Chapter 11
Academic Inbreeding of Korean Professors: Academic Training, Networks, and their Performance

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11.1 Introduction

Despite the rapid growth of higher education enrollment in Korea, the higher education system at the post-graduate level was not training enough students to step into university faculty positions prior to the 1980s. Higher education policy before the 1990s was aimed more toward expanding enrollment at the undergraduate rather than the post-graduate level (Shin 2012a), and this unbalanced demand-supply structure of the faculty job market existed until the mid-1990s. Prior to that time, many academics were hired with only a master degree, and many of them were not fully prepared for their teaching and research role as faculty members.

The lack of solid academic training programs in Korea caused academics to follow a few common career paths. Many went overseas, e.g., to the United States (U.S.), the United Kingdom (U.K.), Germany, and Japan to obtain advanced degrees, then returned to Korea and became professors in Korean universities. This career pattern is still quite common today. For example, the proportion of faculty trained by foreign universities was close to 40 % in 2008 (Shin 2012b). Many believed that academics with doctoral degrees from advanced higher education systems are more capable of being successful. Second, a significant number of universities tended to hire their own graduates, including bachelors and PhD graduates, as faculty members to supplement unfilled positions.

In this context, the present study focused on faculty training and inbreeding in Korea and its impact on the academic profession. Faculty training is regarded as a

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critical factor in explaining faculty perceptions, behavior, and performance in many higher education settings. It is similar to demographics e.g., gender, age, family, but differs slightly because faculty training represents the academic socialization process of professors as well as knowledge and skills that they learned in the training processes (e.g., Schommer-Aikins et al. 2003). Along the same lines, faculty who graduate from a foreign university might internalize different perceptions toward academic scholarship (e.g., research, teaching, and service) compared with their colleagues who graduated from a Korean university.

For this reason, faculty PhD training is a strong factor in explaining faculty members' perceptions, behaviors, and performance. Faculty training can be related to personal experience (e.g., research experience with one's professors, post-doctoral experience, teaching methods training) or to structural factors (e.g., one's graduating university or major). Personal experience factors might even vary among professors who graduated from the same PhD program with the same major. Higher education researchers have explored these personal experiences factors (e.g., Shin and Cummings 2010), but few studies have been conducted on the structural factors. In Asian contexts such as Japan and South Korea, structural factors are critical in faculty hiring, promotion, and grant seeking (e.g., Horta et al. 2011). This study therefore describes the patterns of doctoral training and inbreeding status among Korean academics and how these differ by university mission and discipline. We then uncover how faculty training, mainly structural factors, affects academics' perceptions, activities, performance, and job satisfaction.

Academic inbreeding is defined as a "recruitment practice in which universities hire their own graduates as faculty directly after doctoral graduation" (Horta et al. 2011, p. 36). Academic inbreeding has two dimensions of influence on academia. It is generally understood as a negative process since a university chooses faculty members within its limited pool of graduates, who then only transmit similar knowledge rather than encouraging creativity and fresh perspectives. However, inbreeding also has several advantages, such as institutional commitment from inbred academics. Inbreeding has different configurations in various higher education contexts. For example, unlike the general definition of inbreeding, it is more commonly understood as hiring professors who had been awarded their first degree, not their doctoral degree, at the same university in Korea according to the 'Public Educational Officials Act' of 2005 (article 11–2). With the introduction of this unique context in Korea, we explore the influence of academics' backgrounds on their perceptions, activities, and performance. We propose three research questions in this study as follows:

1. What are the patterns of doctoral training among Korean academics, and how do they differ by university mission and discipline?
2. What is the inbreeding status among Korean academics, and how does it differ by university mission and discipline?
3. How do faculty members' perceptions, workloads, performance, and job satisfaction differ based on the patterns of their PhD training and their inbreeding status?

11.2 The Contexts of Korean Higher Education

To explore the relationship between doctoral training/inbreeding status and the academic profession in Korea, we need to understand the context of Korean higher education. In this section, we first introduce the expansion of the faculty job market. Then, we discuss the background of the academic network and hierarchy in the Korean higher education system. Finally, we describe faculty hiring patterns in Korea in terms of doctoral training and inbreeding.

11.2.1 Growth of the Faculty Job Market

Higher education enrollment has rapidly increased in Korea over the last six decades. In the 1950s, the number of students enrolled in higher education institutions was only 11,358, and enrollment increased to more than 3.5 million in 2002. Currently, 71 % of high school graduates went on to undertake college (two or four-year institutions) education in Korea in 2014. South Korea has experienced the most successful expansion of higher education among all OECD countries.

This growth was initiated by the government in order to provide more opportunities for high school graduates. Government policies were instituted in two ways (Lee 1989). One policy approach was adopted in 1980 to expand the student quota by the government allowing higher education institutions to admit 30 % more students. The other approach was to allow new, private higher education institutions to enter the higher education market. Currently, over 80 % of college enrollment is accounted for by the private sector.

Despite the rapid increase in college enrollment, the university sector was not ready to train its graduate students for faculty positions in 1980 because the Government introduced the policy too rapidly. As a result, the post-graduate students hired as professors in the early 1980s were not fully prepared for their role as faculty members. Many of them held only master degrees and did not have enough experience in research and/or teaching. As shown in Fig. 11.1, the number of PhDs granted was less than the total number of faculty from 1981 to the mid-1990s. Master degree holders and foreign PhD degree holders filled the gap between the demand and supply of PhDs. In 1965, the proportion of doctoral degree holders among faculty members was only 13 %; however, it had increased to 59.4 % by 1995, and now it is currently above 90 % (Korean Ministry of Education, and Science and Technology 2010).

With the increasing demand for a doctoral education, many Korean universities have established doctoral programs. However, the quality of these doctoral programs was insufficient to train future academics in the initial stage, and even today, many PhD program providers are struggling with the quality of their programs. Naturally, Korean universities preferred to recruit academics who had earned doctoral degrees abroad, and this preference was particularly strong in research universities with good reputations (Shin 2012b).

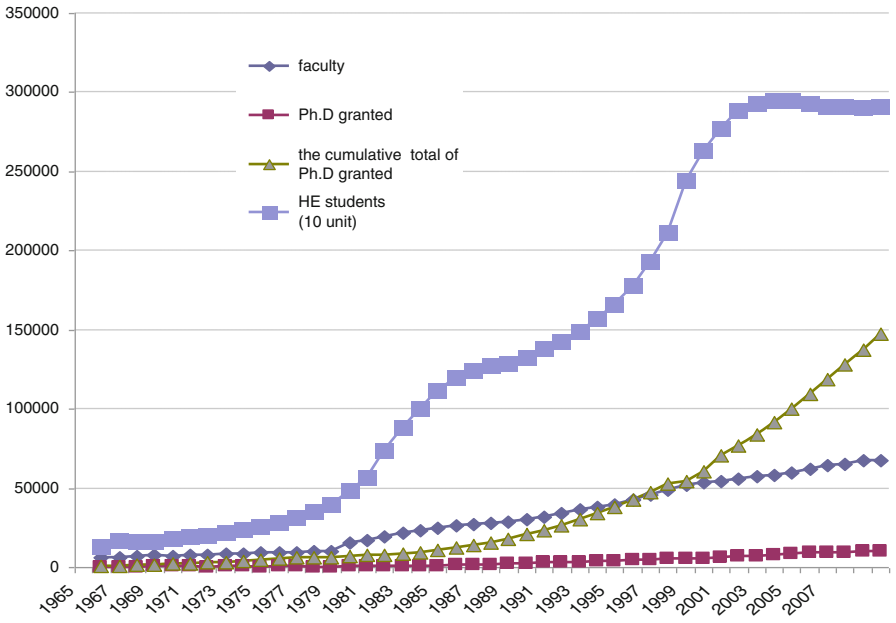

Fig. 11.1 Growth of higher education market in Korea (Source: Korean Ministry of Education (1965–2010), *Education statistics*)

11.2.2 University Hierarchy and Academic Networks ('hakmack')

To understand the pattern of doctoral training and inbreeding among academics, we need to describe the hierarchical structure of the higher education system and academic network in Korea. The hierarchy of higher education can be interpreted in different ways according to the specific context and proved by different forms of measurement such as university reputation, student's academic achievement, or faculty performance.

In this study, we used the mission classification proposed by Shin (2009) to understand the hierarchy of Korea's higher education system. His study classified Korean universities into 'research, research active, and other comprehensive universities' based on faculty performance; however, this classification is also a useful way to interpret the unique hierarchy of Korean universities. For example, research universities in his classification have not only the highest research output among faculty members, but also the best reputation in society. In addition, at the undergraduate level, these universities recruit the top students based on their scores in a very competitive national exam. Second, the research active universities also have a great reputation with an abundance of doctoral programs, although their research performance is relatively lower than top-tier research universities. Third, other comprehensive universities have lower research performance among academics (for details, see Shin 2009). In this study, we used Shin's (2009) mission

Table 11.1 PhD degree granted by types of university mission

Mission	Engineering	Medical science	Natural sciences	Humanities and social sciences	Arts and physical science	Total
Research universities	1,159	531	531	529	135	2,885 (35.6 %)
Research active universities	753	844	377	451	126	2,550 (32.3 %)
Other universities	647	459	380	816	163	2,464 (31.2 %)

Note: The mission is based on Shin's (2009) classification of Korean universities
Source: Korean Ministry of Education and Science and Technology (2010)

classification as an empirical measurement to understand the hierarchy of Korean universities, and this classification can be described as an example of universities' reputation.

The rapid expansion of the faculty job market since the 1990s enabled a few universities capable of training PhDs to dominate the PhD training market. As Table 11.1 shows, only 21 research-focused universities train almost 70 % of the PhDs in Korea. In particular, majority of them come from only seven major universities. They form strong networks for their academic life (e.g., conference information, job opportunities, research collaborations, etc.). This network is called the *hakmack* in Korea and has strong links in business, politics, and the bureaucratic life of Korean elites.

In addition, university hierarchies have constantly been reinforced by the *hakmack*, as graduates of prestigious universities have benefited from the *hakmack* networks in their personal lives. Interestingly, undergraduate education is at the core of the *hakmack* rather than graduate education, as university admission for undergraduate colleges is very competitive while graduate programs are less so. Consequently, the networks between professors and students and between university graduates are based on their undergraduate education. From the perspective of an academic network, undergraduate networks are much more powerful than graduate networks, and the networks of undergraduate alumni are even stronger. This undergraduate alumni network remains strong even when they study abroad and after returning Korea with advanced degrees.

The universities from which students graduate (hereafter referred to as 'home universities') provide students with their potential networks for their academic lives and the benefits they enjoy in their personal lives. Because of the tremendous social benefits of the *hakmack*, many K–12 students spend a significant amount of effort in getting accepted by prestigious universities (e.g., Seoul National, Yonsei, Korea, Ehwa Women's, Sungkyunkwan, Hanyang, etc.). When they fail to get admitted to the prestigious universities, they repete for their university exam in a 'private tutoring institute' to ensure they get high test scores (Lee et al. 2010). The Korean government has introduced many policy initiatives to mitigate the *hakmack* and its negative impacts; however, there is no sign that the initiatives are successful.

The *hakmack* is also influential in hiring professors in many universities. Graduates from prestigious universities compete with each other to secure an academic job. For example, the graduates of Seoul National University (SNU) have strong *hakmack* because the university has the most prestige in Korea. There are some second-level universities that are closing in on SNU, but there is still quite a gap in terms of social reputation, the academic achievement of their students, and faculty performance.

11.2.3 Patterns of Doctoral Training

After finishing their first degree within the hierarchical system, as we described in the previous section, students who decide to continue their studies choose universities to obtain either their master's degree or their PhD degree. They have three options from which to choose for their advanced degrees.

First, from a traditional perspective, students prefer to go overseas for their PhD degrees, and having a PhD degree from an advanced higher education system is highly regarded when they return to Korea seeking an academic position. The primary goal of studying abroad for elite students is related to gaining advanced knowledge and skills from developed countries. For this reason, many Korean students go to the U.S., Japan, and other selected European counties (e.g., the UK, Germany, and France) (Shin 2012b).

Second, students who do not go abroad but instead choose domestic universities have two options: one to choose their home university to earn their PhD and the second is to choose another Korean university. Most of the latter group tends to be concentrated in research universities, at least some regional hub universities with a better reputation than that of their home university for undergraduate study.

For academics, and in particular for Korean academics, having an advanced degree from a research university is critical to obtaining a faculty job. Shin (2012b) proposed three types of faculty doctoral training patterns focused on study abroad. The three patterns could be expanded to five patterns by considering their inbreeding status. This study expanded the patterns to five types by focusing on academics' first degree, which is a critical factor in academic inbreeding in Korean higher education. The first degree (undergraduate degree) is critical in academic networking in Korean academic society because social networks depend more on undergraduate education, but the masters program is not a critical factor in obtaining faculty job in a Korean university. In this context, the *hakmack* network is based on an academic's home university during their undergraduate years.

- Pattern 1: A graduate who obtained his/her first degree in a university with an excellent reputation goes abroad for his/her PhD, most likely to a U.S. university, then returns to Korea and becomes a professor in a university.
- Pattern 2: A graduate of a highly reputable university stays at his/her home university for his/her PhD and then becomes a professor in a university.

- Pattern 3: A graduate of a university without a great reputation goes abroad for his/her PhD or transfers to a Korean university that has a better reputation than his/her home university
- Pattern 4: A graduate of a regional hub university continues on at his/her home university to earn his/her PhD and then becomes a professor in a university.
- Pattern 5: A graduate of a local university moves to a regional hub university for his/her PhD and then becomes a professor in a university.

The professors who teach in research universities with excellent reputations usually identify with pattern 1 or 2, although there are some exceptions. The majority of professors who identify with patterns 3, 4, or 5 work in local universities that do not have the top reputations.

To 'study abroad' implies that they are elite students if they graduated from highly reputable Korean universities; on the other hand, study abroad for other students implies that the students have a chance to upgrade their 'academic prestige' through study outside Korea. Therefore, professors in pattern 1 tend to get academic jobs at Korean research universities with great reputations. They are considered the elite, and their networks with their former professors are a great help in their job searches. Their former professors are influential in Korean academic society and they continue to help their students to obtain positions in Korean universities.

However, professors in patterns 2, 3, and 4 tend to compete with one another. Although professors in pattern 2 graduated from highly reputable universities during their undergraduate education, their PhD training is not as highly regarded when compared with their peers who have been trained abroad. Professors in pattern 5 are less competitive than their peers in patterns 2, 3, and 4 and they tend to obtain positions in local universities.

Sending elite students to study abroad is typical of a developing country; however, the pattern is quite different in most developed countries where elite students are generally trained by domestic universities, as is the case in Japan (Horta et al. 2011). Since studying abroad is a major characteristic of the Korean academic profession, examining patterns of how PhDs are obtained may be useful. In this study, we simply classified PhD-trained faculty in three ways: faculty members who earned their PhDs abroad, from their home universities, and from other domestic universities.

11.2.4 Inbreeding and Faculty Hiring

Faculty inbreeding has been widespread in prestigious universities; it was a critical issue in U.S. universities in the early 1900s, and even today is an issue in some disciplines, e.g., law schools (Eisenberg and Wells 2000; Horta et al. 2010; Soler 2001). Although there has been controversy on inbreeding issues among academics, inbreeding has both positive and negative sides.

Inbred faculty members are less productive in their academic performance (Horta et al. 2010; Pelz and Andrews 1966; Soler 2001); they tend to maintain the current campus culture and resist innovation (Horta et al. 2011; Velho and Krige 1984). They also resist establishing meritocracy on campus (Horta et al. 2011). On the other hand, academic inbreeding has mutual benefits to home universities and their current faculty. Inbred faculty members have high institutional identity and loyalty to their home universities. They tend to voluntarily take on unpopular tasks such as service and administration while non-inbred academics may be less inclined to undertake such work for their universities (Horta et al. 2011).

Inbreeding is most widespread at the top of the reputation/quality ranks of universities in certain countries with a steep vertical university hierarchy, e.g., the U.K., Japan, and Korea. However, the terms of inbreeding differ across higher education systems. For example, in Germany, inbreed professor means a professor who has been employed at the same university where he/she is hired as a professor immediately after his/her junior professorship. In the U.S. and many other countries, inbreeding is understood as the hiring of professors who have been awarded a PhD at the same institution. In Korea, in contrast, inbreeding is understood as the hiring of professors who have been awarded their first degree at the same university. This reflects an inclination of universities to recruit former graduates, irrespective of whether they had their doctoral training at their home institutions or abroad.

Teaching, especially as a professor, is considered a prestigious job in Confucian countries such as Korea, and there is extensive competitive for any new faculty position. Given this, transparency in the faculty hiring process is important. Although the news media often report corruption in the faculty hiring process the process is generally open and transparent because of strong governmental involvement. The minimum criteria for applying for a faculty job were set by the government (now, each university sets the criteria), and the national government conducts inspections if it detects anything suspicious.

The governmental efforts to make the hiring process transparent were successful to some extent; however, the culture of faculty hiring has not changed much. Senior professors have strong ties with their former students who are professors, and the network also extends to the senior professors' current students. Because of the academic networks (*hakmack*), the internal faculty hiring process is relatively less transparent and thus the *hakmack* is the main social issue to address (Korean Ministry of Education and Science and Technology 2010). Faculty inbreeding has been a longstanding issue for policymakers as well as academics.

The rate of faculty inbreeding is about 25 % nationwide, and the proportion does not differ across different types of universities. However, inbreeding is particularly high among the top level of research universities in Korea—i.e., Seoul National, Yonsei, and Korea University. The rate of inbreeding is over 50 % in the top-ranking Korean universities—89 % in Seoul National, 77 % in Yonsei, and 61 % in Korea—and this raises concerns about transparency in faculty hiring. This is similar to other countries, including the U.S. where top-ranked universities (e.g., Harvard, Yale, and Stanford) have high faculty inbreeding rates (Burris 2004). In some contexts, a high

level of inbreeding is a sign of competitiveness. For example, top-ranking departments in top-ranking universities tend to have higher inbreeding rates than relatively lower-ranked departments in the same universities.

Nevertheless, policymakers suspect that academic networks—*hakmack*—might be influencing the faculty hiring process rather than meritocracy. In the early 2000s, the national government set a guideline that one out of every three new faculty members must be a graduate from another university (Public Educational Officials Act 2005). Since then, the rate of inbreeding has decreased in many universities although there is still controversy about this in Korea. For example, the inbreeding rate for newly hired faculty was 18.52 % in 2007, 17.8 % in 2008, and 17.9 % in 2009 (Korean Ministry of Education, Science and Technology 2010).

11.3 Data and Analytical Strategy

The data for this study is drawn from the Korean Changing Academic Profession (CAP) data—an international comparative study on academic professions. The data include 900 regular full-time professors in four-year universities. The sample represents a population of Korean professors by discipline, gender, faculty ranks, etc. To analyze the data according to our main research interests, we pay special attention to three aspects.

First, we focus on patterns of doctoral training among Korean academics. Did they obtain their doctoral degrees in Korea or overseas? If they obtained their doctoral degrees in Korea, did they complete their degrees in their home universities or other universities? This provides insight on the doctoral training pattern among academics in Korea. However, this pattern differs according to structural factors, such as the university type. We examine how this pattern of doctoral training differs by institutional mission and academic discipline as well. In this analysis, the university mission classification of Korean universities is based on Shin's study (2009), and academic disciplines will be classified according to hard and soft dimensions (for details, see Shin and Cummings 2010).

Second, we focus on the academic inbreeding status among Korean academics and how it is related to faculty hiring patterns in Korea. In analyzing faculty hiring patterns, we focus on whether a faculty member is hired by his/her home university. In this study, as described previously, 'home university' refers to the university where an academic obtained his/her first degree. In other words, faculty inbreeding depends on whether a professor graduated from an undergraduate program in his/her current university. This is quite different from the U.S., where a PhD program is the main criterion for judging inbreeding (e.g., Eells and Cleveland 1999), and this reflects the social context of Korean higher education, as we discussed in the previous section.

Our third area represents our primary research interests, namely how faculty members' perceptions, workloads, performance, and job satisfaction differ based on

the patterns of their PhD training and their inbreeding status. Faculty members' perception about academic scholarship is a critical factor in explaining their activities and performance. For example, some put more weight on research than on teaching. In addition, faculty members who have been trained in a research-focused university, particularly in a world-class research university, may differ in their research performance from their peers who have been trained in less prestigious universities. Further, the differences in their perceptions and performance may be related to their job satisfaction. To examine this, we will develop a multivariate model to test whether inbred academics are more research productive and/or more satisfied with their academic job than those non-inbred academics.

11.4 Findings and Discussions

11.4.1 PhD Training Among Korean Academics

PhD training is analyzed according to where they obtained their degrees. We classified three types of PhD training—abroad, home university in Korea, or other universities in Korea. As shown in Table 11.2, the majority of professors obtained their PhD degree either from foreign universities (42 %) or from their home universities (40 %), and only 16 % of the professors earned their PhDs from other domestic universities.

These descriptive statistics show that the faculty PhD training patterns of Korean academics are quite simple: they study abroad or they stay on their own campus to complete their PhDs. This pattern is different from Japan where most professors obtained their PhDs from their own country. Contrary to Japan, Korean universities tend to prefer foreign degree holders, especially from US universities and this is particularly getting important since Korean universities has been emphasizing internationalization and teaching courses in English (Shin 2012b).

Interestingly, the preference for Korean universities to hire faculty with overseas doctorates or who attended their home universities for their undergraduate studies is stronger in research universities than in others (mostly teaching-oriented

Table 11.2 Patterns of Korean academics' PhD training by institutional mission

	Place of award of PhD			
Mission	Abroad	Home university in Korea	Other university in Korea	Total
Research university	199 (48.9)	169 (41.5)	39 (9.6)	407 (100)
Research active university	86 (38.2)	109 (48.4)	30 (13.3)	225 (100)
Others	69 (36.1)	56 (29.3)	66 (34.6)	191 (100)
Total	354 (42.0)	334 (40.0)	135 (16.0)	823 (100)

Notes: (1) home university: university of first degree, (2) Mission: Shin (2009)'s classification
Source: CAP Survey 2007/2008

universities). As Table 11.2 indicates, the proportion of overseas doctorates is highest in research universities where the number of home university graduates is also high. However, the proportion of faculty members from other universities in research universities is only 9.6 %. On the other hand, in other universities, the proportion of overseas doctorates is low but the proportion of faculty from other domestic universities is high. The stronger the mission is research-oriented, the greater the numbers of overseas or home university doctorates are found.

The type of PhD training differs by academic discipline as well. For example, professors in soft disciplines—humanities and social sciences—tend to study for their PhDs in domestic universities while professors in hard disciplines—natural sciences, and engineering—tend to study in foreign universities. Furthermore, this pattern changes depending on age cohorts. Figure 11.2 indicates the differences between academic disciplines, as affected by age. It can be seen that the proportion of foreign degree holders among current faculty is decreasing in hard disciplines while the proportion is increasing in soft disciplines by age.

The increase in domestic degree holders in faculty employment reflects the fact that scientific productivity in science and engineering among Korean universities is getting competitive with that of the US and other advanced countries. On the other hand, students in humanities and social sciences benefit when they study abroad because many Korean universities have begun to emphasize publication in international journals (Shin 2011). This policy tends to push many students in soft disciplines to study abroad.

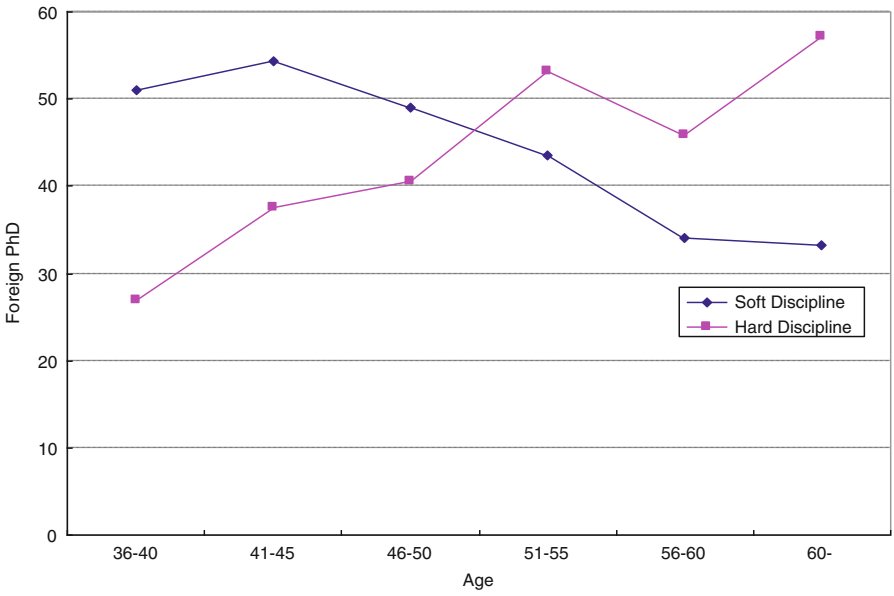

Fig. 11.2 Proportion of Korean academics foreign degree holders by age cohorts (Source: CAP Survey 2007/2008)

Table 11.3 Korean academics' inbreeding status by institutional mission

	Inbreeding status (based on bachelor's degree)		
Mission	Non-inbreed	Inbreed	Total
Research university	324 (79.6)	83 (20.4)	407 (100)
Research active university	172 (76.4)	53 (23.6)	225 (100)
Others	121 (63.7)	69 (36.4)	190 (100)
Total	627 (73.2)	205 (26.8)	832 (100)

Notes: Inbreeding: The university of first degree and university of current employment are identical; Non-inbreeding: The university of first degree and university of current employment are not identical
Source: CAP Survey 2007/2008

11.4.2 Faculty Inbreeding

Table 11.3 shows academics' inbreeding status by institutional mission. Inbred academics indicate that the university of first degree and university of current employment is identical, while for non-inbred academics the university of first degree and university of current employment are not identical. The proportion of inbred academics is over 20 % across institutional missions and it is particularly high in other comprehensive universities rather than research universities. This is because graduates from non-research oriented universities have obtained their PhDs in research universities and then tend to return to their home universities where they obtained their first degrees.

The changing pattern of faculty inbreeding is given in Fig. 11.3, which shows inbreeding rates nationwide have been decreasing by age cohorts. The inbreeding is highest among the over 60s who were hired in the 1980s when the Korean government adopted a new policy to expand higher education. The faculty over 60 years may have stronger *hakmack* spirit and thus might have a lower preference for meritocracy. Interestingly, another peak of inbreeding appears about 15 years later among cohorts aged 46–50 years who were hired when the 60 years or over cohort was in charge of faculty hiring (e.g., in the position of department chair and most of the 46–50 year cohorts were their students at that time. This should be studied further).

Furthermore, faculty inbreeding rates are higher in hard disciplines than soft disciplines where faculty is over 55 years while the rate is higher in soft disciplines for those younger than 55 years. These disciplinary differences can be interpreted from different perspectives. One explanation is that over time meritocracy becomes more embedded in the hard disciplines than the soft disciplines. However, recent trends emphasize academic performance both in hard and soft disciplines, and faculty inbreeding has been decreasing both in hard and soft disciplines as shown in Fig. 11.3.

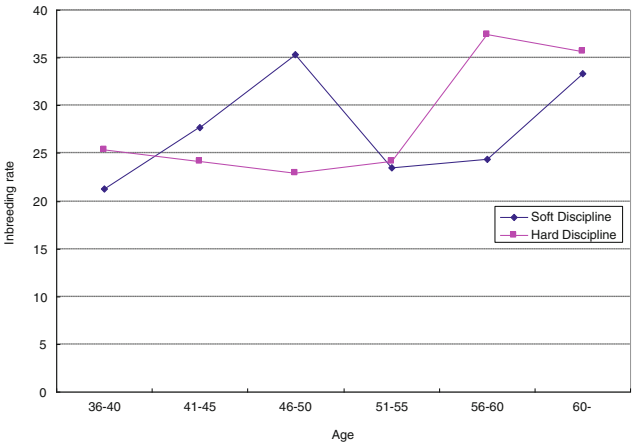

Fig. 11.3 Korean academics' inbreeding rate by discipline and age cohorts (Notes: Inbreeding: The university of first degree and university of current employment are identical; Non-inbreeding: The university of first degree and university of current employment are not identical) (Source: CAP Survey 2007/2008)

11.4.3 Sense of Affiliation and Workloads

Based on two criteria regarding where academics' PhDs were awarded and their inbreeding status, we examined how these factors affect the perceptions, workloads, performance, and satisfaction of Korean academics. We classified their PhD training as taking place abroad, at their home university in Korea, or at other universities in Korea. At the same time, we considered inbreeding status based on where they obtained their first (undergraduate) degrees.

11.4.3.1 Sense of Affiliation

Inbreeding faculty tend to have a stronger sense of institutional affiliation whatever their pattern of faculty training. This finding is not surprising because inbreeding faculty have a stronger identity as a professor in their home university. These findings have been discussed in previous studies (Horta et al. 2011; McNeely 1932). Horta et al. (2011) report that inbred faculty is familiar with the university's organizational knowledge and tends to reinforce organizational traditions and academic cultures. One strong rationale for hiring inbreeding faculty is to hire those who have a strong sense of loyalty towards their home university.

Among the three places of award of PhD, faculty members who have been trained by other domestic universities have a stronger sense of affiliation than the academics, who hold their PhDs from abroad or home university. In particular, inbred academics in other domestic universities show the highest sense of affiliation. The professors who have earned their PhDs from other domestic universities may have

Table 11.4 Korean academics' sense of affiliation and job satisfaction

	Place of award of PhD				
	Abroad	Home university	Other university	Total	
Sense of affiliation	Non-inbreed	68.0	72.0	78.7	72.9
	Inbreed	80.5	81.0	90.3	83.9
Satisfaction	Non-inbreed	78.8	67.7	76.4	74.3
	Inbreed	86.2	77.4	80.6	81.4

Source: CAP Survey 2007/2008

Table 11.5 Korean academics' workloads

	Place of award of PhD				
Types of activity	Abroad	Home university	Other university	Total	
Teaching	Non-inbreed	21.2	21.1	22.7	21.7
	Inbreed	20.3	17.1	22.1	19.8
Research	No Non-inbreed	18.4	18.2	17.0	17.9
	Inbreed	20.0	19.6	16.9	18.8
Service	Non-inbreed	11.0	10.2	10.4	10.5
	Inbreed	11.2	12.1	11.5	11.6
Others	Non-inbreed	3.3	3.1	2.7	3.0
	Inbreed	4.0	4.4	4.3	4.2

Source: CAP Survey 2007/2008

had a strong desire to be professors in their home universities and a strong affiliation for their home universities (Table 11.4).

11.4.3.2 Workloads

Inbred faculty members spend less time on teaching, but more on research and service related activities as shown in Table 11.5. These findings show the conflict between different types of academic activities. For example, if faculty spends more time on teaching, they spend less time on research or service activities. Higher education researchers (e.g., Marsh and Hattie 2002; Shin 2011) have focused on the conflicts between teaching and research in their studies on workloads and academic performance. As these findings show, however, service activity is an important factor in discussing workload and performance. In general, inbred faculty members are requested to do more service including administration for their department and/or university. This is because university administrators trust the loyalty of inbred faculty.

Table 11.6 Korean academics' research publication

Types of publication	Place of award of PhD				
	Abroad	Home university	Other university	Total	
Book	Non-inbreed	1.66	1.29	1.72	1.56
	Inbreed	1.55	2.99	1.50	2.01
Domestic journal	Non-inbreed	5.70	6.83	5.16	5.90
	Inbreed	7.24	7.70	6.10	7.01
International journal	Non-inbreed	4.17	3.35	3.55	3.69
	Inbreed	4.60	5.90	2.00	4.17

Source: CAP Survey 2007/2008

11.4.4 Academic Performance and Job Satisfaction

11.4.4.1 Descriptive Analysis

Different patterns of faculty training and hiring are related to their research publications—books, domestic journals, and international journals. In general, inbred professors produce more papers than non-inbred professors as shown in Table 11.6. They produce more papers in domestic and international journals.

Home university PhDs are higher performers in domestic journals than foreign degree holders. Interestingly, inbred home PhDs publish more in international journals than do inbred foreign PhD holders. As graduate education has been upgraded in the 2000s, more talented students tend to stay on their home campus to secure their PhDs (Shin 2012b). As a consequence, PhDs from home universities are very research productive and compete with foreign degree holders (Shin and Jang 2013). The trends are clear in sciences and engineering, but less clear in the social sciences and humanities. This should be further investigated through multivariate analysis to control for the contextual factors.

In general, Korean academics are highly satisfied with their academic position (see Table 11.4). Job satisfaction level is among the second highest in the world (the highest is Mexico) (Locke et al. 2011). This might be related to the job security of Korean academics and their working conditions. For example, Korean academics are tenured unless their research performance is poor. Although there are minimum requirements for promotion, academics tend to favor their colleagues. Strong collegiality and mutual protection among academics are embedded in many universities. In addition, their *hakmack* networks protect them.

Another benefit is the social culture of respect for university professors. University professors are respected by students and parents, and the public tends to respect professors' authority. This might affect the high satisfaction level of foreign degree holders who have experienced the relatively less secure and less favorable atmosphere in many countries including the US, Japan, etc. As expected, inbred faculty are more satisfied with their academic position than non-inbred faculty across the various types of PhDs. Inbred professors are familiar with the university

environment. They have friends on campus who have studied together and they have colleagues to collaborate with. They have connections with university administrators and they protect each other. These are the benefits of teaching in their home university.

11.4.4.2 Regression Analysis

We developed a multivariate model to test whether there are differences between inbred and non-inbred academics in terms of their academic productivity and their job satisfaction. In the analytical model, we included personal characteristics (age and gender), academic training (PhD degree in abroad), their preference for research (research preference), research hours, research support from institute, salary, their affiliated academic discipline, and institutional mission of their current university.

The age is natural age; gender is a binary variable represented by male or female; PhD abroad is also a binary variable represented by a foreign or domestic PhD; research preference is also a binary variable represented by research preference or not; research hours is the hours input for research per week; research support is the mean score of laboratories, research equipment, research support staff and research funding; annual salary is the total annual salary of an individual academic; academic discipline is represented by whether an individual academic is affiliated with the hard disciplines or not; institutional mission also represented by whether an academic is affiliated with a research focused university or not; inbreeding status is represented by whether an individual academic is affiliated with the home university where his/her first degree was granted.

Our dependent variables are research productivity, which is measured by the number of publications in domestic and international journals, and book publications. One strategy for this analysis is applying different weights between different types of publications, e.g., international journal publication is weighted more highly than domestic journal publication. Some higher education studies (e.g., Shin and Cummings 2010) have provided the rationale for this research productivity analysis. However, we opted to apply a simple counting method in this study for the sake of simplicity. Therefore, each publication is counted as '1' regardless the types of publication type (book or journal paper) or types of journals (domestic or international). The differences between different types of publication or journal types also represent academic disciplines because each discipline has its preferred type of publications and journal. For example, arts and humanities prefer book publication while engineering and natural sciences prefer article publication. Professors in social sciences prefer to publish in domestic journals while their colleagues in engineering and natural sciences prefer to publish in international journals. Another dependent variable—job satisfaction—is measured by the survey question of 'How would you rate your overall satisfaction with your current job?' by a five point Likert Scale.

Our model has two stages—one without inbreeding status and one with inbreeding status. Through the two-stage model, the regression outputs will show whether inbreeding status contributes to model fit improvements as well as statistical significance of the inbreeding status. The functional forms of the two-stage model are represented as:

Academic productivity/job satisfaction = f[(age, male, PhD abroad, research preference, research hours per week, research support, annual salary, hard discipline, research-focused university) + (inbreeding faculty)]

11.4.4.3 Regression Results

Table 11.7 shows the regression-analysis results for research performance and job satisfaction. Although we included a small number of variables for both research performance and job satisfaction, the *F*-statistics and adjusted R square show that the models explains the research productivity and job satisfaction to some extent (about 15 % of the variance in the dependent variables). When all the relevant variables were entered into each multiple regression model, we found that research preference, research hours, academic discipline (hard), university mission (research university) are positively associated with research performance. Unlike research performance, all other variables were not significantly associated with job satisfaction except research support, which is measured by the combination of laboratories, research equipment, research support staff and research funding.

Table 11.7 Regression results for research performance and job satisfaction in Korean academics

	Research performance		Job satisfaction	
Variables	Model 1	Model 2	Model 1	Model 2
Age	−.027	−.029	.012	.012
Gender	.019	.020	.109	.109
PhD abroad	−.026	−.020	−.020	−.020
Research preference	.183***	.188***	.005	.005
Research hrs	.103**	.100**	−.071	−.070
Research support	.073	.069	.314***	.315***
Salary	−.012	−.009	.061	.062
Discipline	.256***	.262***	−.045	−.046
Mission	.099**	.083*	−.022	−.018
Inbreeding		.049		.009
F-statistics	18.483***	16.666***	5.123***	4.589***
Adjusted R square	.148	.150	.155	.151

Source: CAP Survey 2007/2008
*p < .05, **p < .01, ***p < .001

Our main research variable—inbreeding status—was not significant for either research performance or job satisfaction. This suggests that academics' performance or job satisfaction does not differ between inbreeding and non-inbreeding academics. This finding differs from the policy assumption, that academic inbreeding is the main cause of low academic performance of Korean universities. In fact, there is a theoretical and political controversy on whether high inbreeding is a result of either academic network or of meritocracy. Because the inbreeding rate is high among top-ranked disciplines in top ranked universities, the causal relationships between high inbreeding and its cause is complicated. This controversy is similar to that in other countries including the US universities, especially in the law, business, and medical areas. As discussed, the inbreeding rate is over 50 % among the top three Korean universities—Seoul National, Korea, and Yonsei—while it is about 25 % nationwide.

One interpretation is that high inbreeding is happening because inbred academics have networks with their alumni and they are also high performers. On the other hand, academics who apply for a faculty position in a Korean university, especially in the three well known universities, non-inbreeding academics are disadvantaged in their hiring process although the non-inbreeding academics hold similar academic performance with the inbreeding academics. We believe that both interpretations explain the reality of faculty hiring and evaluation practices in Korean universities, especially in the three top-ranked universities.

As well as the implications for the university managers and policymakers, this study also has implications for individual academics who are considering teaching at their home university. This study shows that inbred academics are not satisfied at their home university although Korean academics, especially those who graduated from top-ranked universities, have strong desire to teach at their home university. The finding is related to the fact that inbred academics are highly pressured to conduct administrative work and to publish more. These might be related to the fact that inbred academics have strong commitments to their home university. Teaching at a home university is an opportunity to serve their alma mater but at the same time it brings stress and pressure. Considering both the positive and negative dimensions, academics are recommended to take these into account in their decision to teaching at their home university.

In this context, a critical issue is whether the national policy enshrined in the 'Public Educational Officials Act' of 2005, which was adopted to limit extensive inbreeding, should be maintained in the future. The policy has reduced the rate of inbreeding among top ranked Korean universities, and university managers and faculty now pay attention to the issue of inbreeding when hiring. In addition, academic culture is changing in the top ranked universities where *hakmack* used to be a critical factor in faculty hiring. These changes also were supported by government initiatives that emphasized academic performance in their funding allocations. As a result, meritocracy is becoming institutionalized and the academic norm in Korean universities despite the tension between academic generations and disciplines (Shin and Jang 2013).

11.5 Concluding Remarks

In this study, we paid attention to faculty doctoral training and their inbreeding in relation to their perceptions, workloads, performance, and job satisfaction. Faculty training patterns are classified into three categories—foreign PhD, home university PhD, and PhD from another domestic university. The inbreeding status was based on whether faculty graduated from the same university where they were undergraduate students. According to the descriptive statistics, most Korean academics completed their PhDs either at a foreign university or their home university. This means Korean academics are quite homogeneous and reinforces *hakmack*—academic networks in Korea. This is particularly the case in the top research universities. Although overall the faculty inbreeding rate is only about 25 %, it is more than 50 % in the top research universities. As an extreme case, Seoul National University, the leading research university in Korea, has an inbreeding rate of about 90 %.

On the other hand, Korean academic culture has been moving from a network-based one toward a meritocratic one since the mid-2000s. The 2005 government policy, adopted to reduce academic inbreeding rates, has been successful and the government policy is supported by other policy initiatives. As our regression analysis shows, the academic performance of inbred faculty is no different from that of non-inbred faculty members. This suggests that academic performance has become the main criteria as well as their academic networks in faculty hiring. This is a positive change for the Korean universities who seek to be globally competitive ones. Along the same lines, inbred professors are no more satisfied with their academic job than their non-inbred colleagues. The findings and discussion lead to our conclusion that academic culture is evolving into a meritocratic culture. However, this does not mean that academic networks are not important in Korea. The meritocratic culture co-exists with academic networks.

The dichotomy, which emphasizes either the academic network or meritocracy, might not be a healthy one for academic development. The Korean academic network has some strengths and weaknesses. It is a critical channel for collaborative research, information sharing, and academic career development. The issue is how to minimize the negative impacts on academic development and to open up the academic networks to other scholars. A well developed academic network with institutionalized meritocracy is a key to the competitiveness of Korean universities in the long run.

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