Development and Mobility of the Academic Profession in East Asia[1]

Akiyoshi Yonezawa [*]

Abstract. This article examines patterns of academic mobility of Japanese and East Asian universities from a comparative and historical perspective. Firstly, it overviews the historical background of the academic profession in this region, especially focusing on Japan. Secondly, making use of the typology of mobility patterns by Kim and Locke (2010), the author reveals a contradictory relationship between gaining international profiles in the academic profession and the capacity of fostering next generation academics. The author also identifies the impact of colonization and other international relationships even in the contemporary patterns of academic mobility.

Keywords: Academic mobility, Academic profession, East Asia, Higher education, Japan

Introduction

Formation and development of the academic profession is one of the practically important topics in Asia. In East Asia (here, the author refers South East Asia and East Asia as East Asia), the history of many countries began as decolonization and after independence faced difficulties in forming first generation academics (Kim, 2001). After that, these countries have experienced rapid expansion of higher education that has demanded substantial increases in the academic profession. Japan is an exceptional Asian country that took the position of a colonizer. Reflecting the history of its modern higher education from the latter half of 19th century, however, Japan at the beginning also experienced difficulty in the formation of its academic profession.

Comparative research based on a large scale survey such as Teichler *et al.* (2013) examines

[*]Associate Professor, Graduate School of International Development, Nagoya University, e-mail: yonezawa@gsid.nagoya-u.ac.jp

[1] This article is primarily based on and a modification of a paper published under the title "The Self-contained Academic Profession in Japan, a Matured Country" which appeared in *The Changing Academic Profession in Asia: The Formation, Work, Academic Productivity, and Internationalization of the Academy* (Report of the International Conference on the Changing Academic Profession Project, 2014).

recent changes in the academic profession. However, the comparison is rather cross-sectional, and does not discuss mutual relationships such as the bilateral inflow and outflow of academic mobility.

This article examines the patterns of academic mobility of Japanese and East Asian universities from a comparative and historical point of view. Firstly, it briefly overviews the historical background of the Japanese academic profession in comparison with other Asian cases, and identifies the structural profile of its self-contained formation. Secondly, the complex patterns of academic mobility based on the framework developed by Kim and Locke (2010) are examined, and the data for Japan are presented as an example. Thirdly, international comparisons of representative patterns in the science, technology, engineering, and mathematics (STEM fields) are made. In conclusion, the research reveals a contradictory relationship between gaining international profiles in the academic profession and the capacity of fostering next generation academics.

Historical background

The historical background of East Asian higher education is highly diversified. Except for a few countries (Japan, Thailand and China), the absolute majority of these countries experienced colonization and have developed their academic profession under the strong influence of their colonized history. Even among the countries that have maintained independence, formation of the academic profession in their modern higher education system had to be an implantation of systems that had not existed previously in their traditional societies.

Table 1. Share of graduates from the academic labor market in Japan (%)

	1961	1981	2001
The University of Tokyo	24.8	15.4	11.4
Kyoto University	13.4	9.3	7.6
Tohoku University	5.5	4.8	4
Tsukuba (Tokyo Normal) University	5	4.6	4.1
Kyushu University	4.6	4.5	3.8
Hokkaido University	3.5	3.4	3.1
Waseda University	3	3.5	3.5
Osaka University	2.9	3.7	4.1
Hiroshima University	2.9	2.6	2.4
Keio University	2.1	2.2	2.5
Nagoya University	1.4	2.5	3
Tokyo Institute of Technology	1.4	1.6	1.8
(Non-Japanese universities)	2.7	2.8	6.9
	53.3	51.8	51.3

Modified by the Author based on Fujimura (2005, p.82)

For example, the history of modern higher education in Japan began in the mid-19th century when its traditional and limited trade with the Netherlands was opened to other western countries. Japan invited experts from North America and Europe to receive advice on the formation of its first generation universities and higher education institutions, including the University of Tokyo. The Japanese national government and other local authorities also sent Japanese youth to study abroad. Then, foreign experts who were hired as first generation university teachers were replaced by those who came back after gaining experience in the Western world. By the end of 19th century, Japan established a system to foster next generation researchers at its own flagship universities and higher education institutions. By the end of World War II, Japan established seven "imperial" universities, national comprehensive universities with a research function, such as Tokyo Institute of Technology, Hitotsubashi University, and private universities like Waseda and Keio. After World War II, the number of universities drastically increased, first through education reform under the strong influence of American experts, and then from the 1960s through the more recent mushrooming establishment and expansion of private universities. However, the universities that can foster next generation researchers have been rather limited in number, and the alumni of the above-mentioned, prestigious universities have dominated the academic labor market (Fujimura, 2005) as seen in Table 1.

This phenomenon has been discussed as the issue of "inbreeding". In Japanese literature it has been defined as faculty members whose affiliation is the same as the university from which they graduated. *Kojunsha* published annually the list of such faculty members by name, age, and university of final degree at all universities from 1954 to 2006. Then, the Hiroshima University group led by Shimbori, Arimoto, and Yamanoi analyzed academic mobility by developing the database. Yamanoi (1990) conducted a full-scale analysis of academic mobility in Japan, and demonstrated the existence of a strong influence of university networks in academic mobility among universities. The mechanism of inbreeding is not only seen among the top universities that produce competitive researchers, but more widely as the general tendency of Japanese universities to employ their own graduates in the first junior job status.

Inbreeding is much more apparent among the top research universities. Traditional chair and *Kyojukai* (the professoriate) systems that show a preference for the reproduction of academic culture through generations are typically found among the top universities (Ogawa, 2002; Yonezawa, 2014). The dominant role of academic supervisors in recruitment was also observed among non-(doctoral) degree granting universities (*i.e.* colonies) (Cummings & Amano, 1977). Inbreeding was also seen as new universities undertook actions to raise their prestige (Ushiogi, 2009). Iwata (2011) said it took fourteen years on average to produce the first professor from alumni; after twenty-five years, around 60% of the newly-appointed professors in imperial universities before World War II were from their own alumni.

There were some countries that started their modern higher education by making use of western resources under their own authorities. In Thailand, the first university, Chulalongkorn University,

began a majority of its classes taught by foreign teachers, and curriculum based on the English model was introduced. Korea also accepted western missionaries to start modern higher education in the late 19th century, while the occupation by Japan in the former half of 20th century deprived the country of the opportunity of developing higher education under its ownership (Altbach & Umakoshi, 2004).

In China, the implantation of western higher education significantly increased after defeat in the Opium War in 1840. As was seen in Japan, the government established western style military academies and foreign language institutions and sent young scholars to North America, Europe, and Japan. Foreign invested higher education institutions were also set up by missionaries and industrialists. After the establishment of Peking University, the first national comprehensive university, in 1898, Chinese universities and their academics experienced a series of drastic changes through the Sino-Japanese War and the Cultural Revolution (Min, 2004). Although the historical orbit of Chinese higher education is very different, both China and Japan have strong tendency of academic inbreeding especially among their top universities (Yudkevich *et al*., 2015).

Other East Asian countries, including Korea, have established their own higher education systems as a process of decolonization. In this process, Malaysia, for example, has faced the issue of fair treatment among ethnic groups, and some countries such as Cambodia experienced political turmoil and are still heavily relying on international cooperation in the formation of the academic profession (Altbach & Umakoshi, 2004).

Academic mobility as complex patterns

In contemporary arguments concerning the academic profession in relation to research productivity, brain circulation is recognized as a positive factor in improving the quality of academic profession in an emerging country. Lee and Kim (2010) defined brain circulation as a somewhat extended definition of brain gain with an emphasis on human capital circulating across nations in the global market, benefiting both the sending and receiving nations, *i.e.* a two-way flow of skill, capital, and technology based on the argument of Saxenian (2002, 2005). Here, Korea could be regarded as a typically successful model that realized rapid improvement of international recognition of its leading universities based on the strong international network through their massive amount of foreign trained academics.

Kim and Locke (2010) developed a typology of academic mobility, and identified Korea as a typical model of the domination of "study abroad" mobility, *i.e.* the movement of individuals out of a national higher education system to undertake doctoral training abroad before re-entering the system for post-doctoral study and/or employment. On the other hand, Japan could be identified as a typical pattern of a self-contained model, *i.e.* the internal movement of academic staff from study to employment within the national higher education system or even within a single institution.

On the other hand, Yonezawa, Ishida, and Horta (2013) analyzed the mobility pattern of foreign

academics working at universities in Japan and argued that a weak pattern of magnetic mobility can be observed within a dominant, self-contained mobility pattern. Here, "magnetic" means the flow of academics to a national higher education system for study, work, or both. Yonezawa, *et al.* identified two patterns of academic mobility, namely, foreign academics in the fields of science, technology, engineering, and mathematics (STEM) which are mostly trained at the graduate level in Japanese universities, and foreign language university teachers who concentrated on education only at institutions outside of Japan.

Here, complex patterns of academic mobility can be seen. Kim and Locke (2010) simply showed conceptual patterns, but they did not examine the actual mobility pattern based on the data.

This article endeavors to identify academic mobility pattern of respective countries by utilizing data of the Changing Academic Profession (CAP) Survey and the Academic Profession in Asia (APA) Survey. The CAP is a survey of the academic profession with the largest number of participating countries; it started around 2007 (Teichlar *et al.*, 2013). The APA survey contains many questions in common with CAP survey, and was implemented among Asian countries with diversified socio-economic profiles from around 2012 (RIHE, 2013). Here, the mobility pattern could be operationally defined as follows.

- Self-contained: obtained both first degree and doctoral degree in home country
- Study Abroad: obtained first degree in home country, and doctoral degree abroad
- Magnet A: obtained first degree abroad, and doctoral degree in home country
- Magnet B: obtained both first degree abroad and doctoral degree abroad

Here, three stages in the formation and development of academic profession can be identified.

- Formative stage: starting a new higher education system
- Developing stage: increase of higher degrees
- Matured stage: stagnation or decrease of higher degrees

Table 2 presents, by the year of earning and the academic field in and out of Japan, the number of respondents who earned doctoral degrees based on Japan's country data of the APA survey. The table indicates that the trend patterns in the number of doctoral degree earning is different among respective fields. Namely, a systematic production of doctoral degrees was established by the 1980s in the STEM fields. Then, the number of doctoral degree earning at Japanese universities in the humanities and the social sciences (HSS) began to increase in the 1990s. By the 1970s, except for the HSS fields, the number of doctoral degrees earned inside Japan has always far exceeded the number of doctoral degrees abroad since the 1960s in all fields. These indicate that even in the case of Japan, which experienced the earliest development of the academic profession in East Asia, a

normative formation pattern of the academic profession reaching to the doctoral degree is not such an old phenomenon.

Some fields such as the natural sciences had reached the stagnation of doctoral degree earning by the 1990s. However, the academic profession with doctoral degrees in humanities, social sciences, and health sciences may still have been in a formative stage in the 2000s, at least qualitatively. Having said so, as can be seen in Table 2, the share of those domestic degrees within total earned doctoral degrees among faculties in Japanese universities has always been more than 90% in STEM fields since the 1960s, in the humanities from the 1970s, and even in the social sciences from the 1980s. This data is sufficiently high to identify Japan as a self-contained formation type of the academic profession.

Table 2. Doctoral degrees earned by academics in Japanese universities

	earned in Japan					earned in other countries					share of doctoral degrees earned in Japan (%)				
	before 1970	1970-1979	1980-1989	1990-1999	2000-2012	before 1970	1970-1979	1980-1989	1990-1999	2000-2012	before 1970	1970-1979	1980-1989	1990-1999	2000-2012
Humanities	0	0	1	9	34	0	2	0	2	3		0.0	100.0	81.8	91.9
Social sciences	0	0	2	11	45	0	1	2	3	6		0.0	50.0	78.6	88.2
Natural sciences	0	11	54	53	66	0	1	3	4	0		91.7	94.7	93.0	100.0
Engineering	0	21	34	107	99	0	1	1	0	1		95.5	97.1	100.0	99.0
Agriculture	0	1	17	23	15	0	0	0	0	1		100.0	100.0	100.0	93.8
Health/Medical sciences	3	5	26	44	83	0	0	0	0	1	100.0	100.0	100.0	100.0	98.8
Teacher training and education science	0	0	0	5	5	0	0	0	0	1				100.0	83.3

Table 3. Mobility patterns of academics in Japanese universities (%)

	before 1970	1970-1979	1980-1989	1990-1999	2000-2012
HSS					
Self-contained		0.0	60.0	77.3	87.3
Study Abroad		100.0	40.0	18.2	6.3
Magnet A		0.0	0.0	0.0	5.1
Magnet B		0.0	0.0	4.5	1.3
N	0	3	5	22	79
STEM					
Self-contained	100.0	94.9	96.9	96.8	97.0
Study Abroad	0.0	5.1	3.1	0.9	0.4
Magnet A	0.0	0.0	0.0	1.4	2.1
Magnet B	0.0	0.0	0.0	0.9	0.4
N	2	39	130	218	237

Domination of the self-contained pattern among academics of Japanese universities is also confirmed by a more detailed pattern analysis based on the above-mentioned definition of the academic mobility patterns (self-contained, study abroad, Magnet A, and Magnet B) shown in Table 3. Until the 1980s, the opportunities to earn domestic doctoral degrees had been highly limited in the HSS fields, and then academics in these fields tended to earn doctoral degrees abroad, after earning the

first degree inside Japan. However, once the doctoral degree started to be granted in the HSS fields in the 1990s, the domination of the self-contained pattern of academic mobility became dominant. In the STEM fields, where the systemic production of doctoral degrees started earlier, the domination of the self-contained pattern always dominated after World War II.

International comparison

Hereafter the focus is exclusively upon the STEM fields, where the academic level reaching to the doctoral degree is relatively standardized internationally. Also, academic mobility in the STEM fields could be considered the result of globally-measured research performance, at least compared with one in the HSS fields where the cultural and linguistic factors are significantly influential.

Following are the typical patterns selected from the countries participating in both the CAP and APA surveys. From the CAP survey, four representative cases were selected (Table 4). Germany could be understood as a typical case the self-contained pattern dominated just as Japan is seen to be in Table 3. There, the number of earned doctoral degree were already high in the 1980s, and the share of domestic doctoral degree (Self-contained + Magnet A) has always exceeded 90%. Korea can be categorized as a typical case where the study abroad pattern dominated. From the 1980s Korean academics in the STEM fields began to earn doctoral degrees in Korea, and even in the 2000s, around 30% of them earned doctoral degrees outside their country. However, the share of the self-contained pattern already exceeded the share of the study abroad pattern by the 1990s, mainly caused by the acquisition of the capacity of systematic production of doctoral degrees by Korean universities, at least, in the STEM fields.

The United States type can be understood as the significance of the Magnet A mobility pattern. Here, a significant number of faculty who earned the first degree outside of the United States has always exceeded 20% (Magnet A and B), but the absolute majority of them earned the doctoral degree in the United States (Self-contained and Magnet A). This means that it is much more advantageous in getting an academic job in the United States if one earns doctoral degrees at a university there. At the same time, the United States has experienced stagnation in the absolute number of doctoral degrees earned since 1970s, at least in the STEM fields.

Lastly, Hong Kong can be seen as a representative example of the dominance of magnet patterns in academic mobility. Until the 1990s, the majority of the faculty there earned both first degrees and doctoral degrees outside of Hong Kong (Magnet A). The difference of Magnet A and Magnet B is caused mainly by the capacity of fostering next generation researchers. Only recently did Hong Kong started to hire those who earned doctoral degrees in Hong Kong. This may be partly because Hong Kong has attracted internationally competitive researchers to a high level academic environment, while it is still recent that they obtained the capacity in their graduate education in the STEM fields to meet the high standards required of their faculty members.

Table 4. Mobility patterns of academics of selected countries from the CAP survey in the STEM fields (%)

	before 1970	1970-1979	1980-1989	1990-1999	2000-2008
Germany					
Self-contained	95.2	90.4	87.9	90.0	85.2
Study Abroad	0.0	1.2	0.7	3.0	0.8
Magnet A	4.8	2.4	4.7	3.0	6.6
Magnet B	0.0	6.0	6.7	4.0	7.4
N	21	83	149	201	122
Korea					
Self-contained	0	20.0	47.2	58.0	67.0
Study Abroad	100	80.0	51.4	42.0	31.1
Magnet A					
Magnet B	0	0.0	1.4	0.0	1.9
N	1	5	72	207	106
US					
Self-contained	75.8	81.8	71.3	74.4	79.4
Study Abroad	0.0	0.0	1.1	0.0	0.0
Magnet A	15.2	9.1	16.1	17.4	15.9
Magnet B	9.1	9.1	11.5	8.1	4.8
N	33	66	87	86	63
Hong Kong					
Self-contained		5.6	1.9	24.5	35.7
Study Abroad		16.7	22.2	16.3	15.7
Magnet A		0.0	1.9	7.1	21.4
Magnet B		77.8	74.1	52.0	27.1
N	0	18	54	98	70

Table 5 shows the results of the APA survey in the same manner, *i.e.* the trends in the STEM fields in Asian countries. Here, Japan and Taiwan are obviously in the matured stage (Table 3). However, in Taiwan, the study abroad pattern of academic mobility dominated until the 1980s, and even now is significantly strong. Considering that Japan is definitely a country where the self-contained mobility pattern dominates, Taiwan is much closer to Korea in terms of the significance of the Study Abroad pattern. As shown in Table 5, other countries can be understood to be in a formative, developmental stage. Especially Cambodia, which started the actual formation of the academic profession in the 2000s and even now it is difficult to ascertain whether the Cambodian universities have the capacity to foster next generation researchers and the academics with doctoral degrees tend to start studying abroad at the first degree level.

To reiterate, mobility patterns in the STEM fields are different among those countries in the formative, developmental stage of the academic profession. Namely, in China, the self-contained mobility pattern is highly dominate as seen in Japan and Germany. In Malaysia and Vietnam, the study abroad patterns and Magnet B patterns are substantially strong, while the share of the self-contained patterns rapidly increased in the 2000s. In Singapore, the Magnet B pattern is highly significant just as seen in Hong Kong, and the reason should be completely different with Cambodia.

Table 5. Mobility patterns of academics in Asian countries from the APA survey (%)

	Before 1970	1970-1979	1980-1989	1990-1999	2000-2012
Cambodia					
Self-contained				0.0	20.0
Study Abroad					
Magnet A					
Magnet B				100.0	80.0
N	0	0	0	3	15
China					
Self-contained			83.3	80.0	97.5
Study Abroad			16.7	20.0	2.5
Magnet A					
Magnet B					
N	0	0	6	25	397
Taiwan					
Self-contained		27.3	21.7	57.6	65.0
Study Abroad		54.5	78.3	39.4	35.0
Magnet A					
Magnet B		18.2	0.0	3.0	0.0
N	0	11	23	33	20
Malaysia					
Self-contained			37.5	15.2	40.3
Study Abroad			37.5	15.2	24.8
Magnet A			0.0	8.7	15.4
Magnet B			25.0	60.9	19.5
N	0	0	16	46	149
Singapore					
Self-contained	0.0	0.0	0.0	5.0	15.2
Study Abroad	0.0	50.0	11.1	10.0	4.3
Magnet A	0.0	0.0	0.0	0.0	13.0
Magnet B	100.0	50.0	88.9	85.0	67.4
N	1	2	9	20	46
Vietnam					
Self-contained				0.0	48.2
Study Abroad				50.0	46.4
Magnet A				0.0	3.6
Magnet B				50.0	1.8
N	0	0	0	2	56

Conclusion

From the foregoing analysis, one finds that the mobility patterns and the formation of the academic profession in various countries do not necessarily take the same pathway. The summarized results point out a contradiction between the international profiles in academic mobility and the capacity to foster next generation researchers at a system level (Table 6). Namely, if a higher education system has a high level capacity to foster next generation researchers, a self-contained model tends to be strengthened. At the same time, the legacy of colonization may still be influential. Countries that developed sovereign higher education systems almost from the beginning tended to trust in doctoral degrees earned domestically (Self-contained or Magnet A), while others with colonized experiences tended to rely more on degrees earned abroad (Study Abroad or Magnet B).

Further detailed investigation based on international comparisons and clear frameworks are necessary to identify the missing link for the enhancement of research capacity. Also, increasing academic collaboration and exchange at the regional level may change academic mobility patterns for more horizontal ones as have started in Europe. However, at least, the simplistic applause of increased academic mobility as a symbol of globalization may mislead the characteristics of academic profession. A more detailed analysis based on the perspectives of global history is certainly suggested.

Table 6. Patterns of academic mobility: National comparison

	Forming	Developing	Matured
Self-contained		China	Japan, Germany
Study Abroad		Malaysia, Vietnam	Taiwan, Korea
Magnet A			US
Magnet B	Cambodia		Hong Kong, Singapore

References

Altbach, P.G., & Umakoshi, T. (Eds.). (2004). *Asian Universities: Historical perspectives and contemporary challenges.* Baltimore: The Johns Hopkins University Press.

Cummings, W.K., & Amano, I. (1977). The changing role of the Japanese professor. *Higher Education, 6*(2), 209-234.

Fujimura, M. (2005). Ryudoka suru Daigaku Kyoin Shijo (Increasing mobility of academic labor market). In A. Yamanoi (Ed.), *Nihon no Daigaku Kyoin Shijo Saiko (A Study of Academic Marketplace in Japan)*. Hiroshima: RIHE, Hiroshima University. [In Japanese]

Iwata, K. (2011). *Kindai Nihon no Daigaku Kyoju Shoku (Academic Profession in Modern Japan)*. Tokyo: Tamagawa University Press. [In Japanese]

Kim, T. (2001). *Forming the Academic Profession in East Asia: a Comparative Analysis*. New York & London: Routledge.

Kim, T., & Locke, W. (2010). *Transnational academic mobility and the academic profession*. Centre for Higher Education Research and Information, The Open University, London.

Lee, J., & Kim, D. (2010). Brain gain or brain circulation? U.S. doctoral recipients returning to South Korea. *Higher Education, 59*(5), 627-643.

Min, W. (2004). Chinese Higher Education: The legacy of the past and the context of the future. In P.G. Altbach, & T. Umakoshi (Eds.), *Asian Universities: Historical perspectives and contemporary challenges* (pp.53-83). Baltimore: The Johns Hopkins University Press.

Ogawa, Y. (2002). Challenging the traditional organization of Japanese universities. *Higher Education*

43(1), 85-108.

Research Institute for Higher Education (RIHE) (Ed.). (2013). *The Changing Academic Profession in Asia: Teaching, Research, Governance and Management* (RIHE International Seminar Reports No.20). Hiroshima: RIHE, Hiroshima University.

Saxenian, A. (2002). Brain circulation: How high-skill immigration makes everyone better off. *The Brookings Review, 20*(1), 28-31.

Saxenian, A. (2005). From brain drain to brain circulation: Transnational communities and regional upgrading in India and China. *Studies in Comparative International Development*, *40*(2), 35-61.

Teichler, U., Arimoto, A., & Cummings, W.K. (Eds.). (2013). *The Changing Academic Profession*. Dordrecht: Springer.

Ushiogi, M. (2009). *Shokugyo toshite no Daigaku Kyoju (University Professors As a Profession)*. Tokyo: Chuko Sensho. [In Japanese]

Yamanoi, A. (1990). *Daigaku Kyoju no Ido Kenkyu (Research on the Mobility of University Professors)*. Tokyo: Toshindo. [In Japanese]

Yonezawa, A. (2014). The Academic Profession and University Governance Participation in Japan: Focusing on the role of Kyoju-kai. *Educational Studies in Japan, 8,* 19-31.

Yonezawa, A., Ishida, K., & Horta, H. (2013). The long-term internationalization of higher education in Japan. In K. Mok, & K. Yu (Eds.), *Internationalization of Higher Education in East Asia: Trends of Student Mobility and Impact on Education Governance* (pp.179-191). Routledge.

Yudkevich, M., Altbach, P.G., & Rumbley, L.E. (2015). *Academic Inbreeding and Mobility in Higher Education*. Palgrave Macmillan.