The Structural Change of Korean Sociological Academic Community*

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Korean sociology has been institutionalized through different stages such as the foundation of Korean Sociological Association, the influence of American Sociology, a reflexive turn, and the launch of a counter-association in search for alternatives. This study analyzes the co-evolution of sociologist-association ties and sociologist-specialty ties to examine the structure of Korean sociological community and its change. We find that patterns of affiliation between sociologists and associations have structured homophilous interactions along the lines of gender, employment status, and university prestige and vice versa. A core-periphery hierarchy of associations has become weaker, but the Korean Sociological Association of accumulative advantages constitutes the core, together with the counter-association and the association for Historical Sociology. The current network of associations is a small-world when some isolated associations are excluded. 'Following-the-trend' in tandem with increased clustering by research field has led the structure of specialty space toward a weak core-periphery without small-world-ness. As sociologists with diverse research interests have increasingly joined specialized associations, it will be challenging for both the Korean Sociological Association and the counter-association in the core how to play integrative roles in the increasingly differentiated community of Korean sociology.

Keywords: affiliation networks, professional associations, specialties, Korean sociological community, differentiation and integration

INTRODUCTION

Spencer's sociology as a new social thought was imported to Korea in the late 19th Century. During a few decades from Korea's annexation to its liberation (1910-1945), Japan was the

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translator of Western modernity. Korean sociology as a distinctive discipline was not recognized until 1946 when the Seoul National University had the sociology department in the College of Humanities and Arts (Park and Chang 1999). Korean sociology at the outset in the late 1950s was directed by a small and socially homogeneous group of scholars who were trained primarily in the US.

As the Korean sociological academic community has grown, it has become more internally differentiated: not only the number of practitioners but also their social diversity has increased; and the number of specialized associations and regional associations, albeit working groups or business meetings at the beginning, has also gone up. Meanwhile, strains and contention have sometimes accompanied the institutionalization of Korean sociology. In the mid-1980s, radical scholars organized a nation-wide counter-association in search for alternative critical sociologies. They have competed for theoretical perspectives and legitimacy.

The present paper conceptualizes an academic field as a set of multiple networks to examine the differentiation and integration of Korean sociological community through the lens of social network analysis. We focus particularly on how the patterns of co-membership of Korean sociologists in professional associations and specialties and their co-evolution have changed over the decades of the 1980s, 1990s, and 2000s. We conclude that analysis of multiple affiliation networks opens up a promising approach to produce substantive implications for the relationship between social structure and knowledge production—how disciplinary interactions among scholars are shaped by their jointly affiliated associations and commonly interested research areas and vice versa.

GROWTH, DIFFERENTIATION, AND INTEGRATION

Park and Chang (1999) propose to divide the development of Korean sociology into the following five stages: nation-state building and academic institutionalization (1945-53); influence of American sociology (1953-70); a 'reflexive turn' in sociology (1970-80); search for alternatives (1980-90); diversity in sociological research and practice (1990-current). The Korean Sociological Association (KSA hereafter) founded in 1957 published the first volume of its official journal, *Korean Journal of Sociology*, in 1964. Korean sociologists in the 1950s and 1960s under the influence of American sociology were mainly interested in modernization theory, structural functionalism, and survey methods. However, the issues of 'indigenization' and 'relevance' were raised during the 1970s and 1980s. The KSA made efforts to accommodate wide-ranging critiques from within and outside (e.g., symposiums on urban poverty, social conflicts, etc.), but Korean sociology had to get through a 'reflexive turn.' Some groups of sociologists sprang up to advocate 'Sociology for the oppressed grassroots,' 'Korean sociology,' and 'Sociology of the Third World,' which reflects growing concerns with

urban problems, stratification, and cultural anomie in Korean society. As the number of academic circles and associations in search for alternative perspectives and theories increased, another nationwide association, the Korean Industrial Sociological Association (KISA hereafter), was founded in 1984 under the banner of 'critical sociology.' This association has been holding annual conferences and publishing journals to this day independently from the KSA. Korean sociology is reaching the peak of its diversity in sociologists, associations, and specialties from 1990 onwards (Kim 1987; Park and Chang 1999).

It seems that there are two different views among Korean sociologists on the historical development of their academic community. Some would contend that it is characterized by the lack of leading sociologists, recognized research fields, and dominant associations. In other words, there have been no 'stars,' sociologists have treated research interest like a passing fad, and the KSA has never been legitimized. Others would say that there have been ruling elites, main paradigms, and leading associations, with supportive evidences such as academic colonialism with heavy dependency on American sociology and employment discrimination against Korean practitioners in favor of US-trained ones.

If increasing differentiation changes forms of integration in a Durkheim's sense, then which way Korean sociology has been institutionalized, and what its academic community today looks like? Specifically asking, whether or not has the Korean sociological academic community been structured by a clear contest between the two major nationwide associations, the KSA and the KISA? Have some particular specialties been more popular in the discipline of Korean sociology or have a broad diversity of specialties competed with one another? Taken together, if clusters of homogeneous subgroups of associations and interest areas have emerged, are they composed of factions, overlapping circles, or hierarchies? These questions are meaningful and timely because there are some studies on the history of Korean sociology institutionalization (Kim 1987; Park and Chang 1999), but no empirical research until now.

In our study, the main focus is on the co-evolution of 'network of sociological associations' and 'network of specialties.' There are some reasons we prefer these two relations to citation or collaboration most commonly used in existing studies. First, professional associations play decisive roles in the development of discipline since they give members opportunities for networking and communications through various activities such as organizing meetings, publishing journals, and disseminating information. Second, interest areas provide valuable insights into the growth and decline of research fields due to the scope of their substantive spectrum (Phaedra 2001).[1] Third, co-membership of professional associations and interest

[1] The examination of clustering patterns among sections could be a far more reliable measure of the dynamic interface between the cognitive and organizational structure of sociology (Phaedra 2001). Indeed, Cappell and Guterbock (1992) analyze joint membership in ASA sections, instead of using interest areas as the unit of analysis (e.g., Ennis 1992). However, Korean sociological academic community is quite different since there are lots of associations besides the KSA and the KISA. Additionally, it is recently that some sections in the two major associations are organized and maintained.

areas among sociologists increases the chance of their interactions including citation and collaboration. Given the co-evolution of multiple networks in which associations and interest areas are two different contexts, we undertake its network analysis to inspect the structural change of Korean sociological academic community as a disciplinary 'field' consisting of a group of practitioners, associations, and research interests.

MULTIPLE AFFILIATION NETWORKS IN SOCIOLOGY OF SCIENCE

Co-membership matrices in social network analysis represent the similarity between persons (or between groups) that is proportionate to the number of groups two actors join commonly (or to the number of actors that two groups share). Although this two-mode affiliation network approach might not exactly reflect 'real' network as one-mode network in which actors choose each other directly, we can see the emergence of social network and its change in a different way: how do individuals by sharing contexts, create social structures while, at the same time, social structures develop an institutionalized reality that affects the behavior of the individuals embedded in them (Hanneman and Riddle 2005)?

People are engaged in multiple contexts, however. This is why there has been a growing interest in the relationship between "systems of social relations" and "systems of meaning" (Hay 1994) among students of social network analysis over the past decades.[2] In sociology of science, it refers to the relationship between 'social structure' and 'knowledge production'—"social and cognitive development in scientific fields (Whitley 1974)." There are not a few sociological studies on scientific community in the US (Cole and Cole 1973; Crane 1972; Hagstrom 1965; Mullins 1973; Turner and Turner 1990; Whitley 1984),[3] and the relational data are employed in recent researches (Cappell and Guterbock 1992; Ennis 1992; Phaedra 2001). Only a few recent studies in sociology of science take full advantages of social network perspectives and analysis techniques[4]: university prestige or market structure (Burris 2004; Han 2003; Hanneman 2001) and collaboration network (Moody 2004; Newman 2001). Moody (2004) is a good starting point for our study although he draws conclusions about links between networks and ideas from his analysis of one-dimensional network.

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2 To name a few of examples, Diani (1992) and Ansell (1997) in social movement analysis and Labov (1986) and Milroy and Milroy (1992) in sociolinguistics.

3 For example, Cole and Cole (1973) analyze citation patterns to examine "whether scientific progress is built on the labor of all 'social classes' or is primarily dependent on the work of an 'elite' (p. 216)." As another instance, Crane (1972) highlights the roles of opinion leaders as 'connectors' to investigate contagion processes affecting the diffusion of innovative ideas. Her central argument is that there are a small number of prominent scientists in the core of each specialty's collaboration network, and the rest of scientists are connected through those highly active individuals.

4 As exceptions in the past, van Rossum (1974) simply inspects co-authorship of editors and their affiliation with universities, while Breiger (1976) uses blockmodeling to reveal the structure of personal relationships among scientists in a biomedical research specialty.

Topology of Network Structure

Moody (2004) posits three types of collaboration networks and their implications for knowledge production: "theoretical fragmentation" that a small-world network model best fits; "star production" based on a scale-free network model; and "wide-reaching structurally cohesive collaboration" generated by the opposite process of preferential attachment, in which stars are not crucial to networking, while ideas are more likely to spread over the entire network.

Moody equates highly clustered networks with small-world networks, and star networks with scale-free networks, however. A network with a high degree of clustering may or may not be a small-world network. For instance, a highly clustered network with a few stars can have scale-free properties. Besides, small-world phenomena can happen in scale-free networks, but for different reasons. He also seems to separate one topology (scale-free network and small-world network) from another topology (core-periphery structure and factional structure).

In the present study, we define a small-world network with 'scales' by a factional structure with some random intermediate ties (high clustering and small-world-ness) and a scale-free network by a network with a few hubs that constitute the core. A scale-free network is less highly clustered than a 'scale-dominant' small-world network, but more clustered than a random network.[5] In a core-periphery structure, the core has 1 block, and the periphery has 0 block in a two-by-two image matrix. When the densities of both off-diagonal blocks are 0s (or 1s), this core-periphery structure is 'strong' (or 'weak') (Borgatti and Everett 1999). In a 'strong' factional structure, the densities of both diagonal blocks (and densities of both off-diagonals) are 1s (and 0s). If the densities of both off-diagonal blocks are significantly higher or/and the densities of both diagonal blocks lower, this factional structure can be called 'weak.'

Typology of Network Dynamics

Studies on two-mode networks have matured to cover important topics such as correspondence analysis (Roberts 2000) and "generalized blockmodeling (Doreian et al. 2005)," but their dynamics have not been fully examined. Watts (2004) points out no element of social structure in the scale-free network model by Babarási to highlight matching (affiliation) instead of attachment. Watts concludes that affiliation in itself yields clusters without any particular matching procedure so that a random affiliation network is always a small-world network. Affiliation in real social networks scarcely happens in a purely random manner, however. Some other mechanisms should be proposed to represent the dynamics of affiliation networks. We suggest four possible social processes of affiliation ties, drawing upon the mechanisms of

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[5] Babarási and his colleagues find hubs in small-world networks. All small-world networks are not scale-free, needless to say. See Ball (2004: 400) for the distinction between 'scale-dominant small-world networks' and 'scale-free small-world networks.'

'attachment' by Powell et al. (2005) such as "accumulative advantage" (i.e., preferential attachment),[6] "homophily," and "follow-the-trend."

Regarding sociologist's choice of her or his professional associations, the first one is 'homophily-based affiliation with randomness.' This process indicates that new members are predisposed to interact and make social ties with old members when they share more ascribed or acquired characteristics (McPherson et al. 2001). However, homophily-based affiliation alone cannot explain why the degree distribution is very unequal in most of social networks. The second is thus 'degree-based affiliation with randomness.' It is meant by degree-basedness that every time a new sociologist enters the community, the chance that existing associations are connected to her is proportional to the number of ties they already have. In this way, we can extend Babarási's model of one-mode preferential attachment to affiliation network, relaxing its assumption of one link per person since sociologists can have multiple memberships.

The first process of matching between sociologist and specialty is 'specialist-oriented matching with randomness.' The concept of 'structural constraint (Burt 1992)' is pertinent here —the extent to which ego is invested in people who are invested in other of ego's alters: the higher constraint, the more overlap of specialty niches, the higher chance of specialist-oriented selection of research fields. The second one is 'trend-following-driven matching with randomness.' Observing others, people attempt to match their actions to the dominant behavior of the overall population. 'Following-the-trend' is similar to preferential affiliation of sociologist with association, but the number of links is not the primary reason for many sociologists who were interested in, for example, social movements in the 1980s and 1990s. Rather, their choices are either mutual responses to common exogenous factors (e.g., the increasing salience of social movements under military regimes) or imitative behaviors (Powell et al. 2005: 1139-40). We notice here that 'following-the-trend' increases the degree of specialty niche overlap more rapidly than specialist-oriented matching[7] when controlling for the number of specialties as the size of network.

Relationships between Network Structure and Network Dynamics

How affiliation rules shape network topologies of the Korean sociological community and vice versa is summarized in Table 1. Homophily-based affiliation of sociologist with randomness produces a small-world network with a factional structure since homophilous affiliation generates clusters and random affiliation increases the number of bridging ties in the association-association network (Hypothesis 1). Our study examines homophilous affiliation

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[6] The issue here is 'preference for what?' "A power-law degree distribution can reflect not only preferential attachment by incumbency but also preferences for attractiveness, legitimacy, diversity, or a concatenation of mechanisms (Powell et al. 2005: 1152)." There are various motives for preferential attachment, but we instead limit its meaning to preference for '(Freeman) degree.'

[7] Niche overlap can be conceptualized by structural equivalence given observed patterns of relations (Burt 1992; Burt and Talmud 1993; DiMaggio 1992), instead of the redundant size of attributes (McPherson 1983).

based on gender, social status (who are professors and who not), and university prestige (where sociologists did undergraduate studies and where they received their doctoral degrees). Besides homophilous affiliation, preferential affiliation is expected that sociologists have joined associations with more social capital to make shorter links to as many as possible at once. This degree-based affiliation with randomness creates a scale-free small-world network with a core-periphery structure (Hypothesis 2). It is also more likely that the association-association tie has shifted from a core-periphery structure to another core-periphery structure with membership boundaries between the KSA and the KISA blurred. If they had exclusively competed with each other for members, a core-periphery structure would have changed into a factional structure (Hypotheses 3).

A high chance is expected that some particular research areas such as Population, Development, Industrial Relations and Labor, and Social Movements have been popular to constitute the specialty core for a relatively long period of time. However, sociologists may also turn attention to some other newly emerging areas (e.g., Social Welfare, Cultural Studies). Hence, trend-following-driven matching of sociologist with some randomness leads to a power-law distribution, but this property is expected to be weaker than that from sociologist-association ties (Hypothesis 4). Since accumulative advantages of once-established core areas cannot be sustained long enough in sociologist-specialty ties, it is also more likely that a core-periphery structure of the specialty network has become weaker over time (Hypothesis 5). In recent years, sociologists may become more inclined to reduce competition among them by taking a specialist strategy since 'following-the-trend' increases the degree of niche overlap given the limits on increase in the number of specialties. This specialist-oriented matching with randomness leads to a small-world network of research clusters with cross-cutting ties (Hypothesis 6).

Co-evolution of Association Network and Specialty Network

Our study is finally concerned with whether one structural layer of the sociological community has been developed independently from the other layer over time. Measuring a correlation between two one-mode matrices tests if there is a tie between two actors in one relation, then there is more likely to be a tie between them in the other relation (Hanneman and Riddle 2005).

Table 1. Four Mechanisms for Affiliation Networks

Type of 2-mode networks	Affiliation (Matching) Processes	Structure of Networks
Person-Association Ties	Homophily-based affiliation with randomness	Small-world and factional structure
	Degree-based affiliation with randomness	Scale-free and core-periphery structure
Person-Specialty Ties	Specialist-oriented matching with randomness	Small-world and factional structure
	Trend-following-driven matching with randomness	Scale-free and core-periphery structure

Hence, a high correlation implies that the more similar research areas sociologists share, it is more likely that they are co-members (and vice versa). Also, the stronger the correlation, the more salient scholarly identities sociologists as researchers have (not for networking to utilize social capital), it is more likely that professional associations have played primary roles in research. We expect that there has been a positive correlation between the two networks with its strength increasingly significant over the past decades (Hypothesis 7).

DATA

Two sets of binary data were collected—one about the affiliation of sociologists with associations and the other about their affiliation with specialties[8]—from the KRF (Korean Research Foundation, www.krf.or.kr), an organization which is equivalent to the National Science Foundation in the US. Sociologists who register at the KRF are supposed to provide their quasi-resumes. Four different attributes of sociologists were also complied such as sex, whether one is a professor or not, where one received her or his bachelor's degree, and where one received her or his doctoral degree.

The population consists of those who satisfy all of the following criteria: sociologists who register at the KRF; sociologists who obtained their PhDs after 1980; and they should have doctorates in sociology as long as they are hired in research universities. The issue of sample representativeness can be raised, but our approach is an extension of 'full network method' (Hanneman and Riddle 2005) to affiliation networks in the sense that a census of ties in the population (with missing cases[9]) rather than its sample is taken.[10]

Affiliation networks between sociologists and associations and between sociologists and specialties were collected at different three time points, 1989, 1999, and 2005. The first two time points correspond to the last two stages of Korean sociology development, 1980-1990 and 1990-2000 in Park and Chang (1999). The data at the last time point are expected to reveal the more recent structure of the Korean sociological community. For each time point, the number of cases is 37 sociologists who received their PhDs in the 1980s; a new group of 131 PhD recipients during the 1990s in addition to the same 37 sociologists (168 in total); and 113 new sociologists who received their PhDs between 2000 and 2005 on top of the same 168

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8 See Appendix about the list of specialties.

9 Some cases of those who graduated in the 1980s were excluded in the final data since they do not have information substantially equivalent to that used in the 1990s and 2000s, or they make their information invisible.

10 To make the sample more representative, it would be best to survey people from systematic sampling. However, it was impossible to obtain all rosters of sociologists who affiliate with at least one association, whether or not they are perfectly representative of Korean sociologists. More seriously, a representative sample of people does not necessarily give a useful of their relations (Alba 1982). In other words, the number of relations among members of the sample may be a very small subset of all their relations, and there is no reason to believe that the relations identified among the agents in the sample would themselves be a random sample of all the relations of these same agents (Scott 2000: 59).

sociologists (281 in total). Over the past 25 years, the number of associations has changed from 26 through 107 (= 26 + 81) to 151 (= 107 + 44). Meanwhile, the number of specialties has increased from 28 through 43 (= 28 + 15) to 45 (= 43 + 2).

For example, if a person joined A in the 1980s, B and C in the 1990s, and none in the 2000s, then A is included in the first time point, A, B, and C in the second, and A, B, and C in the third. The sociologist-specialty network is constructed in the same way, but since the KRF website does not provide enough information about the trajectory of research areas of each sociologist, some other databases were complementarily used such as Korean Studies Information Service System (kiss.kstudy.com) and Korea Education and Research Information Service (www.keris.or.kr). We traced the change in research interest based on the list of published books and articles firstly, and, if any, keywords in articles, secondly.

There are two assumptions in our building the data. We did not collect information about withdrawal from association and specialty. In other words, it is assumed that sociologists do not exit associations (and specialties) once they join (and they dive in). These assumptions are plausible, but it should be acknowledged that they may result in the overestimation of scale-free-ness and core-periphery-ness.

ANALYTICAL METHODS

In this section we elaborate how to test our hypotheses with some theoretical discussions if necessary. To test whether or not homophilous affiliation is significantly different from random affiliation, some routines that estimate the goodness of fit for one-mode network partitions based on attributes are available in Ucinet (Borgatti et al. 2002. Its version 6.102 is used throughout the present study). Among them, we apply (a) 'Joint-count' (i.e., the test for two-group differences in tie density) for 'professor or non-professor,' 'male or female,' and 'Seoul or some other cities sociologists finished undergraduate studies,' (b) 'Relational contingency table analysis' (i.e., the test of three-group differences in tie density) for 'the US, South Korea, or yet some other foreign countries they earned their PhDs.' and (c) 'ANOVA density model' (i.e., the variable homophily blockmodel of differences in tie density and the structural blockmodeling) for the same categories. Both (a) and (b) show a global test of difference from random distribution, while (c) can test more specific homophily models (Hanneman and Riddle 2005).

Whether specialty-oriented matching or trend-following-driven matching has been prevalent is tested through hierarchical cluster analysis of the specialty-specialty ties. We prefer the Jaccard similarity coefficient which is reasonable particularly when researchers can ignore the cases of joint absence in large networks with low densities (Hanneman and Riddle 2005). We apply the E-I index (Krackhardt and Stern 1988) in Ucinet which measures the ratio

of the numbers of ties within the clusters to ties between clusters. The cut-off point in cluster analysis can be provided by adjacent values of the E-I index which experience the most drastic change.

A scale-free network, when x is the number of ties and y is the number of nodes with x, is characterized by the power law distribution: $y = ax^k$ in which a is the constant, and k as the exponent of power law is the same with the slope in the log-log plot. We examine both x and y directly from two-mode affiliation networks, not one-mode networks transformed from them: both the numbers of links between sociologists and associations and between sociologists and specialties (x) and their frequencies (y) are counted; and log(y) is regressed on log(x). The one-mode network approach to calculating x and y is popular in existing studies, but it seems to be more reasonable to count them directly from affiliation network to preserve the person-group duality (Breiger 1974) as long as the original network is two-mode.

Next, we measure two major properties of small-world networks: the average geodesic distance (small-world-ness) and the average clustering coefficient.[11] A small-world network is a graph with n vertices and average degree k that exhibits the average path length $APL \approx APL_{\text{random}}(n, k)$, but the average clustering coefficient $ACC >> ACC_{\text{random}}(n, k)$ (Watts 1999). These two properties of one-mode dichotomized networks are compared with those of their equivalent random networks with the same number of nodes and density generated from Ucinet. The first test is basically two-tailed, while the second one is one-tailed.

For the analysis of network substructure,[12] we employ three blockmodeling techniques in Ucinet: simple core-periphery analysis (SCP hereafter); faction analysis based on the Tabu search algorithm (FA hereafter); and optimized structural equivalence modeling based on the same algorithm (OSE hereafter).[13] These three techniques are applied to dichotomized one-mode matrices converted from affiliation networks. We are able to compare results from SCP, FA, and OSE in terms of goodness-of-fit by incorporating the QAP (Quadratic Assignment Procedure) correlation approach into FA,[14] which is otherwise impossible.

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[11] The clustering coefficient of an actor is defined by the density of its open neighborhood: $C_j = 2E_j / [k_j (k_j - 1)]$ when an actor j connects its neighborhood with the number k_j of ties. E_j is the actual number of ties in an actor j's neighborhood, and $k_j (k_j - 1) / 2$ is the possible number of ties formed in the neighborhood for undirected ties. The overall clustering coefficient is the mean of the clustering coefficient of all actors.

[12] Our analysis fully considers the following points: since another step-wise increment in the number of blocks increases the goodness-of-fit, researchers have to choose the best fitness at the step where the percent rate of its increase reaches the maximum; it is better to apply several times blockmodeling to arbitrarily permuted data from different initial configurations and compare results; and the QAP approach in Ucinet is sensitive to permutation because it recognizes the list of nodes in order from the top to the bottom or from the left to the right. It is the best to make the order of nodes in two matrices identical before using the QAP approach.

[13] Unlike the first method, both FA and OSE can have more than two blocks. Unlike the first two techniques, OSE can fit the data into the most appropriate structure without any priori assumptions about the ideal structure of blocks.

[14] FA in Ucinet, unlike SCP and OSE, does not provide the test results of goodness-of-fit. Given the observed block density in Table 2, it is apparently reasonable to use the following equation: $R^2 = [(A + B) (A + B - 1) - (X + Y + Y + Z)] / [(A + B) (A + B + 1)]$ since R^2 is [(the number of total possible ties – the final number of errors in total)] / (the number of total possible ties), and the number of total possible ties is (A + B) (A + B) – (A + B) after excluding

Lastly, we measure the correlation between two affiliation networks by taking the QAP approach[15] in Ucinet. Among nominal, ordinal, and interval association measures, we use the simple matching coefficient and the Jaccard similarity coefficient, given the binary data in the present study.

RESULTS

Growth and Differentiation: Sociologists, Associations, and Specializations

As the Korean sociological community has grown, the degrees of social and professional heterogeneity of its members have increased over time (Table 2). We use the IQV (Index of Qualitative Variation) defined by $(\Sigma fifj)/[\{n(n-1)\}/2\ (F/n)^2]$. Here, fi is the frequency of category i ($i \neq j$), n is the number of categories (including categories without cases) in the given distribution, and F is the total frequency. A rapid (and gradual) increase of non-professors (and women) in the study population indicates that the Korean sociological community, once dominated by male professors, tends to be more consisting of minorities over time. Practitioners undergraduated from Seoul are still the majority in the study population in spite of a small but steady increase of practitioners from any other cities. However, both sociologists who earn doctorates in Korean universities and practitioners from any other foreign countries except the US (e.g., European countries, Japan, etc.) have considerably increased over the past two decades, which is in significant contrast with a decelerating growth in the number of practitioners from the US. A growing diversity among Korean sociologists is also reflected in patterns of their scholarly involvement in professional associations and research areas: sociologists joined 1.97 associations on average (SD = 1.34, Min = 0, Max = 5) in the 1980s,

diagonal ties.

Table 2. Observed Block Density

	1(A)	2(B)
1(A)	X	Y
2(B)	Y	Z

Note | The number of actors in each block: A and B; and the final number of errors in each block: X, Y, and Z.

However, this simple approach is very sensitive to patterns of permutation. What is worse, it produces the same goodness-of-fit as long as the number of total possible ties is the same with the final number of errors, regardless of the number of ties in each block. Another plausible approach is to use the number of actual ties (instead of the number of total possible ties) to consider actual densities. Therefore, Radj2 becomes [(the number of actual ties – the final number of errors in total)] / (the number of actual ties). This approach is problematic, however, since it does not consider that the same matrix can be permutated in different ways. Besides, it suffers from the same limitation like the former approach: density = $(1 - R^2) / (1 - R_{adj}^2)$.

[15] Each observation in network data is almost always non-independent, but the permutation approaches in Ucinet help to calculate sampling distributions of statistics directly from observed networks by using random assignment across hundreds or thousands of trials under the assumption that null hypotheses are true (Hanneman and Riddle 2005).

Table 3. Change in Degree of Heterogeneity

	1980s	1990s	2000s
Job			
Index of Qualitative Variation	.298	.943	.988
Professor	34	104	156
Lecturer	3	64	125
Sex			
Index of Qualitative Variation	.678	.700	.802
Male	29	130	203
Female	8	38	78
Where Undergraduate Studies Done			
Index of Qualitative Variation	.205	.345	.393
Seoul	35	152	250
Elsewhere	2	16	31
Where Graduate Studies Done			
Index of Qualitative Variation	.552	.906	.956
US	28	89	119
Other Foreign Countries	9	31	55
Korea	0	48	107

2.90 (SD = 1.84, Min = 0, Max = 10) in the 1990s, and 3.16 (SD = 2.00, Min = 0, Max = 12) in the 2000s; and their research interests span 3.05 fields on average (SD = 1.08, Min = 1, Max = 5) in the 1980s, 4.32 (SD = 1.67, Min = 1, Max = 11) in the 1990s, and 4.79 (SD = 1.60, Min = 2, Max = 11) in the 2000s.

Birds of a Feather Flock Together?

Whether have longitudinal affiliation patterns between sociologists and professional associations been characterized by homophilous interactions among sociologists? We check whether there are statistically significant differences between the expected number of ties under random affiliation and the observed number of ties. As is shown in Table 4, the co-membership structure in the 1980s conditioned that professors are more likely to socialize each other, and non-professors interact much less with both professors and non-professors. This structural condition continued in the 1990s, but the recent affiliation structure generates different circumstances under which homophilous interactions among professors are less likely to happen. They also have little opportunity for socializing with non-professors. Meanwhile, ties among non-professors have significantly increased so that the number of their own links is much more than is expected from random affiliation. This is in stark contrast with the trends over the 1980s and 1990s—the chance has recently increased that the closure of social interactions among non-professors is structured by the current affiliation pattern between sociologists and associations.

Table 4. Test of Two-group Differences in Tie Density: Professor or Non-professor

	1980s	1990s	2000s
Professor-Professor	499.0 (447.3)***	4422.0 (3613.4)***	1841.0 (1866.1)
Professor-Non-professor	32.0 (81.3)***	4112.0 (4490.5)***	2870.0 (3009.8)***
Non-professor-Non-professor	0 (2.4)**	930.0 (1360.1)***	1361.0 (1196.2)**

Note | Expected numbers of ties under random affiliation in parentheses. *p < .10; **p < .05; ***p < .01.

Table 5. Test of Two-group Differences in Tie Density: Male and Female

	1980s	1990s	2000s
Male-Male	378.0 (323.7)**	5938.0 (5656.9)*	3447.0 (3164.6)***
Male-Female	140.0 (185.0)***	3108.0 (3332.8)*	2024.0 (2443.9)***
Female-Female	13.0 (22.3)**	418.0 (474.3)	601.0 (463.5)***

Note | Expected numbers of ties under random affiliation in parentheses. *p < .10; **p < .05; ***p < .01.

Table 6. Test of Two-group Differences in Tie Density: Where They Earned Bachelor Degrees

	1980s	1990s	2000s
Seoul-Seoul	468.0 (474.4)	7942.0 (7742.3)	5014.0 (4804.042)**
Seoul-Other Cities	62.0 (55.8)	1461.0 (1640.8)	1004.0 (1196.2)**
Others-Others	1.0 (0.8)	61.0 (81.0)	54.0 (71.8)*

Note | Expected number of ties under random affiliation in parentheses. *p < .10; **p < .05; ***p < 0.01.

The next results (Table 5) show the degrees of closed-ness by gender and openness across gender. There has been a consistently favorable structural condition for homophilous interactions among male sociologists over the past decades. Under the same conditions, meanwhile, socializing between male and female sociologists is less than expected from random affiliation. In parallel with the change in the proportion of female to male in the study population from .216 through .226 to .278 (Table 2), the recent pattern of affiliation between sociologists and associations has developed structural opportunities for female sociologists to interact more with their own kind.

Table 6 presents whether or not affiliation patterns between sociologists and associations have affected homophily based on university prestige. None of results are statistically significant in the 1980s and 1990s, but we notice an increasing tendency toward homophilous interactions among sociologists who did undergraduate studies in Seoul over the 1990s and its significant salience in the 2000s. Meanwhile, repulsive interactions were being shaped not only among sociologists undergraduated from elsewhere but also between sociologists from Seoul and them in the 1990s. These trends have become more significantly structured over the recent five years.

Lastly, where sociologists obtained doctoral degrees has recently served as another

Table 7. Test of Three-group Differences in Tie Density: Where They Earned Doctoral Degrees

	1980s	1990s	2000s
US-US	325.0 (320.7)	3219.0 (2685.8)**	1368.0 (1133.82)***
US-Other Countries	203.0 (213.8)	1795.0 (1892.2)	898.0 (1056.95)**
Others-Others	37.0 (30.5)	274.0 (318.9)	380.0 (239.8)
US-Korea	NA	2792.0 (2929.9)	1813.0 (2056.3)***
Others-Korea	NA	832.0 (1020.5)	944.0 (950.4)
Korea-Korea	NA	709.0 (773.6)	950.0 (915.8)**

Note | Expected number of ties under random affiliation in parentheses. The results about statistical significance are merged from 'variable homophily blockmodel' and 'structural blockmodel.' *$p < .10$; **$p < .05$; ***$p < .01$.

important criterion for patterns of their affiliation with professional associations on which their homophilous interactions are contingent. Only the ties between sociologists who received their PhDs in the US support a consistent tendency toward homophily in Table 7. This tendency was more significant in the 1990s than that in the 2000s. The affiliation patterns over the 1990s and 2000s provide unfavorable circumstances for homophilious interactions between practitioners graduated from the US and those from any other countries. It is not statistically significant, but the chance of homophilous interactions has recently grown among practitioners who studied in foreign countries other than the US. Similarly, the recent affiliation network in the 2000s has significantly structured more interactions among practitioners graduated from Korea.

Sociologist-Association Ties are Scale-Free?

The KSA as the first choice association has become less attractive to practitioners. It was the first choice for 94.6% of Korean sociologists who graduated in the 1980s (35 out of 37), whereas only 37.2% in the 2000s (42 out of 113). Nonetheless, the KSA is still the first choice for 46.5% of Korean sociologists over the past 25 years. The KISA comes next (9.6%), the association specialized in Gender (4.4%), the association for Historical Sociology (4.1%), and the association for Family (3.3%). The KSA in the 1980s had 33 links, and the second highest degree was four. In the 1990s and 2000s, the KSA had the highest degree, 136 and 226, respectively, while the second highest degree was 37 and 60, respectively. Table 8 shows that the sociologist-association ties follow a power-law distribution. The global fitness is statistically significant ($p = .06$ in the 1980s and $p = .00$ throughout the 1990s and 2000s), and all slopes of the regression lines are highly significant except the slope in the 1980s. The Gini coefficients, albeit not presented here, are .558 (1980s), .661 (1990s), and .713 (2000s). Overall, accumulative advantages of the KSA have been persistent even in the presence of the counter-association (KISA).

Table 8. Test of Power-law Distribution in Sociologist-Association Ties

	Constant	Slope	R^2
1980s	.908** (.183)	-.702* (.237)	.745
1990s	1.160*** (.185)	-.844*** (.175)	.608
2000s	1.230*** (.159)	-.796*** (.133)	.642

Note | Numbers in parentheses are standard errors. *p < .10; **p < .05; ***p < .01.

Association-Association Ties are Small-World?

Table 9 presents the average distances and the clustering coefficients of the association-association ties. Their observed average distances are shorter, while their observed clustering coefficients are bigger than those of their counterparts (i.e., equivalent random networks). All of results are statistically significant (p < .05), which support that not only degree-based affiliation but also homophily-based affiliation has operated with some randomness. We notice that the association-association ties still have small-world-ness in spite of an increasing tendency toward clustering over the past 15 years. This implies that there has been an increase in the number of those who join as many associations as possible to play bridging roles. If a few isolated associations and one isolated pair are excluded in the 2000s (see Figure 1), professional associations with regard to joint membership are not 'fragmented villages'—they are less away from one another than distances perceived by Korean sociologists.

Core-Periphery Structure among Associations?

The blockmodeling results on association networks are summarized in Table 10. First, the association-association tie in the 1980s was a strong core-periphery structure[16]: the KSA alone constituted the core; there were four associations in the semi-peripheral block; and all other associations including the KISA comprised a periphery with the very low density (.10). Next,

Table 9. Small-world Properties of Association-Association Ties

	1980s	1990s	2000s
Average distance	1.840 (2.395)	1.996 (2.441)	1.976 (2.389)
z-value	-6.780***	-56.142***	-79.884***
Clustering coefficient	.298 (.169)	.238 (.055)	.267 (.071)
z-value	2.155**	29.613***	40.203***

Note | The numbers in parenthesis are calculated from 100 random graphs with the same densities and the same numbers of nodes. *p < .10; **p < .05; ***p < .01.

[16] The goodness-of-fit in FA and SCP is .0625 and .384, respectively. Both approaches suggest a weak core-periphery structure.

Table 10. The Change in Association-Association Ties

1980s				1990s			2000s		
Strong core-periphery				Weak core-periphery			Weak core-periphery		
	Core	Semi	Peri		Core	Peri		Core	Peri
C(1)	1.00	1.00	1.00	C(3)	1.00	.513	C(3)	1.00	.543
S(4)	1.00	1.00	.00	P(104)	.513	.051	P(148)	.543	.050
P(21)	1.00	.00	.10	* R^2 = .400 (SCP)			* R^2 = .380 (SCP)		
* R^2 = .567 (OSE)									

Note | Figures are the block densities of association-to-association links from dichotomized sociologist co-membership. The numbers of associations are recorded in parentheses.

Figure 1. What do Association-Association Ties Look like?

Note | N = 26, Density = .16, and Number of components = 1 in the 1980s (Left); N = 107, Density = .0771, and Number of components = 1 in the 1990s (Middle); N = 151, Density = .0695, and Number of components = 5 in the 2000s (Right).

the block density in the 1990s represents a weak core-periphery[17]—the core was still a clique, but it had weaker connections to associations in the periphery. The four associations at the semi-periphery in the 1980s lost their cohesiveness to be merged into the periphery over the 1990s. Instead, two new associations entered the core block such as the KISA and the association specialized in information and communication. Over the 1990s, it turns out that the KISA was absorbed into the KSA-led core, instead of building a counter block to compete with the KSA. Lastly, the block density in the 2000s is almost the same as that in the 1990s,[18] which

[17] SCP yields .400 which is much better than the goodness-of-fits from the other two approaches. R^2 is .0234 from FA, but R^2 is .205 (2 blocks) and 0.260 (3 blocks) from OSE.

[18] Blockmodeling proposes another plausible substructure of the association network in the 2000s with the same level of goodness-of-fit (R^2 = .380) although it is still a weak core-periphery. 39 associations—rather than three associations—consist in the much less cohesive core (.435)—rather than the clique, the density between the core and the periphery is much lower (.084), and the density of the periphery is lower (.016). Suffice to say here that either of the two core-periphery networks is far from a factional structure: R^2 is .0279 (2 blocks) from FA, while R^2 from OSE is .155 (2 blocks) and .156 (3 blocks).

indicates that a hierarchical core-periphery structure of professional associations has been stably reproduced over the recent years (see Figure 1). Together with the two major associations, the specialized association for Historical Sociology (SH hereafter) currently consists in the core clique. All of other associations in the periphery are connected very sparsely to each other, but much more densely to the core block. Notice that the SH has distinct areas of specialization, unlike the KSA and the KISA which are involved in a broad range of research areas. It can be concluded that those who study Historical Sociology are forming a 'school' in terms of not only networking but also research.

How have Research Areas been Clustered?

Tables 11 through 13 show what research areas have been clustered and how stable it is over time. Some research areas such as Information and Religion (and Leisure and Sports) gained a transient co-attention in the 1980s (and in the 1990s), whereas three new areas are being recently clustered such as Social Welfare and Policy, Theory and Cultural Studies, and Religion and Korean Studies & Confucianism. Both Population and Aging and Family and Gender have been stably going together over the past 25 years. Some specialty clusters emerged in the 1990s to continue until recently (Criminology & Deviation and Psychology; Statistics and Social Network Analysis; Economic Sociology and Organization & Administration; Urban Sociology and Social Movements; Politics and East Asia; and Political Economy and Marxism). Interestingly enough, Economic Sociology used to be closer to Politics in the 1980s, but it has become more and more clustered with Organization & Administration since the 1990s and furthermore also with Statistics and Social Network Analysis more recently. Meanwhile, Politics has been adjacently grouped with East Asia. These areas have been highly clustered with Urban Sociology and Social Movements, Development, and Industrial Relations & Labor. Notice that this biggest cluster of specialization (Group 6 in Table 12 and 13) and Political Economy and Marxism (Group 7 in Table 12 and 13) have been the main research fields for scholars of critical sociology affiliated with the counter-association.

Table 11. Research Area Clusters (1980s)

1	Population, Aging	13, 36
2	Information, Religion	32, 12
3	Politics, Economic Sociology	3, 22
4	Linguistics, Mass Media	42, 35
5	Family, Gender	2, 6
6	All of the others are too distinct to merge	

Table 12. Research Area Clusters (1990s)

1	Population, Aging	13, 36
2	(Criminology & Deviation, Psychology), Law	(15, 10), 40
3	Statistics, Social Network Analysis	17, 53
4	Economic Sociology, Organization & Administration	23, 7
5	Family, Gender	2, 6
6	(Urban sociology, Social Movement), Development, (Politics, East Asia), Industrial Relation & Labor	(9, 22), 11, (3, 29), 1
7	Political Economy, Marxism	24, 25
8	Theory, Social Philosophy	5, 18
9	Linguistics, Mass Media	42, 35
10	Leisure, Sports	44, 47
11	All of the others are too distinct to merge	

Table 13. Research Area Clusters (2000s)

1	Population, Aging	13, 36
2	(Family, Gender), (Social Welfare, Policy)	(2, 6), (21, 20)
3	Criminology & Deviation, Psychology	15, 10
4	(Statistics, Social Network Analysis), (Economic Sociology, Organization & Administration)	(17, 53), (23, 7)
5	Theory, Cultural Studies	5, 8
6	(Urban sociology, Social Movement), (Politics, East Asia), Development, Industrial Relation & Labor	(9, 22), (3, 29), 11, 1
7	Political Economy, Marxism	24, 25
8	Religion, Korean Studies & Confucianism	12, 43
9	All of the others are too distinct to merge	

Sociologist-Specialty Ties are Scale-Free?

A summary of fitting sociologist-specialty ties into the log-log plots is provided in Table 14. All of regression lines are statistically significant in terms of both global and local fitness ($p <$ .01 for both). The degree distributions are very unequal which are consistent with the Gini coefficients (.419 in the 1980s; .518 in the 1990s; and .486 in the 2000s). However, we observe that both cut-off regions around the x and y intercepts in sociologist-specialty ties are bigger than those in sociologist-association ties. The sociologist-specialty ties in the 1990s and 2000s have truncated power-law regimes with the relatively low R^2s. This is primarily owing to the fact that the percentage increase in the degree x is much higher than the percent decrease in the number of links with x. In other words, since only a few sociologists have very small numbers of research areas, the cut-off regions around the y intercept are quite big, thereby making the regression slopes far from –1. Overall, we conclude that a trend-following-driven matching

Table 14. Test of Power-law Distribution in Sociologist-Specialty Ties

	Constant	Slope	R^2
1980s	.870*** (.101)	-.826*** (.133)	.810
1990s	.439*** (.095)	-.261*** (.076)	.318
2000s	.281*** (.063)	-.162*** (.044)	.282

Note | Numbers in parentheses are standard errors. *p < .10; **p < .05; ***p < .01.

with randomness has operated over the past 25 years, but its strength has become weaker with time.

Specialty-Specialty Ties are Small-World?

We observed from the two results above the evolution and dissolution of clusters of research areas with only some hubs stable. As is presented in Table 15, the one-tailed t-tests support that the average clustering coefficients of specialty networks are significantly bigger than those of equivalent random graphs (p < .01). However, all the average distances of observed graphs are longer than those of their counterparts (p < .01). In other words, none of specialty networks has small-world-ness although its degree has recently increased. This is primarily due to the fact that there are few generalist-oriented sociologists who span a very broad range of research fields. We conclude that clustering by specialty has been significantly higher than expected from random matching between sociologist and research field, but research clusters still spread away from one another. The overall results here are highly consistent with another conclusion from hierarchical cluster analysis and scale-freeness analysis that 'following-the-trend' was dominant in the 1980s, but specialty-based matching became more popular afterwards to come into interplay.

Core-Periphery Structure among Specialties?

The specialty network in the 1980s is characterized by a weak core-periphery structure rather than a faction structure.[19] This weak hierarchy of research clusters has continued,[20] but with its strength weaker over time, as is validated from Table 16 (see also Figure 2). In Table 17, we

Table 15. Small-World Properties of Specialty-Specialty Ties

	1980s	1990s	2000s
Average distance	2.085 (2.011)	1.617 (1.587)	1.464 (1.457)
z-value	2.756***	45.000***	49.261***
Clustering coefficient	.479 (.231)	.650 (.413)	.755 (.545)
z-value	8.701***	27.160***	37.661***

Note | The numbers in parenthesis are calculated from 100 random graphs with the same densities and the same numbers of nodes. *p < .10; **p < .05; ***p < .01.

Table 16. The Structural Change of Specialty-Specialty Ties

1980s			1990s				2000s			
Weak core-periphery			Weak core-periphery				Weak core-periphery			
	Core	Peri		1	2	3		1	2	3
C(14)	.549	.158	C(16)	.96	.73	.26	C(11)	.89	.83	.31
P(14)	.158	.077	S(13)	.73	.27	.12	S(22)	.83	.83	.20
* R^2 is .422 (SCP)			P(14)	.26	.12	.07	P(12)	.31	.20	.06
			* R^2 = .413 (OSE)				* R^2 = .405 (OSE)			

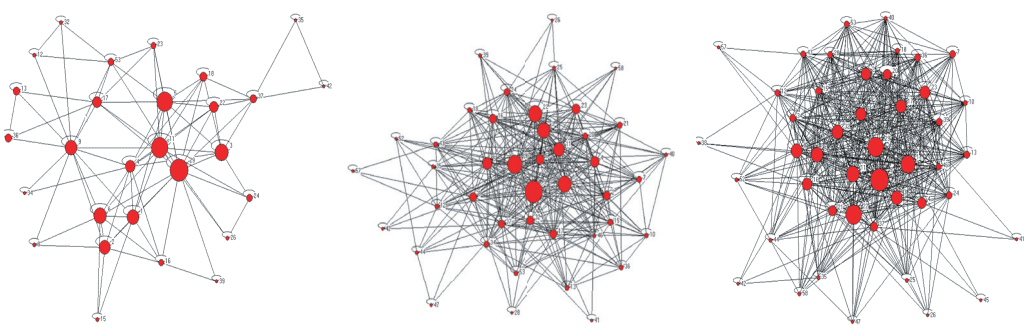
Note | Figures are the block densities of specialty-to-specialty links from dichotomized sociologist co-membership. The numbers of specialties are recorded in parentheses.

Table 17. What Specialties Constitute Blocks?

1980s	1990s	2000s
Core: 17 11 9 1 6 2 5 3 4 18 29 37 22 16 Periphery: 13 36 15 24 42 35 32 12 53 8 23 26 34 39	Core: 17 9 11 1 6 5 3 4 22 29 37 8 32 16 23 20 Semi-periphery: 2 15 46 18 24 35 12 53 34 43 21 7 25 Periphery: 13 36 40 10 42 58 26 39 41 28 44 52 47 57	Core: 1 6 40 5 3 29 24 8 53 43 21 Semi-periphery: 13 36 17 2 9 34 22 11 28 15 10 46 4 18 37 32 12 16 20 23 39 7 Periphery: 47 42 35 58 26 25 41 44 52 45 57 38

Note | Each number designates a particular interest area (see Appendix).

Figure 2. What do Specialty-Specialty Ties Look like?



Note | N = 28 and Density = .2328 in the 1980s (Left); N = 43 and Density = .4142 in the 1990s (Middle); N = 45 and Density = .5434 in the 2000s (Right). The number of components is 1 in all networks.

find that only five research areas have stably constituted the core throughout the entire period such as Industrial Relations & Labor, Politics, East Asia, Theory, and Gender. Some fields

19 R^2 from OSE is .098 (2 blocks) and .286 (3 blocks), while R^2 from FA is .103(2 blocks) and .287 (3 blocks).
20 R^2 from OSE is .405, and R^2 from SCP is .362. R2 from FA is .278 (2 blocks) and .336 (3 blocks).

have undergone a shift from the core to the (semi-)periphery (Class & Stratification; Development; Community; Social Movements; North Korea; and Statistics), while some areas have been consistently peripherized (World Systems; Anarchism; Linguistics; Literature; Aesthetics; Visual Sociology; Leisure; Sports; Army; and Geography). Some specialties have obtained co-attention to grow out of the periphery or enter the cohesive core (Economic Sociology; Organization & Administration; Social Network Analysis; Policy; Social Welfare; Psychology; Criminology & Deviation; Cultural Studies; Environmental Sociology; and Information, Science and Technology). Lastly, Marxism is the only one that has lost popularity over time.

Have Association and Specialty Networks Co-evolved?

Our final focus is on the co-evolutionary dynamics of professional associations and research areas in the Korean sociological community. In Table 18, the first column is the observed degree of correlation, while the third column is the average score of correlation across a large number of trials in which the rows and columns of the two affiliation matrices with the same set of sociologists are randomly permuted. In the 1980s, there seemed to be a positive correlation, but it is not statistically significant given the small difference between the two columns. However, there evolved significant positive correlations in the 1990s and 2000s ($p <$ .05 and $p <$ .01, respectively). This implies that professional associations have played increasing roles in research in the past 15 years, which is consistent with the trend that practitioners have more increasingly joined specialty associations since the 1990s.

CONCLUSIONS

Korean sociology was founded by a small and socially homogeneous group of scholars who were trained in the US. As its community expanded, new practitioners joined who are different from each other and also from existing members in terms of social backgrounds, theoretical

Table 18. The Correlation of Association Ties and Specialty Ties between Sociologists

	Observed	Significance	Random	Standard Deviation
1980s	.429	.246	.408	.030
	.335	.246	.319	.023
1990s	.551	.022**	.515	.020
	.462	.022**	.431	.017
2000s	.554	.004***	.525	.015
	.473	.004***	.449	.013

Note | For each period, the results at the first row and the second row are about simple matching and Jaccard coefficient, respectively. *$p <$ .10; **$p <$ .05; ***$p <$ .01.

orientations and entry points, and interest areas. In the mid-1980s, radical scholars organized a nation-wide counter-association under the banner of critical sociology to compete with the Korean Sociological Association not only for legitimacy and status but also for new members and theoretical perspectives.

The present paper examines the differentiation and integration of Korean sociological community through social network analysis. Analysis of citation patterns or collaboration networks is still popular in the field of sociology of science, but analysis of multiple affiliation networks provides complementary views. Our special attention is placed on how the patterns of co-membership of Korean sociologists in professional associations and specialties and their co-evolution have changed over the past 25 years.

We find several interesting features of the Korean sociological community structure and its evolution. Patterns of affiliation between sociologists and associations have shaped homophilous interactions based on gender, employment status, and university prestige and vice versa. In particular, the chance has recently become higher that the following groups of sociologists tend to socialize exclusively with each other: non-professors, female practitioners, those who undergraduated from universities in Seoul, those who graduated from the US, and those who graduated from Korea.

Scale-free properties of sociologist-association ties are observed throughout the entire period. Accumulative advantages of the Korean Sociological Association have been persistent even in the presence of its counter-association, Korean Industrial Sociological Association. Rather, we find a stable hierarchical structure with the counter-association having constituted the core since the 1990s although the topology of the association network has changed from a strong core-periphery to a weak one. The association for Historical Sociology is currently the only one located in the core among specialty associations. Meanwhile, an increased tendency toward homophily has produced high clustering, but the association network has been a small-world with a significant number of cross-cutting ties. Professional associations are much less distanced from one another than expected from a popular belief in a fragmented community with factions, but it should be noticed that there are a few isolated associations in the 2000s.

A couple of specialization areas have been clustered throughout the past 25 years (such as Population and Aging; and Family and Gender), and since the 1990s (such as Criminology & Deviation and Psychology; Statistics and Social Network Analysis; Economic Sociology and Organization & Administration; Political Economy and Marxism; and Urban Sociology, Social Movements, Development, Politics, East Asia, and Industrial Relations & Labor). Clustering analysis also reveals that Economic Sociology which used to be adjacent with Politics is now closer to Organization & Administration, Statistics, and Social Network Analysis. Blockmodeling of specialty networks supports that 'following-the-trend' has operated with an increasing tendency toward specialist-oriented selection of research fields. Only five research areas have been consistently the center of mutual attention such as Industrial Relations &

Labor, Politics, East Asia, Theory, and Gender. The current structure is characterized by a weak core-periphery structure without small-world-ness. This implies that research clusters receiving mutual attention are somewhat fragmented.

As sociologists with diverse interest areas have increasingly joined small or medium-sized specialized associations, the correlation between association networks and specialty networks has increased over time—the more similar research areas they share, it is more likely that they are co-members in professional associations and vice versa. But, the Korean sociological academic community still operates in an interorganizational hierarchy where a large number of specialized organizations are connected to only three core associations through a few of those who have multiple memberships. Furthermore, some peripherized specialized associations are currently isolated from the main component. It will be thus a tough task for both the Korean Sociological Association and the counter-association how to play integrative roles in the increasingly differentiated community of Korean sociology.

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APPENDIX

The list of specialties

1 Industrial Relation and Labor
2 Family
3 Politics
4 Class and Stratification
5 Theory
6 Gender
7 Organization and Administration
8 Cultural Studies
9 Community (Rural, Regional, Urban)
10 Psychology
11 Development
12 Religion
13 Population
15 Criminology and Deviation
16 Sociology of History
17 Statistics
18 Social Philosophy and Sociology of Knowledge
20 Policy
21 Social Welfare
22 Social Movement
23 Economic Sociology
24 Political Economy
25 Marxism
26 World System
28 Education
29 Comparative Sociology (East Asia including China and Japan, South East Asia, America, Western and Eastern Europe, South Africa, etc.)
32 Information, Science and Technology
34 Environment
35 Mass Media
36 Aging
37 North Korea
38 Literature
39 International Relations

40 Law
41 Army
42 Linguistics
43 Korean Studies and Confucianism
44 Leisure
45 Geography
46 Human Right and Minorities
47 Sports
52 Visual Sociology
53 Social Network Analysis
57 Aesthetics
58 Anarchism

Note | The total number of specialties is 45. Numbers on the left are arbitrarily chosen for identification in coding.