

A Network Theory of Social Capital¹

Nan Lin
Duke University
nanlin@duke.edu

April 2005

To appear in *Handbook on Social Capital*, edited by Dario Castiglione,
Jan van Deth and Guglielmo Wolleb, Oxford University Press

The concept of “social capital” has captured the imagination and attention of a wide range of scholars and professionals in diverse disciplines and practical arenas. Since the notion of social capital has generated multiple definitions, conceptualizations and empirical measurements, the continued diversity in such usages without integration may undermine and ultimately bring its downfall as a rigorous scientific concept and theory of social analysis. The purpose of this chapter is to describe a network-based theory of social capital and to point out how such a theory should help resolving a number of prevalent and critical issues. While it is beyond the scope of this essay to present details on each of these issues, the essay identifies the central topics and proposes avenues to possible solutions, with references provided for further readings.

The essay begins with a discussion that places social capital in a family of capital theories, and points to its network-based conceptual origin.

DEFINITION AND THEORY

To gain a better understanding of “social capital,” it is necessary to place it in the context of different theoretical types of capital (Lin, 2001a: Chapter 1). “Capital,” first of all, is both a concept and a theory.² As a concept, it represents investment in certain types of resources of value in a given society. As a theory, it describes the process by which capital is captured and reproduced for returns (Lin 2001b: 3). For example, in the classical theory of capital, Marx defines capital as part of the surplus value created in a production process (Marx, 1933 (1849); Marx, 1995 (1867, 1885, 1894); Brewer, 1984). He also describes it as a process in which those controlling the means of production capture the surplus value, including capital, through their taking for themselves the difference in values generated in the production market -- where labor is paid the lowest possible wage -- and those generated in the trade and consumption markets (Lin 2001: Chapter 1) where the produced commodity is priced for higher value. Neo-capitalist theories offer a similar definition of capital but different theories. The human capital theory, for example, postulates that investment in certain human resources (skills and knowledge) may also generate economic returns, even for laborers participating in the production market (Johnson, 1960; Schultz, 1961; Becker, 1964/1993). Likewise, social capital theory conceptualizes production as a process by which “surplus value” is

generated through investment in social relations (Lin 2001a: 2). The neo-capitalist theories differ from the classic capitalist theory in that they argue investment and return of capital may apply to the laborers as well.

Social capital is defined as resources embedded in one's social networks, resources that can be accessed or mobilized through ties in the networks (Lin 2001a: Chapter 2). Through such social relations or through social networks in general, an actor may borrow or capture other actors' resources (e.g., their wealth, power or reputation). These social resources can then generate a return for the actor. The general premise that social capital is network-based is acknowledged by all scholars who have contributed to the discussion (Bourdieu, 1980; Bourdieu, 1983/1986; Lin, 1982; Coleman, 1988; Coleman, 1990; Flap, 1991; Flap, 1994; Burt, 1992; Putnam, 1993; Putnam, 1995; Putnam, 2000; Erickson, 1995; Erickson, 1996).

Social capital thus defined allows us to formulate theoretical propositions for identifying the sources of social capital and the returns to social capital. Elsewhere (Lin 2001a: Chapter 5) I have identified three principal sources (exogenous variables) for social capital: (1) structural positions (an actor's position in the hierarchical structure of social stratification -- the strength-of-position proposition), (2) network locations -- (an actor's location in the networks that exhibit certain features, such as closure or openness, or bridging, as illustrated in the strength-of-tie propositions), and (3) purposes of action (instrumental- e.g., for gaining wealth, power, or reputation, or expressive - e.g., for maintaining cohesion, solidarity, or well-being) (Lin 2001a: Chapter 5). Propositions, then, link these sources and types of actions with social capital in causal sequences.

In the remainder of the essay, I will address a number of prevalent and critical issues, pertaining either to specification of the network-based theory and its measurement, or to the linkage of the theory and measurement to the more general literature on social capital. Specifically, the issues to be addressed include: (1) whether social capital should be assessed in terms of its potential capacity (access) or its actual use (mobilization), (2) how rigorous measurements can be developed, (3) how social capital can be distinguished from social networks per se, (4) how the theory clarifies the linkages among purposes of action (i.e., instrumental or expressive), network features (e.g.,

density, bonding or bridging), and social capital, and (5) how the theory and its measures can consistently be used for both micro- and macro-level analyses.

ACCESS AND MOBILIZATION

There are two theoretical approaches to describing the process of how social capital is expected to produce returns. In one process, social capital is conceived in terms of its capacity – the pool of resources embedded in one’s social networks- and the expectation is that the richer or greater the capacity, the better the return. Thus, the description entails the linkage between *accessed social capital* and its expected return. In another approach, social capital is defined in terms of its actual use in production and the expectation is that the better the capital used the better the return. This description focuses on *mobilized social capital*. Accessed social capital estimates the degree of access to such resources or the extent to which a potential pool of resources capable of generating returns is available in the networks to the actor. It indicates the capacity of capital. An assessment or inventory of resources in the social networks of an actor -- accessible or embedded resources -- reflects such capacity. The assumption is that this capacity largely determines the degree of returns, but the actual process of how such capacity is actually used relative to a particular action (e.g., finding a job or getting a promotion) is omitted in the description.³ On the other hand, mobilized social capital reflects the actual use of a particular social tie and its resources in the production or consumption in the marketplace. It represents a selection of one or more specific ties and their resources from the pool for a particular action at hand. For example, using a particular contact with certain resources (e.g., his/her wealth, power or status) in a job-search process may indicate a mobilized social capital.

While it seems that mobilized social capital better reflects the actual process of linkage between capital and attainment, in effect, this presumed linkage is often incomplete or inadequate. The use of a specific social tie to help in a job search, for example, may or may not be the optimal choice for the action at hand. Also, the study of a particular mobilized tie and its resources is contingent on the particular measurement used. No measurement can claim to capture the entire job-search process. Further, the network and its pool of resources may produce returns through other, unmeasured

avenues. It may well be that ties in social networks provide routine but unsolicited job information, which may eventually become critical in getting a better job, without the actor's actually searching for that or indeed any job (Lin, 2003). When confronted with the question, in a study, whether the actor actually engaged in job-search or mobilized help, the actor may indeed and justifiably indicate "no," as he/she did not actually engage in an active job search. Nor would she/he consider the information offered by ties the result of an active job-search (i.e. mobilization of the tie). The absence of evidence for mobilized social capital in a job search thus, does not rule out that social capital has worked but in an "invisible" way.

The theoretical expectation on the invisible return to invested resources is not unique to social capital; human, cultural, and other types of capital theories also deploy accessed capital in their formulations. In fact, in most theories and studies on human capital and cultural capital, the focus is on accessible capital rather than mobilized capital. For human capital, the overwhelming attention has been given to the capacity (e.g., education and on-the-job training) rather than how the capital (i.e., skills and knowledge) is actually used or assessed to generate the return (e.g., earnings) (Becker, 1964/1993). For cultural capital, again, the focus has been on the production and demonstration of the capacity (Bourdieu, 1972/1977; DiMaggio, forthcoming).

Relying on data on accessed social capital is problematic, since there is no perfect measure of the entire network and, therefore, its pool of resources (see next section). Relying on data on a specific contact elicited in a job-search study for social capital is even riskier, as it inevitably is restricted by the measurement limitation and misses a significant portion of the invisible hand of and returns to social capital. Therefore, in current research, accessed social capital as well as actual use of social capital should be both measured and closely examined, if possible.

MEASUREMENTS

Measurement of social capital from the network perspective also parallels the two processes: access and mobilization. Access to social capital has traditionally been measured with a name-generating methodology. Typically, a question is posed, such as, "Whom do you usually discuss work problems with?" and a sampled respondent is asked

to provide a list of names of those who provide such services or exchanges. Further questions about the characteristics of the named (name interpreters), as well as relationships among them and between the respondent and each of them, provide data for reconstructing the density of the network, and for estimating the quantity and/or quality of social resources (e.g., socioeconomic statuses) of those named.

However, this name-generating methodology has several limitations. First, the content universe from which a particular question (e.g., work problem discussion) is drawn is usually undefined or unknown to the researcher. Sometimes multiple questions are posed to capture multiple content areas (Fischer, 1977; Wellman, 1979). Since the universe is unknown, it is difficult to argue that such questions representatively sample a particular universe. Second, the number of names generated is limited, typically ranging from only three to five. Therefore the reconstructed “network” is of limited range and scope. Some studies have tried to overcome these limitations by leaving the list open-ended (Wellman, 1982). However, such an approach is costly, time-consuming, and impractical for coding in larger-scale surveys. Finally, since the names that come to the respondent’s mind usually are those with stronger relationships to the respondent, the resources in the captured pool tend to be homogeneous and relations homophilous relative to the respondent. As research has demonstrated and argued, weaker and bridging ties to other parts of the social structure may nevertheless be critical (Granovetter, 1974; Lin, 1982; Burt, 1992). Missing data on such potential links to other levels of a social hierarchy may underestimate, for example, the utility of an individual’s social capital for instrumental purposes, such as social mobility (see elaboration in the section, PURPOSES OF ACTION, HOMOPHILY AND HETEROPHILY, AND NEEDS TO BRIDGE OR BOND).

An alternative methodology has recently appeared (Lin and Dumin, 1986). The position-generating methodology systematically samples a list of positions in a social hierarchy (e.g., ranked occupations in a society). By using systematic sampling (e.g., equal intervals) or stratified sampling (e.g., occupations prevalent for different genders, ethnic/racial groups, or classes), each sampled occupation is presented to a respondent, who is asked to indicate whether she/he knows anyone in that sampled position. Since the rank distance is known between every pair of sampled positions and among all the

sampled positions, the responses to the set of positions can then be used to estimate, with known measurement errors, the potential pool of resources (i.e., in the occupational hierarchy) accessible to each respondent. Indexes (e.g., the total number of accessed positions, the range or difference between rank scores of the highest and lowest accessed positions, and the highest position score accessed) can be constructed to represent social capital, that is, the capacity or pool of resources embedded in the respondent's networks. Since such access is not contingent on the strength of ties (which can be assessed relative to each accessed position), it largely (but not completely) overcomes the tendency to evoke homogenous or homophilous ties present in the social networks.

The position generator methodology has been widely employed in empirical studies around the world (Erickson, 1996; Tardos, 1996; Flap and Boxman, 2001; Lin, Fu and Hsung, 2001) and shown to have high degrees of reliability and validity. It also has also shown flexibility and adaptability to specific substantive settings (van der Gaag, Martin and Snijders, 2003; van der Gaag, Martin and Snijders, 2004), to types of hierarchical positions (e.g., relative to social, political, cultural, or economic resources) (Erickson, 1996; Lin, 2001b; Flap and Volker, forthcoming). It seems adaptable for different societies, populations, or returns, and for incorporating additional dimensions for analysis (e.g., gendered or ethnic social capital).⁴ Nevertheless, the position generator methodology has had a very recent history; much work remains to sharpen its adaptation to various societies and its ability to sample representative positions from a stratification system at hand.

It should be noted that the name generator and the position generator methodologies also differ on another set of conceptual grounds. Name generating is intended to create a list of individuals in the actor's networks, resulting in a sample of respondents' social ties and nodes in their networks: It is a person-focused methodology. Position generating, on the other hand, canvasses the extent of access to structural positions in a hierarchy: It is a structure-focused methodology. The name generator is useful for identifying significant others in the actor's personal networks; whether they occupy similar or different hierarchical positions is of secondary significance and interest. On the other hand, the position generator is useful for assessing vertical reaches in the hierarchal structure to which the actor has access through social ties. How many

persons there are or how strong the relationship is at each accessed position is of secondary analytical importance. In either case, further probing may yield additional information. For example, the name generator may also reveal information about each named person's socioeconomic characteristics and thus their structural positions. The position generator may also reveal whether each accessed position has multiple occupants whom the actor knows and how close their relationship is. Nevertheless, in the case of the name generator this additional information does not recover missing information about the range of respondents' contacts with various structural positions; in the case of the position generator, the thickness of contacts with the full range of positions in the structure is probably under-represented. Thus they represent alternative strategies, suited for different conceptual purposes. The name generator is suitable for probing the depth of close ties, whereas the position generator facilitates studying breadth of access to various levels of a hierarchy.

Mobilization of embedded resources for a particular action is a complementary rather than substitute measurement of access to embedded resources, as it inevitably focuses on a particular and limited number of ties and their resources used in a particular action. Research typically employs a critical-episode approach to identify the use of social capital. For example, a large body of research examines whether personal contacts are used in job searches and whether the resources the contacts possess (e.g., socioeconomic characteristics) make a difference in the likelihood of success or the level of attained statuses. The evidence is that anywhere from a third to two thirds of studied samples around the world would indicate that contacts are used, but the others, anywhere from a third up to two thirds of the respondents, mentioned no use of contacts (Granovetter, 1974; Marsden and Gorman, 2001). Further, it is clear from the literature that mere use of any personal contacts provides no relative advantage in the labor market. However, contact resources (e.g., the contact's power, wealth or status) that represent mobilized social capital do make a difference (Lin, Ensel and Vaughn, 1981; Marsden and Hurlbert, 1988; De Graaf and Flap, 1988). That is, among those who use contacts in a job search, those who mobilize contacts with better resources tend to obtain better jobs. This confirms the significance of mobilizing embedded resources in the labor market.

Questions have been raised as to whether the lack of evidence for the use of social contacts in many job searches suggests that social capital may be of limited significance. As mentioned earlier, however, absence of identified help may not reflect the lack of utility of social capital. Current arguments and research show that job information can flow in networks, especially networks rich with embedded resources, without any parties actively seeking jobs or job information (Lin, 1999b; Lin, 2003). Such flow and utility of information and contacts may reflect the informal workings of social capital, or its invisible hand. Thus, measuring the actual utility of social capital for returns in a marketplace (be it instrumental or expressive) requires assessment of access and both visible and invisible use of resources embedded in networks.

The measurement of contact resources as mobilized social capital has also been criticized (Mouw, 2003) on the grounds that much of the effect (i.e., any association between the contact's occupational status and respondent's post-contact attained occupational status) is due to the homogeneity effect (similarity between the contact's occupation and the respondent's attained occupation) – the selection of the contact, rather than the contact's superior status positively affecting respondent's superior attained status – the influence of the contact. However, the theory of social capital principally hypothesizes that it is the benefit of mobilized resources (contact's status) relative to the initial status of the job-seeker that should make a difference – the strength-of-position hypothesis. That is, it predicts that the contact's relatively superior position, in comparison to the job-seeker's initial position, should be evidence of the utility of social capital. Indeed, from the same data set Mouw used to demonstrate his argument (the Detroit study), even when those cases that showed similarity between respondents' initial occupations with contacts' occupations were removed from the sample (to eliminate the homogeneous ties), the positive association of respondents' original statuses with contacts' statuses retains its significance. This means that seeking, obtaining, and successfully utilizing contact's superior resources are positively associated with obtaining better statuses.

The attained status represents improved status resulting from the utility of a superior contact, thus closing the status distance between contact's status and respondent's initial status. This is not only not surprising, but even expected, as many of

the respondents ought to be now at a similar or approximate status level as compared to that of the contacts themselves – the general homogeneity principle applies to occupants at comparable or horizontal level of positions (Blau, 1977). Consider, for example, Fernandez's study of telemarketers who made referrals for new hires (Fernandez and Weinberg, 1997). All successful referrals brought in new telemarketers, thus achieving complete homogeneity between contact (referrers') status and the job-seekers' (referreds') newly attained status. This would reduce the remaining observations for Mouw's demonstration to zero. It is the status gap between the original positions of successful applicants and their referrers (i.e., most of the referred probably initiated with lower statuses than the telemarketer referrers) that attests to the utility of social capital.

Thus, in measuring mobilized social capital for specific actions, it is important to measure the initial and attained positions or statuses for the actor as well as the positions or statuses of contacts in order to reflect completely the process by which social capital returns added value.

SOCIAL NETWORKS AND SOCIAL CAPITAL

By now, it should be clear that while social capital is contingent on social networks, they are not equivalent or interchangeable terms. Networks provide the necessary condition for access to and use of embedded resources. Without networks, it would be impossible to capture the embedded resources. Yet networks and network features by themselves are not identical with resources. Rather, variations in networks or network features may increase or decrease the likelihood of having a certain quantity or quality of resources embedded. Thus, network features should be seen as important and necessary antecedents exogenous to social capital. For example, for a given network, density or closure of networks may increase the sharing of resources among participants as individuals and/or as a group (Bourdieu, 1980; Bourdieu, 1983/1986; Coleman, 1990: Chapter 12). On the other hand, sparse or open networks may facilitate access to better or more varied resources or information, control or influence (Burt, 2001; Lin, 1999a).

Thus, equating networks with social capital is incorrect. Equating dense or closed networks with better or greater amount of social capital is conceptually flawed. What is needed is to specify conditions under which certain network features such as density or

openness lead to the capturing of certain resources that generate certain kinds of returns (Burt, 2001). Elsewhere (Lin, 2005), I have argued that once network features (closed or open) are treated as exogenous variables, modeling of the social capital process may proceed to specify how features of networks (e.g., closed or open), social capital (e.g., diversity of embedded resources), and returns (instrumental or expressive) form a sequential set of variables for analysis.

To sort through the complex relations between features of social networks, social capital (embedded resources), and differential returns to social capital, the network-based theory offers clarification. The next section articulates some of the theoretical explications.

PURPOSES OF ACTION, HOMOPHILY AND HETEROPHILY, AND NEEDS TO BRIDGE OR BOND.

The network-based theory of social capital recognizes important patterns of social relations. They vary in terms of the intensity and reciprocity of relations among the ties. Lin (1986) delineates three layers of social relations that differentiate such intensity and reciprocity. The inner most layer is characterized by intimate and confiding relations: ties that share sentiment and provide mutual support. Typically, the ties engage in reciprocal and intense interactions – strong ties in a dense network (e.g., kin and confidants). These relations are *binding* in that ties are obligated to reciprocate exchanges and services to one another. The intermediary layer is characterized by ties that generally share information and resources, but not all members necessarily having direct interaction with one another or maintaining equally strong and reciprocal relations with each and everyone else. These relations, typifying most social networks with a mixture of stronger and weaker ties or direct and indirect ties, nevertheless are said to be *bonding*. Sharing certain interests and characteristics keeps the ties in a “social circle.” The outer layer is characterized by shared membership and identity, even though the members may or may not interact among themselves. Here a collectivity or institution provides the backdrop for the membership or identity (e.g., church, clan, or club). These relations, mediated through the collectivity, provide members a sense of *belongingness*.

How well such layers of relations serve the participants depend on what purposes or goals they hope to achieve. As has been pointed out earlier, social capital serves two

different purposes: instrumental and expressive (Lin, 1982; Lin, 2001a: Chapter 4). For instrumental action, the purpose is to obtain additional or new resources (e.g., getting a better job, a promotion, or building a new school or clinic). For expressive action, the purpose is to maintain and preserve existing resources (e.g., to preserve one's marriage, or to keep the neighborhood safe). The network strategy for expressive action is easily understood: to bind with others who share similar resources, who are sympathetic to one's needs to preserve resources, who are prepared to provide support or help. Thus, the expectation is that binding and bonding relations should be useful for accessing and mobilizing necessary resources for expressive actions (Lin and Ensel, 1989). The network strategy for instrumental action, however, is more complex. The three layers of relations do not indicate or address what kinds of resources are implicated. Thus, a further consideration is the richness of embedded resources – social capital – in each layer of relations. For some, the ties among intimate relations in inner layer are rich in resources; for others, the resources are poor. For inner layers with embedded rich resources, then binding and bonding relations should also enhance instrumental actions. For others, resources in such layers may be poor or insufficient to achieve instrumental goals. Then, the inner layers with its binding and bonding relations may be confining rather than facilitating for instrumental actions. Further analysis is needed to link purposes of action, social relations and accessing and mobilizing social capital.

One well-established principle in sociology helps assessing how likely a set of relations carry rich or poor resources – the homophily principle (Lazarsfeld and Merton, 1954; Homans, 1950; Laumann, 1966; Wellman, 1979; Lin, 1982; McPherson, Smith-Loving and Cook, 2001). The principle proposes that there is a strong correspondence between intensity of interactions, shared sentiment, and shared resources. Thus, the inner layer, among ties that bind, there is also a tendency for similarity of resources – or capital. For a given actor, then, it is hypothesized that resources of others close in relations are similar to her/his. When no additional or new resources are required, in the case of expressive actions, the homophily principle has little to add to the positive effects offered by the inner layer of dense and reciprocal relations.

When additional or better resources are needed, in the case of instrumental actions, then the utility of inner layers is contingent on how rich or varied resources are among

the ties. If the embedded resources are relatively rich, the inner layer, with its reciprocal relations, is quite capable of providing resources to achieve individual and collective instrumental goals. The binding and bonding relations are expected to access and mobilization of sufficiently rich resources to attain such goals. However, if the actor is relative poor in resources, then the inner layer of relations, due to the homophily principle, are also likely to involve ties with relatively poor resources. Binding and bonding relations would not be as useful and may even be detrimental. What then should the network strategy be to seek and find richer and more varied resources?

One important argument in the bridging theories of networks is that as one reaches out of one's inner circle, one is more likely to encounter ties with more diverse characteristics and resources – the heterophily principle (Granovetter, 1973; Lin, 1982; Lin, 2001a: Chapter 4; Burt, 1992: Chapter 1). As the relationships extend from the inner layer to the outer layer, the intensity of relationships decreases, the density of the network decreases, and, most critically, resources embedded among members become more diverse or heterophilous. Heterophilous resources not only reflect different and new resources, but also increase the chances of containing better resources.

Thus, in assessing whether binding or bonding social relations provide sufficient or insufficient social capital, two contingent factors need be considered: (1) the purpose of the action and (2) the richness of embedded resources. For expressive purposes where additional resources are not of priority, then binding and bonding relations are likely to be the necessary and sufficient condition for the access and mobilization of embedded resources. For instrumental purposes where additional and better resources are needed, binding and bonding relations may not be sufficient. Accessing better social capital may require extending one's reaching beyond inner circles – bridging through weaker ties or non-redundant ties (e.g., structural holes).

This articulation conceptualizing expressive or instrumental actions, layers of relations in social networks, and embedded resources helps clarify some confusion in the general literature on the so-called “bonding” or “bridging” social capital (Woolcock and Narayan, 2000: 230; Putnam, 2000: 22-24). *Social capital does not bind or bridge. It is the nature of the social networks that bind, bond or bridge.* The relative advantage of networks that bind, bond or bridge afforded to social capital (access and mobilized of

embedded resources) depends on the purpose of action. For expressive actions, that seek solidarity and preservation for individuals or the collectivity, binding relations or dense networks benefits the sharing and mobilizing resources. For instrumental actions, that seek gains in resources, bridging relations or networks with linkages to the outer layers of the networks offers possible needed different and better resources. This clarification critically relies on an understanding of the fundamental networking principles of homophily and heterophily.

MICRO- AND MACRO-LEVEL CORRESPONDENCE

Up to this point, the network-based theory of social capital has been described largely from a micro-perspective. The present section will extend the theory and its measurement to the macro-level analysis, where the research interest lies in the investment, formation and returns to social capital for the collectives – be they associations, organizations, communities, regions, or nation-states. The fundamental argument is that this theory and the measurements can be adapted to the macro-level so that applications and analysis of social capital at the macro-level show consistency and logic along with its micro-level analysis. Individual and collective social capital, in this manner, will maintain a theoretical and methodological coherence across levels of analysis, though the complexity at the collective level requires further elaborations.

The conceptual transportability is obvious. A collectivity can be seen as a social network with members as actors who bring their resources to bear, so that social capital for the collectivity is reflected in the embedded resources as provided by members. Thus, for a collectivity, analysis can be conducted to assess the degree of intensity and density of interactions among the participating members and the diversity of resources brought to bear from the members. We may define this type of social capital, resources brought to bear from the members, the collectivity's *internal social capital*. The effectiveness of its internal social capital can then be assessed relative to the goal of collectivity – expressive or instrumental. For expressive purposes, or solidarity and cohesion of the collectivity, the utility of internal social capital is contingent on the density of relations among members – the binding and bonding among members. Greater density enhances the

offering and sharing of members' resources, so that the internal social capital is expected to enhance the collectivity's solidarity and cohesion.

For instrumental goals, the collectivity is in need of other and better resources; internal social capital may not be sufficient. There is a need for the collectivity to reach out for such resources. In this case, further analysis may be conducted for the collectivity's connections to other collectivities and social units (e.g., organizations and individuals) and for the diversity of resources embedded in these other collectivities accessible to the collectivity (see, for example, Paxton, 2002). We may define such accessed resources *the external social capital* for the collectivity. The likelihood of accessing external social capital, then, is expected to depend on the openness of the collectivity (the extent to which individual members and officers have connections to the "outer layers" of the collectivity's networks), the richness of the accessed resources, and the relationship between the connections (some bridges need to be strong enough to sustain the necessary exchanges or help relations).

Finally, most collectivities tend to engage in both expressive and instrumental actions. Internal and external relationships and internal and external social capital need to be both analyzed to assess the likelihood of effectiveness to attain either or both such purposes.

Thus, the network-based theory of social capital as applied to the macro- or collective-level maintains its theoretical fundamentals. Yet, it is important to recognize the complexity at the macro-level where each collectivity is simultaneously a network of members and an actor in a web of social networks. Analysis of internal and external social capital takes into account this duality while maintaining the conceptual linkages among purposes of action, network density, embedded resources, and needs to bind, bond or bridge, as in the case of the micro-level analysis. Likewise, the significance of the underpinning network principles of homophily and heterophily also holds. This consistent theoretical and analytic application of the network-based theory overcomes much confusion witnessed in the literature on the studies of social capital at the macro-level, criticized for the lack of conceptual and theoretical rigor and multitude of unrelated measures ⁵ (Portes, 1998; Foley and Edwards, 1999; Durlauf, 1999; Durlauf, 2002; Baum, 2000).

SUMMARY

This essay introduces a network-based theory of social capital. Conceived as investment in embedded resources in social networks, social capital focuses on resources (e.g., wealth, power and reputation) of ties that an actor, an individual or collectivity, can access for attaining certain goals. A number of issues are discussed in order to alleviate certain confusing and confounding conceptualizations and analyses prevalent in the current literature. It is pointed out, for example, two approaches can be used to assess the effects of social capital: its capacity (accessed resources) and actual uses for particular actions (mobilized resources). The discussion also calls for rigorous and systematic measurements coupled with the theory. Recent development in the position-generator methodology facilitates a research program that can now be based on precise theoretical and measurement requirements. Another important elaboration concerns the clarification of the binding, bonding and bridging relations and networks, and shows how these network features may impinge on the effects of social capital, contingent on the purpose of action – instrumental or expressive. It also explicates the feasibility and utility of the theory and its measurements for collective as well as for individual actors.

Other issues remain to be explored. For example, trust has also been employed as a component or an indicator of social capital (Fukuyama, 1995; Kawachi, Kennedy and Glass, 1999; Lochner, Kawachi and Kennedy, 1999; Hardin, 2001). However, its “social” nature is uncertain (Whiteley, 1999; Glaeser, Laibson and Scheinkman, 2000; Seligman, 2000) and conceptually it might be more appropriate to consider it as an antecedent or effect (Newton, 1997; Torsvik, 2000; Buskens, 2002) rather than a component of social capital (Lin, 2005). Cook, in a recent essay (forthcoming), also suggests that trust be seen as a factor distinguished from social capital. It may serve as an important mediating factor for social capital to generate effects in time or situations of uncertainty and high risk. These discussions do not take away the conceptual significance of trust in its various forms (e.g., trustworthiness, generalized trust, personal or social trust). Rather, they remind us that it behooves us to refrain from equating trust with social capital

Another issue is how to conceptually handle the large body of literature on civic engagement that has largely been built on measuring participation in voluntary organizations. One danger of using a variety of readily available data from national or international surveys and censuses is our inability to resolve controversial or contradictory results, which may be used as evidence against a theory of social capital. Hopefully, the network-based theory helps formulate sharper and more focused measures to inventory both internal and external social capital for associations and organizations so that their capability to access and mobilize resources in actions augments a deeper understanding of the utility of participation.

References

- Baum, F. E. (2000) Social Capital, Economic Capital and Power: Further Issues for a Public Health Agenda, *Journal of Epidemiology and Community Health*, 54, 409-410.
- Becker, G. S. (1964/1993) *Human Capital* (Chicago, University of Chicago Press).
- Blau, P. M. (1977) *Inequality and Heterogeneity* (NY, Free Press).
- Bourdieu, P. (1972/1977) *Outline of a Theory of Practice* (Cambridge, Cambridge University Press).
- Bourdieu, P. (1980) Le Capital Social: Notes Provisoires, *Actes de la Recherche en Sciences Sociales*, 3, 2-3.
- Bourdieu, P. (1983/1986) The Forms of Capital, in: J. G. Richardson (Ed) *Handbook of Theory and Research for the Sociology of Education*, pp. 241-258 (Westport, CT., Greenwood Press).
- Brewer, A. (1984) *A Guide to Marx's Capital* (Cambridge, Cambridge University Press).
- Burt, R. S. (1992) *Structural Holes: The Social Structure of Competition* (Cambridge, MA, Harvard University Press).
- Burt, R. S. (2001) Structural Holes versus Network Closure as Social Capital, in: N. Lin, K. Cook & R. S. Burt (Eds) *Social Capital: Theory and Research* (Hawthorn, NY, Aldine de Gruyter).
- Buskens, V. (2002) *Social Networks and Trust* (London, Kluwer).
- Coleman, J. S. (1988) Social Capital in the Creation of Human Capital, *American Journal of Sociology*, 94, S95-S121.
- Coleman, J. S. (1990) *Foundations of Social Theory* (Cambridge, MA, Harvard University Press).
- Cook, K. S. (forthcoming) Networks, Norms and Trust: The Social Psychology of Social Capital, *Social Psychology Quarterly*.
- De Graaf, N. D. & Flap, H. D. (1988) With a Little Help from My Friends, *Social Forces*, 67(2), 452-72.
- DiMaggio, P. (forthcoming) Cultural Capital, in: George Ritzer (Ed) *Encyclopedia of Social Theory*.

- Durlauf, S. N. (1999, Fall) The Case "Against" Social Capital, *Focus (University of Wisconsin - Madison: Institute for Research on Poverty)*, 20(3), 1-5.
- Durlauf, S. N. (2002) Bowling Alone: A Review Essay, *Journal of Economic Behavior & Organization*, 47, 259-273.
- Erickson, B. H. (1995, February) Networks, Success, and Class Structure: A Total View. Sunbelt Social Networks Conference (Charleston, S.C.).
- Erickson, B. H. (1996) A Structural Approach to Network and Cultural Resources (University of Toronto).
- Fernandez, R. M. & Weinberg, N. (1997, December) Sifting and Sorting: Personal Contacts and Hiring in a Retail Bank, *American Sociological Review*, 62, 883-902.
- Fischer, C. S. (1977) *Networks and Places* (New York, Free Press).
- Flap, H. D. (1991) Social Capital in the Reproduction of Inequality, *Comparative Sociology of Family, Health and Education*, 20, 6179-6202.
- Flap, H. D. (1994, July) No Man Is An Island: The Research Program of a Social Capital Theory. World Congress of Sociology (Bielefeld, Germany).
- Flap, H. D. & Volker, B. (forthcoming) Social, Cultural and Economic Capital and Job Attainment: The Position Generator as a Measure of Cultural and Economic Resources, in: N. Lin & B. H. Erickson (Eds) *Social Capital: Advances in Research* (NY, Aldine de Gruyter).
- Flap, H. & Boxman, E. (2001) Getting Started: The Influence of Social Capital on the Start of the Occupational Career, in: N. Lin, K. Cook & R. S. Burt (Eds) *Social Capital: Theory and Research*, pp. 159-181 (New York, Aldine de Gruyter).
- Foley, M. W. & Edwards, B. (1999) Is It Time to Disinvest in Social Capital, *Journal of Public Policy*, 19(2), 141-173.
- Fukuyama, F. (1995, September-October) Social Capital and the Global Economy, *Foreign Affairs*, 74(5), 89-103.
- Glaeser, E. L., Laibson, D. I. & Scheinkman, J. A. (2000, August) Measuring Trust, *The Quarterly Journal of Economics*, 115(3), 811-846.
- Granovetter, M. (1973) The Strength of Weak Ties, *American Journal of Sociology*, 78, 1360-80.
- Granovetter, M. (1974) *Getting a Job* (Cambridge, MA, Harvard University Press).

- Granovetter, M. (1985) Economic Action and Social Structure: The Problem of Embeddedness, *American Journal of Sociology*, 91, 481-510.
- Hardin, R. (2001) Conceptions and Explanations of Trust, in: K. S. Cook (Ed) *Trust in Society*, pp. 3 - 39 (NY, Russell Sage Foundation).
- Homans, G. C. (1950) *The Human Group* (NY, Harcourt, Brace).
- Johnson, H. G. (1960) The Political Economy of Opulence, *Canadian Journal of Economics and Political Science*, 26, 552-64.
- Kawachi, I., Kennedy, B. P. & Glass, R. (1999) Social Capital and Self-Rated Health: A Contextual Analysis, *American Journal of Public Health*, 89(8), 1187-1193.
- Laumann, E. O. (1966) *Prestige and Association in an Urban Community* (Indianapolis, Bobbs-Merrill).
- Lazarsfeld, P. F. & Merton, R. K. (1954) Friendship as Social Process: A Substantive and Methodological Analysis, in: P. L. Kendall (Ed) *The Varied Sociology of Paul F. Lazarsfeld*, pp. 298-348 (NY, Columbia University Press).
- Lin, N. (1982) Social Resources and Instrumental Action, in: P. V. Marsden & N. Lin (Eds) *Social Structure and Network Analysis*, pp. 131-45 (Beverly Hills, CA, Sage).
- Lin, N. (1986) Conceptualizing Social Support, in: N. Lin, A. Dean & W. Ensel (Eds) *Social Support, Life Events, and Depression*, pp. 17-30 (Orlando, Florida, Academic Press).
- Lin, N. (1999a) Building a Network Theory of Social Capital, *Connections*, 22(1), 28-51.
- Lin, N. (1999b) Social Networks and Status Attainment, *Annual Review of Sociology*, 25, 467-87.
- Lin, N. (2001a) *Social Capital: A Theory of Structure and Action* (London and New York, Cambridge University Press).
- Lin, N. (2001b, June) Social Capital: Social Networks, Civic Engagement or Trust? *Hong Kong Journal of Sociology*(2), 1-38.
- Lin, N. (2003) Job Search in Urban China: Gender, Network Chains, and Embedded Resources, in: H. Flap & B. Volker (Eds) *Creation and Return to Social Capital*, pp. 145-171 (NY, Praeger).
- Lin, N. (2005) Social Capital, in: J. Beckert & M. Zagroski (Eds) *Encyclopedia of Economic Sociology* (London, Routledge).

- Lin, N. & Dumin, M. (1986) Access to Occupations through Social Ties, *Social Networks*, 8, 365-85.
- Lin, N. & Ensel, W. M. (1989) Life Stress and Health: Stressors and Resources, *American Sociological Review*, 54, 382-399.
- Lin, N., Ensel, W. M. & Vaughn, J. C. (1981) Social Resources and Strength of Ties: Structural Factors in Occupational Status Attainment, *American Sociological Review*, 46(4), 393-405.
- Lin, N., Erickson, B. & editors (forthcoming) *Social Capital: Advances in Research* (NY, Transaction-de-Gruyral).
- Lin, N., Fu, Y.-c. & Hsung, R.-m. (2001) Position Generator: A Measurement for Social Capital, in: N. Lin, K. Cook & R. S. Burt (Eds) *Social Capital: Theory and Research*, pp. 51-87 (New York, Cambridge University Press).
- Lochner, K., Kawachi, I. & Kennedy, B. P. (1999) Social Capital: A Guide to Its Measurement, *Health and Place*, 5, 259-270.
- Marsden, P. V. & Gorman, E. H. (2001) Social Networks, Job Changes, and Recruitment, in: I. Berg & A. L. Kalleberg (Eds) *Sourcebook on Labor Markets: Evolving Structures and Processes*.
- Marsden, P. V. & Hurlbert, J. S. (1988) Social Resources and Mobility Outcomes: A Replication and Extension, *Social Forces*, 66(4), 1038-59.
- Marx, K. (. M., editor) (1995 (1867, 1885, 1894)) *Capital: A New Abridgement* (Oxford, Oxford University Press).
- Marx, K. (1933 (1849)) *Wage-Labour and Capital* (New York, International Publishers Co.).
- McPherson, M., Smith-Loving, L. & Cook James M. (2001) Birds of a Feather: Homophily in Social Networks, *Annual Review of Sociology*, 27, 415-234.
- Mouw, T. (2003, December) Social Capital and Finding a Job: Do Contacts Matter? *American Sociological Review*, 68, 868-898.
- Newton, K. (1997, March/April) Social Capital and Democracy, *American Behavioral Scientist*, 40(5), 575-586.
- Paxton, P. (2002, April) Social Capital and Democracy, *American Sociological Review*, 67, 254-277.

- Portes, A. (1998) Social Capital: Its Origins and Applications in Modern Sociology, *Annual Review of Sociology*, 22, 1-24.
- Putnam, R. D. (1993, Spring) The Prosperous Community: Social Capital and Public Life, *The American Prospect*, 13, 35-42.
- Putnam, R. D. (1995, January) Bowling Alone: American's Declining Social Capital, *Journal of Democracy*, 6(1), 65-78.
- Putnam, R. D. (2000) *Bowling Alone: The Collapse and Revival of American Community* (NY, Simon & Schuster).
- Schultz, T. W. (1961, March) Investment in Human Capital, *The American Economic Review*, LI(1), 1-17.
- Seligman, A. B. (2000) *The Problem of Trust* (Princeton, NJ, Princeton University Press).
- Tardos, R. (1996, December) Some Remarks on the Interpretation and Possible Uses of the "Social Capital" Concept with Special Re gard to the Hungarian Case, *Bulletin de Methodologie Sociologique*(53), 52-62.
- Torsvik, G. (2000) Social Capital and Development: A Plea for the Mechanisms, *Rationality and Society*, 12(4), 451-476.
- van der Gaag, Martin & Snijders, T. (2003, 30/10) A Comparison of Measures for Individual Social Capital. Creation and Returns of Social Capital (Royal Netherlands Academy of Arts and Sciences).
- van der Gaag, Martin & Snijders, T. (2004, 21/2004) The Resource Generator: Social Capital Quantification with Concrete Items (ICS, Free University of Amsterdam and University of Groningen).
- Wellman, B. (1979) The Community Question: The Intimate Networks of East Yorkers, *American Journal of Sociology*, 84, 1201-1231.
- Wellman, B. (1982) Studying Personal Communities, in: P. V. Marsden & N. Lin (Eds) *Social Structure and Network Analysis*, pp. 61-80 (Beverly Hills, Sage).
- Whiteley, P. F. (1999) The Origins of Social Capital, in: J. W. v. Deth, et al. (Ed) *Social Capital and European Democracy* (London, Routledge).
- Woolcock, M. & Narayan, D. (2000, August) Social Capital: Implications for Development Theory, Research, and Policy, *The World Bank Research Observer*, 15(2), 225-49.

¹ The work conducted for this essay was in part supported by a grant from the Chiang Ching-kuo Foundation (2003, ‘Social Capital: Social Networks, Civic Engagement, and Trust’) and a grant from Academia Sinica, Taiwan (20004, Social Capital: Its Production and Consequences).

² Applying both definition and theory to a term has been a common practice in social sciences. It is also true in the cases of the classical Marxist theory, human capital, cultural capital as well as social capital.

³ A possible distinction between “access” and “embeddedness” is in order here. Some scholars, including this writer, at times have followed the convention of using the term “embedded” resources to represent the capacity or pool of resources embedded in the social networks, while at other times, they have used the term “access” (Lin, 1999a) instead. “Embeddedness” applies more appropriately to the description of the pool of resources in a social network, from a structural or gestalt perspective. An inventory of all or representative resources in a complete network reflects or measures the embedded resources. “Access” more appropriately applies to an actor’s conscious map or cognitive knowledge of such embedded resources. A network may embed certain resources not present in the cognitive map of an actor. Such resources therefore cannot be determined by asking an actor, even though they are embedded in the his/her overall network. So if the analysis concerns all the pooled resources of a network as a whole (e.g., in an organization), “embeddedness” may be appropriate (Granovetter, 1985) to assess its social networks whereas if the analysis concerns actors (whether individuals or collectivities) awareness of resources embedded in their ties or networks, “access” would be more appropriate.

⁴ A forthcoming volume (Lin, Erickson and editors, forthcoming) will report studies employing the position generator methodology in the US (Moren-Cross & Lin; Magee), in Canada (Enns et al.; Tindall & Cormier), in Japan (Miyata et al.), in Taiwan (Fu; Hsung et al.), in Hong Kong (Lai), in the Netherlands (Flap & Volker; Bekkers et al.; Moerbeek & Flap; van der Gaag et al.), in Hungary (Angelusz & Tardos), in Italy (Barbieri & Sciortino), and in Mongolia (Johnson forthcoming).

⁵ For example, in Putnam (2000), indicators of social capital include, among others: memberships in associations, p. 54; services as officers or committee members in organizations, p. 60; club and church attendance, p.61, p.71; union memberships, p. 81; attending exercise classes, health clubs, or league bowling, p. 112; trust, honesty and morality, p. 139; 14 factors including turnout in presidential elections, visiting friends, p. 291.