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Abstract

This study examines the role of the individual level of social capital in the process of workers' wage determination in a Nash-bargaining wage model using Chinese micro-level data. We find a significant contribution of individual-specific social capital towards the wage level. In particular, larger individual social networks and workers' positive attitudes towards social capital increase the wage level significantly. Moreover, the effect of social capital on the wage level is much larger for male workers than females. Our results indicate that construction of individual social capital could increase workers' wages, while effort should be made to reduce unequal contributions of social capital between males and females.

Keywords: Individual social capital, Wage determination, Gender gap

JEL classification: I00, J31

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1. Introduction

In recent years, some active policies have encouraged the establishment of social capital to deal with poverty and well-being issues (e.g., OECD, 2001; OECD, 2002; Cabinet Office, 2003). On the societal level, social capital is considered as "networks together with shared norms, values and understandings that facilitate cooperation within or among groups" (OECD 2001), while at the individual level, social capital refers to a system of interpersonal networks (Dasgupta, 2002; Munasib, 2007). The role of social networks in labor markets has received much attention in recent years. Many sociology studies have provided evidence that social networks help people find jobs or influence their career success (e.g., Granovetter, 1973; Gabbay and Zuckerman, 1998; Adler and Kwon, 2002) In our economic study, we examine the effect of a worker's social network on his/her wage determination in a framework of recent labor economics, using data from China.

Many previous studies have examined social networks on societal levels, considering the role of social networks as a manner of job information transmission for the society **(**Calvó-Armengol and Jackson, 2004**)**. For instance, the empirical work of Wahba and Zenou (2005) found that the probability of finding a job through social networks, relative to other search methods, increases and is concave with the size of the network, conditional on being employed. The size of the network in those studies is on the level of the whole society. For instance, many of those studies used population density as a proxy for social network size (e.g., Wahba and Zenou, 2005).

Unlike those studies, we concentrate on personal levels. There are usually unequal endowments of social networks for different individuals and groups. Lin (2000) found that inequality in different types of social capital contributes to social inequality, such as socioeconomic achievements and quality of life. For our empirical purpose, we construct a simple economic model, aiming to examine the effect of individual social networks on wage determination. In our model, workers' endowments of individual social networks are unequal, in line with Lin (2000). Workers with rich social networks would have a high probability of being employed if they were to lose their jobs, while this probability for those with poor social networks would be less than the average. Furthermore, we assume that firms can observe only the average job–worker matching rate of all workers. Accordingly, individual social networks affect the wage-bargaining process between workers and firms and, finally, lead to a social network-dependent wage level.

Note that social networks could differ significantly between male and female workers. The sociology study of Campbell (1988) examined differences of personal social networks between men and women and found that women know people in fewer occupations than men. Women's networks

are negatively affected by having children younger than 6 years of age, and by changing jobs in response to their spouses' mobility. However, men's networks are unaffected by these constraints. As a result, in the wage determination process, similar differences between males and females could exist. We also examine this issue in our study.

In China, individual social networks have played important roles in the society for a long time. Early in the 1980s, when China was in the early stage of transition to a market-driven economy, social networks were used to influence authorities who, in turn, assigned jobs as favors to their contacts (Bian, 1997). Unlike the US (Granovetter, 1973), strong ties through relatives or close friends, are more important and used more frequently than weak ties (e.g., a friend of a friend or a casual acquaintance) in a worker's job search in China (Bian, 1997; Cheung and Gui, 2006). Furthermore, without considering the size of the individual social network, the effect of whether to use the social network is ambiguous (Long, 2013).

Our study contributes to the literature on social capital in China in three ways. First is the endogenous character of the size of social network. Knight and Yueh (2008) expended much effort in attempting to solve this problem by introducing an instrument of a positive answer to the following question: "has the importance of political status for household income risen?" They did so on the grounds that "respondents replying affirmatively would have a greater incentive to acquire social capital." However, at the same time, they pointed out a disadvantage of this instrument in the "possibility that the exclusion restriction cannot identify exogenous variation in network size." For instance, "a particular personality trait might both attract a large social network and a wage premium." Indeed, in our study, we found a significant effect of the incentive to use social capital on wages. Thus, we expend much effort and find another instrument to solve this problem. We choose the variable of satisfaction for the relationship between the worker and her/his co-workers (i.e., whether the worker gets along well with other workers in the workplace), excluding those in more senior positions. Getting along well with co-workers could enlarge her/his social network, and usually is not accompanied by a wage premium.

Our second contribution is the analysis of attitude toward the use of social network. Even with a large scale of personal social network, a worker may chose not to use it because there are other methods of job search, such as going to employment agencies. To take this into account, in our study, we introduce the variable of a worker's attitude toward social network. Third, we consider the quality of individual social networks. Although on an individual level few studies have noticed the role of the quality of social network, at the societal level, some studies have pointed out the

importance of it. For instance, the empirical work of Wahba and Zenou (2005) measured the quality of societal-level social network in Egypt by the local unemployment rate, because if the unemployment rate increases, workers are more likely to have friends that are unemployed, and so, have less chance to find a job through their friends and relatives. The authors found that in Egypt, the probability of finding a job through friends and relatives increases with the quality of social network. In our study, we use parents' current employment status as a proxy for the quality of the worker's individual social network, for the similar reason that workers could have greater chances of finding work through their parents if their parents were employed full time.

In addition, our data come from a nationwide questionnaire survey of the Chinese General Social Survey (CGSS, 2008). To our best knowledge, the data have never been used to examine the relationships between social capital and wage level.

The remainder of the paper is organized as follows. Section 2 describes our theoretical model, and Section 3 explains our data. We estimate our model in Section 4, first in the usual way of ordinary least squares (OLS), and then, by introducing instrumental variables. In addition, the different effects between male and female workers are examined. Section 5 concludes.

2. Model

Different from the general social network of previous studies, our model considers individual-specific social capital. We extend the model of Pissarides (2000)[2] by introducing social capital in the worker's job search process.

The rate with which a vacant job becomes filled with a worker, q, satisfies,

$$q = \frac{M}{V} \qquad (1)$$

[2] See Chapter 3

where *M* is the number of new hires and *V* is the number of vacant jobs. We define a matching function of *M*=*M* (*U*, *V*), where *U* is the number of unemployed workers who are searching for a job[3]. We assume that the matching function strictly increases in both arguments of *U* and *V*, is strictly concave, and homogeneous of degree one. Defining labor market tightness, θ, by $\theta = V/U$, we obtain $q = M(U, V)/V = M(1, V/U) = M(1, \theta)$. Thus, we define *q* as a function of θ, in which $q = q(\theta)$.

The average rate at which a jobseeker becomes employed, $\bar{q}_s$, is M/U. Defining labor market tightness, θ, by $\theta = V/U$, we obtain

$$\bar{q}_s = \theta q \quad . \tag{2}$$

Assume that for a particular jobseeker, the rate at which she/he becomes employed also depends on her/his individual social network.

A jobseeker with strong social network can improve her/his employment rate, while a jobseeker's employment rate can also fall below the average rate if her/his social network is weak.

Hence, we assume that the individual-specific social capital affects the employment rate by $\phi(s, \pi)$, where s is the size of the individual-specific social capital, and π represents other factors that affect the effects of social capital, namely, *s_attitude*, the attitude towards the use of social network in the job search, and *s_quality*, the quality of the social network.

[3] We ignore on-the-job search in our model.

Therefore, the employment rate for job seeker q_s becomes

$$q_s = \theta q[1 + \phi(s,\ \pi)] \tag{3}$$

where $-1 < \phi(s,\ \pi) < 1$, $\frac{\partial \phi}{\partial s} > 0$, $\frac{\partial \phi}{\partial \pi} > 0$. If the effect of individual social capital of a worker is higher than average, we obtain $0<\phi(s,\ \pi) < 1$; otherwise, $-1 < \phi(s,\ \pi) < 0$. In addition, we assume that in a labor market with *N* workers, $\sum_{i=1}^{N} \phi_i(s,\ \pi) = 0$; thus, the average rate at which a jobseeker becomes employed, θq, still holds.

The present discounted value of the expected income stream of an unemployed worker, U', satisfies the following Bellman equation:

$$rU' = \theta q[1+\phi(s,\pi)](W - U') \tag{4}$$

where the capital cost of the asset of the state of unemployment compensates for the probability that the unemployed worker matches a job, $\theta q[1+\phi(s,\pi)](W - U')$.

Following Pissarides (2000)[4], the present discounted value of the expected income stream of an

[4] The Bellman equations for employed workers, vacant jobs, occupied jobs, and the Nash bargaining solution follow Pissarides (2000).

employed worker, W, is obtained by the following Bellman equation:

$$rW = w + \lambda(U' - W) \tag{5}$$

where w is the average wage, U' is the present discounted value of the expected income stream of an unemployed worker, and rW is the capital cost of the asset of the job occupied by the worker, which equals wage w, to which is added the risk of being unemployed, $\lambda(U' - W)$.

The present discounted value of the expected profit from a vacant job, V', satisfies the Bellman equation, given as follows:

$$rV' = -pc + q(\theta)(J - V'), \tag{6}$$

where r denotes the interest rate, p is the value of a job's output, and pc is the hiring cost for a job with productivity p. The left-hand side of the equation denotes the capital cost of the asset of the vacant job at the firm, which equals the rate of return on the asset, the right-hand side. The vacant job costs pc per unit of time, and changes its state to an occupied job according to a Poisson process with rate $q(\theta)$, where $q(\theta) = M / V$.

The zero-profit condition implies that

$$J = \frac{pc}{q(\theta)}. \tag{7}$$

The present discounted value of the expected profit from an occupied job, J, is given by

$$rJ = p - w - \lambda J \tag{8}$$

where w is the wage and rJ is the capital cost of the job. The job yields a net return of $p - w$ and runs a destruction risk of λ. w, and p denote the average values of all the jobs in the region, because the firm does not know which worker will match. The wage satisfies the Nash bargaining solution, given by

$$w = \arg\max(W - U')^{\beta}(J - V')^{1-\beta} \tag{9}$$

where β is bargaining power, and W, U', J, V' are the present-discounted value of the expected income stream of an employed worker, an unemployed worker, a filled job, and a vacant job, respectively.

Thus, the wage determination equation is solved as,

$$w = \beta p[1 + c\theta(1 + \phi(s, \pi))]. \tag{10}$$

Assume that the production function is homogenous of degree one and follows a Cobb–Douglas form, with labor efficiency, *A*, considered but ignoring technological progress.

$$Y = K^{\alpha}(AL)^{1-\alpha},\ 0<\alpha<1. \tag{11}$$

Labor efficiency, *A*, is determined by a worker's human capital, which is measured by education and experiences, as follows.

$$A = A(edu, tenu, tenu^2) \tag{12}$$

where *A* increases with *edu* and *tenu*, and decreases with the squares of *tenu*, according to human capital theory. In this study, we do not use Mincer's wage equation directly because China's labor market is highly incomplete and imperfect.

Because of $p = Y / L$, eq.(11) leads to the following relationship:

$$p = k^{\alpha}A^{1-\alpha} \tag{13}$$

Subsituting eqs.(12) and (13) into eq.(11), we obtain the following equation:

$$\ln w = \ln \beta + (1-\alpha)\ln A + \alpha \ln k + \ln[1 + c\theta(1 + \phi(s,\pi))] \quad (14)$$

Furthermore, for $0 < c\theta << 1$ (because $0 < c << 1$ and $0 < \theta < 1$), we obtain

$$\ln[1 + c\theta(1 + \phi(s))] \approx c\theta(1 + \phi(s)), \quad (15)$$

Eq.(14) becomes

$$\ln w = \ln \beta + (1-\alpha)\ln A + \alpha \ln k + c\theta + c\theta\phi(s,\pi) \quad (16)$$

Substituting eq.(12) into eq.(16) and reaffirming that π represents *s_attitude*, the attitude towards the use of social network in the job search, and *s_quality*, the quality of the social network, we obtain

$$\ln w = \ln \beta + (1-\alpha)\ln A(edu, tenu, tenu^2) + \alpha \ln k + c\theta + c\theta\phi(s\_size, s\_attitude, s\_quality)$$

where ln*w* increases with *s_size*, *s_attitude*, *s_quality*, *edu*, and *tenu*, and decreases with $tenu^2$.

Thus, the estimation equation is obtained as

$$\ln w_i = \eta_1 \ln s\_size_i + \eta_2 s\_attitude_i + \eta_3 s\_quality_i + \eta_4 edu_i + \eta_5 tenure_i + \eta_6 tenure_i^2 + \eta_7 k_i + \eta_8 \theta_i + \varepsilon_i \quad (17)$$

3. Data

We use data from a nationwide questionnaire survey, the CGSS (2008), conducted by the Renmin University of China and the Hong Kong University of Science and Technology. The survey used probability proportional to size with four stages (country, town, village, and household) based on street mapping. The data list is shown in Tables 1.1, 1.2, and 1.3.

In those tables, *w_hourly* is the hourly income from work, education represents schooling years, and tenure is the length of period of the current job. The scale of social network, *s*, is measured as the number of people who express New Year greetings to the individual, including greetings by telephone but not by mail, during the New Year holidays (*chunjie* in Chinese). Furthermore, *s_attitude* represents a worker's attitude toward using personal social networks in a job search (strongly agree=5, agree=4, neither agree nor disagree=3, disagree=2, strongly disagree=1). *Work_people_relation* denotes a worker's satisfaction with her/his relationship with co-workers (excluding superiors and bosses), which is used as an instrument in the latter part of our study.

Moreover, *father/mother_current_fulltime* denote whether the worker's father/mother is currently fully employed. We use these two variables as proxies for the quality of social network in our study. Furthermore, *male* indicates whether the individual is male (male = 1), and *hukou_urban* indicates whether the type of household registration is in an urban area. Finally, *market_tightness* and *capital_per_worker* are variables at the provincial level, and are taken from the NBS (2009a, 2009b). *Market_tightness* is the ratio of job vacancies to jobseekers, and *capital_per* is fixed capital per worker, for which we use annual industrial electricity per worker as a proxy.

(Table 1.1)

(Table 1.2)

(Table 1.3)

4. Estimation

For consistency with the method used in most previous studies, we first employ OLS estimation. This estimation is designed based on our theoretical model, with some controlled variables, such as *male* and *age*. We use *father/mother_current_fulltime* as proxies for the quality of social capital. The results are reported in Table 2.

First, the coefficient of the size of individual social capital is positively significant, which indicates that a worker with more social capital could receive higher wages. This is consistent with the perspective of our theoretical model. As indicated in the model, more social capital could improve the employment probability of a worker, leading to a higher level of expected income if the worker is unemployed, which increases the threat point of the worker in Nash bargaining, and thus, leads to higher wages.

Second, the results indicate that a positive attitude toward individual social network contributes significantly to the wage level. The reasons could be that the positive attitude encourages the worker to use her/his social network frequently, which enlarges the effect of social capital.

Furthermore, the results indicate that father's fulltime employment, which is a proxy for the quality of social capital, increases the wage level significantly. As indicated in our theoretical model, improvement of the quality of social capital increases a worker's probability of finding a job if unemployed, and thus, the expected income stream of unemployment is increased, which leads to a higher level of wage. For instance, father's full-time work could provide more job information, which provides the worker with more chances to find a job if unemployed, and therefore, the worker could be more patient about waiting for a higher-paid job. In addition, we notice that the effect is not found in the variable of mother's employment status. Perhaps because of gender differences in job-related networks (Campbell, 1988), a mother's social network may be limited and contributes little to a worker's job search.

Moreover, education and working experiences, which are two factors of labor productivity in our model, contribute significantly to the wage level. Other factors, such as capital and firm size, are not significant. Finally, workers with urban household registration (urban *hukou*) receive higher wages than those with rural household registration (rural *hukou)*, which is consistent with the reality of *hukou* discrimination in China.

(Table 2)

Note that a problem remains in that the size of individual social capital could be endogenous because a higher wage level might help the worker enlarge her/his social network. As a result, we introduce instrumental variable (IV) estimation in Models B, C, and D. The instrument is whether the worker is satisfied with her/his relationship with other workers in the workplace. We find strong correlation between this instrument and the variable of social network size. Furthermore, this instrument is not correlated with the residual because worker satisfaction with the relationship with co-workers does not bring about a wage premium. The results are shown in Table 3. The estimate of the size of individual social capital is significantly positive, indicating that this factor indeed contributes to the wage level.

(Table 3)

Finally, we examine the different effects between males and females. Compared to women, men might be more active at using social networks in their occupational lives. Based on our theoretical model, we run IV estimation for male and female workers, respectively. The results show that the estimated coefficient for males is large and significantly positive, while that for females is much smaller and even not significant. This indicates that compared to female workers, male workers benefit significantly from individual social networks in wage determination.

(Table 4)

(Table 5)

5. Conclusion

Much effort has been expended in enhancing social capital by policymakers and communities. Unlike most studies that were designed in the field of sociology, we constructed an economic model to examine the role of individual social capital in workers' wage determination. We found a significant contribution of individual-specific social capital toward the wage level. In particular, the size of individual social network and workers' positive attitudes toward the use of social capital increased the wage level significantly. Furthermore, the quality of social network played an important role in the wage

determination process. Moreover, we found that the effect of social network was much larger for men than for women, which is consistent with sociological evidence. The limitations of our study are as follows. First, the measurement of individual social capital, that is, the number of people who express New Year greetings to the individual, could be limited in China's case. Second, the model is not applicable in some special areas, such as slums. Third, in our model, personal ability, such as education and tenure, is as important as one's social network, but overusing a personal social network and ignoring personal ability should be avoided because it could lead to unfair competition in a society.

With regard to policy implications, our results indicate that public policies that enhance individual social capital could help increase workers' wages, while effort should be made to reduce unequal contributions of social capital between males and females. As analyzed in our model, a larger individual social network leads to a larger possibility of finding a job, and thus, the final bargaining wage increases. However, we also found an adverse effect in that not all workers benefit equally from individual social networks; thus, policies that help to reduce this gender gap are required.

Table 1.1 Data description of the total sample

Variable	Obs	Mean	Std. Dev.	Min	Max
w_hourly	2314	10.05	20.27	0.09	480.77
s_size	5989	24.25	23.96	0	320
s_attitude	5875	3.52	0.98	1	5
father_fulltime	6000	0.07	0.26	0	1
mother_fulltime	6000	0.04	0.19	0	1
education	5491	9.40	3.68	1	24
tenure2009	6000	4.21	7.22	1	52
market_tightness	6000	1.00	0.23	0.49	1.82
capital_per	6000	0.00019	0.00008	0.00008	0.00052
male	6000	0.48	0.50	0	1
age	6000	43.21	14.09	18	98
full_time	4193	0.83	0.37	0	1
hukou_urban	5991	0.57	0.50	0	1
work_people_relation	4001	2.08	0.69	1	5

Table 1.2 Data description of males

Variable	Obs	Mean	Std. Dev.	Min	Max
w_hourly	1365	11.42	25.43	0.19	480.77
s_size	2885	26.44	26.79	0	320
s_attitude	2837	3.55	0.98	1	5
father_fulltime	2892	0.07	0.26	0	1
mother_fulltime	2892	0.04	0.19	0	1
education	2765	9.69	3.67	1	24
tenure2009	2892	5.27	8.27	1	52
market_tightness	2892	0.99	0.23	0.49	1.82
capital_per	2892	0.0002	0.0001	0.0001	0.0005
age	2892	43.84	14.24	18	86
managerial job	2222	0.32	0.47	0	1
full_time	2226	0.81	0.39	0	1
hukou_urban	2884	0.58	0.49	0	1
work_people_relation	2133	2.09	0.69	1	5

Table 1.3 Data description of females

Variable	Obs	Mean	Std. Dev.	Min	Max
w_hourly	949	8.10	8.10	0.09	80.13
s_size	3104	22.22	20.80	0	199
s_attitude	3038	3.50	0.97	1	5
father_fulltime	3108	0.07	0.26	0	1
mother_fulltime	3108	0.04	0.19	0	1
education	2726	9.10	3.66	1	20
tenure2009	3108	3.22	5.93	1	40
market_tightness	3108	1.00	0.23	0.49	1.82
capital_per	3108	0.0002	0.0001	0.0001	0.0005
age	3108	42.62	13.93	18	98
managerial job	1965	0.19	0.39	0	1
full_time	1967	0.85	0.35	0	1
hukou_urban	3107	0.56	0.50	0	1
work_people_relation	1868	2.07	0.69	1	5

Table 2. Ordinary least squares estimation of wage determination for all workers (model A)

	model_A1	model_A2	model_A3	model_A4
ln_s_size	0.05	0.05	0.06	0.06
	[2.71]***	[2.66]***	[2.92]***	[2.82]***
s_attitude	0.05	0.05	0.04	0.05
	[2.84]***	[2.79]***	[2.49]**	[2.47]**
s_quality				
father_fulltime	0.20	0.20	0.18	0.18
	[2.96]***	[2.96]***	[2.66]***	[2.58]***
mother_fulltime	-0.10	-0.11	-0.13	-0.15
	[-1.11]	[-1.17]	[-1.46]	[-1.55]
education	0.10	0.10	0.09	0.09
	[18.61]***	[18.16]***	[16.17]***	[14.65]***
tenure2009	0.04	0.03	0.03	0.03
	[6.38]***	[6.09]***	[5.60]***	[4.69]***
tenure2009_squa	-0.0007	-0.0007	-0.0006	-0.0006
	[-3.84]***	[-3.70]***	[-3.45]***	[-2.91]***
market_tightness	0.69	0.69	0.71	0.67
	[10.83]***	[10.78]***	[11.06]***	[9.83]***
capital_per	-102.81	-83.47	-29.44	-83.28
	[-0.50]	[-0.40]	[-0.14]	[-0.38]

male	0.17	0.18	0.18	0.19
	[5.09]***	[5.17]***	[5.31]***	[5.15]***
age	-0.001	-0.001	-0.003	-0.001
	[-0.64]	[-0.54]	[-1.40]	[-0.45]
managerial job	0.33	0.33	0.33	0.31
	[8.53]***	[8.46]***	[8.55]***	[7.69]***
full_time		0.09		0.08
		[1.74]*		[1.39]
hukou_urban			0.20	0.21
			[4.61]***	[4.44]***
_cons	-0.70	-0.76	-0.69	-0.77
	[-4.48]***	[-4.74]***	[-4.40]***	[-4.39]***
R-squared	0.34	0.34	0.35	0.33
Adj-R-squa~d	0.34	0.34	0.34	0.33
N	2142	2142	2140	1847

* p<0.1, ** p<0.05, *** p<0.01

Table 3 Instrumental variable estimation of wage determination of all workers (model B)

	model_B1	model_B2	model_B3	model_B4
ln_s_size	0.34	0.33	0.37	0.35
	[1.86]*	[1.80]*	[1.98]**	[1.92]*
s_attitude	0.06	0.06	0.05	0.05
	[3.05]***	[3.02]***	[2.68]***	[2.67]***
s_quality				
father_fulltime	0.18	0.18	0.16	0.16
	[2.56]**	[2.58]***	[2.22]**	[2.25]**
mother_fulltime	-0.09	-0.10	-0.13	-0.14
	[-1.00]	[-1.10]	[-1.38]	[-1.46]
education	0.11	0.10	0.09	0.09
	[17.65]***	[17.19]***	[14.89]***	[14.68]***
tenure2009	0.04	0.04	0.03	0.03
	[6.17]***	[5.78]***	[5.40]***	[5.12]***
tenure2009_squa	-0.001	-0.001	-0.001	-0.001
	[-4.01]***	[-3.80]***	[-3.62]***	[-3.46]***
male	0.12	0.13	0.13	0.13
	[2.95]***	[3.09]***	[3.14]***	[3.24]***
age	0.0020	0.0022	0.0003	0.0006
	[0.78]	[0.88]	[0.13]	[0.23]

market_tightness	0.61	0.61	0.62	0.62
	[7.64]***	[7.63]***	[7.76]***	[7.75]***
capital_per	57.95	76.46	155.56	166.61
	[0.25]	[0.33]	[0.65]	[0.70]
managerial job	0.24	0.24	0.24	0.24
	[3.88]***	[3.88]***	[3.75]***	[3.76]***
full_time		0.12		0.10
		[2.28]**		[1.82]*
hukou_urban			0.24	0.23
			[4.80]***	[4.61]***
_cons	-1.62	-1.66	-1.67	-1.70
	[-2.77]***	[-2.86]***	[-2.84]***	[-2.91]***
R-squared	0.26	0.27	0.26	0.27
Adj-R-squa~d	0.26	0.27	0.26	0.26
N	2023	2023	2021	2021

First-stage regression results

Instrumented: ln_s_network				
work_people_relation	0.14	0.14	0.14	0.14
	[5.28]***	[5.27]***	[5.23]***	[5.21]***

* p<0.1, ** p<0.05, *** p<0.01

Table 4 Instrumental variable estimation of wage determination of male workers (model C)

	model_C1	model_C2	model_C3	model_C4
ln_s_size	0.46	0.46	0.52	0.52
	[2.12]**	[2.11]**	[2.30]**	[2.28]**
s_attitude	0.05	0.05	0.04	0.04
	[1.89]*	[1.83]*	[1.47]	[1.44]
s_quality				
father_fulltime	0.10	0.10	0.07	0.07
	[1.05]	[1.02]	[0.66]	[0.65]
mother_fulltime	0.04	0.03	0.01	0.00
	[0.28]	[0.21]	[0.08]	[0.04]
education	0.09	0.09	0.08	0.08
	[11.31]***	[10.91]***	[9.21]***	[9.07]***
tenure2009	0.04	0.04	0.04	0.03
	[5.10]***	[4.70]***	[4.44]***	[4.18]***
tenure2009_squa	-0.001	-0.001	-0.001	-0.001
	[-3.52]***	[-3.28]***	[-3.21]***	[-3.05]***
age	0.0027	0.0029	0.0015	0.0017
	[0.82]	[0.91]	[0.45]	[0.51]
market_tightness	0.58	0.57	0.58	0.57
	[5.61]***	[5.53]***	[5.53]***	[5.48]***

capital_per	-138.43	-108.87	-27.63	-12.75
	[-0.46]	[-0.36]	[-0.09]	[-0.04]
managerial job	0.26	0.26	0.24	0.24
	[3.21]***	[3.15]***	[2.88]***	[2.85]***
full_time		0.13		0.09
		[1.80]*		[1.18]
hukou_urban			0.27	0.26
			[3.94]***	[3.73]***
_cons	-1.67	-1.72	-1.82	-1.85
	[-2.33]**	[-2.41]**	[-2.45]**	[-2.51]**
R-squared	0.17	0.18	0.14	0.15
Adj-R-squa~d	0.16	0.17	0.13	0.14
N	1211	1211	1209	1209

First-stage regression results

Instrumented: ln_s_network				
work_people_relation	0.16	0.16	0.16	0.16
	[4.59]***	[4.59]***	[4.48]***	[4.47]***

* p<0.1, ** p<0.05, *** p<0.01

Table 5 Instrumental variable estimation of wage determination of female workers (model D)

	model_D1	model_D2	model_D3	model_D4
ln_s_size	0.13	0.10	0.10	0.07
	[0.35]	[0.27]	[0.27]	[0.19]
s_attitude	0.06	0.06	0.06	0.06
	[2.01]**	[1.99]**	[1.86]*	[1.85]*
s_quality				
father_fulltime	0.29	0.29	0.27	0.28
	[2.76]***	[2.81]***	[2.64]***	[2.70]***
mother_fulltime	-0.22	-0.22	-0.25	-0.25
	[-1.24]	[-1.27]	[-1.38]	[-1.41]
education	0.12	0.12	0.12	0.11
	[14.47]***	[14.18]***	[12.53]***	[12.31]***
tenure2009	0.03	0.03	0.03	0.03
	[3.36]***	[3.24]***	[2.91]***	[2.79]***
tenure2009_squa	-0.001	-0.001	-0.001	-0.001
	[-1.92]*	[-1.88]*	[-1.64]	[-1.60]
age	0.0014	0.0017	-0.0010	-0.0008
	[0.33]	[0.38]	[-0.24]	[-0.18]
market_tightness	0.69	0.70	0.72	0.72
	[4.71]***	[4.77]***	[4.99]***	[5.05]***

capital_per	277.51	272.32	327.79	321.98
	[0.65]	[0.64]	[0.76]	[0.75]
managerial job	0.20	0.21	0.22	0.22
	[2.02]**	[2.09]**	[2.18]**	[2.25]**
full_time		0.12		0.12
		[1.47]		[1.46]
hukou_urban			0.20	0.20
			[2.81]***	[2.78]***
_cons	-1.31	-1.31	-1.16	-1.17
	[-1.12]	[-1.13]	[-1.02]	[-1.03]
R-squared	0.37	0.38	0.38	0.39
Adj-R-squa~d	0.36	0.37	0.38	0.38
N	812	812	812	812

First-stage regression results				
Instrumented: ln_s_network				
work_people_relation	0.10	0.10	0.11	0.11
	[2.54]***	[2.53]***	[2.57]***	[2.56]***

* p<0.1, ** p<0.05, *** p<0.01

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