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Does Who You Know in the Positional Hierarchy Protect or Hurt?
Social Capital, Comparative Reference Group, and Depression in Two Societies*

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Abstract

Does the socioeconomic status (SES) that one's (ego's) network members (alters) occupy indicate social resources or social comparison standards in the dynamics of health across culture? Using nationally representative data simultaneously collected from the United States and urban China, this study examines two competing theories—social capital and comparative reference group—in the two societies and compares their different application across the two societies using two cultural explanations, relational dependence and self-evaluation motive. Social capital theory expects absolute accessed SES and the size of higher accessed socioeconomic positions to protect health, and the size of lower accessed socioeconomic positions to harm health. But comparative reference group theory predicts the opposite. Additionally, the relational dependence explanation anticipates social capital theory to be more applicable to urban China and comparative reference group theory to be more applicable to the United States. The self-evaluation motive explanation expects the same pattern across the two societies in the examination of the size of lower accessed socioeconomic positions but the opposite pattern in the analysis of absolute accessed SES and the size of higher accessed socioeconomic positions. This study focuses on depressive symptoms and measures accessed occupational status. Results are consistent with the self-evaluation motive explanation. They support both social capital theory and comparative reference group theory in the United States but only the latter theory in urban China.

Kew words: China, United States, accessed SES, social capital, comparative reference group, depression

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Durkheim's seminal work on suicide has inspired a long research tradition on health impacts of social networks of personal relationships (Durkheim, 1951 [1897]; for reviews see Berkman et al., 2000; House, Landis, & Umberson, 1988; Smith & Christakis, 2008; Pescosolido, 2006; Thoits, 2011; Umberson & Montez, 2010). One upstream structural attribute of personal networks—socioeconomic status (SES) one's (ego's) network members (alters) occupy—constitutes the meso-level hierarchical context in which ego dwells and socializes in daily life. It has attracted voluminous research for six decades for its roles in social interaction, social exchange, and status attainment (Fischer et al., 1977; Homans, 1950; Lazarsfeld & Merton, 1954; Laumann, 1966; Lin, Dayton, & Greenwald, 1978; McPherson & Smith-Lovin, 1987).

Despite its long-recognized importance, SES accessed through alters has been given incomplete theoretical and methodological attention for it health consequences. Two theories—social capital and comparative reference group—can help explain health impacts of accessed SES in opposite directions, but have not been explicitly analyzed jointly (Festinger, 1954; Lin, 1982, 2001a; Merton & Kitt, 1950; Parker & Kleiner, 1966; Song, 2013, 2014a, 2015; Song & Lin, 2009). Also, prior network research on comparative reference group theory lacks objective measurement of accessed SES. Furthermore, no prior work has applied the two theories to objective indicators of relative accessed SES (i.e., the size of accessed socioeconomic positions higher or lower than that of ego). Additionally, we know little about the institutional embeddedness or contingency of the health effect of accessed SES, that is, whether the effect is contingent on societies with different institutional arrangements.

The purpose of this present study is to investigate these two theories simultaneously using nationally representative data collected concurrently in the United States and urban China. The unique data have information on one mental health outcome, depressive symptoms, and allow objective measurements of both absolute and relative accessed SES through a network instrument, the position generator (Lin, Fu, & Hsung, 2001). Also, the data provide an opportunity to tentatively examine two cultural explanations—relational dependence and self-evaluation motive—on the varying strength of the two aforementioned theories across the two societies (Chung & Mallery, 1999; Lin, 2001b; Markus & Kitayama, 1991; Sasaki, Ko, & Kim, 2014; Song 2014a, 2014b, 2015; White & Lehman, 2005; Yang, 1994).

1. Literature review: Social capital, reference group, and health

Two theories—social capital and comparative reference group—argue for opposite roles of accessed SES. Among diverse approaches to social capital (Bourdieu, 1986 [1983]; Carpiano, 2006; Coleman, 1990; Lin, 1982, 2001a; Putnam, 2000), one network-based approach proposed by Lin (1982, 2001a) theorizes the role of accessed SES. Other approaches to social capital are beyond the scope of this study. Lin defines social capital as resources embedded in social networks and specifies it as alters' hierarchical positions, particularly in the socioeconomic structure. Assuming that absolute accessed SES indicates social resources, social capital theory argues that absolute accessed SES can protect the health net of ego's SES (Lin 2001a; Song & Lin 2009; Song 2011). Its argument has been demonstrated across societies (for reviews see Song, 2013; Song, Son, & Lin, 2010). In the United States, accessed educational and occupational status is associated positively with health information seeking and smoking cessation but negatively with self-reported health and depression (Acock & Hurlbert, 1993;

Christakis & Fowler, 2008; Haines, Beggs, and Hurlbert, 2011; Song, 2011; Song & Chang, 2012). In Taiwan, accessed occupational status is associated positively with self-reported health but negatively with depression (Song & Lin, 2009). In Belgium, accessed occupational status or class exerts a positive impact on self-reported health (Verhaeghe, Pattyn, Bracke, Verhaeghe, & Van de Putte, 2012). In England, adults with contacts in managerial and professional jobs report better health (Verhaeghe & Tampubolon, 2012). In Montreal, Canada, accessed occupational status is related positively to self-reported health but inversely to being overweight (Moore, Daniel, Paquet, Dubé & Gauvin, 2009; Moore, Bockenholt, Daniel, Frolich, Kestens, & Richard, 2011).

Contrary to social capital theory which emphasizes alters as one source of social resources, comparative reference group theory underscores alters as one origin of the frame of reference and alters' SES as social comparison standards (Festinger, 1954; Gartrell, 1987, 2002; Merton & Kitt, 1950). It assumes that individuals tend to evaluate themselves in comparison to others, and these comparison targets constitute reference groups (Festinger, 1954; Hyman, 1942). It argues that higher-status reference groups can damage health through triggering upward or negative social comparison, while lower-status reference groups can protect health through eliciting downward or positive social comparison. This theory has stimulated substantial health studies, but most prior work defines reference groups based on sociodemographic attributes (e.g., age, gender, race/ethnicity, SES, or residential location) (for a review see Adjaye-Gbewonyo & Kawachi, 2012). Only a few studies examine network-based reference groups, and most of their results support comparative reference group theory. In one black community, adults perceiving low social position relative to close friends have more severe mental illness (Parker & Kleiner, 1966). In the United States and China, adults who perceive themselves to make less income than

social contacts have worse physical and mental health, but their opposite counterparts are healthier (Mangyo & Park, 2011; Pham-Kanter, 2009). In France, adults who feel they make more or less income than a contact have poorer self-reported health (Jusot et al., 2008).

In summary, despite the long research tradition, accessed SES has been given insufficient attention for its health impacts. First, the two theories—social capital and comparative reference group—have opposite predictions but have not been explicitly analyzed conjointly. They respectively emphasize absolute and relative accessed SES. Second, prior research on comparative reference group theory mostly focuses on sociodemographic reference groups. The limited available studies on network-based reference groups rely on only ego's subjective perception and fail to construct an objective measurement of accessed SES due to lack of data on personal networks. Third, prior work has not extended the two theories to objective indicators of relative accessed SES (i.e., the size of accessed socioeconomic positions higher or lower than that of ego), which capture the amount of social resources or the number of higher- or lower-status reference groups. Finally, existing studies are limited to one single society. Whether health effects of accessed SES vary by institutional arrangement remains unexplored.

The purpose of this study is to examine the two theories together using nationally representative data in the United States and urban China. It focuses on depressive symptoms and measures multiple objective indicators of both absolute and relative accessed occupational positions using the position generator. Furthermore, cultural differences may affect the applicability of these two theories in the two societies. This study tentatively explores two cultural explanations—relational dependence and self-evaluation motive—on the varying explanatory power of the two aforementioned theories across the two societies. The relational dependence explanation anticipates social capital theory to apply more to urban China than the

United States and comparative reference group theory to apply more to the United States than to urban China. The self-evaluation motive explanation expects the same pattern across the two societies in the examination of the size of lower accessed socioeconomic positions but the opposite pattern in the analysis of absolute accessed SES and the size of higher accessed socioeconomic positions. These two explanations will be explained in detail in the next section, as the hypotheses are developed.

2. Hypotheses

Drawing on four theoretical approaches, this study proposes four hypotheses on the health effects of accessed SES (see Figure 1 and Table 1). First, according to social capital theory, absolute accessed SES can protect health through advancing social status, providing social support, enhancing healthy norms, facilitating help seeking, acting as social credentials, decreasing stress exposure, and reinforcing psychological resources (Christakis & Fowler, 2008; Erickson, 2003; Lin, 2001a; Lin & Ao, 2008; Moore, Daniel, Paquet, Dubé, & Gauvin, 2009; Song, 2011; Song & Chang, 2012; Song & Lin, 2009; Song, Son, & Lin 2011). The higher the absolute accessed SES and the size of accessed socioeconomic positions higher than that of ego, the more the resources available from alters. The greater the size of accessed socioeconomic positions lower than that of ego, the greater the shortage of social resources. Therefore, the social capital hypothesis (H1) states that absolute accessed SES and the size of higher accessed socioeconomic positions are positively associated with health, and the size of lower accessed socioeconomic positions is negatively associated with health.

Insert Figure 1 Here

Insert Table 1 Here

In contrast, comparative reference group theory predicts the opposite. As it argues, the higher the absolute accessed SES and the size of higher accessed socioeconomic positions, the greater the chance of encountering higher-status reference groups and making upward or negative social comparison, which can damage health through threatening self-esteem and provoking stressful reactions (e.g., goal-striving stress, relative deprivation, life dissatisfaction, anger, and sense of failure) and risky behaviors (Eibner & Evans, 2005; Merton & Kitt, 1950; Moore, Daniel, Gauvin, & Dubé, 2009; Parker & Kleiner, 1966; Song, 2014a, 2014b, 2015; Song & Chen, 2014; Wilkinson & Pickett, 2010). The lower the absolute accessed SES and the size of lower accessed socioeconomic positions, the greater the possibility of encountering a lower-status reference group and making downward or positive social comparison, which can protect health through enhancing self-esteem. Thus, the comparative reference group hypothesis (H2) states that absolute accessed SES and the size of higher accessed socioeconomic positions are inversely associated with health, and the size of lower accessed socioeconomic positions positively associated with health.

Finally, prior research emphasizes two cultural factors that can shape the explanatory power of the above two theories across societies in different directions: relational dependence and self-evaluation motive. In comparison with individualistic culture, collectivistic culture institutionalizes the legitimacy of individuals' dependence on social ties in purposive actions to a greater degree (Lin, 2001a). Individualistic culture in the United States fosters independence

from each other, while collectivistic culture in China promotes harmonious interdependence between individuals (Lin, 2001b; Markus & Kitayama, 1991). China is characterized by its culture of *guanxi* traceable to Confucian ethics (Yang, 1994). *Guanxi* is a particular social network composed of "enduring, sentimentally based instrumental relations that invoke private transactions of favors and public recognition of asymmetric exchange" (Lin, 2001b: 159). Chinese are committed to cultivate and use their *guanxi* for various purposes (Bian, 1997, 2001; Lin & Ao, 2008). Therefore, accessed SES can be perceived more likely as salubrious social resources but less likely as targets of social comparison in China than in the United States (Song, 2014a). The relational dependence hypothesis (H3) states that the social capital hypothesis (i.e., the positive health impacts of absolute accessed SES and the size of higher accessed socioeconomic positions and the negative health impact of the size of lower accessed socioeconomic positions) applies more to urban China than to the United States, but the comparative reference group hypothesis (i.e., the negative health impacts of absolute accessed SES and the size of higher accessed socioeconomic positions and the positive health impact of the size of lower accessed socioeconomic positions) applies more to the United States than to urban China.

Cultural differences in self-evaluation motive can also influence health consequences of accessed SES. According to cultural psychological research (Markus & Kitayama, 1991; for a review see Sasaki et al., 2014), in the process of self-evaluation, individualistic culture nurtures a motive to self-enhance, while collectivistic culture cultivates a motive to self-improve. In individualistic culture, people tend to value the unique independent self and individual success and strive for self-serving positive self-evaluation. In collectivistic culture, people tend to cherish social scrutiny and public reputation and endeavor for self-critical negative self-evaluation to

maintain and improve their social standing. Therefore, people in individualistic culture are more likely to prefer downward or positive social comparison but less likely to seek upward or negative social comparison than those in collectivistic culture (Chung & Mallery, 1999; White & Lehman, 2005; Song, 2014b; for a review see Sasaki et al., 2014). To extend it, absolute accessed SES and the size of higher accessed socioeconomic positions can be conceived more likely as social resources but less likely as triggers of upward or negative social comparison in the United States than in China. The size of lower accessed socioeconomic positions can serve more likely as one indicator of lack of social resources but less likely as a trigger of downward or positive social comparison in China than in the United States. Therefore, the self-evaluation motive hypothesis (H4) expects that the health impacts of absolute accessed SES and the size of higher accessed socioeconomic positions should be more negative in the United States and more positive in urban China, and the health effects of the size of lower accessed socioeconomic positions should be more negative in urban China and more positive in the United States.

3. Data and methods

3.1. Data

This study drew data from the research project, "Social Capital: Its Origins and Consequences," which conducted nationally representative surveys simultaneously in the United States and urban China (Lin & Ao, 2008; Lin, Ao, & Song, 2009; Yu, 2008). Both surveys sampled adults aged twenty-one to sixty-four, currently or previously employed. A random-digit dialing telephone survey was conducted from November 2004 to April 2005 in the United States, and a personal interview survey from November 2004 to March 2005 in urban China. The use of the telephone

survey method rather than the face-to-face survey method in the United States was due to financial pressures (Groves et al., 2004). There are few differences in responses between these two survey methods (Couper, 2011; Groves & Kahn, 1979). The U.S. and urban China samples had respectively 3,000 and 3,500 respondents with a response rate of respectively 43 and 40 percent, which are comparable to those of other recent national surveys using same survey methods in two societies (Bian & Li, 2012; Groves et al. 2004). The comparison of these two samples respectively, with the March 2005 U.S. Current Population Survey and the 2005 one-percent Population Survey of China, shows strong correspondence in key variables (i.e., age, gender, race/ethnicity, and marital status) with one exception (Lin et al., 2009; McDonald & Mair, 2010; Song 2014b). Respondents in the two samples were more educated. Since this research project targeted adults currently or previously employed, an elevation of education should be expected. During the U.S. survey process an additional sampling criterion was imposed in order to seek out qualified African Americans and Latinos to approximate the census distribution. A dummy variable, quota, was created to identify respondents sampled after the recruitment change (value = 1). Ethical approval for this study was obtained from the Institutional Review Board at Vanderbilt University.

As in prior work (Marsden, 1987; Song & Lin, 2009), this study excluded respondents whose accessed status cannot be measured due to their identifying no contacts associated with listed jobs in the position generator (N=170 in the United States and 110 in urban China). The listwise deletion of cases with missing values on variables of interest can incur the loss of 17 percent of the U.S. sample and 11 percent of the urban China sample. A multiple imputation method was employed to impute missing values in independent variables based on ten imputations through one Stata program (Ice) (Royston, 2005). The imputation models included

all variables of interest (see Table 2). The imputed data had 2,830 respondents in the United States and 3,353 respondents in urban China. Table 2 shows the sample characteristics averaged over the ten imputed data sets.

Insert Table 2 about here

3.2. Dependent Variable

Depressive symptoms were measured by thirteen items from the Center for Epidemiologic Studies Depression (CES-D) scale that proves applicable among Chinese (Lin, 1989; Radloff, 1977; Song, 2011). The reliability test of this 13-item scale suggested high internal consistency (Cronbach's alpha=.85 in the United States and .89 in urban China). The summed total score ranged from 0 to 39 in the United States and from 0 to 38 in urban China, with higher values indicating higher levels of depression. The summed total score was normalized through a logarithmic transformation.

3.3. Explanatory Variables

The survey used the position generator to measure accessed SES prior to ego's current job (or last job for the unemployed) (Lin et al., 2001), which asked ego to identify contacts in a representative sample of occupations. Each respondent was asked, "At the time [you started your current or last job], namely in year____, did you know someone who had the following kinds of jobs?" As Table 3 shows, a list of twenty-one occupations was presented to respondents. The

occupational status of each job was coded through the International Socio-Economic Index (ISEI) for the purpose of comparative analyses across societies, which technically "involves a weighting of the standardized education and standardized income of occupational groups" (Ganzeboom, DeGraaf, & Treiman, 1992: 30). The ISEI score for peasants in China was lower than that for farmers in the United States. Although both represent the agricultural industry, peasants are at the bottom of the occupational hierarchy in China, whereas farmers are part of the middle class in the United States (Hout, Brooks, & Manza, 1995; Lu 2005).

Insert Table 3 about here

This study constructed three traditionally used indicators of absolute accessed occupational status (see Table 3): upper, average, and lower reachability, which were respectively the highest, average, and lowest ISEI score of accessed occupations (Campbell, Marsden, & Hurlbert, 1986; Lin & Dumin, 1986; Lin et al., 2001). It also calculated two indicators of relative accessed SES: the number of accessed occupations with ISEI scores higher and lower than that of ego's previous job (or last/current job for egos without previous job) (Hodge & Treiman, 1968; Jackman & Jackman, 1973).

3.4. Control Variables

All analyses controlled for three demographic factors: age, gender (1=female, 0=male), and marital status (1=married, 0=unmarried). They also controlled for employment status (1=employed, 0=unemployed), the number of years since the entry into the current job (or last

job for the unemployed), and three indicators of SES: education (1=middle school or lower, 2=high school diploma, 3=associate college degree, 4=college degree, 5=master's degree or above), the ISEI score of current job (or last job for the unemployed at the survey time) (Ganzeboom et al., 1992), and annual family income. A dummy variable for each category of education was created with middle school or lower as the reference group. In urban China, the last two educational categories were grouped together due to a very small size of respondents with Master's Degree and above (less than one percent). Annual family income had over twenty ordinal ranges (twenty-eight in the United States and twenty-two in urban China). Natural logarithms for the medians of all ranges were calculated for a normal distribution of income.

The two societies also have some unique social factors. The analysis of the U.S. sample further controlled for race/ethnicity (1=white, 2=black, 3=Latino, and 4=other race/ethnicity), quota, and residential location (1=urban, 0=rural). A dummy variable for each racial/ethnic category was created with white as the reference group. The analysis of the urban China sample further controlled for political capital (1=communist party member, 0=non-communist party member), and work units of current or last job (1=state, 0=other work units).

3.5. Analytic Strategy

Ordinary least squares (OLS) regression models were estimated to predict depressive scores. The basic model with only control variables was first estimated separately for the two societies. Then five explanatory variables were separately entered into the basic model to investigate the social capital and comparative reference group hypotheses. Finally, the two-society data were combined, and product terms of the five mean-centered explanatory variables with the two

societies (1=the United States, 0=urban China) were examined to test the relational dependence and self-evaluation motive hypotheses. Significant coefficients of product terms indicate the presence of interaction effects (Cohen & Cohen, 1983; Jaccard & Turrisi, 2003). Coefficients were estimated as the average across all imputed data sets (Carlin, Galati, & Royston, 2008).

4. Results

Seven OLS regression models were run to predict depressive scores in the United States (see Table 4). Consistent with comparative reference group theory (H2), upper reachability (.003) and the number of higher accessed occupational positions (.015) were positively associated with depressive scores (see Models 2 and 5). The greater the highest ISEI score of accessed occupations prior to adults' current job (or last job for the unemployed) and the number of accessed occupations with higher ISEI scores than that of adults' previous job, the higher the depressive scores in the past week. Also, average reachability (-.005), lower reachability (-.008), and the number of lower accessed occupational positions (.028) had significant effects as social capital theory predicts (H1) (see Models 3, 4, and 6). The greater the average and lowest ISEI score of accessed occupations prior to adults' current job, the lower the depressive scores. The greater the number of accessed occupations with lower ISEI scores than that of adults' previous job, the higher the depressive scores. The simultaneous entry of all five significant explanatory variables led to multicollinearity with a condition number (46) larger than the critical value of 10 (Slinker & Glantz, 1985). Factor analysis offered a two-factor solution for four explanatory variables (.85 upper reachability + .85 number of higher accessed occupational positions; .88

average reachability + .88 lower reachability). These two latent factors and the number of lower accessed occupational positions exerted significant effects net of each other (see Model 7).

Insert Table 4 about here

Next, seven OLS regression models were estimated in urban China (see Table 5). Results support comparative reference group theory (H2). The greater the highest (.004) and the average (.004) ISEI score of accessed occupations, the higher the depressive scores (see Models 2-3). The larger the number of accessed occupations with higher ISEI scores than that of adults' previous job (.018), the more the depressive symptoms (see Model 5). The simultaneous entry of all three significant explanatory variables led to multicollinearity with a condition number (16) greater than the critical value of 10. Factor analysis offered a single factor solution (.44 upper reachability + .42 average reachability + .33 number of higher accessed occupational positions). This latent factor had a significant positive effect (see Model 7).

Insert Table 5 about here

Finally, the two-society data were combined to analyze interaction effects. Considering that the forgoing results vary by explanatory variable and society, the product terms of the five mean-centered explanatory variables with the two societies (1=the United States, 0=urban China) were entered separately into the model with control variables shared by the two societies (see

Table 6). Two interaction terms were significant in the direction predicted by the self-evaluation motive explanation (H4). Average reachability was associated with depressive scores negatively in the United States (-.005) but positively in urban China (.004) (see Model 2). Lower reachability was negatively associated with depressive symptoms to a greater degree in the United States (-.007) than in urban China (-.002) (see Model 3). Supplemental analysis dropped rural U.S. residents and found similar results.

Insert Table 6 about here

5. Conclusion and discussion

Does SES accessed through alters indicate social resources or social comparison standards in the dynamics of health across culture? This study derives hypotheses from four theoretical approaches. It measures multiple objective indicators of accessed occupational status, and investigates their effects on depressive symptoms using nationally representative data in the United States and urban China. This study contributes to the relevant literature in four important ways, both theoretically and methodologically.

First, this study bridges the gap between two theories—social capital and comparative reference group—by conjointly analyzing their different arguments on health impacts of accessed SES (see Figure 1). Varying by the measurement of accessed occupational status, there is evidence for both social capital theory and comparative reference group theory in the United States and evidence only for the latter theory in urban China. These results suggest the importance of integrating the two theories from a social network perspective and the necessity of

applying them simultaneously to multiple indicators of accessed SES. These findings also imply the possible coexistence of these two theories, in particular in the United States. Depending on indicators of accessed occupational status and society, network members' occupational status may simultaneously serve as both an indicator of salubrious social resources and a trigger of deleterious upward social comparison. People's mental health may benefit from accessed occupational status while at the same time suffering from it. These two opposing functions of accessed occupational status may offset each other. The protective function may be stronger than the detrimental one in the United States, while the opposite pattern may apply to urban China. These theoretical speculations warrant further investigation, in particular on various possible psychosocial mechanisms linking accessed SES to health across society.

Second, this study is the first to demonstrate mixed health impacts of accessed SES, and refines the theory and measurement of network-based social capital. Lin's social capital theory was originally developed to explain positive instrumental returns to absolute accessed SES on the job market and was later extended to positive health returns (1982, 2001a). It has received supportive evidence across societies (for reviews see Lin, 2001a; Song, 2013; Song et al., 2010). In this study, results on average reachability, lower reachability, and the number of lower accessed occupational positions in the United States are consistent with social capital theory. However, results on average reachability in urban China and on upper reachability and the number of higher accessed occupational positions in both societies are opposite to the prediction of social capital theory. These inconsistent results add to several recent studies that illustrate the underexamined "dark side" of social capital. Accessed occupational status is inversely associated with sense of mastery for the less educated in Montreal, Canada (Moore, Daniel, Gauvin, & Dubé, 2009), and with socioeconomic satisfaction in urban China and the United States (Song,

2014a). Accessed educational status is positively associated with the body weight of American men (Song & Piya, 2013). Knowing people in authoritative positions in the workplace is positively associated with depression indirectly through financial dissatisfaction and unsolicited job leads in urban China (Song, 2015). Accessed working-class occupations through family and friends is negatively related to self-reported health at a marginally significant level in Belgium (Verhaeghe et al., 2012).

Findings in this study further advance the theory and methodology of social capital. The social resource assumption in social capital theory may apply more to objective than subjective outcomes. High accessed SES may motivate and facilitate ego's instrumental efforts in upward status attainment and maintenance of physical health but damage ego's mental health and psychological well-being more directly through triggering deleterious upward social comparison. Also, the social resource assumption may depend on indicators of absolute and relative accessed SES. Alters' different SES constitutes a meso-level pyramid-shaped network hierarchy with multiple structural properties (Lin, 2001a). The three traditional indicators of absolute accessed SES—upper, average, and lower reachability—are distinct from each other in that they respectively capture three unique structural attributes of the network hierarchy: the top, average, and bottom positions (Campbell et al., 1986; Lin & Dumin 1986). The two indicators of relative accessed SES—the size of accessed positions ranked higher or lower than ego's— measure ego's relative structural position within the network hierarchy. In the United States, social capital theory is applicable to three structural properties of the network hierarchy: average and lower reachability and the size of lower accessed positions. People tend to evaluate themselves in comparison with higher-status contacts (Festinger, 1954; Merton & Kitt, 1950). These three properties are less likely to involve higher-status alters than the other two properties (upper

reachability and the size of higher accessed positons) and thus tend more to be perceived as social resources rather than triggers of upward or negative social comparison. In both societies, social capital theory is applicable to lower reachability. Lower reachability exerts a consistent negative or protective effect against depression (although nonsignificant in urban China). As the very bottom position of the network hierarchy, it is less likely to concern higher-status alters than upper and average reachability and thus seems more to be perceived as social resources rather than a provoker of negative social comparison. These theoretical and methodological implications deserve further scrutiny in the future.

Third, this study advances our conceptual and methodological understanding of comparative reference group theory. Prior health studies examining network-based reference groups apply this theory only to ego's subjective perception of accessed SES. This study demonstrates the utility of extending this theory to the actual measurement of accessed SES through the position generator. Consistent with this theory, two objective indicators of accessed status—upper reachability and the number of higher accessed occupational positions—exert consistent positive effects on depressive scores in both societies, and another one—average reachability—has such an impact in urban China. These findings illustrate the embeddedness of comparative reference groups in social networks (Gartrell, 1987, 2002; Merton & Kitt, 1950), particularly in the meso-level network hierarchy. Also, parallel to the above discussion on social capital theory, results here suggest the contingency of comparative reference group theory on indicators of accessed SES. In both societies, comparative reference group theory is applicable to upper reachability and the size of higher accessed positions. These two structural properties of the network hierarchy are more likely to involve higher-status alters than the other three properties (average and lower reachability, and the size of lower accessed positions) and thus

consistently act as triggers of upward or negative social comparison rather than indicators of social resources. These theoretical and methodological speculations are reserved for future research. Note that which measurement of accessed SES, perceived or actual, is a more significant determinant of health also deserves further investigation.

Furthermore, this study tentatively investigates the institutional contingency of the two theories—social capital and comparative reference group—from two cultural perspectives: relational dependence and self-evaluation motive. Results here support the latter perspective. Social capital theory is more predictive of depressive scores in the United States than urban China, while comparative reference group theory is more predictive in urban China than the United States. Average reachability is associated with depressive scores positively in urban China but negatively in the United States. Lower reachability has a weaker negative association with depressive symptoms in urban China than the United States. These measurement-specific results across the two societies again suggest the distinction between different indicators of accessed SES, in particular the uniqueness of lower reachability. Lower reachability as the lowest accessed SES is more likely to serve as protective social resources rather than the target of deleterious social comparison. These findings support prior psychological studies that demonstrate the stronger motivation for upward (versus downward) social comparison in collectivistic than individualistic culture (Chung & Mallery, 1999; Markus & Kitayama, 1991; White & Lehman, 2005; Sasaki et al., 2014). They are consistent with previous evidence that accessed occupational status has stronger positive associations with socioeconomic dissatisfaction in urban China than the United States (Song, 2014a). These findings imply the necessity of elaborating social capital and comparative reference group theories from an institutional perspective, and illustrate the embeddedness of the relationship between the meso-

level social networks and health within the macro-level social structure, in particular cultural contexts (Berkman et al., 2000; Coleman, 1990; Lin, 2001a). Note that these findings do not exclude the possible coexistence of these two cultural explanations. These two cultural forces—relational dependence and self-evaluation motive—may jointly moderate health impacts of accessed SES in the United States and urban China, but the former may be weaker and get diminished by the latter. Also note that this study is limited by cross-sectional data from only two societies. Although tentative and preliminary, its theoretical framework and empirical findings will stimulate future larger-scale multiple-indicator comparative research across societies and over time for a fuller examination of these cultural explanations.

Finally, drawing upon prior work (Hodge & Treiman, 1968; Jackman & Jackman, 1973), this present study measures two objective indicators of relative accessed SES: the number of higher and lower accessed occupational positions. In supplemental analysis not presented here, I also included the percentages of higher and lower accessed occupational positions, that is, the number of higher and lower accessed occupational positions divided by the total number of accessed occupational positions. I find no significant effects on depressive scores in the United States and urban China, with or without a control for the total number of accessed occupational positions. As these supplemental findings imply, it is the absolute size of higher and lower accessed occupational positions rather than the relative size (or the percentages) of higher and lower accessed occupational positions that is predictive of depressive symptoms. This methodological implication and its generalizability to other health outcomes deserve further investigation.

This study represents only a starting point for examining health effects of accessed SES across societies. It has four data limitations that call for future research. First, the data are from a

national sample of working-age adults who are currently or previously employed, and data are not available from rural China. Accessed SES may be more likely to indicate social resources than social comparison targets for three groups of people: the elderly, adults without employment history, and rural residents in China. The first two groups are not active on the job market and may tend not to use alters' occupations as comparative standards. Rural residents are exposed to fewer high-status contacts and preserve the culture of *guanxi* to a greater degree (Shu & Zhu, 2008; Yang, 1994). Future studies should collect data from adults of all age, employment, and residential backgrounds to examine these speculations. Second, this study uses cross-sectional data. Its retrospective measurement of accessed SES prior to ego's current or last job gives us some confidence in causal inferences, but may have recall errors. The positive effects of accessed SES on depressive scores may be spurious due to social selection, for example, due to the possibility that the more depressed may seek out better-off people for support (Schaefer, Kornienko, & Fox, 2011). Third, this study coded the occupational status using the ISEI scale. This scale is based on the weighted combination of occupational education and income. Despite its widespread use in comparative studies, it can be questioned for its failure to measure other components of SES (e.g., job conditions) and for the model-dependence of the relative weights of occupational education and income (Bollen, Glanville, & Stecklov, 2001; Hauser & Warren, 1997; Oakes & Rossi, 2003). Whether other occupational scales will produce similar results is beyond the scope of this study and deserves future research. Furthermore, accessed SES is measured through the position generator in this study. It can also be captured by other two network instruments: the name generator that asks ego to list contacts with whom they discuss important matters (Burt, 1984), and the resource generator that directly measures alters' possession of specific assets (e.g., education, and salary) (Van der Gaag & Snijders, 2005).

Future research may collect data on all three network instruments and investigate whether the relationship between accessed SES and health varies by network instrument.

Despite its data limitations, this present study is the first effort to conjointly investigate and refine two competing theories—social capital and comparative reference group—on the association between accessed SES and health (Festinger, 1954; Lin, 1982, 2001a; Merton & Kitt, 1950). It also tentatively explores two cultural explanations—relational dependence and self-evaluation motive—on the institutional contingency of that association (Lin, 2001b; Sasaki et al., 2014; Song 2014a, 2014b, 2015; White & Lehman, 2005; Yang, 1994). Furthermore, it measures and compares multiple objective indicators of both absolute and relative accessed SES. It is the first to apply comparative reference group theory to objective measurement of accessed SES and the first to apply theories of social capital and comparative reference group to relative accessed SES. This study contributes, theoretically and methodologically, to a more complete framework for the complex roles of accessed SES in the social production of health. Accessed SES can be both protective and detrimental, depending on its measurement and cultural contexts.

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Table 1. Summary of Theories and Hypotheses in Two Societies

Explanatory Variables / Theories	Absolute Accessed Socioeconomic Status Size of Higher Accessed Socioeconomic Positions	Size of Lower Accessed Socioeconomic Positions
Social Capital Theory (H1)	Positive Effect on Health	Negative Effect on Health
Comparative Reference Group Theory (H2)	Negative Effect on Health	Positive Effect on Health
Relational Dependence Explanation (H3)		
Social Capital Theory (H1)	Urban China > United States	Urban China > United States
Comparative Reference Group Theory (H2)	Urban China < United States	Urban China < United States
Self-Evaluation Motive Explanation (H4)		
Social Capital Theory (H1)	Urban China < United States	Urban China > United States
Comparative Reference Group Theory (H2)	Urban China > United States	Urban China < United States

Table 2. Summary of Sample Characteristics

Variables	United States (N=2,830)		Urban China (N=3,353)	
	Mean/ Percent	SD	Mean/ Percent	SD
Dependent Variable				
Depressive Symptoms (CES-D)	6.17	5.61	5.64	5.94
Control Variables				
Age	41.47	10.51	39.29	10.31
Gender (1=Female)	54.31%		50.31%	
Race/Ethnicity				
White	70.00%			
Black	11.87%			
Latino	12.44%			
Other Race/Ethnicity	5.69%			
Quota	42.58%			
Residential Location (1=Urban)	89.15%			
Marital Status (1=Married)	64.13%		82.94%	
Education				
Middle School or Less	4.35%		29.14%	
High School Diploma	34.17%		25.17%	
Associate Degree	20.79%		26.60%	
College Degree	25.48%			
College Degree or Above			19.10%	
Master's Degree or Above	15.21%			
Political Capital (1= Communist Party Member)			22.73%	
Employment Status (1=Employed)	77.88%		77.45%	
Years since the Entry into the Current/Last Job	8.01	8.08	11.48	9.78
Work Units (Current/Last Job) (1=State)			53.28%	
Occupational Status (Current/Last Job) (ISEI)	50.89	16.39	47.37	14.67
Annual Family Income (U.S. Dollars/Chinese Yuan)	67,924	48,147	25,497	19,944
Occupational Status of Previous Job (ISEI)	49.20	15.82	46.20	14.60

Note: ISEI=Standard International Socio-Economic Index (Ganzeboom et al. 1992).

Table 3. Distribution of Occupational Positions in the Position Generator and Explanatory Variables

Position (ISEI)	Respondent Accessing (Percent)	
	United States (N=2,830)	Urban China (3,353)
Lawyer (85)	54.17	22.58
Professor (78)	39.43	18.85
Middle School Teacher (71)	47.21	64.84
CEO (69)	21.06	24.52
Production Manager (67)	22.12	26.93
Personnel Manager (67)	35.87	34.98
Writer (66)	20.85	7.16
Computer Programmer (64)	44.28	15.24
Administrative Assistant (58)	34.91	15.39
Bookkeeper (56)	34.52	56.96
Policeman (53)	48.13	39.90
Receptionist (51)	49.54	13.69
Nurse (42)	63.43	45.36
Security Guard (35)	28.45	31.05
Operator in A Factory (34)	31.66	37.88
Taxi Driver (33)	9.93	34.09
Hairdresser (32)	60.04	25.53
Farmers (26)	43.60	
Janitor (26)	32.83	20.76
Housemaid/Babysitter (24)	31.27	13.45
Peasants (16)		71.07
Accessed Occupational Positions		
Upper Reachability		
Mean	75.76	69.24
S.D.	13.64	15.80
Average Reachability		
Mean	51.72	47.08

S.D.	8.62	10.48
Lower Reachability		
Mean	30.13	22.52
S. D.	10.04	12.27
Number of Higher Accessed Occupational Positions		
Mean	3.85	3.18
S. D.	3.17	2.87
Number of Lower Accessed Occupational Positions		
Mean	3.46	2.80
S. D.	3.01	2.57

Note: ISEI=Standard International Socio-Economic Index (Ganzeboom et al. 1992).

Table 4. OLS Regression of Depressive Symptoms on Accessed Occupational Status and Control Variables in the United States (N=2,830)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Age	-.002***	-.003***	-.002***	-.003***	-.003***	-.003***	-.004***
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Gender (1=Female)	.082***	.082***	.076***	.070***	.085***	.075***	.070***
	(.011)	(.011)	(.011)	(.011)	(.011)	(.011)	(.011)
Race/Ethnicity(Reference: Whites)							
Black	.049**	.046**	.046**	.041*	.042*	.026	.020
	(.018)	(.018)	(.018)	(.018)	(.018)	(.018)	(.018)
Latino	-.171***	-.170***	-.166***	-.161***	-.170***	-.179***	-.167***
	(.019)	(.019)	(.019)	(.018)	(.019)	(.018)	(.018)
Other Race/Ethnicity	-.038	-.034	-.030	-.008	-.038	-.029	-.011
	(.023)	(.023)	(.023)	(.023)	(.023)	(.023)	(.023)
Quota	-.006	-.006	-.005	-.005	-.006	-.003	-.004
	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)
Residential Location (1=Urban)	.039*	.041*	.048**	.056**	.046**	.056**	.069***
	(.017)	(.017)	(.017)	(.017)	(.017)	(.017)	(.017)
Marital Status (1=Married)	-.204***	-.204***	-.207***	-.209***	-.204***	-.208***	-.211***
	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)	(.012)
Education (Reference: Middle School or Less)							
High School Diploma	-.035	-.052	-.030	-.054	-.051	-.056	-.075**
	(.029)	(.029)	(.029)	(.029)	(.029)	(.029)	(.029)
Associate Degree	-.119***	-.146***	-.106***	-.140***	-.140***	-.149***	-.170***
	(.030)	(.030)	(.030)	(.030)	(.030)	(.030)	(.030)
College Degree	-.141***	-.175***	-.116***	-.155***	-.166***	-.173***	-.190***
	(.031)	(.031)	(.031)	(.031)	(.031)	(.031)	(.031)
Master's Degree or Above	-.149***	-.189***	-.121***	-.173***	-.171***	-.201***	-.215***
	(.033)	(.033)	(.033)	(.033)	(.033)	(.033)	(.033)
Employment Status (1=Employed)	-.165***	-.163***	-.171***	-.174***	-.161***	-.162***	-.166***
	(.014)	(.014)	(.014)	(.014)	(.014)	(.014)	(.014)
Years since the Entry into the Current/Last Job	-.012***	-.011***	-.012***	-.012***	-.011***	-.011***	-.011***

	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Occupational Status (ISEI) (Current/Last Job)	-.003***	-.003***	-.002***	-.002***	-.002***	-.004***	-.003***
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Annual Family Income (log)	-.148***	-.154***	-.144***	-.149***	-.150***	-.156***	-.156***
	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)	(.007)
Accessed Occupational Status							
Upper Reachability		.003***					
		(.000)					
Average Reachability			-.005***				
			(.001)				
Lower Reachability				-.008***			
				(.001)			
Number of Higher Accessed Occupational Positions					.015***		
					(.002)		
Number of Lower Accessed Occupational Positions						.028***	.018***
						(.002)	(.002)
Latent Factor (Upper Reachability, Number of Higher Accessed Occupational Positions)							.051***
							(.006)
Latent Factor (Average and Lower Reachability)							-.057***
							(.006)
Constant	3.783***	3.661***	3.950***	4.044***	3.741***	3.909***	3.901***
	(.083)	(.085)	(.086)	(.085)	(.083)	(.083)	(.084)
Adjusted R-Squared	.071	.072	.072	.077	.073	.077	.081

Notes: ISEI=Standard International Socio-Economic Index (Ganzeboom et al. 1992); standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5. OLS Regression of Depressive Symptoms on Accessed Occupational Status and Control Variables in Urban China (N=3,353)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Age	.001	.000	.000	.001	.000	.001	.000
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Gender (1=Female)	.157***	.165***	.161***	.158***	.165***	.159***	.165***
	(.035)	(.035)	(.035)	(.035)	(.035)	(.035)	(.035)
Marital Status (1=Married)	-.140**	-.133**	-.133**	-.144**	-.134**	-.140**	-.130**
	(.049)	(.049)	(.049)	(.049)	(.049)	(.049)	(.049)
Political Capital (1=Communist Party Member)	-.042	-.047	-.045	-.044	-.046	-.044	-.047
	(.045)	(.045)	(.045)	(.045)	(.045)	(.045)	(.045)
Education (Reference: Middle School or Less)							
High School Diploma	-.019	-.043	-.038	-.014	-.033	-.019	-.045
	(.047)	(.048)	(.048)	(.047)	(.048)	(.047)	(.048)
Associate Degree	-.015	-.047	-.041	-.010	-.031	-.016	-.049
	(.054)	(.055)	(.055)	(.054)	(.055)	(.054)	(.055)
College Degree or Above	-.032	-.072	-.065	-.025	-.054	-.036	-.076
	(.064)	(.064)	(.065)	(.064)	(.064)	(.064)	(.065)
Employment Status (1=Employed)	-.070	-.065	-.068	-.070	-.068	-.072	-.066
	(.048)	(.048)	(.048)	(.048)	(.048)	(.048)	(.048)
Years since the Entry into the Current/Last Job	-.000	.001	-.000	-.000	.001	-.000	.001
	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)	(.002)
Sectors of Work Unit (1=State) (Current/Last Job)	.058	.058	.058	.059	.061	.059	.060
	(.039)	(.039)	(.039)	(.039)	(.039)	(.039)	(.039)
Occupational Status (ISEI) (Current/Last Job)	-.002	-.003	-.003	-.002	-.001	-.003*	-.002
	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)	(.001)
Annual Family Income (log)	-.059**	-.064***	-.063***	-.059**	-.064***	-.060**	-.065***
	(.018)	(.018)	(.018)	(.018)	(.018)	(.018)	(.018)
Accessed Occupational Status							
Upper Reachability		.004***					
		(.001)					
Average Reachability			.004*				
			(.002)				

Lower Reachability				-.002			
				(.001)			
Number of Higher Accessed Occupational Positions					.018**		
					(.006)		
Number of Lower Accessed Occupational Positions						.010	
						(.008)	
Latent Factor (Upper and Average Reachability, Number of Higher Accessed Occupational Positions)							.062***
							(.018)
Constant	2.221***	1.994***	2.079***	2.262***	2.171***	2.229***	2.286***
	(.197)	(.205)	(.205)	(.199)	(.197)	(.197)	(.197)
Adjusted R-Squared	.016	.020	.018	.017	.019	.017	.020

Notes: ISEI=Standard International Socio-Economic Index (Ganzeboom et al. 1992); standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 6. OLS Regression of Depressive Symptoms on Accessed Occupational Status and Control Variables in Two Societies (N=6,183)

	Model 1	Model 2	Model 3	Model 4	Model 5
Age	-.001	-.001	-.001	-.001	-.001
	(.001)	(.001)	(.001)	(.001)	(.001)
Gender (1=Female)	.129***	.125***	.119***	.129***	.123***
	(.025)	(.025)	(.025)	(.025)	(.025)
Marital Status (1=Married)	-.180***	-.182***	-.187***	-.180***	-.185***
	(.030)	(.030)	(.030)	(.030)	(.030)
Education (Reference: Middle School or Less)					
High School Diploma	-.011	-.010	.012	.001	.013
	(.040)	(.040)	(.039)	(.040)	(.039)
Associate Degree	-.062	-.052	-.031	-.046	-.033
	(.043)	(.043)	(.042)	(.042)	(.042)
College Degree or Above	-.107*	-.082	-.067	-.087	-.078
	(.047)	(.047)	(.046)	(.046)	(.046)
Employment Status (1=Employed)	-.119***	-.124***	-.127***	-.119***	-.122***
	(.033)	(.033)	(.033)	(.033)	(.033)
Years since the Entry into the Current/Last Job	-.004*	-.005**	-.004**	-.004*	-.004*
	(.002)	(.002)	(.002)	(.002)	(.002)
Occupational Status (ISEI) (Current/Last Job)	-.002**	-.002*	-.002*	-.001	-.003***
	(.001)	(.001)	(.001)	(.001)	(.001)
Annual Family Income (log)	-.100***	-.096***	-.096***	-.099***	-.098***
	(.015)	(.015)	(.015)	(.015)	(.015)
USA (Reference: Urban China)	.149***	.159***	.187***	.150***	.150***
	(.032)	(.032)	(.033)	(.032)	(.032)
Accessed Occupational Status					
Upper Reachability	.004***				
	(.001)				
Upper Reachability * USA	-.002				
	(.002)				
Average Reachability		.004*			
		(.002)			
Average Reachability * USA		-.009***			
		(.003)			
Lower Reachability			-.002		
			(.001)		
Lower Reachability * USA			-.005*		
			(.002)		
Number of Higher Accessed Occupational Positions				.015*	
				(.006)	
Number of Higher Accessed Occupational Positions * USA				.001	
				(.008)	
Number of Lower Accessed Occupational Positions					.013
					(.007)

Number of Lower Accessed Occupational Positions * USA					.008 (.009)
Constant	2.880*** (.154)	2.811*** (.153)	2.805*** (.152)	2.810*** (.152)	2.887*** (.155)
Adjusted R-Squared	.036	.036	.036	.035	.035

Notes: ISEI=Standard International Socio-Economic Index (Ganzeboom et al. 1992); standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Figure 1. The Conceptual Model of Accessed SES, Culture, and Health