviewed in Japanese. He read Japanese cartoons in his childhood. He came to Japan on a trip with his family when he was a high school student. He said he liked Japan because it was clean and secure and Japanese people disciplined themselves. He wanted to visit Japan again. So, he learned Japanese language for four years before he entered a master's program at the University of Tokyo. His supervisor in Thailand is a graduate from a laboratory he joins at the University of Tokyo now. The main reason why he entered the University of Tokyo was that his supervisor in Thailand recommended him to his present supervisor at the University of Tokyo and he earned a scholarship to study at the University of Tokyo before coming to Japan. He does not know the advantages to his career by studying in Japan at present. But he agreed that having a foreign doctoral degree gave a better chance in employment or promotion in Thailand. He also pointed out that having a doctoral degree restricted the kind of jobs, and that some Thai students gave up acquiring a doctoral degree.

A female interviewee came to Japan for three weeks on an internship, when she was an undergraduate student in Thailand. She was inspired by all Japanese culture and very good Japanese high technologies during visiting the construction site in Japan. She said, "I liked to have more time, to stay here, and to study more. Actually, Thailand is a developing country. If I get some new high

technologies from Japan to help Thailand, it would be nice. After graduating from a bachelor's degree, I tried to find a scholarship to study here in Japan for a master's degree. So I started to learn Japanese a little bit." She received a scholarship to acquire her master's degree and applied to the University of Tokyo. After she graduated, she went back to Thailand and started her carrier as the government officer in order to use her knowledge from Japan and develop Thailand. Recently she received a scholarship to study in a doctoral program of the University of Tokyo. Japan has accumulated know-how on her major field for fifteen years. The first reason why she selected the University of Tokyo was that the University of Tokyo was one of top universities among Japanese universities. The second reason was that she found a professor who was an expert in her major field. The advantages that she studied at the University of Tokyo were to get more knowledge and to build up a human network. In future, she would be able to collaborate with professors, friends, company employees, and government officials all over the world who she knew during her study at the University of Tokyo. She agreed that having a foreign doctoral degree would open up her to higher and wider views. This means that she can use her knowledge that she learns from Japan to develop her country and help collaborative working with the other countries to solve the world's problem in the sustainable future.

Discussion

The world university ranking and costs were major incentives for international student mobility in previous studies (e.g., OECD, 2010; Hawthorne, 2010; González et al., 2011; Furukawa et al., 2013). It is noteworthy that liking Japan was one of major reasons in this study, although foreign students who did not like Japan might leave Japan without acquiring doctorates. Social costs such as safety, and environment such as transport and nature were important factors, as was similar to previous studies. Culture was also an important factor. Culture was popular among reasons mentioned as "other" in Question 1 in Appendix. Three interviewees were familiar with Japanese food, culture, and anime or had been to Japan before they came to the University of Tokyo. This implies a possibility that many of questionnaire respondents who liked Japan had advance knowledge on Japan, before they studied in Japan. According to the questionnaire survey on 108 international students studying in Japanese language institutes, interest in Japanese culture was the most popular (34.8 percent) among the reasons why they came to Japan (ACCESS LEAD Co. Ltd., 2018). One Vietnamese undergraduate student came to Japan for interest in Japanese culture (Sato & Horie, 2015). One incentive for international student mobility is cultural aspirations (OECD, 2010). Factors influencing decision to study abroad were investigated by questionnaire surveys for international graduate students enrolled at Canadian research-intensive universities (Chen, 2008). The score for the opportunity to experience a Western

culture was 3.86 on a Likert scale of 1-5, where the score 1 meant unimportant and the score 5 meant very important. It was the fourth highest among twenty-three items. This study is similar to Chen's study, in showing that interest in culture was important for international graduate students enrolled at research-intensive universities.

Recommendation of supervisors was minor, compared with three major reasons seen in Figure 1, but was important. Also, exchange of supervisors of international students in their countries of origin and Japan gave them an opportunity to come to Japan, as seen in one comment in the questionnaire survey and one interviewee. It was reported that international graduate students enrolled in Canadian research programs were strongly influenced by encouragement of professors on decision to study abroad (Chen, 2008). This study is similar to Chen's paper in showing importance of recommendations from supervisors or professors for international graduate students.

There were little previous studies showing importance of interest in Japanese culture or recommendations from supervisors or professors as reasons why international graduate students studied at Japanese research-intensive universities.

Summary

This study showed that exchange of culture and supervisors was also important in addition to known factors. From this, I can give Japanese policymakers implications: Exchange of culture or researchers between nations as well as the world university ranking and costs is important for attracting more excellent international students to Japan. This study also implies international students across borders of more than three nations with strong willingness. It is important for Japanese policymakers to arrange environments so that they can move freely.

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Author Note

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Appendix

Table 1

Subjects for the questionnaire survey and their data sources

Extracted foreign recipients	Data sources		
	University	Size	Kind of doctorates
(a) Forty-eight foreign recipients who studied in their bachelor's or master's courses in countries different from their countries of origin and then acquired doctoral degrees at Japanese universities, and whose present addresses were known.	Hokkaido University	n=232	Doctorates of engineering or related fields (2011-2013), Engineering doctorates (2007-2010)
	Tohoku University	n=331	Doctorates of engineering or related fields (2011-2013), Engineering doctorates (2008-2010)
	University of Tokyo	n=469	Doctorates of engineering or related fields (2011-2013)
	Nagoya University	n=251	Doctorates of engineering or related fields (2011-2013), Engineering doctorates (2006-2010)
	Kyoto University	n=237	Doctorates of engineering or related fields (2011-2013)
	Osaka University	n=305	Doctorates of engineering or related fields (2011-2013), Engineering doctorates (2008-2010)
	Kyushu University	n=298	Doctorates of engineering or related fields (2011-2013), Engineering doctorates (2010)
	Seven universities	N=2,123	
(b) Thirty-six foreign recipients who moved from their countries of origin to Japan directly and whose present addresses were known.	Hokkaido University	n=6	Economics or management doctorates (2011-2013)
	Tohoku University	n=17	Economics or management doctorates (2011-2013)
	University of Tokyo	n=3	Economics or management doctorates (2011-2013)
	Nagoya University	n=12	Economics or management doctorates (2011-2013)
	Kyoto University	n=15	Economics or management doctorates (2011-2013)
	Osaka University	n=14	Economics or management doctorates (2011-2013)
	Kyushu University	n=16	Economics or management doctorates (2011-2013)
	Seven universities	N=83	
(c) One hundred and sixteen Southeast Asian recipients who moved from their countries of origin to Japan directly and whose present addresses were known.	Hokkaido University	n=110	Doctorates of engineering or related fields (2013-2014)
	Tohoku University	n=119	Doctorates of engineering or related fields (2013-2014)
	University of Tokyo	n=342	Doctorates of engineering or related fields (2013-2014)
	Nagoya University	n=91	Doctorates of engineering or related fields (2013-2014)
	Kyoto University	n=188	Doctorates of engineering or related fields (2013-2014)
	Osaka University	n=124	Doctorates of engineering or related fields (2013-2014)
	Kyushu University	n=169	Doctorates of engineering or related fields (2013-2014)
	Seven universities	N=1,143	

Table 2

Number of distributed and retrieved questionnaires

	China	Korea	Taiwan	Southeast Asia	Other Asia, Africa, Central and South America	Europe	Total
Engineering or related fields doctorate recipients who moved from their countries of origin via other countries to Japan.	0 (4)	0 (0)	1 (2)	13 (26)	6 (14)	1 (2)	21 (48)
Engineering or related fields doctorate recipients who moved from their countries of origin to Japan directly.	0 (0)	0 (0)	0 (0)	35 (69)	0 (0)	0 (0)	35 (69)
Economics or management doctorate recipients who moved from their countries of origin to Japan directly.	1 (12)	1 (4)	1 (1)	2 (9)	4 (9)	1 (1)	10 (36)
Total	1 (16)	1 (4)	2 (3)	50 (104)	10 (23)	2 (3)	66 (153)

Upper figures in columns: retrieved number. Retrieval rate 43%
Lower figures in columns: distributed number.

Question 1: Why did you study at a Japanese university?

a. Because you liked Japan.

b. Because your supervisor in your country of origin recommended the study at a Japanese university.

c. Because your supervisor in Japan recommended the study at a Japanese university.

d. Because the research or education level at a Japanese university where you studied was high.

e. Because you got a scholarship.

f. Because you wanted to build your career abroad positively.

g. Other.

Question 2: Why did you study in a bachelor's or master's course in a country different from your country of origin?

a. Because you liked a country where you studied in a bachelor's or master's course.

b. Because your supervisor in your country of origin recommended studying abroad.

c. Because your supervisor in a bachelor's or master's course recommended the study in his/her home country.
d. Because the research or education level at a university where you studied in a bachelor's or master's course was high.
e. Because you got a scholarship.
f. Because you wanted to build your career abroad positively.
g. Other.

Question 3: If you chose the answer (a) in Question 1, could you please tell me why you liked Japan?

a. Because Japanese people were kind.
b. Because you liked Japanese culture.
c. Because Japan was safe and secure.
d. Because public infrastructure such as transport was developed in Japan.
e. Because Japanese economics was good.
f. Because Japanese nature was beautiful.
g. Because Japanese food was delicious.
h. Other.