Research Note

Bridging Social Capital in Personal Networks: An Exploratory Analysis of Data from Urban China*

M. Francis Johnston

There is a revival of interest in bridging social capital. Previous research about individual's bridging social capital has largely been based on analysis of social network ties. This research note refines and applies recent sociological ideas about personal networks to the area of individual's bridging social capital. After summarizing the literature, an exploratory statistical analysis of the personal networks of 149 Chinese urbanites is presented. The argument is that women with larger personal networks have more bonding social capital, while men with larger personal networks have more bridging social capital. The analysis closes by elaborat-

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ing on the theme that personal networks capture emergent properties that are not easily identified solely through the study of dyadic social relationships.

KEYWORDS: **social capital; urban; workers; organizations; gender.**

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In vastly different areas of quantitative survey research, scholars have fruitfully used relationships between pairs of people (dyadic social network ties) to analyze individuals and their social behaviors. Wellman and Gulia have sought to advance this social network research by moving attention beyond dyadic social network ties to the emergent properties of personal networks (e.g., an individual's circle of friends, family, and acquaintances).[1] They have demonstrated the fruitfulness of such an approach for research on social support, showing that an analysis of personal networks yields insights that could not otherwise be inferred from analysis of the aggregated characteristics of dyadic social network ties.[2] Their stimulating ideas raise hope for a new wave of survey-based social network research that will lead to more compelling explanations of individual social behavior.

This article provides further evidence that personal networks are more than the sum of their parts by examining the topic of "bridging social capital"[3] (social ties that connect people from different social worlds). The literature on bridging social capital is differentiated between a focus on social ties that cross organizational boundaries (boundary-spanning ties) and a focus on social ties connecting people from different small groups (weak ties). This research note statistically examines a sample of 149 Chinese urbanites in order to explore whether social capital as measured

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[1]Barry Wellman and Milena Guila, "The Network Basis of Social Support: A Network is More Than the Sum of Its Ties," in *Networks in the Global Village: Life in Contemporary Communities*, ed. Barry Wellman (Boulder, Colo.: Westview Press, 1999), 83-118.

[2]Ibid.

[3]Robert Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000).

by dyadic ties is equivalent to social capital as measured in personal networks, with the results showing that personal networks are greater than the sum of their social ties when considering the bridging social capital of these urbanites. In this case, personal network analyses reveal an intriguing gender difference among those with larger personal networks: men have a higher percentage of boundary-spanning ties as compared to women. This research note also offers speculation on why this might be, and concurs with Wellman and Gulia that the emergent properties of personal networks are deserving of further attention.

Bridging Social Capital

Robert Putnam's *Bowling Alone* has generated interest in what he terms "bridging social capital"—social networks that "are outward-looking and encompass people from diverse social cleavages."[4] The literature discusses two different dimensions, one of which is focused on boundary-spanning ties—ties that cross organizational boundaries.[5] The theoretical rationale for boundary-spanning ties is that people spend most of their time in interactions structured by organizational settings and that, given the sheer number and complexity of organizations, people usually stay within their own organizational settings.[6] Although it is true that not every single boundary-spanning tie acts as bridging social capital,[7] boundary-spanning

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[4]Ibid., 22.

[5]Miller McPherson, Pamela Popielarz, and Sonia Drobnic, "Social Networks and Organizational Dynamics," *American Sociological Review* 57 (1992): 153-70; and Pamela Popielarz and Miller McPherson, "On the Edge or In Between: Niche Position, Niche Overlap, and the Duration of Voluntary Association Memberships," *American Journal of Sociology* 101, no. 3 (1995): 698-720.

[6]Lynne Smith-Lovin and Miller McPherson, "You Are Who You Know: A Network Approach to Gender," in *Theory on Gender/Feminism*, ed. Paula England (New York: Aldine De Gruyter, 1993), 223-51.

[7]When organizational boundaries are "hard," such as in prisons, boundary-spanning ties will be more likely to connect people living in different social worlds. Even when organizational boundaries are porous, such as in a firm with a high turnover, there may be very little overlap between related non-work organizations, such as recreational clubs, churches, and neighbor-

ties should, on the average, connect people whose daily lives are lived in different places and ways.

The second dimension of bridging social capital focuses on weak ties—ties that connect people from separate informal groups.[8] Weak ties have been employed in a variety of empirical settings.[9] Notwithstanding a sharp critique by Ronald Burt,[10] sociologists continue to state that weak

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hood organizations. Relevant ideas can be found in Bernice Pescosolido and Beth Rubin, "The Web of Group Affiliations Revisited: Social Life, Postmodernism, and Sociology," *American Sociological Review* 65 (2000): 52-76; Scott Feld, "The Focused Organization of Social Ties," *American Journal of Sociology* 86, no. 5 (1981): 1015-35; Edward Laumann et al., *The Social Organization of Sexuality* (Chicago: University of Chicago Press, 1994); and Barrett Lee, Karen Campbell, and Oscar Miller, "Racial Differences in Urban Neighboring," *Sociological Forum* 6, no. 3 (1991): 525-50.

[8]In Granovetter's formulation of "social capital," social worlds are not constructed on the basis of organizational boundaries, but through the aggregation of people into distinct clusters on the basis of like-dislike relations. The problem is that bridging ties are essentially immeasurable: to prove that the connection between two people is a bridging tie, it is necessary to demonstrate that no two other individuals from either cluster know each other. Such an approach is simply not empirically practical when studying large numbers of people. Granovetter solved this problem by arguing that weak ties are a proxy for bridging ties and thus used weak ties in his empirical analyses. See Mark Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* 78 (1973): 1360-80.

[9]James Johnson et al., "Bridging Social Networks and Female Labor Force Participation in a Multiethnic Metropolis," in *Prismatic Metropolis: Inequality in Los Angeles*, ed. Larry Bobo et al. (New York: Russell Sage Foundation, 2000), 383-416; Jennifer Stoloff, Jennifer Glanville, and Elisa Bienenstock, "Women's Participation in the Labor Force: The Role of Social Networks," *Social Networks* 21 (1999): 91-108; Howard Aldrich, Amanda Elam, and Pat Reese, "Strong Ties, Weak Ties, and Strangers: Do Women Owners Differ from Men in Their Use of Networking to Obtain Assistance?" in *Entrepreneurship in a Global Context*, ed. Sue Birley and Ian MacMillan (London: Routledge, 1997), 1-25; John Beggs and Jeanne Hurlbert, "The Social Context of Men's and Woman's Job Search Ties: Membership in Voluntary Organizations, Social Resources, and Job Search Outcomes," *Sociological Perspectives* 40 (1997): 601-22; William Bridges and Wayne Villemez, "Informal Hiring and Income in the Labor Market," *American Sociological Review* 51 (1986): 574-82; Susan Hanson and Geraldine Pratt, "Job Search and the Occupational Segregation of Women," *Annals of the Association of American Geographers* 81, no. 2 (1991): 229-53; Nan Lin, Walter Ensel, and John Vaughn, "Social Resources and the Strength of Weak Ties: Structural Factors in Occupational Status Attainment," *American Sociological Review* 46 (1981): 393-405; Peter Marsden and Jeanne Hurlbert, "Social Resources and Status Attainment: Replication and Extension," *Social Forces* 66 (1988): 1038-59; Stephen Murray, Joseph Rankin, and Dennis Magill, "Strong Ties and Job Information," *Work and Occupations* 8, no. 1 (1981): 119-36; and Berend Wegener, "Job Mobility and Social Ties: Social Resources, Prior Job, and Prestige Attainment," *American Sociological Review* 56 (1991): 60-71.

[10]Ronald Burt, *Structural Holes* (Cambridge, Mass.: Harvard University Press, 1992), 25-30.

ties ramify outwards, connecting heterogeneous people from different so-
cial milieus.[11]

Respondents' bridging social capital, especially in the area of quanti-
tative social surveys, is often measured on the basis of only a few dyadic
relationships, sometimes as few as one.[12] James Montgomery proposes
to extend the dyadic approach by counting the number of weak ties or
examining the proportion of weak ties in an individual's personal net-
work.[13] If personal networks are greater than the sum of their separate
social ties, however, simple counts would not uncover emergent properties
of personal networks in a general way.[14] In this research note, I explore
emergent properties in personal networks that are not found at the level of
social ties in the area of bridging social capital.

Social Worlds in Urban China

Work unit walls and their gated, guarded entrances enclosed a rela-
tively autonomous social world filled with a dense web of cross-cutting ties
throughout the command economy period in China (1949-1984), and well
into the 1990s. By design, organizational worlds such as work, neighbor-
hood, education, and recreation often coexisted within the confines of the
work unit walls;[15] moreover, urbanites had little need to go outside their

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[11]Wellman and Guila, "The Network Basis of Social Support," 96; Barry Wellman, "The Net-
work Community: An Introduction," in Wellman, *Networks in the Global Village*, 22, 24;
and Barry Wellman and Stephanie Potter, "The Elements of Personal Communities," ibid.,
49-81.

[12]In this respect, qualitative studies have been much better. See, for example: Mayfair Yang,
Gifts, Favors, and Banquets: The Art of Social Relationships in China (Ithaca, N.Y.: Cor-
nell University Press, 1994); Yun-Xiang Yan, *The Flow of Gifts: Reciprocity and Social
Networks in a Chinese Village* (Stanford, Calif.: Stanford University Press, 1996); and
Andrew Kipnis, *Producing Guanxi: Sentiment, Self, and Subculture in a North China Vil-
lage* (Durham, N.C.: Duke University Press, 1997).

[13]James Montgomery, "Weak Ties, Employment, and Inequality: An Equilibrium Analysis,"
American Journal of Sociology 99, no. 5 (1994): 1212-36.

[14]Wellman, "The Network Community," 25.

[15]Barry Naughton, "*Danwei*: The Economic Foundations of a Unique Institution," in *The*

own work unit to obtain commodities and services.[16] Certainly, the social autonomy of work units has not been absolute; an individual might have a few ties to people in other work units (such as relatives, previous class-mates, and perhaps even a few recreational partners). However, since inter-unit ties could be used to circumvent distributional processes for which the communist party claimed a monopoly,[17] the government designed work units so as to minimize contact between people of different work units.

Due to the role of work units in structuring relatively distinct social worlds, current-day urban China provides a unique opportunity to study the emergent properties of personal networks with regard to bridging social capital. In the next section, specific details of how data were collected to study this phenomenon are discussed.

Data Collection Procedures

Data originate from the municipality of Tianjin (   ), a large indus-trial municipality that surpassed national trends of economic performance in the 1990s.[18] Twenty-eight of the approximately one hundred state-owned textile enterprises that existed in Tianjin in 1999 were approached by a union official and agreed to participate in the research. Enterprise records were used to identify all laid-off workers fitting four sampling

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Changing Chinese Workplace in Historical and Comparative Perspective, ed. Xiaobo Lu and Elizabeth Perry (Boston: M.E. Sharpe, 1997), 169-94; Athar Hussain, "The Social Role of the Chinese State Enterprise," in *Changing Workplace Relations in the Chinese Econ-omy*, ed. Malcolm Warner (New York: St. Martin's Press, 2000), 57-73; and Piper Gaubatz, "Urban Transformation in Post-Mao China: Impacts of the Reform Era on China's Urban Form," in *Urban Spaces in Contemporary China: The Potential for Autonomy and Com-munity in Post-Mao China*, ed. Deborah Davis et al. (Washington, D.C.: Woodrow Wilson Press, 1995), 28-60.

[16]Malcolm Warner, "Introduction: Whither the Iron-Rice Bowl," in Warner, *Changing Work-place Relations in the Chinese Economy*, 3-14; and Hussain, "The Social Role of the Chi-nese State Enterprise."

[17]Yanjie Bian, "Indirect Ties, Network Bridges, and Job Searches in China," *American Socio-logical Review* 62, no. 3 (1997): 366-85.

[18]Marc Blecher, "Hegemony and Workers' Politics in China," *The China Quarterly*, no. 170 (2002): 283-303; see esp. p. 288.

criteria,[19] of which there were 257 such workers. When the first round of the survey was carried out in the second half of 1999, 149 workers were located.[20] These laid-off workers continued to live in their original work units. All contacted workers agreed to participate in the study, which represents a response rate of 58 percent.

Information about respondents' social networks was collected in response to eleven name-generator questions,[21] most of which were focused on role relations (e.g., questions eliciting information about family, friends, neighbors, workmates, and schoolmates[22]). For each type of role relation, respondents were asked to write down the names of contacts—called "helpers" that could help them find a job in any way at all. To characterize tie strength, respondents were asked about their emotional closeness to each of their helpers; those they felt "very close to" or "close to" were coded as been connected with a strong tie (weak otherwise).[23] Because the data collected for this project provides a fuller picture of personal networks than do previous studies, it is a valuable resource for understanding bridging social capital.[24]

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[19]Criteria include: (1) that the worker be an ordinary manual worker; (2) that the worker be aged 30-34; (3) that the worker be a graduate of either middle school (　, *chuzhong*) or high school (　, *gaozhong*), the overwhelming modal categories of education among urban workers aged 30-34 in 1998; and (4) that the worker was laid off between January 1, 1998 and June 1, 1999. This is a purposive cluster sample and the sampled workers are thus not representative of laid-off workers in general.

[20]A few respondents listed no contacts at all in response to the eleven name-generator questions. In a later round, respondents were also asked to name their family members. The two sets of contacts were merged together. In most cases, there was almost no change to the nature of respondents' personal job search networks because most respondents had mentioned their family in the original answers.

[21]Nan Lin, "Networks and Status Attainment," *Annual Review of Sociology* 25 (1999): 467-87.

[22]From August 1997 to June 1998, name-generator questions were screened and refined for cultural authenticity in approximately seventy-five interviews (about one-third were with workers laid-off from state-owned enterprises, one-third with government officials addressing the problem of laid-off workers, and one-third with academics researching laid-off workers). Questions were fashioned with the assistance of Zhang Wenhong (Department of Sociology, Nankai University), Wang Hansheng (Department of Sociology, Beijing University), and Shi Xiuying (Chinese Academy of Social Sciences).

[23]Peter Marsden and Karen Campbell, "Measuring Tie Strength," *Social Forces* 63 (1984): 482-501.

[24]The research data collected enables a fuller analysis of bridging social capital than is

Table 1
Percentage of Weak Ties by Gender and Boundary-Spanning Ties of Chinese Textile Workers Aged 30-34 (1998)

	Female	Male	Total
Weak Ties	24%	22%	23%
Strong Ties	76%	78%	77%
Total	100%	100%	100%
	(523)	(272)	(795)

Note: Percentage bases noted in parentheses.

Data Analysis:
Social Ties and Personal Networks

Our exploration of the correspondence between the two types of bridging social capital begins with an analysis of social ties. The first step is to sum together boundary-spanning ties from all 149 personal job search networks into a large collection of 792 boundary-spanning ties. These 792 boundary-spanning ties are classified as either weak or strong (see table 1). The third column of table 1 shows that whereas only 23 percent of the boundary-spanning ties are weak ties, fully 77 percent are strong ties. Boundary-spanning ties of the surveyed workers are more likely to be strong ties.

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possible with other data sets for two reasons. First, individuals often have hundreds of contacts and thus relatively complete enumerations of personal networks are nearly impossible to achieve. The generators used for this research elicited from respondents a larger number of names than typical network studies, however, because a large number of name-generators and respondents were not restricted in the number of contacts they could list per generator (previous studies tended to limit respondents to one or three contacts per generator). Second, most data sets are focused on respondent's active contact ties (see Wellman and Potter, "The Elements of Personal Communities," 52-54) and as a result are more likely to capture strong ties than weak ties. Accordingly, traditional name-generator questions would likely have elicited strong ties within the state-owned textile environment. Because respondents were asked to identify contacts that could help themselves find a new job, however, interviewers were more likely to elicit helpers from outside respondents' own work unit. In addition, one name-generator question specifically sought to capture weak ties. Overall, these data contain more dyadic social network ties that are not strong ties from the same social circle than would commonly occur.

Table 2

Percentage of Boundary-Spanning Ties in Personal Job Search Network by Tie Strength and Respondent's Gender, for Chinese Textile Workers Aged 30-34 (1998)

	Female		Male		Total	
	Weak Ties	Strong Ties	Weak Ties	Strong Ties	Weak Ties	Strong Ties
Boundary-Spanning Ties	68%	77%	73%	74%	69%	76%
Non-Spanning	32%	23%	27%	26%	31%	24%
Total Ties	100% (185)	100% (517)	100% (83)	100% (287)	100% (268)	100% (804)

Note: Percentage bases noted in parentheses.

The next step of this social tie analysis is to sum together all the social ties from all 149 personal job search networks into a large collection of 1,072 social ties. I cross-tabulate by two variables: tie strength and "boundary-spanning." The result, presented in table 2, is that whereas 69 percent of the weak ties are boundary-spanning ties, 76 percent of the strong ties are boundary-spanning ties. When all social ties of the surveyed workers are considered, strong ties are more likely to be boundary-spanning ties than are weak ties.

Scholars who have paid close attention to both the gendered nature of research and results on social networks might argue for a correspondence between weak ties and boundary-spanning ties for men, but not women. After all, Granovetter's original research and subsequent replications are based on studies of men.[25] This steadfast adherent could point also to the hypothesis put forth by Aldrich, Elam, and Reese, based on a synthesis of many gender studies, that whereas men tend to traverse between bounded and relatively discontinuous social worlds, women reside in a "seamless" web of interconnected social worlds with fewer discontinuities.[26] This

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[25]See note 8 above.

[26]Aldrich, Elam, and Reese, "Strong Ties, Weak Ties, and Strangers" (cited in note 9 above).

Table 3
Means, Standard Deviations, and Medians of Personal Network Variables for Chinese Textile Workers Aged 30-34 (1998)

	All Individuals		
	Median	*Mean*	*S.D.*
Total Ties	6.00	7.20	4.01
Weak Ties	1.00	1.80	2.32
Strong Ties	5.00	5.39	3.41
% Boundary-Spanning Ties	80%	74%	27%
	Females		
Total Ties	7.00	7.31	3.88
Weak Ties	1.00	1.93	2.43
Strong Ties	5.00	5.39	3.33
% Boundary-Spanning Ties	80%	77%	25%
	Males		
Total Ties	6.00	6.98	4.26
Weak Ties	1.00	1.57	2.12
Strong Ties	5.00	5.40	3.58
% Boundary-Spanning Ties	75%	69%	30%

would suggest that weak ties would correspond to boundary-spanning ties for men, but not women.

There are, however, essentially no gender differences in the aggregated social tie data (review the gender-decomposed data in table 2 and table 3). Notice that the patterns for both men and women mirror the patterns of the overall aggregate social tie data. Based on these results from the aggregate social tie data (both the total and gender-decomposed data), there does not seem to be a correspondence between formal and informal bridging social capital at the level of social ties for surveyed workers— either male or female.

Here we now move beyond the level of social ties to the level of examining social ties in personal networks. Four variables are of interest: the percentage of boundary-spanning ties in respondents' personal networks; the number of weak ties in a respondent's personal network; the number of strong ties in a respondent's personal network; and the number

of total ties in a respondent's personal network (see table 1). The number of people in a respondent's job search network varied from one to twenty-seven, with a mean of 7.2 and a standard deviation of just slightly more than 4. There is very little difference by gender: men average 6.98 ties and women 7.31. The number of weak ties in a personal network varied from 0 to 13, with a mean of 1.8 and a standard deviation of 2.3. Again, there is very little gender difference: men average 1.57 weak ties and women 1.93 weak ties. The number of strong ties in a job search network varied from 0 to 23, with a mean of 5.4 and a standard deviation of 3.4. There is almost no gender difference: men average 5.40 strong ties and women 5.39 strong ties. The percentage of boundary-spanning ties in respondents' personal networks varied from 0 percent to 100 percent, with a mean of 74 percent and a standard deviation of 27 percent. There is only a minor gender difference: on average, 69 percent of the ties in men's network are boundary-spanning; on average, 77 percent of the ties in women's network are boundary-spanning.

Scholars have shown that in the United States, when personal networks are analyzed according to their social ties (as was just done here), the results are much different for women than for men.[27] Among the surveyed Chinese workers, however, there are no substantial differences. Even though the data presented here are exploratory, a few speculations about the difference found here and the U.S. samples are in order. The U.S. studies were based on random samples. What this means is that social and demographic differences between the average men and women in the United States would confound and bias the results concerning personal networks. In contrast, the surveyed Chinese urbanites are from the same occupation. This raises the possibility that the U.S. differences in personal networks between women and men are the result of uncontrolled occupa-

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[27]Gwen Moore, "Structural Determinants of Men's and Women's Personal Networks," *American Sociological Review* 55 (1990): 726-35; Claude Fischer and Stacey Oliker, "A Research Note on Friendship, Gender, and the Life Cycle," *Social Forces* 62 (1983): 124-33; and Peter Marsden, "Core Discussion Networks of Americans," *American Sociological Review* 52 (1987): 122-31.
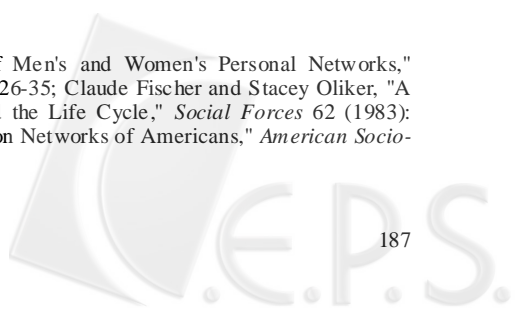
tional differences, rather than directly from gender itself. On the other hand, it might also be the case that gender differences in the United States are not present in China. This topic awaits more rigorous comparative research before any kind of definitive conclusions can be drawn, although this analysis will draw out some additional implications.

Finally, helpful is to undertake an analysis of respondent's personal networks from a holistic perspective. To take account of the structure of ties within any one personal network, regression analysis is used, with the *dependent variable* as the percentage of boundary-spanning ties in an individual's personal network.[28] The *independent variables* are the number of weak ties, strong ties, and total ties in a respondent's personal network. The regression is presented visually in three different scatterplots. The vertical axis of each scatterplot is the percentage of boundary-spanning ties in a personal network. The horizontal axis concerns the number of ties in a personal network indexed in three different ways: Graph 1 is based on the number of weak ties; Graph 2 on the number of strong ties; and Graph 3 on the total number of ties. The lines in the scatterplots are regression lines; they are used to portray the general trend of the data, not for the sake of statistical inference.[29] For those readers interested in numeric details, however, regression equations are placed in Appendix 1. The key purpose is to explore the bridging social capital of surveyed respondents.

To begin, the two measures of bridging social capital are the per-

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[28]Ideally, a boundary-spanning tie would be defined as a tie that crosses work unit boundaries. Since this variable is not available in the data, an operationalization with a higher bar for the study at hand was adopted: a boundary-spanning tie is a tie between a job-seeker and a person located outside of the state-owned textile sector. Such ties cross one of two very firm institutional lines that demarcate social worlds even more clearly than do organizational boundaries—either the industrial line (textile or not) or the state-market divide.

[29]Tests of statistical significance are a means by which to determine whether quantitative results within a random sample drawn from a defined population may be generalized to that population. That is *not* the purpose in this research note. I use this purposive cluster sample as a device for exploring personal networks. Nevertheless, for sociologists who are accustomed to using inferential statistics as a tool to assess the meaningfulness of relationships, asterisks are placed next to coefficients in the appendix to signify which dependent variables would be statistically significant if these data were a random sample, hypotheses were specified in advance, and only a single model were fit to the data. Evaluated in this way, the results are compatible with the visual interpretations.
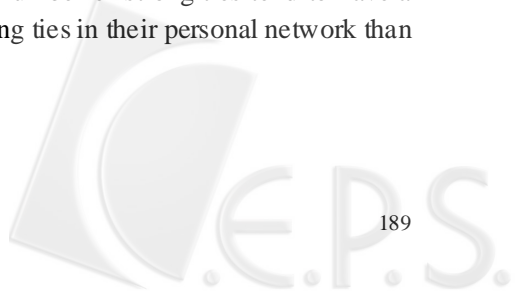
centage of boundary-spanning ties in a personal network and the number of weak ties in a personal network. If these two measures both indexed bridging social capital in a straightforward manner, an increase in the number of weak ties in a personal network would be correlated to an increase in the percentage of boundary-spanning ties in a personal network. When a regression line is fit to the overall data, however, there is no such relation. Instead, there is an intercept of about 75 percent and essentially no slope (graph not pictured). This means that regardless of the number of weak ties in a personal network, about 75 percent of the ties in the personal network are boundary-spanning ties.

When the personal network data is disaggregated by the gender of the survey respondent, however, there is a dramatic gender difference (see Graph 1). Men with a greater number of weak ties in their personal networks tend to have a greater percentage of boundary-spanning ties. In contrast, women with a greater number of weak ties in their personal networks tend to have a smaller percentage of boundary-spanning ties than other women.

Strong ties are the next issue for consideration. According to conventional network thinking, strong ties are a source of bonding social capital[30] —they connect people from the same structural location. Accordingly, people with a greater number of strong ties in their personal network should have a lower percentage of boundary-spanning ties. When women and men are treated as identical, however, the result is a regression line with an intercept of about 75 percent and essentially no slope (graph not pictured). Again, the percentage of boundary-spanning ties is about 75 percent in a personal network, regardless of the number of strong ties in the personal network.
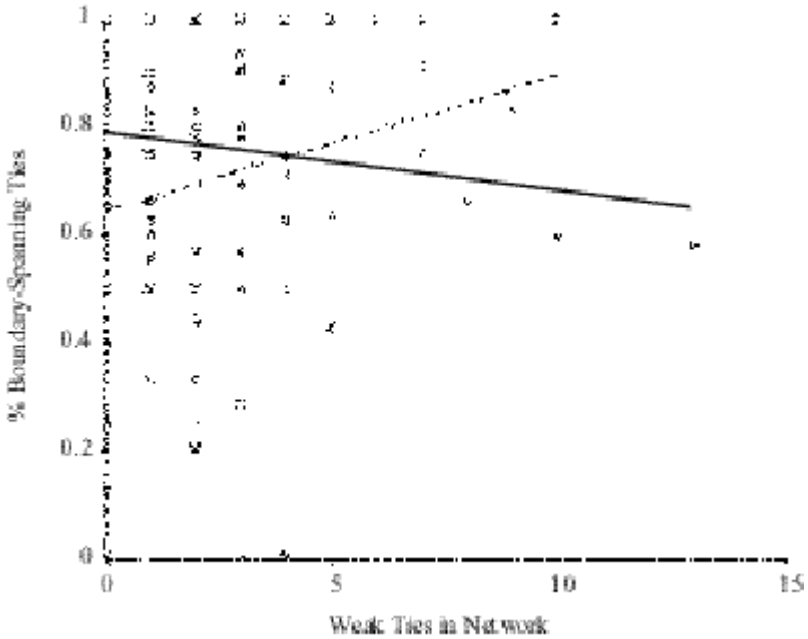
Once again, when the personal network data is disaggregated by the gender of the respondent, there is a dramatic gender difference (see Graph 2). Surveyed women with a greater number of strong ties tend to have a lower percentage of boundary-spanning ties in their personal network than

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[30]Putnam, *Bowling Alone*, 22.

Graph 1
Percentage of Boundary-Spanning Ties in Personal Networks by Total Number of Weak Ties in Personal Networks, Disaggregated by Gender, for Chinese Textile Workers Aged 30-34 (1998)
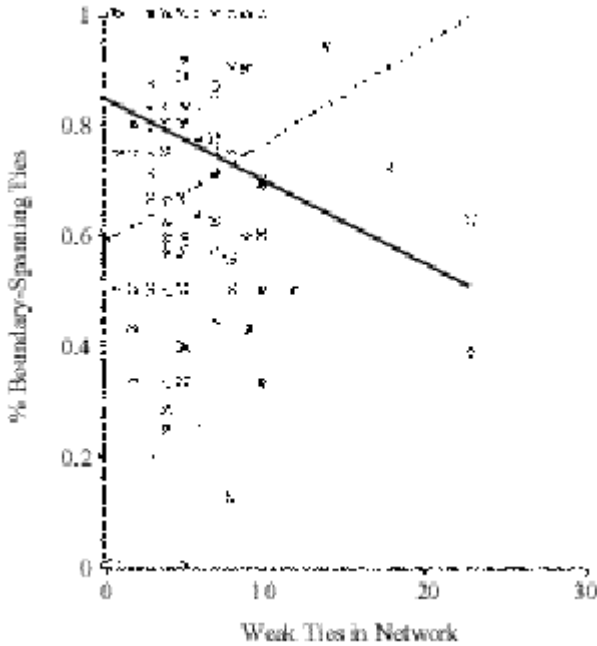

Note: Males are denoted by an **X**. For males, the relation between the number of weak ties in a personal network and the percentage of boundary-spanning ties in a personal network is portrayed by a dashed line. Females are denoted by an **O**. For females, the relation between the number of weak ties in a personal network and the percentage of boundary-spanning ties in a personal network is portrayed by a solid line.

the other women. In contrast, the surveyed male workers who have a greater number of strong ties have a larger percentage of boundary-spanning ties in their personal networks.

The contradictory evidence about bridging social capital presented in Graph 2 and Graph 3 suggests that there may be yet another variable which sheds light on the findings from the first two graphs. Statistical explorations yielded a result, namely the total number of contacts in a personal network. As there is an increase in the total number of ties for men, there is

Graph 2
Percentage of Boundary-Spanning Ties in Personal Networks by Total Number of Strong Ties in Personal Networks, Disaggregated by Gender, for Chinese Textile Workers Aged 30-34 (1998)
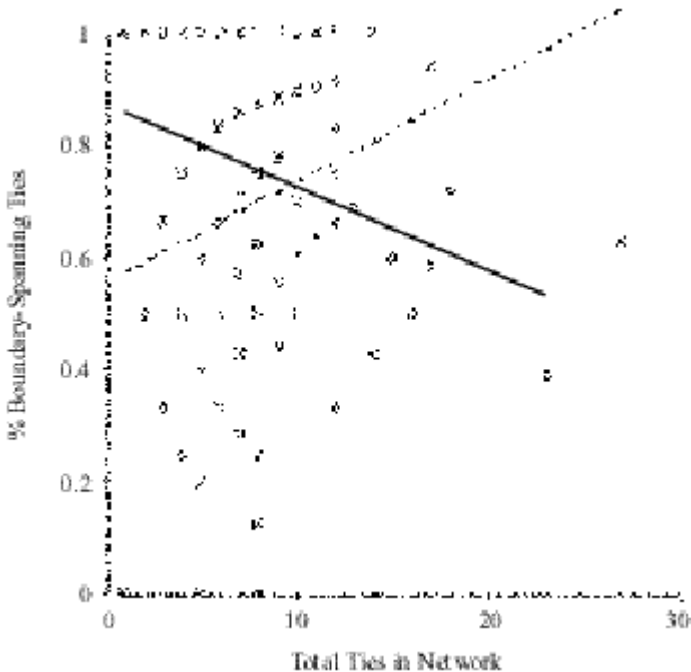

Note: Males are denoted by an **X**. For males, the relation between the number of strong ties in a personal network and the percentage of boundary-spanning ties in a personal network is portrayed by a dashed line. Females are denoted by an **O**. For females, the relation between the number of strong ties in a personal network and the percentage of boundary-spanning ties in a personal network is portrayed by a solid line.

an increase in the percentage of boundary-spanning ties in a personal network; the opposite relation, however, holds for women (see Graph 3). This finding adds a gendered dimension to sociological theory about bridging social capital: whereas the surveyed men seem to conform to the idea that people with large personal networks have much bridging social capital,[31]

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[31]Burt argues that "To the extent that people play an active role in shaping their relationships,

Graph 3
Percentage of Boundary-Spanning Ties in Personal Networks by Total Number of Ties in Personal Networks, Disaggregated by Gender, for Chinese Textile Workers Aged 30-34 (1998)

Note: Males are denoted by an **X**. For males, the relation between the total number of dyadic social network ties in a personal network and the percentage of boundary-spanning ties in a personal network is portrayed by a dashed line. Females are denoted by an **O**. For females, the relation between the total number of dyadic social network ties in a personal network and the percentage of boundary-spanning ties in a personal network is portrayed by a solid line.

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then a player who knows how to structure a network to provide high opportunity knows whom to include in the network." See Burt, *Structural Holes*, 13. A variant of this thinking is that people who know how to build large networks also know who to include in their networks. Note, however, that this argument should not be over-simplified; one of the primary arguments in Burt's book is that among people with the same size of network, those with a greater number of bridging ties will gain more information and control than those with fewer bridging ties.

the surveyed women seem to conform to the idea that people with large personal networks have much bonding social capital.[32] These results suggest that in addition to examining for direct gender differences, analysts should also explore for indirect gender differences. One way to do so is by including an interaction term between gender and personal network variables.


Discussion:
Bridging Social Capital in Personal Networks

An analysis of personal networks helps to shed light on individual's bridging social capital in urban China, bringing to light a gender difference in the amount of formal bridging social capital in personal networks. For the male textile workers, an increase in the total number of weak, strong, and total ties is correlated with an increase in the percentage of boundary-spanning ties in their personal network, yet the opposite relation holds for women. This suggests that the surveyed male textile workers who are more likely to network are more likely to network with people outside of their own institutional world, through both weak and strong ties. In contrast, the surveyed female workers who are more likely to network are more likely to network with people in their own institutional world, through both weak and strong ties. These exploratory results suggest both that blue-collar women with larger networks act to integrate people around themselves into a coherent, somewhat bounded social world and that blue-collar men with larger networks act to join together these separate social worlds.

The findings are particularly interesting in a comparative sense. In North America, scholars have theorized that women are constrained from creating bridging social capital because of psychological and sociological burdens.[33] Such logic is based on the premise that all people have multiple

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[32]Aldrich, Elam, and Reese, "Strong Ties, Weak Ties, and Strangers," esp. 4-5.

[33]Hanson and Pratt, "Job Search and the Occupational Segregation of Women," 250; and
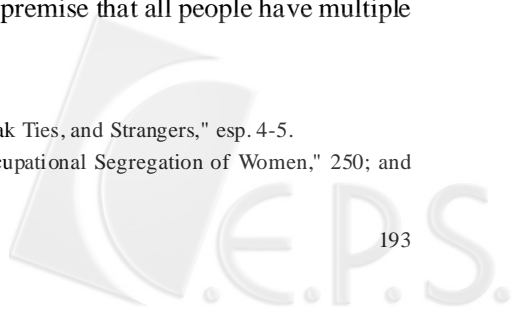
incentives to create bridging social capital, but that women fail to do so because of gender-specific barriers. Compared to the American environment, the surveyed Chinese urbanites have been faced with multiple *disincentives* to create ties to people in other social worlds (as discussed in earlier section entitled "Social Worlds in Urban China"). Rather than asking why the women did not create boundary-spanning ties, it seems more fruitful to ask: Given a lack of structural, social, and cultural motivations to create ties to people in other social worlds, what is unique about the surveyed men with larger personal networks? Although these data were not designed to address questions about network development, they do suggest that gender is a good place to start when undertaking further work, certainly in urban China and perhaps in other places as well.

Wellman and Gulia seek to advance social network explanations of individual social behavior by moving scholarly attention beyond dyadic social network ties to personal networks. Before new projects that collect data on personal networks are undertaken, there first needs to be a demonstration that an analysis of personal networks provides more information than would an analysis of dyadic social network ties. This research note has undertaken such an analysis focusing on bridging social capital. Among the surveyed workers, the results show that a personal network approach does indeed uncover emergent properties. Given that this work is exploratory and not confirmatory, however, further research is necessary to refine scholarly understanding of emergent properties in personal networks and then show how this helps to better understand individuals and their behavior.

Wellman and Gulia[34] seek to advance social network explanations of individual social behavior by moving scholarly attention beyond dyadic social network ties to personal networks. The challenge has been successfully taken up in this article for the area of bridging social capital. Among

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Karen Campbell, "Gender Differences in Job-Related Networks," *Work and Occupations* 15 (1988): 183-85.

[34]Wellman and Guila, "The Network Basis of Social Support," 108.

the surveyed workers, there is a gender difference that emerges at the level of personal networks not discernable from an analysis of social network ties. This finding corroborates the initial theorizing of Wellman and Gulia and provides yet another piece of evidence about the potential fruitfulness of examining for emergent properties at the level of personal networks.

Appendix 1
OLS Regression Models of Personal Network Composition for Chinese Textile Workers Aged 30-34 (1998)

Independent Variables	Dependent Variable	Model 1	Model 2	Model 3
		% Boundary-Spanning Ties	% Boundary-Spanning Ties	% Boundary-Spanning Ties
Constant		.789** (.035)	.843** (.049)	.880** (.057)
Total Ties		–	–	–.015** (.007)
Strong Ties		–	–.014* (.008)	–
Weak Ties		–.010 (.011)	–	–
Gender		–.141** (.057)	–.276** (.084)	–.317** (.090)
Gender*Total Ties		–	–	.033** (.010)
Gender*Strong Ties		–	.028** (.010)	–
Gender*Weak Ties		.036* (.021)	–	–
R-Squared		.041	.071	.080
Degrees of Freedom		145	145	145

Note: Metric coefficients, with standard errors in parentheses. Though these data are not strictly appropriate for statistical inference, I have placed inferential asterisks for those accustomed to these thinking tools (* $P < .10$; ** $P < .05$). In diagnostic work not shown, LOESS smoothers demonstrated linearity; parameter estimates were robust to the deletion of outliers and checks for multicollinearity and leverage uncovered no problems.