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The Position Generator: Measurement Techniques for Investigations of Social Capital

Nan Lin, Yang-chih Fu, and Ray-May Hsung

As social capital gains currency in the social sciences (Bourdieu 1980, 1983/1986; Coleman 1988, 1990; Putnam 1993, 1995a, 1995b; Lin 1995; Burt 1997, 1998; Portes & Sensenbrenner 1993; Portes 1998), it also increasingly faces divergence in conceptualization and measurement. The proliferation of meanings attached to the concept has broadened its appeal to an ever larger community of scholars and audience, yet also has threatened its integrity. Serious questions have been raised about the concept's rigor and its utility in scientific theory. We argue that the scientific viability of the notion of social capital depends on the development of an approach that integrates theory and measurement of the concept. Without a clear conceptualization, social capital may soon become a catch-all term broadly used in reference to anything that is "social." Without a clear measurement, it will be impossible to verify propositions or to accumulate knowledge.

The purposes of this paper are fourfold. First, it will evaluate the conceptualization of social capital. Second, it will provide a report on the development of a particular measurement methodology—the position generator—as guided by one specific conceptualization. The third purpose is to demonstrate the measurement's utility in testing specific propositions regarding the function of social capital in one instrumental context—stratification and mobility in one society (Taiwan). The final goal is to propose further refinements of the measurement methodology in advancing the concept of social capital.

TOWARD A THEORY OF SOCIAL CAPITAL

Social capital can be defined as resources embedded in a social structure that are accessed and/or mobilized in purposive actions (Lin 1982, 2001; also see Chapter 1 of this book). By this definition, the notion of social capital contains three ingredients: resources embedded in a social structure; accessibility to these social resources by individuals; and use or mobilization of them by individuals engaged in purposive action. Thus conceived, social capital contains both structural (accessibility) and action-oriented (mobilization or use) elements. The two ingredients also reflect differential levels of analysis, as diagramed in Figure 1. At the mesostructural level, social capital captures the extent to which individuals have differential accessibility to collective resources. At the microaction level, social capital captures how accessed resources are differentially mobilized by individuals in conjunction with specific actions.

This conceptual framework suggests three types of research tasks for building a theory of social capital. These tasks are also illustrated in Figure 1. First, the theory should be expected to delineate patterns of differential distributions for social resources that are accessed or mobilized. It should further demonstrate that there are social forces that determine such differential distributions. Thus, it is incumbent on a theory of social capital to

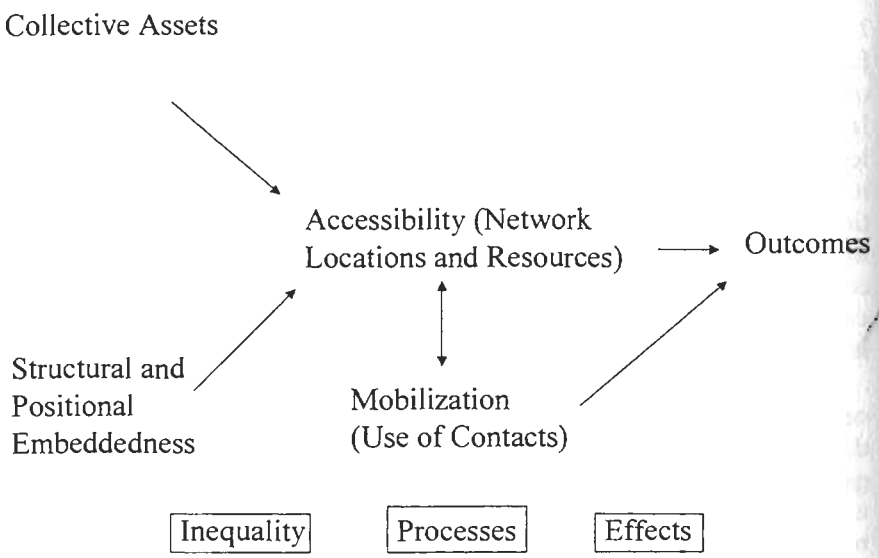

Figure 1. Research tasks in building a theory of social capital.

delineate the patterns and determinants of the two ingredients of social capital or *the inequality of social capital* as accessible social resources and mobilized social resources. Two types of causation forces are of special interest to scholars in the analysis of the inequality in social capital: structural and positional variations. A structure may be characterized in many ways such as diversity in culture and ideology, level of industrialization and technology, level of education, extent of physical and natural resources, economic productivity, etc. (see Chapter 1 of this book). Within a structure, individuals may be described as occupying different positions in social, cultural, political, and economic strata. These variations may be hypothesized to affect the richness or poorness of various social ingredients.

Second, the theory should demonstrate how social capital is capital, or how it generates return or gain. That is, it should propose how one or more of the ingredients directly or indirectly impact an individual's well-being. In propositional terms, these are termed effect hypotheses and can be stated as follows:

Effect Hypothesis 1: The greater the embedded resources accessible by an individual, the better the individual's well-being.
Effect Hypothesis 2: The better embedded resources mobilized by an individual, the better the outcome of an individual's purposive action.

Third, the theory needs to demonstrate that the two ingredients are interconnected. Thus, it needs to propose a causal sequence in which embedded resources constrain and enable individual choices and actions. These propositions can be termed process hypotheses and stated as follows:

Process Hypothesis: The better the accessible embedded resources, the better embedded resources can and will be mobilized in purposive actions by an individual.

It is this conceptual framework and its propositions that should guide research programs as well as evaluations of the extent to which each program is successful. There is significant space left for research entrepreneurship. For example, the outcome variables for each hypothesis remain to be conceptualized and operationalized, and may range from group solidarity to individual job attainment or life satisfaction (see Chapter 1). Nevertheless, these conceptual analyses should help assess how each research program contributes to the building of a theory of social capital.

Different research programs may choose to focus on one or more ingredients and on one or more of the tasks. One program, for example, may

focus on the documentation of the distribution of resources in a social structure, with the purpose of describing the relative distribution of resources as a collective asset in the structure. Putnam's (1993, 1995a, 1995b) work is exemplary in this regard, as he has chosen to focus on the distribution of collective assets in a social structure, as reflected in the prevalence of and participation in voluntary organizations or social groups, for example. In this research program, the richness or poorness of collective assets, over historical periods or across societies, is the focus of analysis, and its beneficial or detrimental effects for the structure or participating individuals are benchmarked in time or space.

Another research program may choose to focus on accessibility to embedded resources. Burt's efforts (1997, 1998), for example, have demonstrated the strategic advantages of certain network locations as reflected in relative profits for the occupants of a firm. In this program, researchers consider strategic locations (i.e., structural holes and structural constraints) as indicating social capital itself or assume that the locations have differential accessibility to embedded resources. The program of research proceeds to verify the linkages between strategic locations and certain structural or organizational consequences (e.g., better-than-expected promotions or bonuses).

Still a third type of research program may choose to focus on the use or mobilization of embedded resources. An illustration is Coleman's study (1990) of how a mother with a child moved from Detroit to Jerusalem in order to take advantage of social norms and sanctions that would provide better security for the child to go to the playground or school. In this analysis, richness/poorness of social capital is assumed as given, and the focus is on the choice made by the mother in mobilizing richer social capital by moving the family to Jerusalem. Likewise, Portes' description (Portes & Sensenbrenner 1993) of how some ethnic immigrants in New York City sought help from compatriots for a legal defense fund assumes that the ethnic community is the structure containing collective capital and focuses on the actions of individual immigrants who need to mobilize resources from that structure.

Some research programs have sought to examine several of these ingredients simultaneously. The social resource research tradition (Lin 1982; Marsden & Hurlbert 1988; De Graaf & Flap 1988; Flap & De Graaf 1988; Erickson 1996) seeks to describe how individuals access and use embedded resources to achieve instrumental goals, such as attaining better socioeconomic status. In this research program, social capital is captured either as (1) the accessed embedded resources by individuals, and/or (2) embedded resources actually used or mobilized in the analysis of their effects on outcomes in the status-attainment process such as occupational status, authority positions, or an advantaged or disadvantaged industrial sector.

ACCESS TO EMBEDDED RESOURCES: A PIVOTAL POINT FOR RESEARCH

While the general conceptual framework and different propositions suggested here provide an elastic range of research enterprises, most researchers working on social capital probably agree that the significance of a theory of social capital lies in its intended demonstration that structure and action interact in a meaningful way. Ideally, research programs should seek to clarify simultaneously how individuals are afforded and constrained by their relative accessibility to resources embedded in the social structure, and how they take actions to mobilize the embedded and accessible social resources to generate returns for their own well-being. Thus, a social capital theory must contain and demonstrate the meso-micro linkage and the dynamic interactive effects between structure and action. Based on this analysis, it can be argued that a critical aspect of research is the point where individuals intersect with structure—which embedded resources are accessible to whom. At this level of analysis, there are two critical research questions: (1) inequality of access in the social structure (who has better or worse access to the embedded resources); and (2) the return of unequal access for individual well-being.

A further important theoretical advantage of this ground-up approach to studying social capital is that it enables the term "social capital" to be used parallel to other related terms, such as "human capital" and "cultural capital," in the general theory group that can be identified as the neocapital theory group (Lin 2001). Unlike the classic theory of capital (Marx 1933), where capital is a term associated with classes and therefore subject to macroanalysis, neocapital theories concern the investment and return of capital at the individual level. For human capital (Schultz 1961; Becker 1964, 1993), which is central to neoclassical economics, research tends to measure human capital as individual assets—education, on-the-job training, job experiences, etc. The notion has been extended to almost anything that improves individual skills and knowledge (e.g., health, family support: Becker 1981, 1991, 1964/93). But the major theoretical argument and most research enterprises are built on the notion and measurement of human capital as individual assets. Likewise, cultural capital, as explicated by Bourdieu (Bourdieu 1972, 1997; Bourdieu & Passeron 1977), is the "misrecognition" and absorption of individuals with the values and ideologies espoused by the dominant class. In each case, capital can eventually be transformed from individual to collective assets, but the point of departure in the conceptual analysis and research efforts are firmly rooted at the point where individuals are shown to intersect with the structure.

It is this arena in which we wish to make a contribution. Specifically, building on the growing research literature regarding the analysis of ac-

cess to social resources, we hope to demonstrate that a particular measurement methodology promises to yield theoretical and empirical insights demonstrating the utility of social capital in the context of structured action, using data from a particular society, Taiwan.

MEASURING ACCESSIBILITY: THE POSITION GENERATOR

There are two methodologies commonly used to measure access to social capital: name generators and position generators. The name generator is the more common methodology and has been used extensively in the network literature. The general technique is to pose one or more questions about the ego's contacts ("names") in certain social contexts or situations which may range from role or content (neighbors, important family or work matters) to closeness (confidences, intimacy, etc.), geographic limits, or for specific periods of time. Such questions generate a list of contacts ranging from three to five or as many as volunteered by ego. This approach was pioneered by Laumann (1966), Wellman (1979), and Fischer and his associates (Fischer 1977, 1982), and standardized in other community studies (Hall & Wellman 1985; Wellman 1981; Lin, Dean, & Ensel 1986) and national samples (Burt 1984; Marsden 1987). Numerous studies have adopted this approach in identifying ego-centric networks.

This methodology has been adapted to measure social capital in three different but related ways. In one approach, the network characteristics are taken as indicators of social capital, either as collective social capital or as access to social capital. Collective social capital is summarized in terms of density or sparseness of relationships among social ties (ego and alters), for example. Or, the location of an ego relative to alters in this network is used to indicate the relative advantage in the access to social capital (the bridge, or near a bridge, structural holes or structural constraints). Burt's (1992, 1997, 1998) conceptualization of social capital utilizes this network-as-capital approach and argues that theoretically and empirically, the location-as-capital measurement is superior to the dispersion-as-capital measurement. In another approach, compositions of alter characteristics are constructed to indicate social capital (Campbell, Marsden, & Hurlbert 1986). Again, two types of measures have been devised . One constructs a composition of the collective resources possessed by the alters (mean education, occupational prestige, or income; or range, diversity and heterogeneity of education, occupational prestige, or income as well as gender, age, and other characteristics). Another measure assesses the best-possible resources (the highest education, occupational prestige, or income) characterizing alters. Many researchers have adopted this approach in examining social resources or social capital, as exemplified by Campbell,

Marsden, and Hurlbert (1986), Sprengers, Tazelaar, and Flap (1988), Boxman, De Graaf, and Flap (1991), and Boxman and Flap (1990).

There are a number of problems associated with the use of the name generators to measure social capital (see Chapter 1). In short, it tends (1) to be bound with specified content areas (the generating items), (2) to elicit stronger rather than weaker ties, and (3) to locate access to individuals rather than social positions.[1] More importantly, we argue, name generators fall short on two sampling issues important to the development of social capital as a theory. For one, by definition, these generators are content bound. Unless there is information about the population or universe of the contents (roles, intimacy, geography, etc.), there is no possibility of systematically sampling elements or contents. A hit-or-miss approach thus ensues—contents are selected by individual researchers who make judgment calls, or use "conventional" wisdom and practice. Moreover, if weaker ties, bridges, structural holes, or absence of structural constraints are theoretically expected to have a certain instrumental utility for accessing better information and resources (Granovetter 1974; Burt 1992), then name-generators fall far short of assuring that such ties will be evoked. These concerns lead us to suggest that greater research attention should be given to another measurement technique: the position generator.

Position generators, first proposed by Lin and associates (Lin & Dumin 1986), use a sample of ordered structural positions salient in a society (occupations, authorities, work units, class or sector) and ask respondents to indicate contacts (e.g., those known on a first-name basis), if any, in each of the positions. From the responses, it becomes possible to construct measures of (1) *range* of accessibility to different hierarchical positions in the society (e.g., the distance between the highest and lowest accessed positions); (2) *extensity* or heterogeneity of accessibility to different positions (e.g., number of positions accessed); and (3) *upper reachability* of accessed social capital (e.g., prestige or status of the highest position accessed). Further, relationships (either direct or indirect) between the ego and contact for each position can be identified. Such quarry may yield information regarding strength of ties, or the possible use of bridges.

We should note that the position generator derives from certain theoretical decisions. For example, it chooses to sample positions in a hierarchical structure, rather than sampling ego-centered interpersonal ties. To the extent that social capital reflects embedded resources in the structure, then this approach should yield meaningful information regarding ego's access to such structurally embedded resources. The measurement is also deliberately content-free and role/location-neutral. Only after accessibility to a position is ascertained can the actual relationship or its content between ego and the contact be assessed. Conceivably, the generator casts a wide net over a range of relationships. It may well be that social capital, in

its capacity to affect many aspects of well-being, should also contain social resources scattered throughout the continuum of relationships' strength or intensity. As a measurement tool, it does not preclude such linkages from presenting themselves in the data.

A concrete example of this approach may illustrate how it is devised and used. Lin and Dumin (1986) analyzed the data from an Albany study in which 20 occupations were sampled from the U.S. 1960 census listing, with all occupations ranked according to job prestige scores. At equal intervals on these scaled scores, occupations were identified. From the group of occupations at the sampled interval, the most popular (frequency of occupants) occupation was selected. Each respondent was asked if he/she had any contact (on a first-name basis) with a person in each of the positions.[2] For each accessed position, the respondent identified the contact's relationship (relative, friend, or acquaintance). From the data matrix, Lin and Dumin constructed two social resources access measures: the highest status accessible (the position accessed with the highest prestige score), and the range of statuses accessed (the difference between the highest and lowest accessed statuses). Analyses showed that the two measures were positively and significantly related to current occupational status. Further analysis showed that respondents' original positions (father's occupational prestige scores, or white-blue and high-low occupational groupings, or those associated with the respondents' first jobs) and these two measures were positive and significant. When Lin and Dumin analyzed the relationships between the three types of ties (relatives, friends, acquaintances) and the access variables, they found that friends as well as acquaintances provided the best access to both the highest-status positions and the range of accessed statuses. Thus, they concluded that the position generator yields measures of accessed social resources that exerted returns on attained status, and that such accessibility is in part contingent on the original structural position of ego as well as ego's wider networks.

Usage of the position-generator approach has yielded similar findings for different political economies (e.g., capitalist and socialist) and populations (e.g., normal labor force, unemployed, new workers, particular industries) (Hsung & Hwang 1992; Volker & Flap 1996; Angelusz & Tardos 1991; Erickson 1998). Erickson (1995, 1996) expanded this approach by using Wright's (1979) class dimensions (control of property, control of organizations, and control of skill) to select nineteen job positions in her study of the private security industry in Canada, with equal success.

In the remainder of this chapter, we wish to illustrate the utility of the position-generator methodology with data from an island-wide survey of employed labor forces in Taiwan. We focus our attention on three topics. First, we wish to examine how access to social capital is contingent on a number of structural positions (gender, marital status, education and employment) and social contacts (daily contacts and familiarity with the contacts), as well as with specific relationships (kin versus nonkin) evoking such access. Second, further analyses will be conducted to ascertain how access to social capital generates differential returns in terms of job prestige and income. Particular attention will be given to differential returns to males and females. Finally, we will further assess how access to social capital contributes to the income of entrepreneurs (those who form their own firms and businesses) and whether such a contribution is similar or different for male and female entrepreneurs.

THE TAIWAN SOCIAL NETWORKS STUDY

An island-wide survey of adults was conducted in Taiwan in February 1997. The survey, designed by a team of sociologists, was first examined and discussed with a focus group of ten persons from a wide range of social strata and then subjected to a pretest with 400 respondents. The finalized instrument was administered in interpersonal interviews with respondents in an island-wide stratified (levels of urbanization) probability (by district and household) sample of adults aged 20–74. A total of 2,835 sampled respondents completed the surveys. The sample consisted of nearly an equal number of males and females whose mean age was 42, with slightly more than half (53 percent) having received education at or above the high school level; a comparison shows that female respondents received less education than males. About three-quarters (72 percent) of the respondents were married. A summary of respondent characteristics is shown in Table 1.

Table 1. Summary of Sample Characteristics (N = 2,835)

Variable	Percent or Mean			*Gender Significance*
	Sample	*Males*	*Females*	
Gender—males	50.9%			
Age	41.6	41.9	41.3	
Education				.00
Less than high school	47.4%	43.7%	51.4%	
High school	28.5	29.5	27.5	
College or more	24.0	26.8	21.1	
Marital status				
Single	21.1%	25.2%	16.8%	.00
Married	71.8	70.4	73.3	.08
Divorced or widowed	7.1	4.4	9.8	.09/.00

Table 2. Summary of Position-Generated Variables

Variable	Mean or Percent			Gender Significance
	Sample	Males	Females	
Extensity (number of positions accessed)	6.5	7.0	6.1	.00
Upper reachablity (prestige of highest accessed position)	69.4	69.3	69.6	.43
Range of prestige (difference between highest/lowest positions accessed)	39.6	39.8	39.4	.55
Accessed positions (prestige score)				
Physician (78)	50.3%	49.2%	51.4%	.23
Lawyer (73)	23.9	26.0	21.8	.01
Owner of large factory/firm (70)	34.2	40.1	28.2	.00
Assemblymen/women (69)	31.0	35.6	26.2	.00
Manager of large factory/firm (62)	42.8	49.7	35.7	.00
High School teachers (60)	59.9	61.1	58.6	.17
Division head (55)	20.6	24.2	16.8	.00
Reporter (55)	21.2	24.5	17.7	.00
Nurse (54)	53.5	47.6	59.7	.00
Owner of small factory/firm (48)	68.1	71.8	64.3	.00
Police (40)	55.6	59.4	51.5	.00
Electrician (36)	70.1	76.0	64.0	.00
Truck driver (31)	51.6	59.8	43.2	.00
Office workman/guard (26)	43.3	47.6	38.8	.00
Housemaid, cleaning worker (22)	29.5	28.4	30.6	.21

THE POSITION GENERATOR AND DATA

The generating question was: "Among your relatives, friends, or acquaintances, are there people who have the following jobs? If so, what is his/her relationship to you? If you don't know anyone with these jobs, and if you need to find such a person for private help or to ask about some problems, whom among those you know would you go through to find such a person? Who would he/she be to you? What job does he/she do?" Following these questions were fifteen "job" positions sampled from two structural dimensions: occupational prestige and class. For occupational prestige, we followed the prestige ratings constructed by Hwang (1998) for Taiwan occupations. The instrument is translated and reproduced in Appendix A. The sampled positions have prestige scores ranging from 78 (physician) to 22 (housemaid, cleaning worker) and can be roughly grouped into three "classes": the upper class (consisting of high-status professionals such as physician and lawyers, owners of large factories, county-level legislators), the middle class (middle-level professionals such as high school teachers, reporters and nurses, managers of large factories/firms, middle-level administrators and division heads, and owners of small factories and firms),

and the lower class (police, electricians, truck drivers, office workmen and guards, and housemaids and workers). These positions and their relative rankings are displayed in Table 2.

Three indexes were constructed from the position-generator items: (1) extensity: number of positions accessed; (2) upper reachability: the prestige score of the highest position accessed; and (3) range of prestige scores of the highest and lowest positions accessed. As can be seen in Table 2, on average, the respondents accessed between six and seven sampled positions, with the highest prestige score among accessed positions being 69 and the average range of prestige scores between the lowest and highest accessed positions about 40 points. A comparison between males and females shows that while males tended to access more positions, there was no significant difference between males and females in terms of upper reachability (the highest prestige score) or the range of scores. Why both males and females accessed a similar range or upper reachability requires further analysis.

We then examined the detailed data on accessibility to each of the sampled positions. As shown in Table 2, the positions were rearranged in descending order in accordance with their prestige scores. The most accessible positions, by more than half of the respondents, included physicians, high school teachers, owners of small factories/firms, the police, electricians, and truck drivers. The least accessible positions (cited by less than a third of the respondents) included lawyers, assemblymen/women, division heads, reporters, and housemaids and workers. Comparing data from male and female respondents shows that males are more likely to access all sampled positions, except physicians, high school teachers, nurses, and housemaids and workers. A discernable pattern thus emerges. While females have equal or better access to positions related to the spheres of education, health, and household activities, males have the overall advantage in accessing more positions in the structure. Because of the high prestige of physicians and the low prestige of housemaids and workers, access to which seems to be equal for both males and females, there are no differences between males and females on upper reachability and range.

We conclude that the structure of social capital, while showing superficial similarities, is essentially different for males and females. Females are generally disadvantaged in accessing many of the positions, but probably compensate by the roles they play relative to household well-being, such as education for children, health care for family members, and household maintenance. Such roles and the social resources they access may be useful for maintaining some sense of well-being; however, these social resources may not be as useful when such access is seen as social capital for gains in the labor force. Thus, all subsequent analyses are conducted separately for males and females.

Because the three measures of position data (extensity, upper reachabil-

Table 3. Factor Structures of Access to Social Capital

	Sample (N = 2,693)	*Males (N = 1,394)*	*Females (N = 1,299)*
Factor eigenvalues			
I	2.25	2.31	2.19
II	0.03	0.02	0.03
III	−0.11	−0.11	−0.13
Factor loading on Factor I[a]			
Extensity	0.80	0.82	0.78
Range	0.94	0.95	0.94
Upper reachability	0.85	0.87	0.84
Factor scoring on Factor I[a]			
Extensity	0.15	0.15	0.15
Range	0.65	0.65	0.64
Highest prestige	0.21	0.20	0.21

[a]Principal component, minimal eigenvalue of 1, and varimax rotation.

ity, and the range) were highly correlated, we proceeded to construct a composite variable. A factor analysis, as presented in Table 3 (with principal component methodology, varimax rotation, and a criterion of an eigenvalue equal to or greater than 1), yielded a single factor solution and almost identical patterns and coefficients for the male and female sub-samples. A factor score was computed for both male and female respondents as a weighed sum of the three measures (.15 extensity + .65 range + .21 upper reachability). The range variable carried at least three times more weight than the other two variables; thus, this composite variable, called "access to social capital," more heavily reflects the range of positions accessed.

INEQUALITY IN ACCESS TO SOCIAL CAPITAL AND ITS DIFFERENTIAL RETURNS

The next research task is to assess the differential access to social capital: what characteristics would enhance or hinder access to social capital? We identified three groups of structural variables. The first group reflects household compositions. The analysis above suggests that females' access may be affected by family-domain activities. We do not have actual data on the use of doctors and nurses, school-age children, or employment of housemaids, so we used two measures—household size (logged) and presence of grandchildren in the household—on the assumption that larger households might increase the likelihood of having school-age children and the need for health and household services. Using the presence of grandchildren is a conservative estimate of the number of school-age

children, and may also reflect the respondent's relative age (a correlation of .40). The expectation is that these variables are more likely to affect females' access to social capital than males' access.

The second group of variables taps the respondent's social status, specifically education and employment. These reflect possible avenues of extending one's social networks, and both variables indicate the broadening of one's social contacts. Especially in Taiwan, identification with school is very strong; alumni groups are usually active as a social network. Employment reflects the opportunities for further social contacts in the labor force. Since education is universal up to the completion of junior high school, we expected education to benefit both males and females in their access to social capital. However, participation in the labor force may not reflect equal standing in it; thus, we expected that employment should benefit males more than females.

The third group of variables measures extensity of social contacts. In the questionnaire, each respondent was asked to estimate the size of daily contacts ("In an ordinary day, how many people are you roughly in contact with? 1. 0–4 persons; 2. 5–9 persons; 3. 10–19 persons; 4. 20–49 persons; 5. 50–99 persons; 6. 100 or more). It was followed with the question, "How well do you know these persons? (1. Know almost all of them; 2. Know most of them; 3. About half and half; 4. Don't know most of them; 5. Know almost none of them). The score was reversed, so that the higher the score, the less familiar each respondent is with his/her daily contacts. The expectation was that the size of daily contacts would benefit both males and females. Familiarity with contacts was used to estimate the strength of ties with daily contacts. Here, we were uncertain what to expect. The hypothesis of the strength of weak ties (Granovetter 1974) might suggest that extensive, less-familiar contacts should extend one's networks and provide access to better social capital. However, data from Singapore (Bian & Ang 1997) and mainland China (Bian 1997) suggest that, at least in these societies, contact with total strangers yields no benefit, and extended family in these societies, as well as in Taiwan (Hsung 1992), continues to play a critical role in one's linkage with the larger society. Thus, stronger ties may in fact serve as important bridges extending one's networks. We simply let the data speak on the two alternative hypotheses.

Finally, we incorporated information on whether each access was to kin or nonkin. Informed by the significance of family in Chinese societies as well as the persistent significance of kinship in North America (Wellman 1990), we wished to examine whether the kin versus nonkin distinction makes a difference in degrees of access to various positions and, therefore, social capital. Again, we let data inform us whether stronger (kin) or weaker (nonkin) ties were more beneficial. Table 4 presents the basic data on access to each position through kin ties. In general, males tended to use more nonkin ties in accessing various positions, with the exception of

Table 4. Access to Social Capital by Kin

Accessed Positions (prestige score)	Percent Using Kin Ties			Gender Significance
	Sample	Males	Females	
Physician (78)	22.8	23.0	22.5	.82
Lawyer (73)	18.6	17.9	19.6	.57
Owner of large factory/firm (70)	15.8	13.7	18.8	.03
Assemblymen/women (69)	15.5	12.5	19.8	.00
manager of large factory/firm (62)	16.4	11.9	22.8	.00
High school teacher (60)	36.9	34.7	39.3	.05
Division head (55)	22.5	19.8	26.6	.05
Reporter (55)	14.2	13.6	15.1	.61
Nurse (54)	37.8	37.8	37.9	.97
Owner of small factory/firm (48)	23.9	17.9	30.8	.00
Police (40)	32.6	30.4	35.3	.04
Electrician (36)	24.4	21.7	27.8	.00
Truck driver (31)	24.6	18.1	34.0	.00
Office workman/guard (26)	10.1	8.6	12.1	.05
Housemaid, cleaning worker (22)	13.7	13.5	14.0	.83
Association between				
Extensity	−0.21	−0.19	−0.21	
Range of prestige scores	−0.21	−0.20	−0.21	
Upper reachability	−0.15	−0.13	−0.18	

physicians, lawyers, nurses, police, office workmen/guards, and housemaids, for whom males and females seemed to have equal access. We computed a variable representing the percentage of a respondent's access to various positions that is mediated by kin ties and correlated it with the three access variables. The results, also presented in Table 4, suggest that the associations tend to be negative: nonkin ties yield better access to social capital.

We regressed the composite access to social capital variable on the other variables described above. The results of regression analyses, controlling for age and being married, are presented in the first two columns in Table 5. In the first equations (Model 1), we included all exogenous variables, except percentage of access through kin ties. For both males and females, access to social capital was contingent on being married, education level, and extensity of daily contacts. Males and females did differ on two factors relating to access to social capital. Males benefitted from being in the labor force, while females did not, suggesting that work-related networks facilitated males' access to social capital. Also, females were further hindered by having grandchildren in the household. It is worth noting that females, in contrast, rely more on education than males in gaining better access to social capital.

Table 5. Determinants of Access to Social Capital[a]

Exogenous Variable	Access to Social Capital			
	Model 1		Model 2	
	Males (N = 1,386)	Females (N = 1,293)	Males (N = 1,386)	Females (N = 1,293)
Age	−0.07	0.08*	−0.05	0.09**
	(−0.07)	(0.08)	(−0.06)	(0.09)
Married	4.58***	2.89***	4.93***	3.04***
	(0.16)	(0.09)	(0.17)	(0.19)
Household size (log)	−1.40	−0.56	−1.21	−0.47
	(−0.05)	(−0.02)	(0.06)	(−0.02)
Grandchildren in house	0.71	−1.18**	0.81	−1.00
	(0.05)	(−0.08)	(0.06)	(−0.07)
Education	0.45***	1.24***	0.44***	1.19***
	(0.15)	(0.33)	(0.14)	(0.32)
Employed	4.50***	−0.00	1.87*	−0.20
	(0.13)	(−0.00)	(0.05)	(−0.01)
Size of daily contacts	2.33***	1.72***	2.30***	1.62***
	(0.24)	(0.17)	(0.23)	(0.16)
Familiarity with contacts	0.86*	0.98*	−0.75	−0.98*
	(0.06)	(0.07)	(−0.05)	(−0.07)
Percent accesses thru kin			−8.58***	−6.97***
			(−0.17)	(−0.14)
Intercept	30.88	25.52	32.67	27.67
R^2	0.12	0.14	0.15	0.17

*$p < .05$.
**$p < .01$.
***$p < .001$.
[a]Partial regression coefficients; standardized coefficients in parentheses.

Familiarity with contacts has a positive, though modest, effect on access to social capital. Thus, it lends some support to the notion that a useful social network should contain strong as well as weak ties. Having more familiar ties in one's contact networks does not, however, exclude the utility of "weaker" ties in accessing specific social capital. Therefore, in the next equations (Model 2) we added the percentage of access through kin ties to the estimations As can be seen in Table 5, the negative and significant coefficients for both males and females provided tangible evidence that social ties outside one's extended family are helpful in accessing social capital. These effects are additional benefits, beyond those already accounted for by all the variables entered in Model 1. We hasten to add that this is not a direct test of the strength of the weak-ties hypothesis, since kin versus nonkin ties cannot be equated with strong versus weak ties. It is quite clear, however, that in Taiwanese society, social ties beyond one's extended family are useful channels for reaching better resources.

If the nature of access to social capital is different for males and females, with advantages going to the males, then we would expect that the benefit or return from access to social capital should be greater for males than females, especially if the return is assessed by gains in the labor force. To examine this hypothesis, we determined the effect of access to social capital on current job prestige and income. For effects on job prestige, all exogenous variables for access to social capital were used as exogenous variables or potential determinants. Since these analyses were conducted only for those who were employed, the variable of employment was eliminated. The age variable was also eliminated, as it was highly correlated with education (−0.38 for males and −0.53 for females), being married (0.48 for males and 0.19 for females), and having grandchildren (0.40 for males and 0.41 for females).[3] Results for job prestige are shown in the first two columns in Table 6. Education, as expected, was a major determinant

Table 6. Determinants of Job Prestige and Income[a]

	Job Prestige		*Monthly Income (logged)*	
Exogenous Variable	*Males (N = 1,209)*	*Females (N = 755)*	*Males (N = 1,145)*	*Females (N = 722)*
Married	0.31	0.96	0.13***	0.08*
	(0.01)	(0.04)	(0.09)	(0.07)
Household size (log)	−1.85**	−1.18	ne[b]	ne
	(−0.09)	(−0.05)		
Grandchildren in house	−0.06	0.18	−0.16***	−0.08***
	(−0.00)	(0.01)	(−0.21)	(−0.12)
Education	0.96***	1.89***	0.02***	0.04***
	(0.40)	(0.62)	(0.18)	(0.27)
Size of daily contacts	0.23	0.57*	0.10***	0.05***
	(0.03)	(0.07)	(0.20)	(0.13)
Familiarity with contacts	0.02	−0.14	0.01	0.02
	(0.00)	(−0.01)	(0.02)	(0.04)
Access to social capital	0.14***	0.01	0.01***	0.00*
	(0.17)	(0.01)	(0.16)	(0.07)
Percent access thru kin	−3.31**	0.89	−0.17***	−0.18***
	(−0.08)	(0.02)	(−0.07)	(−0.04)
Job prestige			0.01***	0.01***
			(0.14)	(0.16)
Intercept	28.56	25.07	0.38	0.47
R^2	0.26	0.40	0.31	0.30

*$p < .05$.
**$p < .01$.
***$p < .001$.
[a]Partial regression coefficients; standardized coefficients in parentheses.
[b]ne, not entered.

of job prestige. Access to social capital, however, benefitted males and not females. Accessing these positions through nonkin also produced greater benefit for males than for females.

Finally, we estimated the effects of access to social capital on income. The measure of income was derived from the question, "Including year-end bonuses, may we ask what your average monthly income is?" and twenty-three response categories of grouped interval brackets ranging up to NT300,000 or more (equivalent to about U.S. $940 in 1997). We used the log of this measure as the income variable. As presented in the last two columns in Table 6, access to social capital is highly significant in association with monthly income for males, and not for females. Again, females tend to benefit more from education than males in income attainment.

A general pattern has emerged. While social capital, in general, generates returns in job prestige and income, it is the males who generate more returns from social capital than do females. Females, rather, have to rely on human capital (education) more for their job and economic attainments.

ACCESS TO SOCIAL CAPITAL AND ENTREPRENEURSHIP

Job prestige as usually used in Western countries, however, is not the only meaningful measure of job returns in Taiwan. The occupational structure is such that a significant portion of the labor force is self-employed or employed in family enterprises. It has been documented that self-employment provides an important and meaningful alternative to being employed by others, especially in the private sector (Shieh 1989, 1990, 1993; Ke 1993; Hsung & Hwang 1992; Stites 1982, 1985). For these entrepreneurs, access to social capital, along with extensive social contacts, should provide vital resources. But would such benefits also accrue to female entrepreneurs as well as to male entrepreneurs? We proceed to explore this question.

In the questionnaire, each respondent was asked, "May we ask where you work now, or work for whom?" About 29 percent indicated that they worked for themselves (self-employed), and another 8 percent worked for family-owned firms (employed by family), whereas the remainder (63 percent) worked for others (employed by others). Self-employed entrepreneurs have previously been found to be less educated and from less advantaged (lower parental job status) or self-employed (parents had own businesses) families. They may not be in the upper levels of the occupational structure, but they perform reasonably well in earnings.

The question for us is whether or not these entrepreneurs benefit from access to social capital, and whether such benefits are again unequal between male and female entrepreneurs. Analyses for income were therefore

Table 7. Return on Access to Social Capital to Income for Self-Employed Males[a]

Exogenous Variable	Self-Employed				Employed by Others		Employed by Family	
	Males (N = 361)		Females (N = 130)		Males (N = 652)	Females (N = 492)	Males (N = 42)	Females (N = 74)
Married	0.02	0.01	0.01	0.01	0.18***	0.10***	0.21	0.02
	(0.01)	(0.00)	(0.01)	(0.01)	(0.21)	(0.12)	(0.19)	(0.01)
Household size (log)	0.21**	0.21**	0.02	0.04	0.01	0.13***	0.08	0.03
	(0.16)	(0.15)	(0.02)	(0.03)	(0.02)	(−0.14)	(0.06)	(−0.02)
Grandchildren in house	−0.13***	−0.12	−0.09	−0.09	−0.07**	0.04	−0.11	−0.11
	(−0.19)	(−0.19)	(−0.13)	(−0.13)	(−0.09)	(0.05)	(−0.16)	(−0.16)
Education	0.07***	0.07***	0.02	0.01	0.01***	0.04***	0.07	0.00
	(0.33)	(0.33)	(0.14)	(0.07)	(0.12)	(0.38)	(0.37)	(0.01)
Size of daily contacts	0.08***	0.07**	0.01	0.00	0.03**	0.03*	0.07	0.03
	(0.16)	(0.15)	(0.01)	(0.1)	(0.10)	(0.08)	(0.20)	(0.08)
Familiarity with contacts	−0.01	−0.00	0.07	0.08	−0.01	0.01	−0.00	0.07
	(−.02)	(−0.01)	(0.14)	(0.14)	(−0.03)	(0.01)	(−0.01)	(0.08)
Access to social capital	0.01**	0.01**	0.01	0.01	0.00***	0.00	0.00	0.00
	(0.14)	(0.14)	(0.13)	(0.13)	(0.11)	(0.06)	(0.00)	(0.07)
Percent of access through kin	−0.01	0.00	−0.1	−0.02	−0.13***	−0.14**	−0.03	−0.62*
	(−0.00)	(0.000)	(−0.00)	(−0.01)	(−0.08)	(−0.09)	(−0.01)	(−0.27)
Job prestige	0.01**	0.01*	0.01**	0.01**	0.01***	0.01***	0.01	0.01
	(0.13)	(0.11)	(0.25)	(0.26)	(0.35)	(0.22)	(0.18)	(0.19)
Firm size		0.00**		0.02				
		(0.11)		(0.15)				
Intercept	0.08	0.16	0.45	0.43	0.75	0.79	0.14	0.40
R^2	0.37	0.38	0.23	0.25	0.34	0.39	0.35	0.24

*$p < .05$.
**$p < .01$.
***$p < .001$.
[a]Partial regression coefficients; standardized coefficients in parentheses.

conducted separately for the self-employed, those employed by others, and those employed by their own families. The results are presented in Table 7.

Since the group "employed by family" consists of small numbers of respondents, we will focus our attention on a comparison between the self-employed and those employed by others. The data for those employed by others and for both males and females (columns three and four in Table 7) fairly duplicate the general results provided in Table 6 (last two columns). For both male and female entrepreneurs, accessing social capital through kin ties does not decrease economic benefits. These patterns suggest that entrepreneurs need to use both kin and nonkin contacts to locate beneficial social capital. The benefit of relying on nonkin for those employed by others has largely disappeared. When firm size is taken into account, these relationships remain the same. We take these findings as important clues suggesting that there is indeed a social basis for the notion of family enterprises in Taiwan as well as in other East Asian countries. Family enterprises may not be the only avenue for entrepreneurship, but they are a very important segment of it.[4]

DISCUSSION

The position-generator methodology has yielded informative findings from surveys conducted in Taiwan. It demonstrates gender-based inequality in access to social capital largely based on the advantage of being in the labor force for males and the disadvantage of being tied down with household obligations for females. The data further show differential returns of access to social capital for males and females. Males benefit much more from access to social capital and nonkin relations in getting more prestigious jobs and higher incomes than females do. Females, in contrast, rely more on human capital (education) to gain job prestige and higher income. The relative utility of human capital and social capital is a matter of degree rather than dichotomy, however. As demonstrated clearly by the analyses, each form of capital generates returns and most individuals benefit from having both. Yet, as distinct segments of a population differentially benefit from each, research will help to identify the sources of variations in access to different types of capital and delineate the social dynamics involved in the creation and utility of capital in a given social structure.

The position-generator methodology also sheds light on the debate concerning whether the extensity of social contacts or the strength of ties generates better access to social capital. As it turns out, both arguments receive support. The data clearly show that the extensity of daily contacts, rather

than whether such contacts tend to be close or not, facilitates access to better social capital in general. However, when it comes to accessing specific social capital—for example, a particular position in the social structure—nonkin and perhaps weaker ties are useful. Thus, extensity of social contacts affords the range of possible ties within which the search for specific social capital is likely to be more successful.

This analysis also suggests avenues for integrating two approaches to the measurement of social capital: network location and social resource. To the extent that extensity of daily contacts reflects relative locations in social networks, there is a clear association between the two: better network locations increase the likelihood of reaching better social resources. It remains unclear whether it is advantageous to view both network locations and social resources as indicators of social capital or to postulate network locations as a precursor of social capital, the social resources accessed. Our current inclination is to consider network locations as a precursor to social capital, for the simple reason that the relationship between the two should be a proposition to be examined rather than assumed. However, we are open to possible alternative integrations of these two types of measurement. The ultimate choice should be determined by the relative theoretical advantage and empirical meaningfulness each choice lends in advancing a theory of social capital.

Finally, the measurement of social capital by the position-generator technique helps clarify the linkage between social institutions and social stratification. The measurement is flexible enough to sample a population of positions meaningful in a social stratification system, be they occupations, incomes, authority positions, and/or types of employment. Such flexibility in sampling lends itself to the analysis of how social institutions are tied to social capital. In our data, the examination of family enterprises, favored by a significant segment of the labor force in Taiwan, clarifies conditions under which strong ties or weak ties may be useful in the construction and utility of social capital.

In conclusion, the position-generator methodology has yielded consistent findings across a wide spectrum of societies (North America, Asia, and Europe), populations (communities, new laborers, unemployed laborers, members of different industries or social organizations), and political economies (socialist states such as China and preliberation East Germany and Hungary, and capitalist states). Yet, much work remains to be done to examine the dynamics of social capital, as outlined in the beginning of our chapter. The interconnections between the various ingredients of social capital have seldom been studied or verified, and work on the inequality of social capital seems to be just commencing. Outcomes of social capital are being extended to many other areas of well-being, ranging from group cohesion and solidarity to life satisfaction and mental distress. Moreover,

knowledge about access to social capital in and across firms and organizations has barely begun to accumulate. With a standardized measurement, we are encouraged that intellectual enterprises may yet validate and build coherent theories of social capital.

APPENDIX A: THE POSITION GENERATOR USED IN THE 1997 TAIWAN STUDY

Q1. Among your relatives, friends, or acquaintances, are there people who have the following jobs?
Q2. If so, what is his/her relationship to you?
Q3. If you don't know anyone with these jobs, and if you need to find such a person for private help or to ask about some problems, who among those you know would you go through to find such a person? Who would he/she be to you?
Q4. What job does he/she do?

Item	Q1	Q2	Q3	Q4
Responses	1. Yes 2. No (Skip to Q 3)	see list below	see list below	see list below 119 No contact 111 Direct contact
a. High school teacher				
b. Electrician				
c. Owner of small factory/firm				
d. Nurse				
e. Assemblymen/women at provincial or city/county level				
f. Truck driver				
g. Physician				
h. Manager of large factory/firm				
i. Police (regular policeman)				
j. Head of division, county/city government				
k. Housemaid or cleaning worker				
l. Reporter				
m. Owner of big factory/firm				
n. Lawyer				
o. Office workman or guard				

NOTES

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1. Variations in network structures, locations of egos, and distributions of resources as captured in name generators are significantly contingent on the specific wording, content, or role in name-generating questions and, to a lesser extent, on the number of names generated. In addition, the data generated tend to reflect relations and resources of stronger ties, stronger role relations, or ties in close geographic limits. Campbell and Lee (1991) compared four studies (Fischer's Northern California study, Wellman's York study, the 1985 GSS survey, and their own Nashville study) and showed that network size was affected by procedures, heterogeneity on age and schooling varied, and traits of relationships (duration, frequency of contact, etc.) also varied.
2. If a respondent indicated that he/she knew more than one contact for a position, he/she was instructed to focus on the first contact that came to mind.
3. When age was incorporated into the equations, presented in Table 6, the coefficients for the key variables—household size, education, access to social capital, percentage accesses through kin, and job prestige—remain stable, while coefficients for being married and having grandchildren showed distortions.
4. The self-employed groups in columns 1 and 2 show some differences between males and females. For male entrepreneurs, extensity of daily contacts continues to be beneficial, but this is not the case for female entrepreneurs. To further understand the difference between the male and female entrepreneurs (self-employed), we analyzed if they employed others. Thirty-eight percent of the male entrepreneurs answered in the affirmative (158 of 417), as did 32 percent among the female entrepreneurs (48 of 152). However, the number of employees hired shows a significant difference: male entrepreneurs hired an average of 11 employees, and female entrepreneurs only 4. Just over a quarter (26 percent) of the male entrepreneurs hired 10 or more employees, whereas only 10 percent of the female entrepreneurs did. This difference cannot be accounted for by different patterns in family enterprises. Both male and female entrepreneurs are equally likely to hire nonkin (65 percent of the male entrepreneurs hired most or all employees outside their kin, compared to 60 percent of the female entrepreneurs). Thus, we conclude that the scope of the enterprises that male entrepreneurs tend to engage in accounts for the greater extent of their daily contacts.

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